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Sign Languages of the World

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A Comparative Handbook

Edited by
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Preface

Compiling the thirty-eight papers on sign languages of the world for this handbook has been a mammoth undertaking. Its conception can be traced back to the autumn semester of 2007, with a course 'Languages of the World' in the Department of Linguistics at Aarhus University. One of the references used in the course was Jane Garry and Carl Rubino's *Facts about the World's Languages* (2001). We found this work impressive for the succinct information it provides on a number of spoken languages; at the same time we found it disappointing – and problematic – that not a single sign language was included. Thus the idea of the present volume emerged, a work that would fulfil the need for readily accessible and comparable information on sign languages that was not just targeted to audiences of sign language specialists and linguists.

Initial invitations to contribute went out in mid-2008. In the intervening years both the number of contributions and the number of sign languages represented have grown, offsetting some originally promised pieces that failed to materialize, or which were published elsewhere. We view this book as an initial step towards meeting the challenge of a comprehensive overview of sign languages of the world. Given the relatively recent documentation of sign languages, especially in some parts of the world (see also the *Introduction*), we believe it important to include information about sign languages which have only just begun to be studied. Thus the goal of providing completely comparable information on all of the sign languages treated has been weakened somewhat, and some poorer studied languages have been included. Our hope is that future research will provide the missing information on these languages – and, of course, sign languages that have not yet begun to be investigated.

Since the first systematic sign language research of the 1950s, a fascinating new world has opened up. Sign languages and deaf communities have begun to be studied throughout the globe. Sign language users and deaf communities have passed their languages and cultural practices from generation to generation, and their cooperation is crucial to the exploration of their languages. In linguistic and social science research, deaf citizens have found a significant resource supporting their advocacy of linguistic and human rights and equal opportunities in society. Sign language transmission is increasingly challenged in some socio-political contexts, and the status and use of sign language in education and other areas have continued to be points of contention, and, consequently, continue to require advocacy. The documentation of sign languages and deaf communities is thus of great importance.

We have been inspired by a desire to stimulate further research and to foster awareness of diverse sign languages and deaf communities around the world. Our intention is to provide deaf communities, scholars, students, advocates, professionals working with deaf people, and general audiences with a resource that

presents basic facts and structural aspects of sign languages, and the social, cultural, political, and historical contexts in which they are used.

The papers in the present volume are all original, and each has been specifically written for the volume by an expert or team of experts in the particular sign language, at the invitation of the editors. Thirty-eight different deaf sign languages and alternate sign languages from every continent are represented, and over seventy international deaf and hearing scholars have contributed to the volume. The presentation of alternate sign languages makes it possible to compare and contrast deaf sign languages and alternate sign languages in terms of structural characteristics and socio-political considerations. This, in turn, provides readers with a taste of the linguistic and cultural capital of deaf sign language communities and alternate sign language communities, and of the research on them that has been undertaken in various parts of the world.

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Contents

Part II: **Alternate Sign Languages**

I Introduction: Sign Languages, with an Emphasis on Languages

The diversity of the world's languages is as extraordinary and fascinating as the diversity of its species. Most languages are spoken, and employ the auditory-vocal modality; however, a not insignificant number are expressed in the visual-gestural modality.

Research on shared properties of languages and theoretical conclusions about how language works have been based primarily on studies of spoken languages. The study of signed languages provides additional and valuable insights into what is and what is not possible in human language. However, it was only in the 1950s that linguistically informed sign language research emerged. One outcome of this initial research was to validate sign languages as bona fide languages equal to natural spoken languages (see further below, Section 5, "History of Research on Sign Languages"). Nonetheless, challenging prejudiced beliefs that sign languages are inferior to spoken languages or are not even true languages, and that deaf people are "disabled" (i.e. that deaf people are not capable of learning or of doing all the things that hearing people do) continues to be a core experience in the emancipation processes of deaf people around the world. Awareness of the equal status of sign language has been a crucial factor in deaf people's willingness to sign in public and develop pride instead of shame, and to advocate for sign language use with their families, in the classroom, and at work (De Clerck 2010, 2012, in press-a, in press-b).

In this introduction, we first touch upon prejudices and myths about sign languages and sign language use. The use of sign language in deaf education has continued to be a point of debate and has evolved over time. This evolution is described in Section 2.1 below, under the heading "Deaf Education: Emergence and Development." The discussion in that section throws light on changing historical, sociocultural, and political contexts and on recent processes of advocacy, sign language politics, and sign language legislation and planning. These processes have taken place in various places around the world and have evolved differently in these different contexts. The subordinate status of sign languages in relation to spoken languages and of indigenous sign languages in relation to national sign languages has had a major impact on language change, language contact, and bilingualism.

1 Misconceptions about sign languages

McBurney (2012) finds that some references to deaf people and sign language in early sources (e.g., Ancient Egyptian, Ancient Greek, pre-Renaissance period) show

recognition of the communicative value of sign language for deaf people, while others characterize sign language as inferior and raise questions about deaf people's capacity to reason and learn (for example in the writings of Aristotle), thus placing them on an equal footing with animals. McBurney ends her review with the thought that "these sentiments formed the early perceptions of sign language and the educability of the deaf, and lived on in the minds of many for hundreds of years" (McBurney 2012: 912).

Historical perspectives on deaf people, sign languages, and deaf communities that is focused specifically on non-Western countries can be found in Miles (2005, 2006, 2009).

In non-Western contexts, other practices born of prejudice or misconceptions have also occurred, such as conferring higher status to dominant Western sign languages that have been imported into a particular country, or displaying influences from outside systems of signing as a way of claiming higher status. These practices can lead to a devaluation of national sign languages, indigenous sign languages, and gestural communication. Limited linguistic awareness and a "disability perspective" on deaf people (which can derive, ironically, from the content of disability-related legislation and themes embraced by advocacy groups) can also contribute to the perception that sign languages are assistive tools (comparable to wheelchairs for people with physical disabilities and canes for blind people) rather than bona fide languages. (See De Clerck in press-a; Lutalo-Kiingi and De Clerck in press-a.)

As *Sign Languages of the World* illustrates, the world's many sign languages are, increasingly, the subject of serious study. Sign language legislation and sign language rights have become advocacy priorities, and sign languages are progressively becoming visible and more commonly used in different domains of life (see, e.g., Reagan 2010; Wheatley and Pabsch 2010). Despite this progress, misconceptions about sign languages persist. In relation to the language acquisition and learning of deaf children, Marschark and Hauser (2012: 40) list "some common myths" – for example, sign languages are inferior; learning a sign language interferes with learning to speak; using sign language is harmful to children with cochlear implants. Some myths are based on notions that are not supported by research. These myths can lead to unrealistic expectations – for example, that all deaf children can acquire intelligible speech; that normal speech and language development are possible for deaf children with cochlear implants; that early identification and intervention can result in normal language development for deaf children. Marschark and Hauser conclude that:

> deaf students at all levels seem to be better off academically and socially if they are bilingual rather than monolingual. There are well-documented benefits to learning a signed language and no evidence of negative consequences. As researchers and educators, we believe that adding a natural sign language to the environment will have a positive impact on most deaf children's cognitive, language, social, and educational development regardless of their hearing levels. (Marschark and Hauser 2012: 54)

2 Sign language in its many contexts

2.1 Deaf education: Emergence and development

Whenever and wherever deaf people interact in significant numbers, deaf communities emerge.[1] This has long been the case in urban places where deaf people can gather. For example, Lane (1984) describes the formation of a deaf community and sign language in 18th-century Paris. Deaf communities have also emerged in places with high incidences of deafness, where village sign languages have emerged. For example, Johnson (1994) observed the lives of deaf people in a traditional Yucatec Mayan village in Mexico. In this community, twelve of the four hundred inhabitants were deaf, and all hearing adults in the village used sign language to communicate with deaf people.

The following overview of developments in deaf education draws on De Clerck (2009). Whereas most deaf people had previously lived isolated from other deaf people, the establishment of deaf schools in the Europe and the United States in the late 18th and 19th centuries, deaf schools provided deaf children with the opportunity to grow up together and acquire sign language. This is illustrated by the famous example of the first public deaf school in Paris, established in the early 1760s by Abbé Charles-Michel de l'Epée. The sign language that emerged and was used of around the school evolved from the natural sign language of the two deaf girls that inspired de l'Epée to develop deaf education, and the sign language of the adult Paris deaf community, as well as the "methodical signs" developed by the l'Epée for instructional purposes and to represent grammatical aspects of French. Parallel with the foundation of deaf schools, deaf communities developed and natural sign languages evolved in Europe and the United States (McBurney 2012). Since then, older deaf peers and children of deaf parents have played significant roles as linguistic and cultural role models, and deaf schools have been crucial sites for the transmission of social and cultural patterns. Deaf school graduates continued to socialize with each other after completing schooling, and deaf clubs began to be established in the vicinity of the schools (Van Cleve and Crouch 1989; Burch 2002; Fisher and Lane 2003). The well-documented process of deaf community and sign language emergence and development in Nicaragua provides further insights. The establishment of deaf education provided a context in which Nicaraguan Sign Language (NSL) could emerge. Regular meetings of NSL users in their youth and early adulthood (after graduation) – as well as other influences such as international contacts and studies abroad by deaf leaders (Polish 2005) – facilitated the further development of the language.

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1 The text in this Section, 2.1, and the first and second paragraphs of the next Section, 2.2, are slightly updated excerpts from De Clerck (2009: 18–21).

The industrial revolution stimulated large-scale migration into towns and cities, which fostered the coming together of deaf people in communities and the growth of natural sign languages (McBurney 2012). It also resulted in significant changes in the education system and the labour market, which interacted with the development of deaf communities (Widell 2000). In the transition of European societies from feudal to industrialized, the first deaf schools used manual instruction in the classrooms. However, the end of the 19th century, saw the development of evolutionary theory and linguistic Darwinism, which was characterized by the primacy of science and the superiority of spoken language (to be distinguished from what was seen as 'primitive'). As a result, educators began to perceive sign languages as inferior to spoken languages (McBurney 2012). Following the Milan Conference of 1880, oralism prevailed, and educational institutions turned into places of normalization: Deaf teachers – often former students who had been employed as instructors in the schools – were fired, in part because of the belief that sign language prevented deaf children from learning to speak.

Burgeoning nationalism of those times had both positive and negative effects. On the one hand, it motivated states to establish national educational systems, which facilitated the establishment of deaf schools. On the other hand, it emphasized a national, spoken language (Monaghan 2003).

These trends toward nationalism and normalization not only influenced the educational systems, but also had direct consequences for the lives of deaf people. Eugenics in Europe and the United States aimed to reduce inheritable deafness by preventing deaf persons marrying one another. Concerted eugenics practices directed against deaf people are also reported to have occurred during World War II in Nazi Germany (Biesold 1999; Monaghan 2003; Ryan and Shuchman 2002).

Widell (2000) has pointed out that one of the consequences of industrialization in most Western cultures was the suppression of sign languages. Yet this did not happen uniformly. Widell's study of Danish deaf culture argued that, for a variety of reasons, the effects of oralism were weaker in Denmark than in other Western countries. There, in contrast with e.g., Flanders (De Clerck 2007), deaf people established and ran their own clubs. Danish deaf people were artisans who were proud of their tradition and integrated themselves into the labour market. In addition, the presence of a folk high school for the deaf weakened the effects of oralism. Research on the deaf community in the United States shows that Gallaudet University, in the national capital, Washington, was an important factor in the resistance to oralism. As the world's only deaf university, Gallaudet has provided American deaf people with opportunities for higher education and has produced a deaf elite (Burch 2002).

Deaf people have actively resisted the spread of oralism and the suppression of sign languages in a variety of ways, which differed from country to country. In some cases they organized themselves locally, nationally, and internationally through clubs and organizations. For example, a tradition of deaf banquets began

in France in 1834 in response to deaf teachers being threatened with the loss of their jobs at the Royal Institute of Deaf Mutes in Paris. At the banquets, international guests were welcomed and information was exchanged among deaf people from different countries (Mottez 1993; Murray 2008). At the end of the 19th century, the first World Congresses of the Deaf were held (Monaghan 2003). Deaf people actively worked to gain (economic) access to society, as well as to foster the use of sign languages and to preserve them, for example, by printing dictionaries and making films (Burch 2002; Widell 2000; Padden and Humphries 2005).

After initially putting up strong resistance to oralism, the deaf community eventually withdrew from public spheres (Widell 2000). Oralist philosophies had a negative impact on the status of sign language, and deaf people became ashamed to sign in public. Although students in schools for the deaf were punished if they used sign language in the classroom, they continued to sign on the playground and in the dormitories. Often, the individual's sign language development continued after graduation, through interaction in deaf clubs (Schermer, Fortgens, Harder, and de Nobel 1991). Adopting the prevailing societal view, deaf people lost self-esteem, as well as their confidence in a society that did not leave room for self-determination or active political representation and participation by people like themselves (De Clerck 2007; Jankowski 1997; Ladd 2003).

After World War II, changes in the world order also brought changes in deaf communities. Requirements for higher productivity provided more opportunities for people with disabilities to participate in the labour market, and the education system shifted in favour of integration and inclusion, making education accessible for more people. Emancipation and liberation movements of different minority groups found room to develop (Monaghan 2003; Widell 2000). Research on language acquisition and attention to child-parent interaction pointed out the limits of oral education. Such studies also opened doors for sign language research. Bernard Tervoort became the first professional linguist to conduct research on sign language, publishing a study of sign language use among children in the Netherlands in 1953. However, it was William Stokoe's publications on American Sign Language (ASL), beginning with *Sign Language Structure* in 1960, that really put sign language studies on the international agenda in linguistics.

De Clerck (2010, 2012) includes an overview of research studies and other developments which led to a paradigm shift and to the emergence of the field of deaf studies in the second half of the 20th century. The publication in 1965 of *A Dictionary of American Sign Language on Linguistic Principles* by Stokoe and coauthors Dorothy Casterline and Carl Croneberg not only paved the way for the new field of sign language linguistics, but also provided a new perspective from which to consider deaf people. In "The Linguistic Community," an appendix to the dictionary detailing "the social and cultural characteristics of the linguistic community" (p. 297), terms such as *group, community,* and *culture* were used for the first time in reference to the deaf. In the 1970s and 1980s, this new perspective was deepened

in sociological and anthropological studies with deaf communities in the United States and Europe (e.g., Erting 1978; Higgins 1989; Kyle 1990; Padden and Humphries 1988). Notions of *deaf community* and *deaf culture* were reflected upon and discussed widely. Linguistic and anthropological research have contributed to consciousness-raising in deaf communities and to the legitimization of sign languages (De Clerck 2010, 2012).

Although this research dispelled many myths about sign language, sign languages did not immediately return to deaf education. A compromise was sought, as illustrated by the development of Total Communication philosophies in the 1960s. Total Communication started from the perspective that deaf children should be provided with any manual, written, or oral forms of communication that could facilitate interaction with hearing people (Schermer et al. 1991). Total Communication was adopted worldwide, and one outcome was that by the 1970s manual instruction forms were once again being used in deaf schools, manually coded spoken languages being preferred over natural sign languages. In these systems, the grammar of spoken language is used in combination with signs of the local sign language. In the 1980s and 1990s, the recognition of sign languages in some countries paved the way for bilingual educational programs. In these programs, deaf children are instructed through sign language, and/or sign language is included in the curriculum as a subject. However, after the 1970s mainstreaming policies encouraged deaf children to attend regular schools, a development that has led to the decline of deaf schools (Jankowski 1997; Monaghan 2003; Schermer et al. 1991; Widell 2000).

These developments and other evolutionary changes are likely to lead to major transitions in the next decades (De Clerck in press-b; De Clerck and Paul, in press). Educational mainstreaming and the decline and closure of deaf schools, in combination with other developments such as the introduction and widespread use of technological devices such as cochlear implants, have created challenges to the transmission of sign language and deaf cultural practices. In both the United States and Europe, deaf club membership has decreased significantly, due to the emergence of opportunities for professional employment and socialization with other deaf professionals and with hearing people (e.g., through conferences and workshops). Advances in telecommunications and, in general, the wider accessibility that characterizes modern society, have brought with them greater opportunities to participate (Ladd 2003; Padden and Humphries 2005), and transnational and virtual contact have facilitated interaction among deaf sign language users around the globe. Simultaneously, sign languages have become more visible and more widely used, a development that is changing the boundaries of deaf communities and driving the transition to sign language communities, comprising deaf and hard of hearing signers as well as hearing signers (Jokinen 2000; Blume 2012). Two major questions are what these transitions mean for deaf communities and sign language users, and what practices are developed in societies to provide sustainable answers (De Clerck in press-a, in press-b; De Clerck and Paul in press).

The above overview is focused on developments in Western countries; information on deaf communities and deaf people in non-Western countries remains limited, though it is becoming increasingly available as research advances. In non-Western countries, colonialism, missionary activity, and cooperative development programs often fostered the establishment of deaf schools. In many instances these incorporated their founders' preferred language of instruction and ideology (Barcham 1998; Erting et al. 1994; Goodstein 2006; Monaghan et al. 2003).

2.2 Sign languages, advocacy, planning, and legislation

Over the past forty years, sign language and deaf communities have become topics of scientific research in many countries. These developments in research, along with the global spread of emancipatory discourses, have made a significant contribution to the emancipation of deaf communities worldwide. An important international role is played by the World Federation of the Deaf (WFD), which was established in Rome in 1951 (Monaghan 2003). The WFD currently officially represents deaf people in international organizations such as the United Nations, the United Nations Educational, Scientific, and Cultural Organization (UNESCO), and the World Health Organization ("World Federation of the Deaf" n. d. De Clerck 2009).

The WFD estimates that there are some 70 million deaf people in the world who use sign language as their first language ("World Federation of the Deaf" n. d.); according to the World Health Organization 80 % of people with a "disabling hearing loss" are living in non-Western countries (World Health Organization 2012: 2). Despite strengthened international advocacy, the human rights of deaf people are still violated in many countries (Haualand and Allen 2009). In response to a recent WFD questionnaire on human rights of deaf people, only 23 of 93 countries reported that a form of bilingual education was provided in some schools. The lack of educational opportunities and insufficient use of sign language in instruction result in high rates of illiteracy (Allen 2007; Haualand and Allen 2009; Joutselainen 1991; De Clerck 2009).

However, an increasing number of sign languages, in both Western and non-Western countries, have received official state recognition (Reagan 2010). Almost all European Union member states have some form of sign language legislation; in their overview, Pabsch and Wheatley (2012) note that this legal recognition takes a wide range of forms, from constitutional recognition to no actual specific legislation. The laws on the books may include national-level legislation on disability and language, media and communication, and sign language specifically. Since sign language politics have come to the forefront worldwide (and are discussed in the present volume), it is useful to include definitions of the terms of *language politics, language policy*, and *language planning*. Schermer (2012: 890) suggests one way of thinking about these terms: "From certain language politics, a certain language policy will follow, which will be implemented through some type of language plan-

ning. In other words: language politics refers to the *why,* language policy to the *what*, and language planning to the *how.*"

Following Reagan (2010), we differentiate among four kinds of sign language planning. a) *Status planning*, which includes sign language recognition, is related to extralinguistic and contextual factors and determines sign language use in life spheres such as educational institutions. b) *Corpus planning* is oriented towards the internal linguistic aspects of language planning, including lexicography and expansion of the lexicon, manually coded spoken languages, orthographic representation, and so forth. c) *Language acquisition planning* focuses on increasing the number of users of a sign language. d) *Attitude planning* is directed towards attitudinal changes towards sign language use or the use of one or more languages.

Two forms of standardization can be distinguished: natural evolution in the direction of a standard variant and intervention. The codification of sign languages, either in lexicographic form or grammatical descriptions, can contribute to standardization. Sign language dictionaries vary in their approaches to sign language variation, in whether they are based on in-depth study of lexicographic varieties, and in the choices they make in including sign varieties and regional variants. When sign language dictionaries are directed towards standardization and are not inclusive of lexical variation, they risk not being accepted by deaf communities (Schermer 2012).

2.3 Bilingualism and language contact

Variation is endemic in "signed communication". There is on the one hand rich diversity among natural sign languages, some of which are historically related – for example, ASL and langue des signes française. On the other hand, there is diversity within individual sign languages themselves, related to social dimensions such as gender, age, and ethnicity. Aside from these a range of varieties can be identified including contact signing, which was originally called *pidgin sign*, and which naturally occurs in communication between hearing and deaf people; and manually coded spoken languages or manual sign codes, which were developed for educational purposes. There are also what Kendon (1988) refers to as *alternate sign languages* – also known as "gestural lexicons" (Reagan 2010). These are used primarily by non-deaf people to communicate with each other in contexts in which speech is problematic or deemed inappropriate (see further below, Section 4, "Alternate Sign Languages", and in "The Structure of This Book", which follows the Introduction).

The boundaries of languages cannot normally be clearly drawn on the basis linguistic features, and whether varieties are "dialects" or "separate languages" is often decided by extralinguistic factors, such as how users identify with the variety and the corresponding community and how they situate themselves in a political context.

Against the background of these historical, cultural, political, and educational developments, it is also important to take a closer look at bilingualism and contact between sign languages and spoken languages and contact between sign languages. Deaf sign language users are mostly bilinguals who are more or less fluent in the spoken and signed languages that are used in the communities in which they participate. Bilingualism and intense social contact among language users facilitate borrowing between languages. Thus sign languages borrow from nearby spoken and/or written languages, often with adaptations. This can be for instance in the meanings and use of lexemes, fingerspelling, mouthings, loan translations, and gestures used in hearing communities (Adam 2012).

The term International Sign refers to a system of signs, not fully conventionalized, that emerges on the fly, as it were, in the context of interactions between users of different sign languages. Increased international contact provides increased opportunities for the development of International Sign. This signing system is unlike spoken-language pidgins in that it shows grammatical and morphological complexity deriving from structural similarities among sign languages. It is different from sign languages because it either borrows lexicon or employs mimicry, gestures, or references from the situational context, or from a conventional International Sign lexicon. It is important to note that although International Sign has been used as a lingua franca at international conferences and other gatherings, and by the WFD, further research is needed on its usefulness to signers from non-Western contexts (Adam 2012).

As described in the paragraphs above, contact between spoken and signed languages has been at the core of the educational histories of deaf people around the world. When such contact takes the form of oppression of national and indigenous sign languages, the result can be viewed as linguistic colonialism (Adam 2012; Jokinen 2000; Reagan 2010; Skutnabb-Kangas 2008). The historical developments of domination and the unequal status of sign languages place national and indigenous languages at risk of endangerment, both in Western and non-Western countries. Parallel with spoken-language endangerment, sign language endangerment is also related to language shift – that is, a language community shifts in language use and, for example, replaces an indigenous sign language with a dominant one, often Western (Adam 2012).

Although research on non-Western deaf communities and on non-Western sign languages and deaf cultures is still relatively recent, it has already contributed significantly to the development of the field. It is also essential to a deep understanding of diverse perspectives of and among deaf communities and deaf citizens around the world against the background of various political, educational, sociocultural, and economical contexts. (For an overview and discussion, see De Clerck 2010, 2012, in press-b.) In the coming decades, the documentation of non-Western sign languages and deaf communities will be crucial, not only for its contribution to theory development, but also to protecting and (re)vitalizing national and indig-

enous sign languages, and to supporting deaf citizens in their emancipation process and human rights advocacy (Lutalo-Kiingi and De Clerck in press-a, in press-b, in press-c).

3 Fundamental features of sign languages

3.1 Visual-gestural modality

The study of signed languages is increasing worldwide,[2] and each decade of sign linguistics research brings with it enhanced insight into the grammatical workings of these visual languages, including the similarities and differences among what have come to be known as urban sign languages and village or indigenous sign languages. The most notable feature of sign languages, regardless of geographical and sociocultural demography, is of course the modality by which they are expressed – the visual-gestural. Spoken languages make use of the auditory-vocal modality – that is, language is produced in the vocal tract, and perceived primarily with the ears. Sign languages, by contrast, employ the hands, face, and upper body for the purposes of articulation, and the eyes as the primary receptor. The use of the articulators is commonly classified dyadically, with the use of the hands forming the "manual" features and use of the face and upper body comprising the "nonmanual" features. The visual-gestural modality allows many aspects of morphological and syntactic processes to be expressed simultaneously; these languages, then, are best understood as being structured grammatically on a single morphosyntactic level (Perniss, Pfau and Steinbach 2007; Lutalo-Kiingi 2014).

3.2 The lexicon and classification of signs

Various approaches have been taken – including both formal and semantic – to the classification of the lexicons of particular signed languages into parts of speech categories. These lexical classes do not always correspond well with the parts of speech categories of spoken languages. For instance, a lexical category found in the lexicons of all documented sign languages is a highly productive class of items most commonly known as *classifiers* or *proforms* (Emmorey 2003) that are employed in polycomponential signs. The use of spatial grammar, that is, the movement of signs in the signing space around the body for grammatical purposes, enables the manipulation of these classifiers at a highly iconic and visual level that has no equivalent in spoken languages.

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2 The text in Sections 3.1–3.3 is largely based on Lutalo-Kiingi (2014).

On the phonological level, signs are made up of five key elements: handshape, location, orientation, movement, and nonmanual features. One of the most notable features of sign language lexicons is their exploitation of visual iconicity, though they also, of course, contain arbitrary (non-iconic) signs (Taub 2001).

Because sign languages are minority languages, they tend to be heavily influenced by the surrounding majority (spoken) language and may be influenced by dominant sign languages; thus, a high degree of lexical borrowing can be observed in many sign languages (Lutalo-Kiingi 2014; see also Adam 2012).

3.3 The morphosyntax of sign languages

Spatial properties of lexical verb signs permit a morphological classification into three primary types: signs that cannot be modified spatially (plain verbs), signs with a variable place of articulation (agreeing verbs), and directional signs (spatial verbs). These three types are found in all documented sign languages, though languages differ in the lexical constitution of these categories. A few sign languages also possess classes of agreeing nouns.

Two characteristics of sign language morphology are widespread, if not universal: heavy use of compounding (both sequential and simultaneous) and a large variety of different types of inflection (e.g., marked by changes in location, speed, repetition, and nonmanual features). Many sign languages can be considered highly inflectional (Zeshan 2003; Sandler and Lillo-Martin 2006; Lutalo-Kiingi 2014), with entire sentences sometimes being composed of one heavily inflected sign. Signs may be inflected for grammatical features such as person, number, location, aspect, manner, and mood, depending on the category of the sign (Sutton-Spence and Woll 1999).

As mentioned above, the high use of simultaneity and heavy inflection makes the separation of morphology and syntax very difficult, if not artificial, in sign languages. Sign languages generally show variability in sign order. Some sign languages, such as American Sign Language and Russian Sign Language, have subject-verb-object order for sentences with plain verbs and subject-object-verb order for sentences with classifier constructions, agreeing verbs, and spatial verbs (de Quadros, Müller and Lillo-Martin 2010; Kimmelman 2012). Lutalo-Kiingi (2014: 120) concludes that:

> Attempts to discover one basic, underlying sign order in sign languages may thus lead to difficulty, and may be inappropriate. It would seem more efficient to facilitate analysis that allowed sign languages to be analysed according to an approach that permitted patterns of greater complexity, such as variable sign order according to discourse context or other factors, or several alternative sign orders.

4 Alternate sign languages

As discussed above in Section 2.3, "Bilingualism, Language Contact, and Language Development", there are other forms of signed communication and gestural lexicons that have not developed from contacts among deaf people. Unlike the sign languages used among people in deaf communities, alternate sign languages are not the primary codes used in interpersonal interaction, but are employed in particular marked interactive contexts. An alternate sign language is used, for example, by the Ts'ixa of northern Botswana in hunting (see Chapter 38). In a number of Australian Aboriginal cultures alternate sign languages are used in mourning contexts, usually by widows for a period of some months following the death of their spouse. These systems vary considerably in terms of their degree of elaboration. Thus, the Nyikina and Kija systems appear to have been quite restricted (Mathews 1900), whereas Warlpiri sign language appears to be highly elaborated, and is effectively a visual-gestural representation of spoken Warlpiri (Kendon 1988). Most alternate sign languages of Australian Aborigines are either undocumented or poorly documented. The best documented are those used by the Warlpiri (Meggitt 1954; Wright 1980; Kendon 1988) and Arrernte (Kendon 1988; Green 2014; Chapter 34) peoples of Central Australia.

Another type of alternate sign language is represented by the varieties of an indigenous signed language used from Canada to Mexico as a lingua franca among the Native Americans. These signed varieties, known collectively as Plains Indian Sign Language, were primarily used between speakers of different languages; they were also sometimes used between speakers of the same language, e.g., in hunting and trade. Today, they are primarily used by elders or deaf Native Americans, and by some Native American groups in traditional storytelling and rituals. See Chapter 37 for a description.

Since the tenth century, monastic sign languages have been used among monks in Europe and elsewhere. Some of these sign languages – which are better understood as systems of symbolic gestural communication – are still used today. Chapters 35 and 36 deal with monastic sign languages.

5 History of research on sign languages

Linguistic research on sign languages, commonly known as sign language linguistics, is a relatively young field. It emerged in the early 1950s with the Dutch linguist Bernard Tervoort's Ph.D. dissertation (1953), in which he described the sign language used by a group of deaf children (Hansen 2011: 26). According to McBurney (2006: 314), however, the sign system used by these deaf children was not a complete, natural sign language, but consisted of signs developed among the children

themselves – apparently a type of home signing, rather than the Sign Language of the Netherlands (SLN).

It was not until 1960 that the first modern linguistic analysis of a natural sign language, American Sign Language (ASL), was published by William Stokoe (1960). He showed that signs could be analysed into recurrent parts (Schmaling 2000: 60). Before Stokoe's work on ASL, sign languages were generally not considered natural languages (Hansen 2011: 26; Bakken Jepsen In progress: 8) As the American linguist Leonard Bloomfield wrote:

> Some communities have a gesture language ... Such gesture languages have been observed ... among groups of deaf mutes. It seems certain that these gesture languages are merely developments of ordinary gestures and that any and all complicated or not immediately intelligible gestures are based on the conventions of ordinary speech (Bloomfield 1933: 39).

Stokoe (1960) was the first to develop a system for describing the internal structure of signs of a deaf sign language (Schmaling 2000: 60). He described the building blocks of signs in ASL and proposed that signs comprise three essential components, which he called *designator* (handshape), *tabulator* (location), and *signation* (movement). Although Stokoe indirectly described a fourth component, *orientation*, it was Battison who in 1978 suggested that this feature was significant in sign formation (Johnston and Schembri 2007: 80).

Stokoe (1960) coined the terms *chereme* and *cherology*, analogous to *phoneme* and *phonology*. This terminology, however, never gained acceptance (Johnston and Schembri 2007: 79). Instead, it has become widespread practice to employ the terminology used in descriptions of spoken languages. Nevertheless, Stokoe's work was seminal. First, his analysis of ASL showed that it was a natural language, that it was componential in structure, and that it was just as complex as spoken languages. Second, the three elements Stokoe described as being the essential components of signs have since been adopted by most researchers and are still the bases for the description of signs today (Bakken Jepsen In progress: 9). Third, many researchers subsequently took up the study of the phonology of sign languages. The study of sign languages increased first in the United States and soon thereafter in Europe, especially in the United Kingdom (http://www.ucl.ac.uk/dcal/bslhistory/timeline-bsl) and Scandinavia (Hansen 1985). Thus, Stokoe's research has had a huge impact on sign language research, especially in the domain of phonetics and phonology.

Over the past few decades, several fundamental features of sign languages have begun to be researched (see also Section 3 above, "Fundamental Features of Sign Languages"). Though such studies are increasing, relatively little is known about the linguistic characteristics of sign languages in comparison with what is known about the lexicons, phonology, morphology, syntax, and typology of spoken languages. This is particularly so for non-Western sign languages, which are underrepresented in sign language documentation and description. African sign lan-

guages are distinctly under-researched compared with European sign languages (Sands 2009; Lutalo-Kiingi 2014). The same holds for sign languages of Asia and the Americas, as shown by papers in the present volume.

Linguists have until very recently failed to include sign languages in language compilations or typological studies, perhaps due in part to the only very recently-established awareness of sign languages as genuine, natural human languages (Lule and Wallin 2010; Sands 2009). Insufficient documentation and description of sign languages is another consideration, which may explain the absence of sign languages from several substantial volumes overviewing the world's linguistic diversity, including *The World's Major Languages* (Comrie 1990), *One Thousand Languages: Living, Endangered, and Lost* (Austin 2011), and *Facts About the World's Languages* (Gary and Rubino 2001).

Sign language research is particularly vital because the preservation of sign languages is such a pressing concern. In recent times a vast number of sign languages have become endangered; that is, so few users remain that the language is no longer employed as a first or primary means of communication. As is discussed above in Section 2, "Sign Language in Its Many Contexts", in the case of many non-Western sign languages this stems partly from the encroachment of dominant Western sign languages into local sign language communities and deaf educational institutions. This has often led to the devaluation and endangerment of indigenous sign languages. For a discussion of the dynamics on the African continent, see Lule and Wallin (2010); Lutalo-Kiingi and De Clerck (in press-a, in press-b, in press-c); Nyst (2010); Schmaling (2001).

Linguistic research relies on funding bodies and universities, and hence requires some semblance of governmental stability and some form of structural organization of research and research funding. This is unfortunately not a reality at present in many countries. Other factors influencing the development of sign language research are the organization of the respective deaf communities at the national and local levels, the recognition of human rights and equality at these levels, and the concomitant emergence of linguistic and cultural awareness. In overviewing the history of research of a wide variety of sign languages, we have aimed to contribute to further understanding of these factors.

In a number of contexts linguists have produced and published dictionaries of indigenous sign languages. These represent supportive resources for governments that are developing and improving sign language legislation and that are willing to work towards an equal status for sign languages and to provide equal access to information for their users (see also Lutalo-Kiingi and De Clerck in press-a, in press-b, in press-c).

6 Some remarks on terminology

The authors of *Sign Languages of the World* vary in the terms they use to describe deaf people and deaf communities. When the first sociological and anthropological studies of deaf communities were undertaken, the lives of deaf community members started to be described from these individuals' own perspectives. To distinguish insiders' perspectives from outsiders' perspectives, James Woodward (1982) introduced the terms *Deaf* and *deaf*. This distinction has become commonplace in the documentation of sign languages and deaf communities; it is also made in some chapters in this book.

This distinction, however, is in a state of flux, as often indicated by the use of the term *d/D* in the literature. For an overview of these developments and further discussion on terminology and different perspectives in different disciplines, see De Clerck and Paul (in press). In this introduction, we have used the lowercase *d* for *deaf*, *deaf community*, etc., as is also done in a number of chapters in this book since the book is oriented towards sign language use.

Another term that is used by contributors is *sign language user*. In the 2000s, from a rights perspective, use of the term *sign language user* was proposed. This term invokes the broader concept of a "sign language-using community" and protection of their rights (Jokinen 2000, 2003).

The Editors

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II The structure of this book

The present volume begins with an introduction by the editors, which presents necessary background information especially for the nonspecialist reader, including an overview of what is known about sign languages generally, an overview of research on sign languages, and a discussion of historical, social, cultural, political, and educational issues.

Unlike other volumes on sign language, this one focuses more on particular sign languages rather than on linguistic issues. Thus, it represents in conception something more of an encyclopaedic reference work from which information can be readily retrieved.

The book is organized into two main parts. Part I consists of chapters on a selection of the world's deaf sign languages (see the Table of Contents for a full list). Non-Western sign languages represent a considerable fraction of the contributions.

Part II consists of a smaller set of chapters, on alternate sign languages including those of Aboriginal Australia, monastic sign languages, hunting signs of the Ts'ixa of the Kalahari, and Plains Indian Sign Language. One of the motivations for including these languages is a desire to present information that will allow readers to compare and contrast deaf sign languages with alternate sign languages and systems in terms of structural characteristics, relation to nearby spoken language(s), and sociopolitical considerations.

An illustration of the geographical distribution of the sign languages represented in the book is provided in Figure 1.

Each chapter is organized in more or less the same way to facilitate retrieval of information. Included are several sections on structural aspects of the sign lan-


Fig. 1: Countries in which the sign languages represented in the present volume are used.

guage, the history of the deaf community and its culture, the history of research on the sign language, and a bibliography. Sample words and sentences in the sign language are also included; these are represented by line drawings or photos rather than in one of the many arcane systems of transcription.

Since alternate sign languages are different forms of signed communication and not all structural aspects apply, the chapters on these languages are organized somewhat differently.

The volume is intended for a wide audience, not just linguists and students of linguistics, but also deaf communities and the general public. For linguists and students of linguistics it presents information on sign languages that is otherwise difficult and time consuming to obtain; it also presents sufficient basic information for simple typological queries. For deaf communities and the general public, it presents information in an accessible way, using a minimum of technical terminology and presuming no linguistic knowledge.

III Sign Languages of the World: Facts and figures

In this section we present some very basic information on the known sign languages of the world: their names, the main country in which they are used, and an estimate of the numbers of signers. The estimates of numbers of signers should be taken with a grain of salt: in most cases reliable figures are not available, and different sources employ different criteria in their estimates. Moreover, it is not always clear whether the figure refers to the number of deaf/hard of hearing, the number of deaf/hard of hearing signers, the total number of signers (regardless of their degree of control of the language), or the number of signers in general (deaf, hard of hearing, and hearing). The sign languages in bold text are represented in this volume.

The information in the list has been retrieved from various sources, but primarily http://www.ethnologue.com (accessed June 2014) and from the papers represented in this volume.

Our original intention was to also include overview information on the legal status of the languages. However, as observed in Section 2.2 of the *Introduction*, official recognition takes a wide range of forms, from constitutional recognition in legislation (which may take a variety of forms) to no actual specific legislation. In addition, in many cases reliable information was simply not available to us. We have thus opted to omit this information. The individual contributions to the volume can be consulted for some discussion of the legal status of the language in the relevant country.

Deaf Sign Language	Country	Number of signers
Adamorobe SL	Ghana	41 deaf signers (3,500 including hearing signers)
Afghan SL	Afghanistan	1,000
Al-Sayyid SL	Israel	140
Albanian SL	Albania	205,000
Algerian SL	Algeria	No estimate available
Afghan SL	Afghanistan	1,000
American SL (ASL)	USA	100,000 to 500,000 primary users, perhaps 2,000,000 signers in all
Argentine SL (LSA)	Argentina	Around 40,000 deaf people, but unknown how many use sign language
Armenian SL	Armenia	No estimate available
Australian SL	Australia	7,150
Austrian SL (ÖGS)	Austria	8,000–10,000 deaf
Bamako SL	Mali	No estimate available
Ban Khor SL	Thailand	No estimate available
Bengkala SL	Indonesia	1,200 signers of which 50 are deaf
Bolivian SL	Bolivia	350–400

Brazilian SL (LIBRAS)	Brazil	5,735,099 with permanent hearing loss; unknown how many use SL
British SL	United Kingdom	60,000, L2 users 250,000
Bulgarian SL	Bulgaria	No estimate available
Cambodian SL	Cambodia	Possibly around 13,000 deaf, of which 1,500 are estimated to be signers
Catalan SL	Spain	18,000
Chadian SL	Chad	390
Chilean SL	Chile	21,000
Chinese SL (CSL)	China	20.57 million deaf and hard of hearing; unknown how many use SL
Colombian SL	Colombia	No estimate available
Costa Rican SL	Costa Rica	No estimate available
Croatia SL	Croatia	No estimate available
Cuba SL	Cuba	No estimate available
Czech SL	Czech Republic	12,000
Danish SL (DTS)	Denmark	4,000 deaf and hard of hearing signers; in all, about 10,000 signers including hearing signers
Dominican SL	Dominican Rep.	No estimate available
Ecuadorian SL	Ecuador	231,000
Egypt SL	Egypt	No estimate available
Estonian SL	Estonia	4,500 users out of 1,600 deaf and 20,000 hearing impaired
Eritrean SL (EriSL)	Etritea	15,000 deaf; the number does not account for total number of signers
Ethiopian SL	Ethiopia	1,000,000
Finland-Swedish SL	Finland	150
Finnish SL (FinSL)	Finland	3,000 deaf signers, and 6,000–9,000 hearing signers
Flemish SL	Belgium	6,000
French-Belgian SL	Belgium	No estimate available
French SL (LSF)	France	An estimated 80,000 deaf people; unknown how many of them use LSF
German SL	Germany	50,000
Ghanaian SL	Ghana	No estimate available
Ghandruk SL	Nepal	20
Greek SL	Greece	40,000 including L2 users
Guatemalan SL	Guatemala	No estimate available
Guinean SL	Guinea	No estimate available
Ha Noi SL	Viet Nam	Up to 39,000 users
Hai Phong SL	Viet Nam	Up to 1,800 users
Hausa SL	Nigeria	Between 70,000 and 5,000,000 deaf people; it is not known how many use HSL
Hawaii SL	Hawaii, USA	Fewer than 40 users, all elderly, many above 80 years[1]
Ho Chi Minh City SL	Viet Nam	Up to 45,000 users

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1 Source: http://www.hrelp.org/grants/projects/index.php?projid=393 (Accessed 6 August 2014).

Honduras SL	Honduras	No estimate available
Hong Kong SL	Hong Kong	20,000
Hungarian SL	Hungary	300,000 L1 and L2 users
Icelandic SL	Iceland	250–300 deaf signers and 1,000–1,500 hearing signers
Indian SL	India	2,680,000
Indonesian SL	Indonesia (Java/Bali)	8,000
Inuit SL	Nunavut, Canada	Less than 40 deaf native signers
Irish SL	Ireland	66,000 signers of which 5,000 are deaf signers
Italian SL	Italy	70,000 deaf of which 60 % are estimated to be L1 users
Jamaican SL	Jamaica	About 75,000 deaf persons; unknown how many of them use sign language
Japanese SL	Japan	317,000
Jhankot SL	Nepal	No estimate available
Jordanian SL	Jordan	An estimate of 15,000 to 20,000
Jumla SL	Nepal	8
Kapoor (Urubú) SL	Brazil	7 L1, 500 L2
Kenyan SL	Kenya	Possibly as many as 600,000 signers; however sources do not agree
Konchri Sain	Jamaica	50
Korean SL	South Korea	No estimate available
Kurdish SL	Iraq	1,000–10,000 signers
Laos SL	Laos	No estimate available
Latvian SL	Latvia	No estimate available
Libyan SL	Libya	No estimate available
Lithuanian SL	Lithuania	No estimate available
Lyons SL	France	No estimate available
Madagascar SL	Madagascar	180,000
Malaysian SL	Malaysia (Peninsular)	Around 44,000 deaf people; no estimate available of number of signers
Malian SL	Mali	200,000 deaf people
Maltese SL	Malta	No estimate available
Maritime SL	Canada	No estimate available
Martha's Vineyard SL	USA	Extinct
Mexican SL	Mexico	130,000
Modern Thai SL	Thailand	Up to 67,000 users
Moldova SL	Moldova	No estimate available
Mongolian SL	Mongolia	Unknown number of users of 10,000–147,300 deaf
Moroccan SL	Morocco	No estimate available
Mozambican SL	Mozambique	No estimate available
Namibian SL	Namibia	No estimate available
Nepalese SL	Nepal	5,740. Most are monolingual
New Zealand SL	New Zealand	20,200
Nicaraguan SL	Nicaragua	3,000, incl.
Nigerian SL	Nigeria	No estimate available
Norwegian SL	Norway	16,500 signers of which 4,000–5,000 are deaf

Original Bangkok SL	Thailand	Up to 495 signers
Original Chiang Mai SL	Thailand	An estimated 19 deaf signers
Pakistan SL	Pakistan	No estimate available
Panamanian SL	Panama	No estimate available
Paraguayan SL	Paraguay	15,000
Penang SL	Malaysia (Peninsular)	1,000. 150 monolinguals
Persian SL	Iran	No estimate available
Peruvian SL	Peru	No estimate available
Philippine SL	Philippines	100,000 deaf
Polish SL	Poland	50,000 deaf
Portuguese SL	Portugal	60,000
Providencia SL	Colombia	Known by most people there, including 19 born deaf out of ca. 3,000 people
Puerto Rican SL	Puerto Rico	8,000–40,000 deaf
Quebec SL	Canada	5,000–6,000 signers
Rennellese SL	Solomon Islands	Extinct
Romanian SL	Romania	24,600
Russian SL	Russian Federation	121,000
Salvadoran SL	El Salvador	No estimate available
Saudi Arabian SL	Saudi Arabia	No estimate available
Selangor SL	Malaysia (Peninsular)	500
Sierra Leone SL	Sierra Leone	No estimate available
SL of the Netherlands	Netherlands	5,000. L2 users 15,000
Singapore SL	Singapore	3,000
Slovakian SL	Slovakia	No estimate available
South African SL	South Africa	235,000
Spanish SL	Spain	102,000 lengua de signos española (Spanish Sign Language, LSE) signers, and 18,000 lengua de signos catalana (Catalonian Sign Language, LSC) signers
Sri Lankan SL	Sri Lanka	12,800
Swedish SL	Sweden	30,000
Swiss-French SL	Switzerland	1,000
Swiss-German SL	Switzerland	6,000
Swiss-Italian SL	Switzerland	200
Taiwan SL	Taiwan	30,000–60,000 signers
Tanzanian SL	Tanzania	No estimate available
Tebul SL	Mali	500
Tibetan SL	Tibet	No estimate available
Trinidad and Tobago SL	Trinidad and Tobago	2,000
Tunisian SL	Tunisia	No estimate available
Turkish SL	Turkey (Asia)	No estimate available
Ugandan SL	Uganda	An estimated 25,000 deaf signers of 528,000 deaf, deafened and hard of hearing
Ukrainian SL	Ukraine	No estimate available
Uruguayan SL	Uruguay	7,000
Valencian SL	Spain	No estimate available
Venezuelan SL	Venezuela	No estimate available
Yucatec Maya SL	Mexico	17. L2 users: 400
Yugoslavian SL	Serbia	30,000 users out of 60,000 deaf persons in the former larger Yugoslavia

Zambian SL	Zambia	No estimate available
Zimbabwe SL	Zimbabwe	No estimate available

Alternate sign language	Country	Number of signers
Arandic SL(s)	Australia	No estimate available
Monastic SL	Monastic communities around the world (Europe, North America, South America, Oceania, Africa and Asia)	No estimate available
Old English Monastic	United Kingdom	Extinct; no estimate available of number of signers when in use (around 11th century)
Plains Indian SL	USA	Possibly around 100 or so users of varying degrees of proficiency
Ts'ixa Hunting Signs	Botswana	50
Warlpiri SL	Australia	No estimate available

Part I: **Deaf Sign Languages**

Carol Neidle and Joan Cottle Poole Nash
1 American Sign Language

1 Basic facts about the language

Language name: American Sign Language (ASL)

Alternative names: Ameslan.[1] Before the 1970s it was simply called "the sign language," "the language of signs," or "the natural language of signs" by those in the deaf community (Tabak 2006).

Location: the United States of America and parts of Canada. It is also used at various deaf schools in different parts of the world, sometimes along with indigenous sign languages, as a result of the influence of teachers from Gallaudet University (formerly Gallaudet College), Peace Corps workers, and missionaries. ASL tends to be used as a *lingua franca* at international assemblages of the Deaf.

Varieties: Several dialects of ASL have been described, including Southern Black Sign Language (Woodward 1973b). In addition, there are many differences in vocabulary (Shroyer and Shroyer 1984) and signing style that identify the region or school from which a signer comes (Lucas, Valli, and Mulrooney 2005). See Lucas and Bayley (2010) for discussion of the role of modality in language variation and an overview of variation in ASL. ASL is related to Old French Sign Language, and to the extinct Martha's Vineyard Sign Language (MVSL; see the chapter in this volume).

Number of signers: 100,000 to 500,000 primary users (Padden 1987), perhaps two million signers in all.

Increasingly, online resources documenting various aspects of ASL and its usage are becoming available. For example, the signs referred to in this chapter can be viewed from aslpro.com and other sites listed at the end of this chapter.

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1 The term "Ameslan", coined by interpreter extraordinaire, Lou Fant, enjoyed a brief popularity, but is mostly found in books from the 70s that cited him as their source and children's novels from that period. Though generally regarded as an obsolete term, it is still used.

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2 Origin and history

2.1 Origins

The traditional date of "birth" given for ASL is 1817; it was in this year that Laurent Clerc, a deaf teacher and alumnus of the Royal Institution for Deaf-Mutes in Paris, arrived from France to co-found, with Thomas Hopkins Gallaudet, the American School for the Deaf in Hartford, Connecticut (called the Connecticut Asylum for the Education and Instruction of Deaf and Dumb Persons at the time of its founding). Clerc was fluent in both Old French Sign Language and the methodical signs used to teach written French. He and Gallaudet adapted the French methodical signs for English instruction. Correspondence between lexical items in French Sign Language (*la langue des signes française*, LSF) and ASL is variously reported as ranging from 40 to 60 percent (Wilbur 1979; Woodward 1980), depending on sampling methods and also on consideration of linguistic variation over time.[2] The development of ASL was also influenced by several cohorts of pupils who arrived at the school as fluent signers of some unnamed language(s), from communities with high proportions of deaf people in Maine, New Hampshire, and Martha's Vineyard (see Martha's Vineyard Sign Language, this volume). Gallaudet's recognition that his students' signing tended toward a style in which the sentence and discourse structure differed from those of English was an indication that the sign language was evolving into a natural language in its own right. Though Clerc was reported to have complained bitterly that "the gracious signs" he had brought from France had been thoroughly corrupted by the Americans, it was clear on both sides of the Atlantic that methodical signs gave way to natural signing outside of the classroom, and Clerc came to accept the change as inevitable (Lane 1984, 226–227).

In the decade following the establishment of the American School for the Deaf, other schools were established in New York, Pennsylvania, and Kentucky, all with the assistance of Clerc or his American students (both deaf and hearing),[3] thereby ensuring some continuity in the use of the sign language.[4] In this era, before photography and moving pictures, there was no simple way to record the sign language, which led to quite a bit of regional variation.

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2 Frishberg (1975) described how ASL signs that were different in Old French Sign Language and Old American Sign Language had changed in ways that promoted symmetry and fluidity. For example, the G handshape of the passive hand in LAST/FINAL changed to match the I handshape of the active hand; the sign FOR changed from having two points to being produced with a smooth motion; the sign BIRD, formerly BEAK+WINGS, retains only the sign BEAK.

3 Thirteen schools were founded by Deaf superintendents after 1880, according to Lane (Lucas, Bayley, and Valli 2001, fn p. 52).

4 http://clerccenter.gallaudet.edu/Clerc_Center/About_the_Clerc_Center/Laurent_Clerc_The_ Man.html.

2.2 Historical change

Comparing signs from 1913 with those of 1975, Frishberg (1975) found that signs tended to change in ways that made them easier to produce and perceive. For instance, the location in which signs were made tended to move towards the center, so that some signs produced on the waist or hip moved up. Signs that remained lower tended to become two-handed and symmetrical. Signs on the face tended to become one-handed except in performance mode (e.g., storytelling before a group, presentation of a speech). Additional examples of changes that occurred in the evolution of ASL are presented in the chapter on Martha's Vineyard Sign Language in this volume.

3 Bilingualism and language contact

3.1 Influence from dominant languages (signed and spoken)

ASL has been influenced by Old French Sign Language, written French, written and spoken English, and sign languages used prior to the establishment of the first permanent school for the deaf in the United States (e.g., MVSL). Contact with these languages influenced the handshapes, mouth movements, word order, and even attitudes towards ASL.

When LSF arrived in the United States of America, literally in the body of Laurent Clerc, it came with a history of having already been modified in the academic environment to reflect aspects of the spoken language (or to be more accurate, the written language) of the greater society, in this case, French. The early education of the deaf, by and large, focused on teaching writing by means of dictation exercises, hence the initializations and affixes that constituted the methodical signs of Epée. The school for the deaf that Clerc attended as a child had already gone through a natural sign language / "methodical sign language" / natural sign language cycle that would be repeated in the United States. The reportedly highly expressive signing of both Clerc and T. H. Gallaudet combined with that of more than one cohort of pupils who arrived at the school already fluent in the signing of some unnamed language, thereby undoubtedly hastening the emergence of a natural sign language. The methodical signs at ASD were reported to have "dropped away" by 1835 (Klima and Bellugi 1979).

Another aspect of ASL signing that has been influenced by the spoken English is the use of mouthing. Although the use of mouthing is subject to grammatical rules and displays a certain amount of variation, in some cases conventionalized mouth gestures have their origins in the pronunciation of related English words.

The stigmatization of ASL relative to English, which has diminished significantly in recent years but not been totally eliminated, has affected deaf people's

attitudes towards sign language. In part also a result of educational indoctrination, some deaf signers have internalized a sense that forms of sign language that more closely mirror English syntax are more prestigious. According to Lane, Hoffmeister, and Bahan (1996, 66): "Although [the] situation has changed in the wake of linguistic research on ASL and the movement for Deaf rights, some Deaf people still refer to others who use ASL as "low verbal," and to their language as 'broken language,' or 'slang'."

3.2 Education and teaching philosophy

The period from the establishment of the first American schools for the deaf until the 1878 Conference of Milan (where hearing educators voted to suppress the use of sign language) is often viewed as a "golden age" in deaf education. The use of sign language was appreciated, especially for its value in education and religious conversions, rather than seen as a maladaptive behavior.

Following the conference in Milan, there was a long period of suppression of sign languages in schools, although signing still occurred in the vocational departments and dormitories of residential schools,[5] Deaf families, religious settings, and deaf clubs and organizations. Signing was much later reintroduced into the school setting only as a direct and more effective way to teach English. In fact, when signing was reintroduced at the lower school level, this was done through the new Signed English systems, created by people who thought they had a novel idea, not realizing that they were repeating the methods of Epée and Clerc (Bornstein 1990).

Though the practice of talking and signing simultaneously was reported, from the nineteenth through mid-twentieth centuries it was largely considered inappropriate to mouth words while signing, and even while fingerspelling. In 1967, this changed in educational settings with Roy Holcomb's philosophy of "Total Communication," a "give them everything and see what works" approach combining signs, speech, lipreading, auditory training, reading, writing, and drawing, with the focus on comprehension rather than mode of communication. This quickly devolved into the simultaneous use of signs and spoken English, through the belief on the part of educators that the sign support would aid in the lipreading of English words.

Educators saw the sign language as impoverished, lacking vocabulary and morphology. It was deemed confusing in that "the same sign" had multiple meanings, and that there were "different signs for the same word." As a result of these perceived deficiencies of ASL, a number of pedagogical sign systems were invented to "better represent English on the hands."[6] The SEE2 system includes ASL signs,

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5 Signing was not banned from all US schools during this period; a few schools even continued signing in primary school (Bornstein 1990).
6 See the play *Sign Me Alice* (Eastman 1997) for many humorous perspectives on sign systems.

initialized ASL signs, and invented signs, as well as 70 affixes and 7 contractions to be applied (Gustason and Zawolkoe 1993). Some systems were so complicated that each English morpheme had its own unique sign, leading to such combinations – with each morpheme literally translated – as: BUTTER+FLY+S, UNDER+STAND+ING, and THROW+UP (meaning "vomit").[7]

Several systems were formally developed for educational use, most of them complete with their own philosophies, principles, and sign "dictionaries". These included Seeing Essential English (SEE1), Signing Exact English (SEE2), Linguistics of Visual English (LOVE), Conceptually Accurate Sign(ed) English (CASE), Sign Supported English, and Signed English.[8] Informally, schools had their own sign language policies, known by various names, such as MCE (Manually Coded English) and Sign Supported Speech. These were generally a sampling of the above systems, basically ASL signs in English word order. The sign language used between Deaf and hearing people, a contact language combining ASL and English, has been known as sim-com, Pidgin Signed English, and contact sign (Lucas and Valli 1991, 1992).

3.3 Influence on ASL of signing systems modified to represent English

The major adaptations used by the sign system developers to make sign more representative of English involved use of initialization, invented signs, affixation, and compounding. All of these sign systems intended for education were expected to be used simultaneously with the spoken (or mouthed) English words. Very few of these invented signs have become widely used in the Deaf Community outside of the educational system.

Initialization changes the canonical handshape of the sign to that of the initial manual alphabet letter of the spoken language word that the sign is meant to represent. This strategy was employed by Epée in modifying LSF. Some of his modified signs still exist in their French-initialized form in ASL (e.g., SEARCH is signed with the C handshape for the original target word: CHERCHER);[9] others were modified by Clerc to reflect English spellings (e.g., the days of the week). Initialized signs that had previously been accepted into ASL because they filled a need included the CLASS family of signs: FAMILY, GROUP, and TEAM. Signing Exact English uses the ASL citation form for BEAUTY, and changes the handshape to P for PRETTY

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7 Note that Gerrilee Gustason, author of SEE2, makes the point that one should not divide words in these ludicrous ways, should not invent signs, but should pay attention to local usage and sign with appropriate expression and movement/directionality.

8 For an in-depth treatment of each of these systems, see Bornstein (1990).

9 In glossing conventions an underlined letter means that the sign is initialized.

and to H for <u>H</u>ANDSOME. In some systems, signs were initialized even when there was nothing to disambiguate. For example, many teachers now sign <u>R</u>ED even though there is no possibility of confusion with a sign different in meaning (and also despite the fact that the use of the complex "R" handshape makes a formationally simple sign used frequently by children unnecessarily complex). There was a huge backlash in reaction to the initialization in the late 70s and 80s, first for the invented signs that were meant to represent concepts children use daily in school (e.g., <u>A</u>IDE, <u>V</u>ETERINARIAN (illustrated in Woodward 1979), which, with the initialization, resemble signs for two kinds of sexual intercourse), and then for signs that violated the phonological rules of ASL that were just starting to be described by linguists. Many of these signs were extremely awkward to produce or looked peculiar. For a while, signers who identified with the Deaf Community went to extreme lengths to avoid any hint of initialization in their signing. However, some of these signs, even a few that are awkward, have been absorbed into the vocabularies of native signers (e.g., <u>C</u>REATE). Brentari and Padden (2001), attributing the ideas to Ramsey and Padden (1998), point out the following:

> With the movement of Deaf people away from traditional and low-paying solitary trades into technical and scientific fields of work, new vocabulary for their new work lives was needed. In these contexts, initialized signs are productive means of forming semantic and lexical oppositions between known, intimate, in-group vocabulary with scientific vocabulary.

Affixation – attaching a bound morpheme to a stem – is a relatively infrequent process in natural sign languages. The classic example from the French methodical signs is: "unintelligibility"=to-read+with-in+negation+possibility+abstract-quality (Bornstein 1990, p. 3). Despite widespread use in educational programs, such examples are rarely seen outside the schools or in conversation, even in contact signing situations. The exceptions would be "MENT" (DEVELOP+MENT) and APOSTROPHE-S. The APOSTROPHE-S sign seems to have preceded the reinvention of methodical signs, as a way to distinguish between the plural "s" and the possessive "s" when fingerspelling. It is not uncommon to see someone spell t-o-m-APOSTROPHE-S. On the other hand, CAT+APOSTROPHE-S instead of CAT POSS is rarely seen outside the educational setting. The use of affixes (in addition to use of a sign for every English morpheme in the sentence) has been found to add 1/3 to 2/3 more time to the signing of a concept and also to increase processing time (Klima and Bellugi 1979).

Signing in English word order, often with mouthing, is a contact language strategy that deaf people often employ with hearing people; they do not sign this way with other deaf people. When it does not interfere with other grammatical markers in the sentences, the English glosses for some signs are habitually mouthed by many signers, in some cases to convey grammatical distinctions (e.g., SEE vs. SAW). Davis (1989) describes three different mouth behaviors that accompany manual signing:

1. the "ASL mouth", used for
   a) required mouth patterns for certain lexical items (e.g., CHA, PAH); mouth expressions obligatorily accompanying specific signs (occasionally differentiating two signs, as illustrated later, in Figure 4, for LATE vs. NOT-YET);
   b) marking of adverbials, e.g., the intensifier 'mmm', or 'th', conveying carelessness in the manner in which an activity is carried out, shown in Figure 5;
2. partial mouthing of English, not consciously realized even by native signers; examples including question words, LATE, HAVE, and FINISH;
3. full mouthing, accompanying, e.g., fingerspelled words and numbers.

3.4 Bilingual-Bicultural education

The Bilingual-Bicultural approach, based on linguistic, cultural, and educational research, became well known after the publication of Johnson, Liddell and Erting's (1989) *Unlocking the curriculum: Principles for achieving access in deaf education*. This approach supports teaching ASL and English separately, using the child's knowledge of ASL to support the acquisition of English in print. However, only 3 % of the programs serving deaf students use such an approach (Schildroth and Hutto 1996). Currently, research on the effectiveness of the use of ASL and other visual languages and learning processes is being carried out at the Visual Language and Visual Learning (VL2) Science of Learning Center at Gallaudet University by Laura Ann Petitto and others <http://vl2.gallaudet.edu>.

3.5 Hand alphabet for fingerspelling

The hand alphabet for ASL (Padden and Clark 2003) comes directly from Old French Sign Language (see the chapters in this volume on French and Spanish Sign Language for further information). It has evolved over the years to diverge somewhat from the French. Variant forms of some letters remain, though perhaps to a lesser extent than 30 years ago. They can mostly be seen in the initialized handshapes in signs, e.g., the extended M and N in DOCTOR and NURSE respectively, and the pulled back E in EMERGENCY (compare with ELEVATOR).

Fingerspelling is used for various purposes in ASL, including the spelling of proper names and written words. Mulrooney (2002) concludes that proper nouns are spelled most clearly (i.e., each letter in citation form), followed by nouns, whereas the individual letters in verbs are less likely to be fully articulated. Padden & Clark (2003) observe that in ASL, signers use fingerspelling more frequently and for different purposes than in other languages. For example, fingerspelling can be used as "a signifier of contrastive meaning through the exploitation of the structural properties that set it apart from signs." This is seen when a signer spells

a word instead of using the sign, for emphasis or some other rhetorical purpose. Padden and Clark note that these fingerspelled words are predominantly nouns, although there are loan signs that are verbs.

3.6 Loan signs/lexicalized fingerspelling and borrowing

Fingerspelled words that have been lexicalized are often referred to as "loan signs." A frequently fingerspelled word may become a loan sign whether or not it fills a lexical gap. For example, #CAR, #JOB, and #WHAT are frequently finger-spelled despite the commonly used/known signs CAR, WORK, and WHAT. When a fingerspelled word becomes lexicalized, letters are omitted or elided, a movement is added, and there may also be a change in orientation (Brentari 1998). A loan sign is theoretically restricted to two handshapes and one movement (Battison 1978; Brentari and Padden 2001), though, in fact, it is quite common to find some of the internal letters included, albeit in reduced form (e.g., #EARLY) or reduplica-tion of the movement (e.g., #NO, #DOG). Other common loan signs include: #BANK, #BACK, #BURN, #BUSY, #OFF, #ON, #IF, #SALE, #BUT, #BUS, #HA, #DO, #SO, #OK, #YES, #NO, #TOY, #FIX, #SAY-NO-TO.

Signs borrowed from other sign languages include many signs for countries (e.g., JAPAN, RUSSIA, BRITAIN). The indigenous country names are now common-ly used instead of ASL versions of the signs.

3.7 Standardization

Sign language dictionaries were developed by and for specific schools and educa-tional philosophies, and for the purposes of religious conversion and worship. Schools tried to standardize signs to make the learning process less burdensome for non-native signing teachers and parents. (In real life, signers generally have a large vocabulary that includes synonyms and regionalisms, but in schools for the deaf, people often talk about some versions of signs being "wrong".[10])

At least two attempts have been made to standardize technical signs for aca-demics at the secondary and post-secondary level. The National Technical Institute for the Deaf (NTID) at the Rochester Institute of Technology (RIT) has developed both print and video dictionaries in specific fields (e.g., Science, Math, Theatre).[11] Robert Hoffmeister and associates have held workshops to address the issues of using appropriate discourse and sentence structure when teaching abstract con-

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10 According to Stokoe, Casterline, and Croneberg (1965, 318), cited by Lucas, Bayley, and Valli (2001, 10), "The tendency is to divide sign language into good and bad."
11 http://www.rit.edu/ntid/msse/pages/lexicon/.

cepts.[12] The site DEAF STEM <http://www.shodor.org/deafstemterms/> offers an interactive format for comparing, commenting on, and suggesting signs and signed definitions of scientific and mathematical concepts.

4 Political and social context

4.1 Organizations of the Deaf

There are many national and local organizations of deaf people. The National Association of the Deaf <http://www.nad.org>, founded in 1880, supports the right of the deaf to "use sign language, congregate on issues important to them, and to have its interests represented at the national level." Among many other organizations are: the Deaf Sports Federation, Deaf Women United, National Black Deaf Advocates (NBDA), the American Society for Deaf Children, Registry of Interpreters for the Deaf, and Children of Deaf Adults (CODA).

4.2 State of the language, language use, and maintenance efforts

ASL is currently a healthy language with relatively strong institutional support. It may become endangered by the practice of cochlear implantation (CI) in young children, but it is strongly believed that most CI students will find ASL as helpful in the classroom as other deaf and hard of hearing students have found it in secondary school and beyond when the complexity of the concepts and pace of the class exceed processing capacities.[13] There is increasing public acceptance of ASL as a result of media exposure and the popular use of signing with (hearing) infants. The most significant group of children in the U.S. generally not offered the opportunity to learn sign from birth now appears to be deaf infants who receive cochlear implants.

A large amount of sign language material, most of it educational, is being collected and digitized. In addition, the internet practice of "vlogging" (i.e., blogging in sign language) provides a wealth of colloquial material daily.

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12 At the Learning Center for the Deaf in Framingham, MA and at several other schools for the Deaf in the U.S. and Canada (personal communication).
13 Teachers of the Deaf at EDCO and the Framingham Learning Center for Deaf Children (personal communication).

4.3 Cultural norms for language use

There are many ways in which language use is culturally conditioned in the Deaf Community. One example is the convention requiring direct communication: "Hinting and vague talk in an effort to be polite are inappropriate and even offensive in the DEAF-WORLD" (Lane, Hoffmeister, and Bahan 1996: 73).

Pragmatics, word (sign) choice, and articulation may identify the signer as belonging to a particular group. It has been observed, for example, that in ASL (as well as in other languages in societies where women have the opportunity to advance), women use more citation forms (for example, older versions of signs, or signs as depicted in sign language dictionaries) and clear fingerspelling than men. This may reflect women's use of "proper" language as a way of elevating their status, whereas men use street talk to show solidarity and toughness (Lucas, Bayley and Valli 2001).

Some variation has been attested in the signs used by men and women (e.g., the Gallaudet signs for TERRIFIC (Baker and Cokely 1980: 87); and variants of signs that can be produced on the elbow (used more frequently by women) or the hands (used more frequently by men), as reported by DeSantis (1977)). However, the differences that have been described to date are not major, and they do not seem to endure over time. As Mulrooney (2002) noted, Mansfield (1993) states that although some lexical differences have been noted, it is "not enough … to assert a male-only or female-only lexicon."

4.4 ASL in its political context

American Sign Language has been accepted as a language in its own right in the United States. Deaf and hard of hearing people have the right to sign language interpreters in legal, educational, and medical settings. There is still considerable variability in the amount of self-advocacy required, not only because of the still limited number of qualified interpreters, but also because of the continuing issue of who is responsible to pay for the service. The Registry of Interpreters for the Deaf continues to promote the professional status of interpreters, though in educational settings and medical settings one often finds untrained "signers" acting as interpreters.

In general, sign language interpretation is viewed positively by the public. ASL is accorded the same status as other world languages in at least 161 U.S. universities,[14] and in many community colleges and secondary schools, although recognition of ASL is still an issue of controversy at some educational institutions (Davis 1998).

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14 Sherman Wilcox maintains a list: http://web.mac.com/swilcox/UNM/univlist.html.

5 The structure of signs

The earliest linguistic research on signed languages focused on ASL. This section summarizes some of the findings, many of which generalize to other sign languages.

The conceptualization of ASL phonology has become increasingly complex over the last 45 years. Early researchers attempted to show that units of meaning in sign languages, as in spoken languages, are composed of and distinguished by discrete articulatory/discriminatory units (e.g., Lane, Boyes Braem, and Bellugi 1976). Later developments included attempts to account for the structure of signs and the organization of their component parts following contemporary linguistic theory.

Stokoe et al. (1965), in their pioneering work, identified 19 basic handshapes, 24 types of movement, and 12 locations. While these were generally sufficient for distinguishing minimal pairs in citation form, they acknowledged that this set fell short of being able to distinguish all minimal pairs and to account for the precise articulation of signs in context. More than 80 distinguishable handshapes are used productively in ASL.[15] Most counts of linguistically contrastive handshapes hover around forty. Reductions in the numbers of handshapes can be achieved by considering only citation forms of signs; excluding classifiers; and counting only "basic handshapes" (often for plausible phonological reasons), while grouping similar handshapes together as variants.[16]

Battison (1978) carried Stokoe's original work further. He specified 45 handshapes, 25 locations, and 12 movements. He also added the feature "orientation," distinguishing certain minimal pairs (e.g., CHILDREN vs. THING). Palm orientation has been particularly challenging to describe for sign languages. The number of orientations proposed has ranged from 12 to 18 (Battison 1978; Klima and Bellugi 1979).

Battison also identified the basic unmarked handshapes (A,S,B,5,C,G,O) and their minimally contrasting variants.[17] These are the handshapes that are most frequently used and that occur with the fewest restrictions in movement, location, and co-occurrence. He classified ASL signs into the following types:

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15 The DawnSignPress handshape cards (Bahan and Paul 1985) include 56 handshapes, but these are not claimed to be exhaustive. The SignStream®-based annotations of the American Sign Language Linguistic Research Project (Neidle 2002; 2007b, see also http://www.bu.edu/asllrp/; Thangali et al. 2011; Neidle, Thangali, and Sclaroff 2012) distinguish 87 handshapes; however, certain infrequently used handshapes are not included even in this larger set.

16 Stokoe coined the term "allocher" which was his word for allophone. Siple uses "allophone" in print as early as 1978 (Siple 1978c) (although Brentari credits the first use of this term to Perlmutter), and this is the commonly used term in current literature.

17 Or: GOBSC5, or BASCO15; A and 1 are often substituted for S and G respectively, or included along with them.

Type 0: one-handed signs performed in free space without contact (e.g., PREACH)

Type X: one-handed signs that contact the body (but not the other hand) (e.g., SOUR)

Type 1: two-handed, both hands active, identical handshape, symmetrical or alternating movement (e.g., CAR)

Type 2: one active and one passive hand, with identical handshapes (e.g., NAME)

Type 3: one active hand and one passive hand, with different handshapes but the non-dominant handshape is unmarked (e.g., CONTACT)[18]

Type C: compounds (to be discussed later)

Battison also proposed the conditions below on the formation of two-handed signs:

Symmetry Condition
a) If both hands of a sign move independently during its articulation, then
b) both hands must be specified for the same location, handshape, and movement (whether simultaneous or alternating), and orientation must be symmetrical or identical.

Dominance Condition
If a two-handed sign has different handshapes, the non-dominant hand does not move and is restricted to the unmarked handshapes.

Type 2 signs fall between the two conditions in that the non-dominant hand has the same handshape as the dominant hand, but does not participate in the movement. (However, see below for "exceptions" discussed by Brentari.)

Recent theories of the phonological structure of ASL, including Sandler's (1989) Hand Tier Model, Liddell and Johnson's (1989) Hold–Movement Model, and Perlmutter's (1992) Moraic Model, among many others, are described in Brentari's introduction to her (1998) *Prosodic Model of Sign Language Phonology*. Brentari sets out to make the comparison between spoken and sign language phonology more transparent. In an attempt to unify her own previous work and that of others, following current linguistic theories (e.g., autosegmental phonology, feature geometry, optimality theory, harmonic phonology, and phonetic enhancement), she distinguishes between inherent and prosodic features and explains how the individual phonological elements relate to each other and to segment and syllable structure.

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18 "Dominant hand" can be defined, for present purposes, as the hand that performs one-handed signs. Changes in dominance in narrative are beyond the scope of this chapter.

5.1 Handshape

Various approaches have been taken to analyzing ASL handshapes in terms of distinctive features. For example, Mandel (1981) defined selected fingers as those that move or make contact in the production of a sign. Only one set of selected fingers is allowed in the prosodic word (essentially 'the sign'). Defining selected fingers as a characteristic of handshapes makes apparent the built-in redundancy of parameters: handshape, including information about aperture (open to closed, and vice versa), spreading of fingers, bending of joints, and location, are not independent from orientation and movement (Brentari 1998, 113). For example, given a monomorphemic lexical sign with a handshape that changes during its articulation, a limited number of end handshapes is possible. (More options are available for lexicalized/loan signs, but they comprise a small percentage of total signs.)

There is significant interaction between handshape and location. As noted by Siple (1978c), more complex handshapes are used in the central area around the face, where there is keener visual perception, than in peripheral areas of the signing space, where the handshapes used tend to be basic.

5.2 Place of articulation

In Brentari's framework, what was called "location" in earlier models is divided into two sectors: the major place (head, torso, arm, non-dominant hand) and the setting (eight distinct locations in each "place", e.g., *top* or *bottom* of head, *palm* or *back* of hand). The features ipsilateral, contralateral and contact are also relevant. In addition, contrastive planes of articulation are specified: *x* (frontal, for signs like AWFUL/TERRIFIC and SUNDAY), *y* (horizontal, for signs like SIT and LOCAL), and *z* (midsagittal, for signs like THROW and BIKE).

5.3 Orientation

Whereas prior approaches looked at absolute orientation relative to the body, Brentari looks at the relationship between handshape, selected fingers, and place of articulation. The *inherent* feature is basic orientation, the relationship between a part of the hand and a place of articulation (as in, e.g., THING, CHILDREN), whereas orientation change is a set of features that results in movement (as in, e.g., DEAD), and is, therefore, a *prosodic* feature. Combining the place distinctions on the hand with location and plane of articulation solves the problem of having to specify orientation separately.

5.4 Movement

Many attempts have been made to define basic movements, which has been challenging given that the set of allowable movements is not finite. (In fact, "classifiers" have a seemingly unrestricted movement pattern within the range of what is physiologically possible.) Every sign needs to include a movement. In the case where an underlying form consists of only a single place and location, a movement is inserted, as, for example, in the signs THINK and KNOW and the numbers ONE through TEN (Brentari 1998).

5.5 Syllable structure

Sign languages have analogues of syllables found in spoken language. Several proposals have been put forth differing on some of the specifics (see, e.g., discussion in Corina and Sandler (1993)), but the essential arguments for the existence of syllable structure are contained in Permutter's (1992) groundbreaking paper. He proposed an analogy between Vowels in spoken languages and Movement in sign languages, both of which have duration and form the core of the syllable, and between spoken language Consonants and the starting and ending Positions (or Holds), both of which occur with minimal duration and at the periphery of the syllable. Although most monomorphemic signs are monosyllabic, there are also disyllabic signs (e.g., NEVER, which involves two sequential movements).

5.6 Phonological processes

Sign languages also have the same kind of phonological processes found in spoken languages. For example, assimilation with respect to handshape, movement, palm orientation, and place of articulation occurs regularly. This is seen at morpheme boundaries, including especially those within compounds. For example, as first described by Long (1918) and discussed, along with similar examples, by Frishberg (1975), in the compound RED+SLICE, meaning 'tomato', the palm orientation of RED assimilates to that of SLICE, and that handshape of SLICE assimilates to that of RED. Further examples are given in the section on Compounds below.

6 Basic morphology and lexicon

6.1 Lexical signs

Monomorphemic signs are simple one-handed or two-handed signs. They usually have one major place of articulation, and can exhibit one of two kinds of move-

ment: path or local movement. Path includes movement from the shoulder (e.g., UP) or elbow (e.g., GO), or changes in position between the start and end point of the articulation (e.g., DEAF). Local movement refers to movement of the wrist (e.g., YES), knuckle (e.g., WANT), or finger (e.g., ELEVEN).

6.2 Compounds

Compounds in ASL (Liddell and Johnson 1986, see also detailed discussion in Brentari 1998) are formed by combining two distinct signs (nouns, verbs, or adjectives). As is typical crosslinguistically, the resulting meaning can be somewhat idiosyncratic, and there may be a change in category.

There may also be co-articulation effects, such as movement deletion, assimilation, and sometimes a shift in orientation. For example, the old sign for BROTHER, BOY+SAME first lost the internal movement in BOY, then underwent an orientation shift, substituting the sign RIGHT for SAME, and then handshape assimilation of the flat-O of BOY to L, which is similar to the G handshape of RIGHT. (The assumption is that the thumb extension in the dominant hand is due to contact or near contact with the head, not part of the compounding process *per se*.) The articulation of the component signs and of the compound as a whole is illustrated in Figure 1.

It is also possible to have portions of a compound that are fingerspelled. As observed by Brentari and Padden (2001), fingerspelling is frequently used for morphemes borrowed from English when the literal sign translation would be inappropriate for the intended meaning. They offer the example of "pick up", used either as a verb or as a descriptor for a type of truck. In both cases, the particle "up" is

Fig. 1: BOY (top) and RIGHT (middle) compared with BROTHER, the fully assimilated compound (bottom).

fingerspelled. When the compound refers to a truck, "pick" (which there does not have the meaning 'to choose') is also fingerspelled, whereas the ASL sign PICK is used in the verb form.

6.3 Personal pronouns

The personal pronouns are formed by pointing to the real world or assigned/imagined location of the referent in space.[19] In the singular form, the index finger (IX) is typically used to point (although the thumb can also be used in certain cases): to the signer, for first person reference; to the addressee, for second person reference; or to the spatial location associated with a third person referent (referred to as a *phi*-location by Neidle and Lee (2006) because these locations participate in agreement phenomena).[20] It has been argued that in ASL definite determiners take the same form as 3rd person pronouns (Bahan et al. 1995; Neidle et al. 2000). This is illustrated in Figure 2.

Dual, trial, quadruple, and quintuple forms, with corresponding numeral handshapes, are used in movement patterns that include the speaker, receiver, and others (e.g., 'we four'); include the speaker and others (e.g., 'we two but not you'); include the addressee and others (e.g., 'the five of you'); or include only others (e.g., 'the three of them').

The general first person plural (meaning 'we') is a lexical sign, now no more transparent than the signs for LEGISLATURE or COMMITTEE. The index makes an

Fig. 2: 3rd person pronouns, definite determiners, possessives, and reflexives [left to right] pointing with varying handshapes to the *phi*-location of the referent.

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19 Early work on pronouns in ASL included Woodward (1970), Lacy (1977), and Kegl (2003, unpublished manuscript from 1976).

20 The question of whether 1st, 2nd, and 3rd persons are all linguistically distinguished in ASL has been an issue of some controversy. It has been claimed that there are no person contrasts in ASL (Lillo-Martin and Klima 1990), and alternatively, that pronouns and possessives provide evidence for a grammatical distinction, but only between 1st and non-1st persons (Meier 1990; Lillo-Martin 1995). Neidle and Lee (2006) argue – based on evidence from acquisition and non-manual correlates of agreement – for a distinction among 1st, 2nd, and 3rd persons, consistent with the original claims by Friedman (1975).

arc from the ipsalateral to the contralateral shoulder (with variable flourish). The older form of the sign consisted of a point to the signer and individual points to the other included referents.

General non-first person pronouns marked overtly for plurality differ from their singular counterparts by involving movement along an arc, rather than simply a pointing gesture, with the index finger (see further discussion in MacLaughlin, Neidle, Bahan, and Lee (2000)).

6.4 Possessives and reflexives

Possessive pronouns follow the same pattern but with the B-handshape, palm toward the possessor(s). The reflexive or emphatic SELF pronoun is articulated with the thumb facing upward, thumb pad facing the referent (pointing to the referential *phi*-location of its antecedent). For first person singular the orientation is variable; thumb pad may face towards or away from the signer. See Figure 2.

6.5 Inflectional and derivational morphology

6.5.1 Derivational morphology

As previously mentioned, there are productive cases of derivational morphology. Examples include affixes such as the agentive suffix that derives the noun meaning 'teacher' from the verb TEACH. (These cases might, however, be analyzed as involving compounding (cf. Section 6.2) rather than derivational morphology.)

Another derivational process, involving reduplication, derives some nouns from verbs. While the sign parameters of handshape, location, and orientation are held constant, the verb is made with a single movement ending in a hold, and the noun is made with two repeated, shorter movements. Examples include: SIT/CHAIR, FLY-BY-PLANE/AIRPLANE (Supalla and Newport 1978). Padden and Perlmutter (1987) describe derived activity nouns, formed by reduplication, which are possible for a selected group of signs, e.g., READ/READING, but not others, e.g., *LOVE/LOVING.

6.5.2 Inflectional morphology

Sign languages are particularly rich, however, in their use of inflectional morphology, and ASL is no exception. Below is a brief discussion of expression of agreement inflection, aspectual inflection, and plurality as marked on a subclass of nouns.

GIVE (starting at the phi-location of the subject) | GIVE (ending at the phi-location of the object)
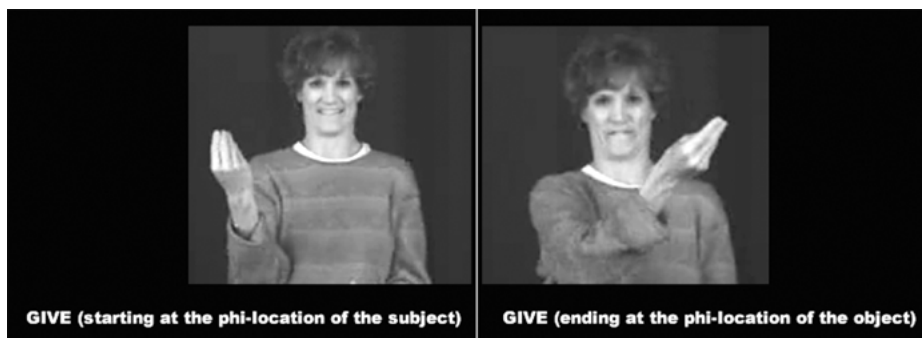
Fig. 3: The agreeing verb GIVE: the start and end locations mark subject and object agreement.

Agreement inflection

In ASL, agreement[21] can be expressed by modification of the start and/or end point of a sign to mark it as agreeing with other arguments. The same referential *phi*-locations discussed above for personal pronouns, definite determiners, and possessives are also used as an essential part of agreement affixes for predicates that display overt agreement. Although not all verbs allow the possibility of overt morphological expression of subject and object agreement, those that do accomplish this through affixes that incorporate the *phi*-location of the noun phrase with which they agree. For detailed discussion and debate about agreement in ASL, see, e.g., Padden (1983), MacLaughlin, et al. (2000), Mathur (2000), Neidle, et al. (2000) and Neidle and Lee (2006).[22] This is illustrated in Figure 3 for the agreeing verb GIVE; the articulation begins at the spatial location associated with the subject referent and ends at the location associated with the recipient referent, thereby marking subject and object agreement.

Bahan (1996) and MacLaughlin (1997) describe cases where syntactic agreement within the clause and the noun phrase can be marked non-manually, through head tilt and eye gaze toward the relevant *phi*-locations of the subject and object, respectively, in transitive constructions; either or both can be used to express agreement with the unique argument for intransitives. As they clearly stated, these manifestations of syntactic agreement are not always present; in addition, they can

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21 However, Liddell (1995, 1998, 2000a, 2000b, 2003) takes a different position, arguing that the use of referentially significant spatial locations in such constructions is not grammatical agreement at all. In his view, the use of space in sign language is governed by a cognitive linguistic framework that allows an infinite number of locations and relations between the start and/or end point of indicating verbs and pronouns. Whether an object is physically present (in *Real Space*) or imagined (in *Surrogate Space* or *Token Space*), the location assigned to it is not morphemic, but gestural in the same way that gestures function to enhance spoken language performance.
22 There is also a recent proposal by Nevins (2009) reinterpreting these expressions of agreement as pronominal clitics.

(although they need not) co-occur with verbs regardless of whether the verbs have overt manual agreement inflection. Later work revealed that the presence of these non-manual realizations of agreement, in fact, correlates with the marking of focus (Neidle and Lee 2006, 215): thus, "We now believe that the head tilt is not an optional agreement marker, but rather a focus marker which, when present, also expresses agreement" in an example like (1); this example, with head tilt toward the subject's *phi*-location co-occurring with the verb, contrasts John's bathing with other things John might have done (not other people who might have been bathing).[23]

(1)   JOHN$_i$ $\overline{\text{BATHE}}^{\text{ht-3p}_i}$

    'John *is bathing*.'

Aspectual inflection

For at least some ASL verbs, a rich set of aspectual distinctions can be expressed through verbal inflection, as discussed in detail by Klima and Bellugi (1979). Aspectual information about temporal patterns (e.g., continually, regularly) or manner (e.g., intensely, carelessly) can be expressed by specific types of reduplication and changes in the pattern and speed of movement. For example, repeating the verb STUDY with a circular movement conveys the idea of studying for a long time. Klima and Bellugi describe distinct inflections for (among others) *predispositional, susceptative, continuative, incessant, frequentative, intensive, approximative, resultative, iterative,* and *protractive* aspects (some of which can also be combined).

Morphological expression of number

Nouns (of the appropriate morphological class) can be marked morphologically as plural (Cokely and Baker-Shenk 1980; Wilbur 1987; Perry 2005; Neidle and Nash 2012). This plural marking involves a specific type of reduplication, also including, for some classes of nouns, a sideward translation.

6.6 Classifiers

ASL classifiers can be divided into three types: Semantic Classifiers, which consist of a distinctive handshape and a movement/location root; Size and Shape Specifi-

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23 Although this example is of an intransitive verb, the same is true for head tilt and eye gaze used in a transitive construction. Thompson, Emmorey and Kluender (2006) argue against interpreting these non-manual markings as instantiations of agreement, in part based on frequency of occurrence in their data sample, but they misinterpret the claims and predictions made by Bahan, MacLaughlin, and Neidle, et al. in this regard.

ers (SASSes), which are used to trace the shape/size of an object; and Handling/ Instrument Classifiers (HCLs/ICLs), which show how the hand holds an object while manipulating it. Semantic classifier constructions involve the interaction of a particular handshape representing the salient properties of classes of referents (e.g., shape: round, twisted, rimmed; semantic class: small animal, human, vehicle; physical characteristic: permeable, solid, liquid) with a movement (e.g., "downward from point A to point B") or a location (e.g., "here", "on", "under"). Verbs of motion involve displacement in space of the specific classifier handshape along a path representative of the relevant motion. For example, a certain vehicle represented by the 3-handshape could follow a downward path and stop under the non-dominant hand with the B-handshape to convey: "The vehicle went down the hill and parked in the garage."

Forty-three classifier handshapes are identified by Bahan and Paul (1985) in the categories of: Abstract Semantic, Instrument, and SASS. Note that some handshapes can be used in more than one classifier category.

6.7 Personal names: Name signs

Name signs in ASL fall into four categories: Arbitrary Name Signs, Descriptive Name Signs, and Non-traditional Name Signs.[24] A fourth category, "names that are easily spelled" are not considered name signs if they include more than two handshapes, e.g., "fs-SAM" (where 'fs' marks fingerspelling). Arbitrary Name Signs are based on the initial letter of the person's written name, first name, last name, or both, so in that sense are not arbitrary. The location and movement assigned to the sign is arbitrary, though locations are sometimes assigned to identify members of a family (Supalla 1992) or students in the same class at school (Carol Walker, personal communication, 1981). Descriptive name signs are those typically assigned by children that mimic some salient feature of the person, for example: curly hair, big nose. Non-traditional name signs combine these two processes and often add another dimension: an associated sign initialized, resulting in a name sign for "Eric who plays the violin" being the sign VIOLIN with the active baby-O handshape changed to the E handshape. These signs were noted to have been created by people outside or on the periphery of the Deaf Community, such as hearing parents of deaf children, and people in sign language classes who did not have knowledge the traditional practice. Supalla (1992) feared that this naming

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24 Most name signs for cities are "arbitrary initialized name signs": BOSTON, PHILADELPHIA, CHICAGO, but the name signs for countries tend to be descriptive, even if they have lost their transparency: SPAIN, AMERICA, ENGLAND. There are exceptions: PARIS (descriptive city), FRANCE (arbitrary initialized country).

process might be normalized by hearing people who had minimal contact with the Deaf Community.[25]

7 Basic syntax

7.1 Basic word order within the clause: the position of subjects and objects

Word order in ASL is relatively flexible in the sense that various regular and productive syntactic processes can alter the basic underlying word order. Sentence (2), for example, displays the basic Subject Verb Object word order within the main clause.

(2) JOHN LOVE MARY
    'John loves Mary.'

Particularly with respect to the relative ordering of verb and object, other factors may affect ordering for certain constructions and for certain signers.[26] There may also be dialect variation with respect to syntactic word order in ASL that has yet to be fully explored, which may be a result, in part, of historical change.[27]

Variations in the linear order of appearance of subject and object noun phrases are frequent, for reasons including the following:

(i)   As in many languages, pronouns need not be realized overtly. It is possible to omit a lexical pronoun in appropriate contexts.

(ii) ASL makes productive use of the left and right edges of the sentence. There may be, for example, a topic at the beginning of the sentence, and/or a right-dislocated pronoun, co-referential with the subject or object, at the end of the sentence.

(iii) Finally, subject and object arguments may appear in other positions as a result of syntactic movement, such as 'topicalization' (focus movement) or wh-movement. Such syntactic processes are frequently detectable from non-manual markings and other prosodic effects.

The following subsections will discuss: a) the role of non-manual behaviors in expressing syntactic information; b) tense and aspect; c) the use of the left and right

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25 This indeed seems to have happened (based on personal observation).

26 Flexibility in word order is greatest when recoverability of subject and object is facilitated by inflectional markings on the verb or the semantics of the predicate (see, e.g., Fischer 1975; Metlay and Supalla 1995).

27 Fischer (1975) argues that ASL has evolved to have SVO underlying order in part as a result of contact with English.

periphery of the sentence, and syntactic movement processes that affect the word order in basic sentence types; and d) the allowability of null arguments.

7.2 Linguistic functions of nonmanual marking

As is well known, in ASL and other sign languages facial expressions and gestures performed with the head and upper body carry important linguistic information of various kinds (in addition to expressing affect and paralinguistic information, as in spoken languages). The linguistic and affective uses of facial expressions are distinguishable in terms of acquisition and neurolinguistic processing (Corina, Bellugi, and Reilly 1999): they are acquired separately (McIntire and Reilly 1988; Reilly, McIntire, and Bellugi 1990; Reilly and Bellugi 1996) and impaired differentially (Kegl and Poizner 1991; Poizner and Kegl 1992; Kegl and Poizner 1997; Loew, Kegl, and Poizner 1997). There are also differences in the timing, shape, and contour of linguistic vs. affective facial expressions (Baker and Padden 1978; Liddell 1980; Baker-Shenk 1983).

Linguistic non-manual markings can function at the lexical level, e.g., differentiating signs like LATE and NOT-YET, as illustrated in Figure 4.[28] Non-manual markings can also contribute adverbial information, as shown in (3), where the label "th" indicates the expression shown in Figure 5: the tongue is between the teeth. This functions adverbially, modifying the predicate with which it co-occurs.

$$\overline{\text{th}}$$

(3) JOHN WRITE HOMEWORK
   'John is writing his homework carelessly.'

Fig. 4: LATE vs. NOT-YET (differentiated by facial expression).

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28 Photos in Figures 4 and 5 taken from (Neidle et al. 2000: 40–41).

Fig. 5: CARELESS (facial expression used adverbially).

Another very productive use of non-manual markings in ASL is for encoding essential grammatical information about the status of a phrase or a sentence.[29] Non-manual grammatical markings potentially include some combination of the following elements, among others: eyebrows raised or lowered; eyes squinted, neutral, or open wide; nose wrinkled; head assuming a particular position or performing periodic movements such as nods and shakes.[30] A few of these expressions are illustrated in Figure 6. The marking of negation includes squinted eyes and a side-to-side headshake. For a wh-question, the canonical facial expression involves lowered brows and slightly squinted eyes. For a yes-no question, the eyebrows are raised and the eyes are wide open. The specific components[31] realized for a particular marking shows some variability both across signers and for an individual signer.

There are generalizations about the distribution of these non-manual grammatical markings (Neidle et al. 2000). The non-manual expression co-occurs with the lexical item (if there is one) that occupies the node associated with the grammatical feature that is being expressed, and it can spread over the scope of the relevant operator (as first observed in slightly different terms by Liddell 1980). This can be defined precisely with respect to the syntactic structure: these markings can spread

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29 Recently, research in sign language recognition by computer has also focused on essential linguistic information encoded non-manually (e.g., Liu et al. 2014; Liu et al. in press).
30 The specific realizations of these expressions, the grammatical information conveyed, and their prosodic properties have been described and discussed extensively (e.g., Baker 1976a, 1976b; Baker and Padden 1978; Coulter 1978; Liddell 1978; Baker 1979; Coulter 1979; Baker and Cokely 1980; Liddell 1980; Baker-Shenk 1983, 1985; Liddell 1986; Baker-Shenk 1987; Veinberg and Wilbur 1990; Reilly and McIntire 1991; Aarons 1994; Bahan 1996; MacLaughlin 1997; Sandler and Lillo-Martin 2006).
31 See Coulter (1979) for an interesting approach to a semantic decomposition of non-manual markings in terms of their articulatory components.

Fig. 6: Illustration of some linguistically significant non-manual expressions.

over the rest of the syntactic phrase headed by the node containing the features associated with the non-manual marking. If there is no manual material available locally with which the non-manual marking can be articulated, then the spread over the elements within this phrasal domain is obligatory. When the marking does spread, it has greatest intensity at the node containing the features being expressed, and intensity decreases as distance from that node increases.

So, for example, a negative expression, labeled below as "neg", co-occurs with the manual sign of negation, if there is one (e.g., NOT, NEVER), and often spreads over the syntactic scope of negation (most commonly, the following Verb Phrase). This is shown in examples (4)–(6), where the labeled line indicated the signs with which the expression co-occurs.

$$\text{neg}$$
(4) JOHN [NOT [BUY HOUSE]$_{VP}$]$_{NegP}$
   'John did not buy a house.'

$$\text{neg}$$
(5) JOHN [NOT [BUY HOUSE]$_{VP}$]$_{NegP}$
   'John did not buy a house.'

$$\text{neg}$$
(6) JOHN [[BUY HOUSE]$_{VP}$]$_{NegP}$
   'John did not buy a house.'

7.3 Tense and aspect

Although ASL has a very rich inflectional system for expression of aspect, aspect can also be conveyed lexically, for example by the sign FINISH, which, among its

many uses (see, e.g., Fischer and Gough (1999, originally written in 1972)), serves to mark event completion. On this usage, it normally precedes the verb, as in (7).[32]

(7) JOHN FINISH VISIT MOTHER
     'John has visited mother.'

In constructions such as this, FINISH has been interpreted to be a marker of perfect and/or perfective aspect (Friedman 1975; Aarons et al. 1992; Neidle et al. 2000, e.g.).[33] FINISH has grammatical properties similar to those of a comparable lexical item in Italian Sign Language (LIS) (Zucchi et al. 2010).

The richness of the aspectual system is perhaps responsible for the received wisdom that ASL lacks any overt tense marking (e.g., Fischer 1975; Fischer and Gough 1978; Wilbur 1979; Padden 1983, 1988; Fischer and Janis 1989; Perlmutter 1991). However, there is a lexical item that clearly serves to mark the future tense, as in (8), as well other lexical items that express various combinations of tense and aspect, one example of which is shown in (9).[34]

(8) JOHN WILL VISIT MOTHER
     'John will visit mother.'

(9) JOHN #EX LIKE CHOCOLATE
     'John used to like chocolate.'

Although many of the lexical markers of tense/aspect in ASL are related to time adverbials (compare the future tense marker in (8) with the temporal adverb meaning 'in the future'), Aarons, et al. (1995) argue that they are distinguishable in terms of their syntactic distribution and their articulation. Markers of tense and aspect are generated in pre-verbal position, whereas adverbials can occur in various other positions within the sentence. Many time adverbials also can be articulated with variable length to mark differing distances in the past or future, whereas the related lexical markers of tense and aspect have a frozen path length. There is also some evidence that non-manual markings also contribute to temporal interpretations in ASL and other sign languages (Schermer and Koolhof 1989; Neidle 2007a).

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32 This particular sentence could also have another reading, in which FINISH functions as a main verb: 'John finished visiting mother.'

33 Rathmann (2005) claims that it is a marker of *perfect* (indicating that the event occurred prior to the reference time) but not *perfective* (i.e., completive) aspect, although Duffy (2007) argues that FINISH contributes both perfect and perfective viewpoint to the event.

34 Most of the tense markers discussed by Aarons et al. probably combine information about both tense and aspect. The sign #EX shown in example (9) was borrowed from the English prefix in words like 'ex-wife' but is now used, in some but not all dialects of ASL, as a lexical marker of tense and aspect.

7.4 Use of the left and right periphery and processes involving syntactic movement

ASL makes productive use of the left and right peripheries. In an ASL sentence, the basic clausal material [Subject – Verb – Object] may be preceded by a phrase or clause in sentence-initial position. Commonly found at the left edge of a sentence are noun phrases (functioning as topics, for example) or clauses (e.g., a topic, a relative clause (really a correlative), or a conditional or "when" clause). There are different clusters of non-manual expressions serving to mark each of these functions, although they all have in common raised eyebrows (Coulter 1979).

Noun phrases in sentence-initial position can function as "as for" type topics, illustrated in (10) – with the topic bearing a non-manual marking labeled as "top2" (following Aarons 1994). Alternatively, a noun phrase can be syntactically moved from within the main clause to a pre-clausal position for the purpose of marking focus or contrastive topic, as shown in (11). The non-manual expression characteristic of such topicalized (i.e., moved) NP's is here labeled as "top1". These two expressions are illustrated in Figure 7.

$$\overline{\text{top2}}$$
(10) JOHN, IX_i LIKE MARY
'As for John, he likes Mary.'

$$\overline{\text{top1}}$$
(11) JOHN, MARY LOVE
'*John* Mary loves.' in contradistinction to someone else whom she does not love

As argued by Aarons (1994) and in joint work by Aarons, Bahan, Neidle, et al., these two types of phrases are fundamentally different in terms of their distribution, discourse function, syntactic properties, and non-manual expression.

The construction illustrated in (11) involves a movement process sometimes known as "focus movement" in the syntactic literature. This is the same process
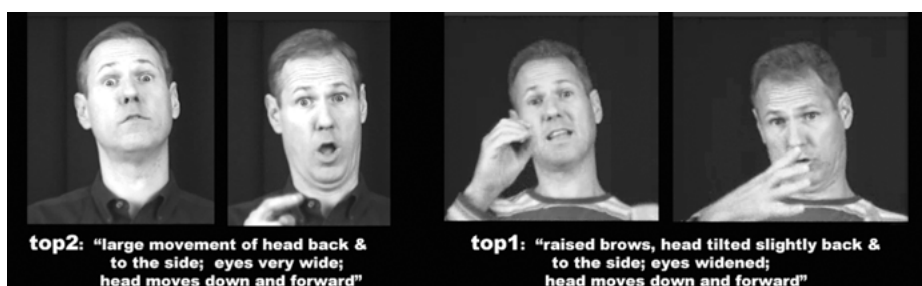
Fig. 7: Typical non-manual expressions for base-generated ("as for") "top2" topics vs. topicalized NP's (derived via syntactic movement), "top1", (descriptions taken from Aarons (1994)).

that accounts for a construction like (13) in English. Note that, to express the idea of (10), English would need to use a whole "as for" phrase, as shown in (12). Crucially, in both (10) and (12), the main clause includes expression of all arguments. In (11) and (13), however, the logical object of the main verb does not appear in its canonical position, but has instead been moved to precede the main clause.

(12) As for John, he likes Mary.

(13) *Bagels* John likes, but he's not crazy about cream cheese.

Whereas "focus movement" involves movement from an argument position to the *left* periphery of the sentence, wh-movement, when it occurs, involves movement of a question phrase to a position in the *right* periphery of the sentence in ASL (unlike English, where wh-phrases move leftward).[35] In a simple wh-question (i.e., one involving a single wh-phrase associated with the questioned argument), the question phrase can either appear *in situ* (i.e., in the position of the questioned argument) or in the rightward Specifier of CP position (the canonical position to which wh-phrases are moved, in languages where they move overtly).[36] The non-manual marking associated with wh-questions (including lowered brows and squinted brows), illustrated in Figure 6, can spread over the rest of the sentence, following the generalizations mentioned earlier for the spread of syntactic non-manual expressions. These possibilities are illustrated below for a question meaning 'Who loves John?':

$$\overline{\qquad\qquad\qquad\qquad \text{wh}\quad}$$
(14) [[WHO LOVE JOHN] $_{[+wh]}$]

$$\overline{\qquad\qquad\qquad\quad \text{wh}\quad}$$
(15) [[LOVE JOHN] $_{[+wh]}$ WHO]

$$\overline{\qquad\qquad\qquad\qquad\quad \text{wh}\quad}$$
(16) [[LOVE JOHN] $_{[+wh]}$ WHO]

Yes-no questions in ASL display a similar pattern. Although there is no syntactic movement involved, there is a question particle that may or may not appear in the right periphery to signal the question, which is marked non-manually by a specific non-manual expression, illustrated in Figure 6. The following ASL examples can be used to mean, 'Does the teacher like the movie?'

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35 For a different take on both the ASL facts concerning wh-questions and a different analysis, see (Lillo-Martin 1991; Petronio and Lillo-Martin 1997), but see also (Neidle et al. 1997; Neidle et al. 1998).

36 For discussion and account of the difference in interpretation between moved and *in situ* wh-phrases in ASL, see Neidle (2003).

$$\overline{\phantom{[[\text{TEACHER LIKE MOVIE }]}}^{\text{y/n}}$$

(17) [[TEACHER LIKE MOVIE] $_{[+y/n]}$]

(18) [[TEACHER LIKE MOVIE] $_{QMwg}$]

(19) [[TEACHER LIKE MOVIE] $_{QMwg}$]

There are other constructions that also make use of the right periphery in ASL. For example, a sentence can sometimes include a right-dislocated pronoun, i.e., a pronoun co-referential with a noun that appeared earlier in the sentence. This is common in many languages (such as French and Norwegian) and appears to be used for similar discourse purposes in languages that employ this construction. An example is provided in (20).

(20) JOHN WILL GO, IX$_i$
    'John will go, him.'

7.5 Null arguments

As has been seen above, there are cases in which a subject or object does not appear in its normal position because syntactic movement has occurred (e.g., (11), (15), (16)). However, there is another reason why the subject or object may not be realized in its usual position: it may be non-overt. ASL makes use of "null pronouns" in much the same way as Italian and many other languages. In part because the rich agreement system of ASL allows for information to be reconstructed about the reference of non-overt pronouns, in appropriate contexts, the pronoun can be omitted. Although the specific syntactic account of the licensing of null pronouns in ASL has been a subject of controversy,[37] the prevalence of this construction is undisputed. An example is shown in (21), which also includes a right-dislocated pronoun at the end. Thus, the subject here is overt within the main clause, and the final pronoun refers back to that null pronoun.

(21) MARY MAD. [pro$_i$] $_i$BLAME$_j$ FRED, IX$_i$
    'Mary is mad. (She) blames Fred, her.'

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37 Lillo-Martin (1991) proposed an analysis according to which there is a dual licensing strategy for ASL sentences, with some patterning like Italian (in that rich agreement licenses null arguments) and others patterning with Chinese (relying on a Topic licensing strategy). One problem with this account of Topic licensing for ASL is that it conflates null pronouns (e.g., a null pronoun co-referential with a base-generated "as for" topic) with traces left by movement, although the syntactic licensing requirements of these two types of null elements – null pronouns vs. traces – are very different.

7.6 Summary

Thus, the syntactic organization of ASL is based on the same underlying principles as that of spoken languages, but with some very interesting modality-specific differences. Of note are (1) the systematic use of space for reference, giving rise to types of agreement that are not found in spoken languages, and (2) the possibility for expression of non-manual grammatical markings, in parallel with manual signing, over entire phrases, thereby overtly marking the scope of such things as questions and negation. The movement of wh-phrases to the right edge of the sentence seems to be characteristic of sign languages but different from what has been found in spoken languages (Cecchetto, Geraci and Zucchi 2009).

8 Video examples

To browse some linguistically annotated ASL video examples, see <http://secrets.rutgers.edu/dai/queryPages/> (Neidle and Vogler 2012).

9 History of research

Following the infamous 1880 conference of educators of the deaf in Milan, when many formerly signing schools banned sign language from their campuses, George Veditz, the president of the National Association of the Deaf, led a project to film for posterity the sign language that many feared would disappear completely. *The Preservation of Sign Language* films[38] recorded between 1913–1920 include speeches and stories signed by many of the most esteemed signers (at least one was a woman) of the day and have been extremely valuable for those studying the process of historical change in ASL, including the etymology and process of change in signs, and reconstruction of the grammar of the ASL of that time (Supalla 2008).

The written documentation of the development of American Sign Language starts with descriptions of LSF in Epée's (1784) book, followed by Long's (1918) *The Sign Language: A Manual of Signs* with 1500 signs used in the United States. The first study of sign language based on linguistic principles was the pioneering work of William Stokoe, *Sign Language Structure: An Outline of the Visual Communication*

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38 *The Preservation of American Sign Language: the Complete Historical Collection* (1997): Fifteen sign language performances are presented in their entirety. The 120 minute DVD includes the complete speeches of master signers such as G. Veditz, E. M. Gallaudet, E. A. Fay, and J. Hotchkiss. http://store.signmedia.com/learning-asl.html.

System of the American Deaf (1960). He coined linguistic terms analogous to those used to describe spoken languages to be used for signs, i.e., cheremes (phonemes), dez (handshape), tab (location), sig (movement), and a system of notation symbols for writing signs. This was followed by the 1965 *Dictionary of American Sign Language* (Stokoe, Casterline and Croneberg 1965) with 2500 signs.

The first linguistics labs devoted to the study of sign language were established in the 1970s, although much of the early research circulated by hand and did not see publication for many years. In association with Stokoe's lab at Gallaudet, James Woodward presented the first ASL paper at a Linguistic Society of America meeting (Woodward 1971) and the first dissertation on ASL (Woodward 1973a). Robbin Battison and Lynne Friedman made important contributions throughout the decade describing the parts of signs and interactions among them, culminating in various articles and volumes (e.g., Battison 1974; Friedman 1977; Battison 1978). Other researchers of this period included Frishberg (e.g., 1978), Kegl (e.g., 1976, 1985), Lane (e.g., Lane, Boyes Braem and Bellugi 1976), Liddell (e.g., 1977, 1980), Siple (e.g., 1978a, 1978b), and Wilbur (e.g., Wilbur 1973; Chinchor et al. 1976; Kegl and Wilbur 1976).

Spurred by the experiments attempting to teach primates to communicate through sign language, Ursula Bellugi and Edward Klima at the Salk Institute for Biological Studies discovered that little was known about acquisition of sign language by humans. Linguists at the Salk Institute did substantial descriptive work on sign language, and used acquisition and neurological data to support linguistic claims. For example, researchers showed that there are significant similarities between the ways in which sign language and spoken language are processed, and that they are subject to similar types of impairments (e.g., Poizner, Klima, and Bellugi 1987; Hickok, Bellugi and Klima 1998; Neville et al. 1998; Hickok and Bellugi 2001; Emmorey 2002).

Early research at Salk paved the way for the study of the acquisition of ASL by deaf children, by Boyes-Braem (e.g., 1973), McIntire (e.g., 1977), Hoffmeister (e.g., 1978), and Newport (e.g., Newport 1981; Singleton and Newport 1994). This was the beginning of an important line of research, which has been ongoing, continued by, among others, Petitto (e.g., Petitto 1987; Petitto and Marentette 1991), Mayberry (e.g., 1991; 1993), Reilly and McIntire (e.g., 1991), and Schick (2002). Researchers including Mayberry (Mayberry and Tuchman 1985; Mayberry and Eichen 1991) and Newport (Johnson and Newport 1989; Newport 1990) have also carried out important work on acquisition of ASL as a second language.[39]

Though sign language books intended for classroom or self-instruction by adults had been published since David Watson's *Talk with Your Hands* (1964, first edition printed privately), textbooks that attempted to teach ASL (rather than a list

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39 For a review of some of the acquisition literature, see Newport and Meier (1985) and Meier (1991).

of signs), such as the one by Madsen that appeared in (1972), were a novelty. The gold standard was set for ASL grammar reference, for both instruction and linguistic description, by the *American Sign Language* "Green Books" by Charlotte Baker-Shenk and Dennis Cokely (Cokely and Baker-Shenk 1980; Baker and Cokely 1981).

Currently ASL linguistic research is being conducted in a number of different universities, including, among others: Boston University (Carol Neidle), Gallaudet University, Purdue University (Ronnie Wilber), San Diego State University (Karen Emmorey), the University of Chicago (Diane Brentari), the University of Connecticut (Diane Lillo-Martin), and the University of Texas, Austin (Richard Meir).

The early research on sign languages was impeded by the absence of technological means to record and analyze visual language data. With the advent of new multimedia and computer technologies, the possibilities for learning sign languages and studying their linguistic properties are changing dramatically. In addition, there are now efforts underway to develop large-scale sign language corpora, to advance capabilities for sign language recognition and generation by computer, and to develop linguistically-based computational tools for a wide range of potentially far-reaching applications.

Acknowledgments

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40 Note: All URL's provided in this chapter were last accessed on 3/10/2014.

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Websites with relevant information such as dictionaries, and websites of national organisations for the Deaf

Dictionaries and ASL video data

American Sign Language Linguistic Research Project (ASLLRP), Boston University, Boston, MA – http://www.bu.edu/asllrp/

ASL pro http://www.aslpro.com/cgi-bin/aslpro/aslpro.cgi

ASL University – http://www.lifeprint.com/dictionary.htm

DeafStem http://www.shodor.org/deafstemterms/

Organizations
American Society for Deaf Children – http://www.deafchildren.org/
Children of Deaf Adults – http://www.coda-international.org/
Deaf Women United – http://www.dwu.org/
National Association of the Deaf – http://www.nad.org
Registry of Interpreters for the Deaf – http://www.rid.org

María Ignacia Massone and Rocío Anabel Martínez
2 Argentine Sign Language

1 Basic facts about the language

Language name: *Lengua de Señas Argentina* [Argentine Sign Language] or LSA[1] is the language used for interaction within the Argentine Deaf community throughout the country.[2] This name was given by linguists in 1985 during a Latin-American meeting that took place in Buenos Aires. The Deaf community adopted this name when they talk in Spanish about their language. However, when signing between them either they use the verb TO-SIGN in which both hands move alternatively – see Figure 1 – the initialized form L-S-A or simply L-S. This agreement verb – or pronominal verb as we call this syntactic category – may function as a noun to name the sign language or as a verb meaning to communicate, to tell, to inform in LSA.

Location: Argentine Sign Language is used throughout the country.

Fig. 1: Verb TO-SIGN.

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1 When writing in English we have always maintained the abbreviation LSA following its name in Spanish. By doing this, we avoid the confusion that might be made with other sign language whose abbreviation in English is also ASL (for instance, American Sign Language).
2 We use throughout the paper Deaf with capital letters when it refers to people that belong to the community and use LSA. Argentine Deaf community has accepted and proposes this means of reference, even though it does not follow the rules of written Spanish.

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Varieties: LSA is the only one sign language variety all over the country. So far only lexical and phonetic variations have been observed, the former being particularly relevant in the provinces of the Northeast of the country: Formosa and Chaco (Massone 1993b). Most Deaf people in such provinces due to economic disadvantages are less able to travel throughout the country – unlike Deaf people from other provinces. Therefore, the interaction with other members of their own community in different cultural events is somewhat scarce.

Furthermore, as the first two schools for the deaf were created at the beginning of the 20th century and were until 1990 segregated by sex, gender variants have also been identified. For example there are two signs for YELLOW and two for BLUE, one used only by women and the other only by men. There are also old signs used only by adult non-married women for the days of the week, the months of the year and numbers (Massone 1993b). Two number sign systems were used in these schools (Massone and Machado 1994). However, nowadays young people, who are the ones which generate changes, as sociolinguistics has declared, have adopted the number system produced in the male school, which is therefore nowadays most widely used (Massone and Johnson 1994).

Number of signers: There are no statistics as to how many Deaf people live in Argentina. Likewise, neither a census nor research have been carried out so far. However, it is estimated that 0.1% of our population is deaf, that is to say, around 40,000 people.

Organizations: Almost all of the following associations are affiliated to the Argentine Deaf Confederation [*Confederación Argentina de Sordos*], which is located in Buenos Aires. This institution functions as the national government of the community and is affiliated to the World Federation of the Deaf.

Asociación Argentina de Sordomudas – Casa Hogar
Asociación Argentina de Sordos
Asociación Argentina Israelita de Sordos
Asociación Catamarqueña de Sordos
Asociación de Sordos de Ayuda Mutua
Asociación de Sordomudos de Ayuda Mutua de Rosario
Asociación de Sordomudos de Corrientes
Asociación de Sordomudos de Chaco
Asociación de Sordomudos La Plata
Asociación de Sordos de Mendoza
Asociación de Sordomudos de San Juan
Asociación de Sordomudos del Gran Buenos Aires
Asociación de Sordos Chubutenses
Asociación de Sordos de Gualeguaychú
Asociación de Sordos de Mar del Plata
Asociación de Sordos de Misiones

Asociación de Sordos de Neuquén
Asociación de Sordos de Oberá, Misiones
Asociación de Sordos de Río Gallegos – Santa Cruz
Asociación de Sordos de Río Negro
Asociación de Sordos de Salta
Asociación de Sordos de San Francisco – Córdoba
Asociación de Sordos de Santa Fe
Asociación de Sordos e Hipoacúsicos de Merlo
Asociación Jujeña de Sordos
Asociación Marplatense de Sordos e Hipoacúsicos Integrados
Asociación Riojana de Sordos
Asociación Tucumana de Sordos
Centro de Jubilados y Pensionados Sordomudos de la República Argentina
Círculo de Sordos de Paraná
Círculo Social, Cultural y Deportivo de Sordomudos
CRESCOMAS Córdoba
CRESCOMAS San Juan
Movimiento Sordos de Mendoza
Organización Cordobesa de Sordos
Unión Argentina de Sordomudos

2 Origin and history

Little is known about the origin and history of the Deaf community in Argentina before the 20th century. As in many other countries before that time, we hypothesize that the Deaf were segregated in hospitals, mental health hospitals, or even churches, as they were considered both uneducated and handicapped as well as a threat to society. Within such institutions and due to the incredible power of the social dimension, sign language emerged among them as the language of communion. In 1905 the first boarding school for deaf boys was created – the Ayrolo Institute – and we may consider this date as the one in which the actual LSA emerged. However, it is important to note that this first school was created according to the spirit of the No. 1662 Law, which was passed in September 19th, 1895, explicitly prohibiting sign language – or gestures, as the language was called at that time. Furthermore, the first teachers of deaf students came from Italy with the first wave of Italian immigrants at the end of the 19th century, a few years after the Milan Congress.

In 1912 the former pupils of the Ayrolo Institute and José Antonio Terry junior – who was Deaf and son of the Minister of Education who passed the Law No. 1662 – created in Buenos Aires the first deaf association [*Asociación de Sordomudos de Ayuda Mutua*]. In 1932, through the cooperative association of the National Insti-

tute of Deafmute Girls, the Argentine Deafmute Women Association was created in Buenos Aires [*Asociación Argentina de Sordomudas*] that provided shelter to Deaf women living in poverty or without a family. In 1937 the first teacher training course, nowadays an official training program, was established, as well as the first boarding school for deaf girls. Therefore, the State considered that new laws were necessary. The Nº 7528 decree, passed on April 24 of that year, stated: "those students who do not have the disposition to learn words will be educated in lip-reading and the written language, to the exclusion of gestures". As for the teachers of deaf students it also prescribed that "under no circumstances can deafmute employees be appointed." In 1939, the Argentine Deafmute Union, another Deaf association, is created in Buenos Aires. In 1941, the former pupils of the Antonio Próvolo of La Plata school for boys, created in the same city the Deafmute Association of La Plata. In 1956, associations are grouped into the Argentine Deaf Confederation. In 1970, graduates from oral schools created the Oral Deaf Association, which countered the use of LSA until the 90s and later changed its name into Argentine Deaf Association, as nowadays its members belong to the Deaf community and they all use LSA. In the past ten years most of the above mentioned associations have also changed their names from deafmute to Deaf.

This brief outline of the history shows that the emergence of Argentine Sign Language, as it is known today, and Deaf community is related to the establishment of deaf schools. In 1999, for example, the Deaf Association of the city of Posadas was created due to the commitment of a Deaf leader, Alejandro Makotrinsky, and, as they did not have any headquarters of their own, the Deaf used to gather at the deaf school.

As is the case with every human group, in Deaf communities there are two levels of organization: on the one hand, the institutional level (Deaf clubs and associations) and, on the other hand, spontaneous gathering of groups (Deaf communities). These two levels do not always coincide in social reality, as boundaries between Deaf associations are generally weak. In fact, a Deaf person may belong to different associations at the same time, or not be a member of any of them and belong to the Deaf community as any other Deaf individual. In Argentina, the Deaf have great mobility and they participate in different group activities, regardless of their membership into any particular association or the province in which they live. Social experience among the Deaf has more to do with horizontal interpersonal relationships than with vertical institutional affiliation to a given group. Deaf associations are thus formal gathering groups, as formerly were the schools for the deaf (Behares and Massone 1996).

3 Bilingualism and language contact

3.1 Education

Ever since the creation of the first public school for the Deaf in 1905, Argentine deaf education has been oralist. In 1999 the Ministry of Education sent to deaf schools a document that had – and still has – the force of a law and that proposed bilingual (albeit not bicultural) education (Serpa and Massone 2009). However, deaf schools are still oralist or, even worse, neo-oralist (Massone, 2008a, 2008b) and most of them do not employ Deaf teachers. Thus, from a sociolinguistic perspective, deaf schools are hearing sociocultural settings where Spanish continues to be the target language. Although many teachers of the deaf take three-year LSA courses and try to use this language later on when they are employed as teachers, their proficiency level is low and LSA interaction with Deaf people is scant, which leads them to resort to signed Spanish. Teachers ignore the bicultural component of bilingual education, thinking that knowing some LSA enables them to put into practice bilingualism and call their schools 'bilingual' without even considering Deaf teachers or Deaf culture. The lack of Deaf teachers in schools reinforces power relations in which the hearing dominate. Massone thus contends that neo-oralist discourse involves the naturalization of bilingual-bicultural discourse concepts that have been ambiguously appropriated by the dominant discourse in order to perpetuate oralism.

In several works (Massone and Simón 1997, 1998; Massone et al. 2003; Massone 2008a, 2008b; Massone 2009), Massone has analyzed this current situation and concluded that the emerging bilingual-bicultural discourse, introduced in educational discourse in 1985, has questioned existing values, and struggled to impose new ones derived from the socio-anthropological perspective. However, oralist educational discourse – the dominant discourse in the field – refuses to accept the bilingual-bicultural model, the greater reluctance being the recognition of its bicultural component. Massone thus argue that the social representations of the Deaf and of their language have not changed over time. Not only the training programs but also deaf schools, teachers and the State with its current policy continue to regard Deaf people as handicapped and Argentine Sign Language as an additional tool for education and not as a full, complex and natural language. Therefore, the neo-oralist discourse involves the naturalization of bilingual-bicultural discourse concepts that have been ambiguously appropriated by the dominant discourse in order to maintain the *status quo*, that is, oralism. "In order to maintain the *status quo,* ideology must naturalize, reduce and obscure signs, thus imposing the dominant discourse and maintaining power relations in a given field of reality" (Massone 2008a: 277).

Therefore, schools have historically tried to teach only oral Spanish to Deaf people, disregarding Deaf culture and conforming hearing sociolinguistic settings,

as power relations have never been altered. In spite of the fact that Deaf people have been obliged to speak and talk, there is scarce interchange between the Deaf and hearing people outside school as well as within their associations. Interaction with hearing people is more frequent with those that have some or full knowledge of LSA – especially with hearing people that conform the solidarity community, such as some linguists or some interpreters.[3]

As Deaf people in Argentina are commonly educated in oralist and not bilingual-bicultural institutions, they finish school with low reading comprehension. Even so, they improve their reading skills individually thanks to the new technologies (Internet, mobile phones, etc.). As we have shown in previous papers (Massone *et al.* 2005, 2010; Massone, Martínez and Lemmo 2010), Deaf people are learning to write and read outside formal school. That is to say, whenever they use Internet, write or read mails or text messages they try to understand the distinctive characteristics of Spanish written language. We have found evidence of constant thought concerning the writing process, expressions of reciprocity and a wish to learn how to communicate in Spanish as a second language. Deaf people are thus building the grammar of this second language and, in this process, the knowledge of their mother tongue [L1-LSA] helps in the acquisition of the L2 [written Spanish]. In this stage of non-formal education in which they learn to write through electronic means, success in communication is the first aim, leaving linguistic accuracy in a second place due to the fact that it requires deeper metalinguistic awareness. The more written Spanish they are exposed to, the more grows their ability to reflect on the use of this language. We have also concluded that, contrary to a popular belief in education, Deaf people do not write in Spanish with LSA syntactic order. Consequently, the process of appropriation of written Spanish is being made by the Deaf people on their own. This means that they are currently trying to stop being illiterate and nobody can foresee the upcoming results. It is our firm belief that once they learn written language, the changes they will go through are irreversible: the symbolic world acts upon the reader.

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3 It is important to highlight that not all linguists or all interpreters who work in the field in Argentina are part of the solidarity community. Only those that share the commitments of Deaf people for the recognition of their language and their culture in society at large do belong. That is to say, very few people. With regard to linguists, we consider that only those that have adopted an emic ethnographic perspective can be considered part of the solidarity community. Only these researchers can view the culture and the language from a monocultural perspective, from the inside of the community. Therefore, this leaves us with only three linguists in Argentina, both authors and Mónica Curiel, former fellowship directed by Massone, and about ten interpreters in the whole country, all of them CODA.

3.2 Influence from dominant language

Argentine Deaf community is monolingual in itself, and the contact situations with hearing Spanish speakers outside schools are not very frequent (Massone 2009). Thus Argentine Deaf community is isolated from society at large and only maintains a weak type of relationship with the hearing society. We are not trying to deny some sort of interchange between hearing and Deaf communities, such as LSA courses and cultural or political events. Even though, it must be stressed that such an interchange takes place only among hearing people that have some or full knowledge of LSA.

Therefore, the following is an outline of the contact situations within Argentine Deaf community:

Deaf bilingual / Deaf bilingual
Deaf bilingual / Deaf LSA monolingual
Deaf LSA monolingual / Deaf LSA monolingual

When Deaf people interact with hearing people within their community the type of contact situations are:

Deaf bilingual / hearing bilingual
Deaf bilingual / hearing semilingual in LSA
Deaf LSA monolingual / hearing bilingual
Deaf LSA monolingual / hearing semilingual in LSA

Therefore, in itself the Argentine Deaf community is monolingual in LSA. Spanish functions as the *lingua franca* as they are totally aware that it is an imperative language not only for their mainstreaming with the hearing community, but also because it is the official language of their country and thus the language needed in their struggle for recognition (Massone 2009).

The Deaf linguistic community is thus bilingual in relation to the hearing community with which it needs to mainstream, and in those occasions in which this becomes necessary. The Argentine Deaf linguistic community in itself is thus not diglossic. In fact, Massone (2009) described their sociolinguistic situation as bilingualism without diglossia. It is not possible to characterize Spanish and LSA as varieties because Spanish has no function at all within the community. It is not diglossia which gathers them together but their deafness. Therefore, they cannot be diglossic as they are not part of certain communicative circuits or of all the different types of communicative events present in the hearing community.

In the mentioned paper, the author criticizes the term diglossia as a valid concept for the sociolinguistic characterization of a historically marginalized monolingual community as the Deaf in Argentina. Additionally, Massone (2009) considers it as a term that functionally serves the dominant ideology to present Deaf people and their sign language as a different exotic community, a fact that tends to discrimination.

This outline allows us to understand why there are few contact phenomena between Spanish and LSA. In spite of that fact, whenever a contact situation is identified, the relationship is mainly between written (not oral) Spanish and LSA, both visual linguistic systems. For instance, as will be explained under the section "Associated sign systems" the manual alphabet has always been productive in the creation of signs derived from Spanish, as in many other sign languages. The most important contact between Spanish and LSA is – as LSA does not mark gender morphologically – the use of the "A" and "O" of the hand alphabet when it is necessary to mark gender in kinship terms (Massone and Johnson 1990) – See Figure 10 – or the use of "S" to mark plural in the sign DAYS, sign which derives from the manual alphabet. The adversative conjunction BUT, created by hearing people, is being used in encounters Deaf/Deaf with certain frequency, although only when the Deaf people have a good knowledge of Spanish.

4 Political and social context

During the 1990s, Argentina went through an exceptionally deep crisis due to the extreme neoliberal politics. Despite the characteristics of this historical context, the excluded groups were capable of creating their own socio-cultural manifestations that we consider a remarkable reaction to the country's situation. New forms of games and fun emerged, as well as ways of protest and dissent, which contributed to the purpose of breeding a new identity, as in the case of the Deaf Community. In response to its need of expressing itself this group has matured in its political discourse and we could really affirm that Deaf political discourse emerged by that time. The moment also coincides with the creation of the *Grupo Seis*, a group of six Deaf leaders – all of them being second or third Deaf generation. This group intended to defend their natural sign language by all means. When some of these leaders were elected as authorities at the Deaf Argentine Confederation the group was dissolved as this institution is highly respected by them and from it they were able to fight institutionally for their rights.

In November 2002 these Deaf leaders who had become authorities at the Confederation organized in Buenos Aires the First National Deaf Congress called "Deaf people in the new millennium". The purpose of this meeting was to discuss different issues in order to carry on a coherent national plan regarding political affairs. Many decisions were made at the Congress such as to visit all the local associations in order to explain the Confederation mission statement and to organize a new meeting with Deaf representatives to plan different projects (education, laws, LSA, research, etc.).

In 2007 the Confederation held the First Deaf LSA Summit in Buenos Aires. The main representatives from the 45 associations in our country attended. Only four hearing specialists were invited to the event: two interpreters and two linguists

(Curiel and Massone). All participants signed a document approving the following statements:

(i)   the Argentine Confederation of the Deaf is recognized as the national government of the Deaf community;

(ii) a bill must be presented to the national government in the pursuit of the recognition of LSA as the natural language of the Deaf community;

(iii) LSA teaching courses can only be given by Deaf people with proper training;

(iv) since there are no Deaf linguists yet, it is important to foster the collaboration with hearing professionals regarding linguistic research;

(v) old signs must be rescued.

The final document signed by all the Deaf representatives, was handed in to the Parliament in September 28th 2007, the day that a worldwide Deaf demonstration was made in different parts of the world. However, this project was disregarded by the National Congress and was never treated. Therefore, a new project that implied not only the defense of the linguistic and cultural patrimony of the Deaf community, but also proposed the creation of a National Institute in order to regulate the use of LSA all over the country in every sphere of the society was presented by the Confederation in September 2012. This project is still being defended by the Deaf community and has not yet been approved. It also has the support of many important Universities, associations and professionals from all over the world, even from the World Federation of the Deaf.

In the year 2012 a group of Deaf leaders and three hearing professionals – Curiel and Massone were two of them – founded the *Movimiento Argentino de Sordos* "Argentine Deaf Movement". Martínez was invited later by the Deaf leaders to integrate the Movement. The main objective of this movement is to fight from outside the institutions for the human rights of the Deaf community. One of the most important activities was to surround the National Congress building the day the project was presented. Around four thousand Deaf and hearing people covered the four streets that surround the building. People who were not able to travel to Buenos Aires manifested also at their local cities. In the year 2013 the Movement organized a public hearing at the Congress together with one of the deputies. A thousand people attended and crowded the two rooms available. It was the first time in Argentine history that interpreters had been seen on screens at the National Congress signing in LSA. In spite of these actions, the bill has not become law yet. Nevertheless, the Deaf Community finally reached the streets, with all the symbolic power that this social space has in Latin-American societies – the place to fight for people's rights.

The Movement is also working with the Assembly of Human Rights and their authorities have already presented three dissertations at the United Nations that compel the Argentine government to legislate in favor of LSA as the natural language of Argentine Deaf community.

The Deaf are playing an active part in this process as they demand recognition of their language in public spheres and in educational programs. As *homo fabulans* they fight for the deconstruction of dominant or oralist discourse. The *homo fabulans* is a revolutionary narrator who is absolutely conscious of his power of saying, who recognizes itself with the right of implementing a new and distinct hegemony (Mancuso 2005), since as Gramsci (1975) said there is no absolute hegemony. They are totally aware that the administrative, educational and legal systems do not guarantee free selection in countries where their language is not defended by law.

So far LSA has been recognized as the natural language of the Deaf community in the cities of La Plata, Mendoza and Córdoba. In the city of Buenos Aires there is a law compelling every public institution to have interpreter services. However, in national institutions, such as the University of Buenos Aires, there are no interpreter services, as is the case in many other national Universities.

Regarding interpreters training programs in Argentina, only two Universities offer the degree – *Universidad de Cuyo* and *Universidad Nacional de Entre Ríos*. But nearly all interpreters are mainly trained in LSA courses – where they are taught the grammar, but not interpreting techniques and methods – or are hearing children of Deaf parents (CODAS). Consequently, their proficiency when interpreting depends on their common sense and not on their academic preparation. All in all, the interpreting service is being slowly professionalized because of the actual demands of the Deaf community.

Due to all these important events we considered that it was relevant to study Deaf political discourse, not only for academic reasons but also to understand profoundly their struggle. In addition, this enquiry was made because social scientists are functional to Deaf political discourse, generating an intertextual tension with the dominant discourse in order to avoid and eradicate the myths and misconceptions proper of that ideology (Massone 2010). We started to study Deaf political discourse with the active contribution of Deaf leaders (Druetta *et al.* 2010; Martínez and Massone 2013; Massone 2010; Massone *et al.* 2012). This discourse seeks not only to bring cohesion to the community, but also to establish a position in the public arena in order to gain visibility and fight for their legitimate rights. The Deaf want and need to be placed in the agenda of politicians.

Social science discourse – only linguistics in our country – grew disciplinarily and was able to legitimate the Deaf community's demands: its right to have a language and a culture, as well as the respect this patrimony deserves. Therefore, a new discipline in linguistics studies was recognized: Sign Language Linguistics. Finally, Argentine Sign Language or LSA has been recognized in the academic field as a valid object of study. Research has been done in our country concerning LSA: there are grammatical studies and dictionaries that legitimate this language (Massone 1993b; Druetta 1993; Massone and Machado 1994; Massone *et al.* 2006), even though there is much work still to be done in this field.

5 The structure of signs

Massone worked with her thesis supervisor, Dr. Robert E. Johnson, in order to adapt to LSA the Liddell-Johnson phonological model (1985, 1986) called Movement-Hold system (Massone and Johnson 1994). As this system has been explained elsewhere, we will only present some characteristics of LSA phonetics.

When Massone and Johnson (1994) applied this description model to the analysis of a great number of signs in LSA – around two thousand – the existence of many segments which could not be designated as M – movements – or as H – holds – became evident. The authors described the articulating component of the initial segments of the signs, those in which the hand is placed in the required position to begin articulation, but the compartment corresponding to the type of segment was left empty (Massone 1993b). Johnson and Massone observed that another kind of segment was necessary to describe LSA signs that had not been incorporated in the first Movement-Hold version. In further reviews, Johnson and Liddell (1996) added a third type of segment named X. In a more precise way, Oviedo (2001) coined the term transition or T to that phenomenon. The addition of a third type of segment to the segmental matrix solves this problem. The T segments are usually hold segments which, due to phonological processes, have their duration drastically reduced. The change from one to the other is one of the most common phenomena that signs undergo, as Oviedo (2001) points out.

Therefore, the type of segments that conform the segmental matrix are: Movement – M, Hold – H and Transitions – T. Most signs which do not make contact with the body are produced as T-M-H. An example of a sign with a T segment is the sign TO-SAY-NO – see Figure 4.

The contour movements found in LSA are: linear, circular, arc, zig-zag and seven. The local movements are: wiggling, oscillating, progressive change of fingers, vibrant and brushing. We have described sixteen different handshapes that were named according to their similitude with a letter of the manual alphabet or a number. These sixteen handshapes produce a series of different variations regarding the different fingers involved, their different extensions and the different position of the thumb. As every other sign language, LSA also has signs produced with one hand or with both hands (Massone and Machado 1994).

Johnson and Liddell (2011) designed another system to describe HC's which is much more precise. The authors name each finger with a number and describe the position of the extended or closed fingers plus the independent movement of the thumb. We are now reviewing and adapting to LSA the new phonetic model proposed by Johnson and Liddell in order to describe more accurately not only the different handshapes of LSA but also the different segments which constitute a sign.

6 Associated sign systems

The Deaf use associated sign systems such as the manual alphabet and the mouth-hand system. The latter, as will be explained in the section "Interrogative pronouns", is used only to differentiate these different pronouns.

6.1 Hand alphabet

The hand alphabet used in LSA has an interesting characteristic: it is produced either with one or two hands and has signs that are located in the body. This alphabet has many similarities with the old Italian alphabet and with another one described by Thomas Péndola in his book *"Corso di Pratico Insegnamento per il Sordomuto Italiano"* of 1942, which has been attributed to Assarotti.

The hand alphabet is used in LSA to sign proper names (names or surnames, names for countries, cities or places) or neologisms (Massone and Machado 1993). The signs of the hand alphabet present different forms of representation. The first one consists in signing every letter of the Spanish word: N-I-C-A-R-A-G-U-A, G-A-Y, S-I-D-A [Aids], O-R-O [gold], A-S-I-A. In many signs the Hand Configuration – HC – of the hand alphabet that corresponds to the first letter of the Spanish word undergoes some type of change in the type of movement or location and constitutes a new sign as can be observed in Figure 3.
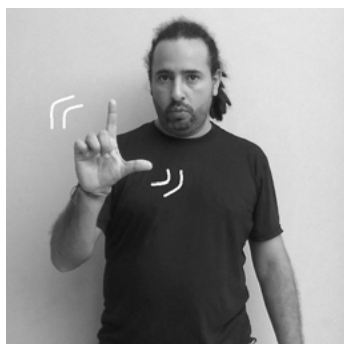
Fig. 2: Sign MONDAY (oscillating movement).

It may also occur that the Spanish words that are represented by means of the hand alphabet undergo a series of modifications, such as the omission of letters: J-J-Y [*Jujuy*], P-A-CH-C-O [*Pacheco*], L-R-S [*Liniers*], J-I-L [July]; the production of only two HC: S-L [Israel], G-S [gas], CH-U [say goodbye], P-N [planification]. These observed characteristics can all appear together producing as a result an accept-

Fig. 3: Sign LINGUIST (1st position, hands move to proximal, ipsilateral and in front).

Fig. 4: TO-SAY-NO: agreement or pronominal verb which means to say no to someone.

Fig. 5: MONTHS: plural noun which designates many months.

able sign that functions as a lexeme: TO-SAY-NEVER, TO-SAY-NO, TO-BE-RIGHT, PRO2-DO-IT.

The last level of representation consists in a lexeme that has been derived from the use of the hand alphabet but whose phonological form does not evidence this fact, that is to say, that has been lexicalized, as MONTHS – see Figure 5. These different levels of representation show the productivity of the use of the hand alphabet in LSA as well as the fact that this language has the same options for lexical

innovation as any other language. Furthermore, it is important to stress that signs of the manual alphabet are subjected to the same restrictions as any other sign of LSA, evidence that supports the theory that manual alphabets have been created by Deaf people.

7 Basic morphology and lexicon

Different categories form part of the lexicon of LSA. So far we have identified: nouns, verbs, determiners, pronouns, adverbs, conjunctions, prepositions and interjections (Massone and Martínez 2012). Some prepositional relationships are also marked in verbs, however further analysis is required to explain prepositions and conjunctions. Some of these signs are manual and non-manual but can be produced with the non-manual features only. Besides, as in most languages there are signs that can have multiple functions within the sentence (Massone 1993a; Curiel and Massone 1993), as, for example, stative verbs that can function as adjectives (TO-BE-BLUE, TO-BE-INTERESTING, TO-BE-THIN).

With regard to stative verbs, in a previous paper (Massone, Curiel and Makotrinsky 2012: 72) we stated: "Though in future analysis this subject will be studied, LSA has adjectives, since these stative verbs have an attributive function when they are part of nominal constructions, that is to say, a noun sign plus an adjective sign whose characteristics are [+ Verbal]; [+ Nominal]". Therefore, when these signs have an attributive function, they have an adjectival nature, whereas when their function is predicative, the sign belongs to the verb class. But despite these references, no in-depth research concerning this group of LSA signs has been carried out up to now.

Martínez (in preparation) is currently reconsidering this group of signs from a cognitive perspective (Langacker 1987, 1991, 2008; Lakoff 1987). She has already analyzed conceptual metaphor, metonymy and cognitive iconicity in LSA within this framework (Martínez 2012; Martínez and Morón Usandivaras 2013, 2014, in press; Massone and Martínez 2013).

Having to deal with these problems, Martínez (in preparation) puts forward a hypothesis that may provide a better explanation: only when signs are instantiated in real discourse will the word class category be analyzable. That is to say, signs do not inherently (*a priori*) belong to one category (noun, verb, adjective), but depend on their instantiation in discourse. Given that within this framework, adjectival signs are symbolic structures whose semantic pole designate an [ATEMPORAL RELATION], meanwhile verbal signs designate a [PROCESS] that is developed through time, the signer will choose one word class over the other – for instance, verb vs. adjective – depending on the kind of information he/she wants to profile.

With regard to morphological processes, LSA has a rich morphological system. On the one hand, LSA has morphological processes such as certain types of deriva-

Fig. 6: DONE: Past participle.

Fig. 7: TO-BE-ARRIVING: Aspectual gerund.

tion or inflection. For instance, LSA verbs modify their articulatory and segmental matrix in order to indicate past or future tenses. In addition, we have recently identified a gerund with durative or perfective value, and a past participle which shows the aspectual value of iterativity and the temporal value of perfectivity subordinated to the previous one (Massone and Martínez 2012). This past participle has a manual and a non-manual component, its non-manual component may be produced simultaneously to any type of verb signs, including movement verbs, to mark perfectivity.

On the other hand, LSA has also other morphological processes such as the formation of lexemes from the hand alphabet (as we mentioned above) and numeral incorporation (as will be mentioned later).

7.1 Personal pronouns

Personal pronouns are those signs that indicate the persons that participate in an interaction. LSA has six deictic signs for personal pronouns:

PRO1   PRO2   PRO3   PRO1pl   PRO2pl   PRO3pl
"I"   "you" "he/she"   "we"   "you"   "they"

PRO1pl, PRO2pl and PRO3pl may conform to numeral incorporating roots. As for example in the case of PRO1pl to indicate "the two of us" two fingers are lifted, three fingers for the three of us, and when four fingers are lifted it indicates "all of us". The same pattern is followed by PRO2pl and PRO3pl (Massone and Machado 1994).

We have noticed that PRO2 and PRO3 signs are equal as to their manual part but they differ in their non-manual features. In the sign for PRO2 "you" eye gaze is directed towards the person receiving the message, that is to say, the one who follows the hand; whereas, in the sign for PRO3 "he/she" eye gaze is directed towards "you", never towards "him/her". This characteristic has also been noticed in the case of American Sign Language (J. Kegl, S. Fischer, N. Berenz, personal communication) and marks the distinction between the second and third person.

Fig. 8: TO-BE-PROPERTY-OF-PRO2.

There is a first person possessive personal pronoun used in the same place as the corresponding personal pronoun with a different configuration: an open palm, making repeated contact with the body at the breastbone area. This sign precedes the noun of the possessed referent and forms with it a possessive nominal phrase. When the signer needs to be emphatic, possession is also marked with the agreement or pronominal verb TO-BE-PROPERTY-OF-PRO2.

7.2 Interrogative Pronouns

LSA possesses interrogative pronouns, which are always produced with the non-manual features proper of interrogation. These non-manual features extend above the interrogated statement and the corresponding manual interrogative signs may not take place.

The interrogative pronoun in LSA is WHAT with the following non-manual features: head backwards, half-closed eyes and a frown. When it becomes necessary to distinguish it from the other interrogative pronouns such as: WHEN, WHO, WHERE and WHY, the signer mouths the first two letters of the Spanish word. HOW-MAY has a distinct sign.

Fig. 9: Interrogative pronoun WHAT.

7.3 Noun morphology

Nouns in LSA do not inflect for gender (Massone 1993a). However, there are non-lexicalized mechanisms to mark the feminine/masculine distinction when it is necessary. The nouns which refer to animals or professions usually form a phrase with the signs MALE or FEMALE/WOMAN to express this distinction.

(1) HOUSE CAT FEMALE TWO HAVE.
     "I have two female cats at home".

Kinship terms, as we have stated above, add the A or the O from the hand alphabet together with mouthing in order to indicate gender, when it is necessary.

Noun signs have different ways of indicating the plural (Massone 1993a). A lexicalized mechanism, also common in other sign languages, is the repetition of the sign in different locations in space or different body locations. Other signs produced with one hand are produced by two hands in order to indicate the plural. There are also some signs that are by definition plural, such as HOLIDAYS, REVOLUTION, TRAFFIC, RIOT, PARADE, etc.

As most other sign languages, LSA has numeral incorporating roots that indicate the number of things to be counted (Massone and Machado 1994; Fuentes et al. 2010a, 2010b). As the numerical system in LSA only presents digital numbers from ZERO to FIVE, roots may only incorporate these numbers in the Hand Configuration (HC).

Fig. 10a: In the sign BROTHER both signs start with the sign SAME and add the O from the hand alphabet.

Fig. 10b: In the sign SISTER both signs start with the sign SAME and add the A from the hand alphabet.

(2) PRO1 HOLIDAYS MAR-DEL-PLATA THREE-WEEKS-INC.
"I will stay at Mar del Plata for my holidays for three weeks".

The plural is commonly marked with the non-manual features of the sign MANY produced simultaneously with the noun sign: rounded lips, and puffing, as can be observed in the sign WOMEN. This analysis of number and gender in LSA (Massone 1993a) was discussed with William Stokoe at Gallaudet University.

7.4 Verb Morphology

We have classified verbs in LSA as: non-deictic – process and stative verbs – and deictic – agreement, spatial-locative and body-locative verbs. We have always used this terminology although we are aware that many names have been given to these types of verb. These verbs function as in every other sign language.

Fig. 11: Cardinal number THOUSAND.

Fig. 12: Numeral incorporating root: FIVE-THOUSAND-INC.

Fig. 13: Nominal sign WOMEN.

With regard to agreement verbs they function as pronominal verbs in Spanish. Verbs like *dámelo* 'give it to me', *dáselo* 'give it to him', *dáselos* 'give it to them' conserve case. In *dámelo* the subject is in the root of the verb, the indirect object in second position and the direct object in final position. Therefore, LSA, like many

other sign languages, for example Uruguayan Sign Language (Fojo and Massone, 2012) is more similar to Spanish than to English, since LSA agreement verbs change the movement, the placement, the direction and the hand configuration of the manual articulators to mark the subject and the object morphologically (and not syntactically, as English does). For instance, in 1-GIVE-MONEY-2 ("I give money to you") the initial and the final position of the sign (near the body of the signer and then in a more distant linear point) give information on the subject and the indirect object, respectively, whereas the hand configuration carries the meaning of the direct object ("money"). Therefore, we have renamed these agreement verbs as pronominal verbs (Massone and Martínez 2012). Spatial-locative verbs or movement verbs also use, as in other sign languages, classifiers in their HC as in the following example:

Fig. 14: CAR DRIVE VEHICLE(CL)-GOES-FORWARD-BACKWARDS-STOPS-AND-PARKS.

It is important to mention the work done by Sandra with respect to the morphosyntactic aspects of directional and movement verbs in LSA (Cvejanov 2002, 2005). Her main contribution to typological studies has been the determination of the patterns of lexicalization in the verb of movement with classifier, and in considering the need to expand the patterns proposed by Talmy. She considers that movement verbs are formed postlexically although maintaining the idea that the classifier syntagm selects the verbal syntagm that selects the locative argument in directional verbs. Movement verbs are expressed by a verbal serial structure composed

Fig. 15: EVERYBODY-LOOKS-AT-ME.

Fig. 16: TO-MAKE-ENEMIES-OF.

of two adjacent verbs, one of manner and the other of direction when the manner verb is two-handed. In Benedicto et al. (2008), a study that compares LSA, ASL and LSC (Sign Language of Catalonya), these structures are explained as serial monoclausal constructions. These authors also explain the existence of serial "sandwich" constructions by means of the Copy Theory of Movement, i.e. series of three or four verbs in which the third is a copy of the first (and the fourth a copy of the second), and besides they demonstrate that predicates with manipulative classifiers are transitive and those with semantic classifiers are inacussative. In her doctoral thesis Cvejanov (in preparation) analyzes the argumental and aspectual properties of verbs of movement. She is also studying other constructions with multiple verbs from a minimalist perspective: serialized resultative and consecutive constructions and constructions with verb copy.

Verbs in LSA may inflect for number (Massone 1993a), repeating the verb in different locations in space or several times in the same locations or moving the verb sign in an arc in front of the signer. Some spatial-locative verbs as TO-LOOK which is produced with a [V+o−] handshape indicates that "many people look at me" as in Figure 15 by changing the HC to [4+o−].

There are also some verbs that are realized with the HC [4+o−], therefore implying that the action is performed by more than one person or with more than one

element as: TO-MIX, TO-PARADE, TO-REUNITE, TO-MAKE-A-REVOLUTION, TO-WAR, TO-MAKE-LOVE. Reciprocal verbs which are produced bimanually express simultaneous actions made by more than one person as: TO-DISCUSS, TO-KISS-PASSIONATELY, TO-GET-DIVORCED, TO-ACCOMPANY-SOMEONE, TO-MEET, TO-MAKE-ENEMIES-OF.

Only agreement or pronominal verbs inflect for person and mood. LSA verbs do change morphologically to mark tense is (past or future), or aspect. Past tense with perfective aspect is marked in verbs either by a final tense movement of the sign while the body of the signer remains quite rigid or by the mentioned past participle. Future tense is marked by a forward movement of the body while producing the verb sign (Massone 1994). LSA has also three signs frequently used in discourse which we have glossed as IN-THE-PRESENT, IN-THE-PAST and IN-THE-FUTURE (Massone 1993b, 1994), that are located at the end of the clause and that function as temporal modality markers establishing the time of discourse until a new time marker or inflection establishes a new one.

LSA marks therefore the difference perfective-imperfective. So far we have delimited two imperfective aspectual inflections: continuative and iterative. Continuative aspect is marked by the repetition of the verb sign in circular movements accompanied by the movement of the head and the eyes half closed. In iterative aspect the verb sign is repeated with linear short movements. We have also described the inchoative-inceptive aspect which was described for ASL by Liddell (1984). This aspect marks the beginning of a state or activity and determines that the action or the state has not been realized. The sign is only a hold and is done with a series of non-manual features such as: eyes and lips opened, upward eyebrows and head forward. When the verb is inflected with this aspect it may be used the sign TO-INTERRUPT following the verb inflected, this fact make us think that this aspect is quite recent in LSA. Further research is needed with regard to aspect in LSA verbs, and Cvejanov is addressing this topic.

8 Unusual Features of the language

8.1 Agreement Auxiliary

Our data showed a sign produced as a smooth hold followed by a curved movement between two different loci in the signing space, also ending with a smooth hold. We have identified this sign as a pronominal agreement auxiliary which is empty of lexical meaning and marks the transitive relation (Massone 1992; Massone et al. 2000; Cvejanov and Massone 2012). Therefore, this agreement auxiliary manifests the relationship between the two people involved in the event and thus also expresses a movement of the action from one person to the other. Its difference in production from the repetition of two pronoun signs, as well as its general final

position within the sentence, is shown by these facts: it forms a constituent with the principal verb of the sentence and it expresses the agreement relation between subject and object. This auxiliary may be inserted in plain verbs and through this process the verb becomes an agreement one, as can be seen in the sentence below with the verb TO-INTERPRET-IN-SIGNS. It may also mark reciprocity and iterativity.

Fig. 17: PRO2-INTERPRET-PRO3. "You interpret to her".

8.2 Numeral Suffixes

The numeral suffixes are not considered numeral incorporating roots as they can be produced at the final of cardinal numbers instead of incorporating HC in their structure. The HC of such suffixes is invariant. Furthermore, they can be produced with a much greater number of numerals than roots as numbers above SIX, including those located in the face and body. These suffixes derive their initial places of articulation from the last segment of the independent cardinal number to which they are attached.

The suffix NUM-MONTH-SUF shows this phenomenon – see Figure 18. Its first location is always in the place where the previous numeral sign finished and always moves towards a proximal and ipsilateral place of articulation to the initial one. The suffixes NUM-THOUSAND-SUF and NUM-FLOOR-SUF are combined with practically any independent number sign to express thousands and floors of buildings and its behavior is virtually identical to NUM-MONTH-SUF. We have found also the following suffixes: NUM-HALF-HOUR-SUF, NUM-ORDINAL-SUF, NUM-CENTS-SUF y NUM- PESO-SUF [Peso being Argentine money] (Massone and Martínez 2012).

We claim that such signs are suffixes and not independent nouns for two reasons. In the first place, suffixes cannot occur independently without a cardinal number and, therefore, cannot be subjects of a verb, a test for nounhood. In the second place, independent nouns do not move to the location of previous signs

Fig. 18: EIGHT-MONTH-SUF.

Fig. 19: SEVEN-PESO-SUF.

even when this sign is a cardinal number. Therefore, the movement of the sign towards the location of the number does not seem to be a simple phonological assimilation. There are also two independent noun signs MONTH1 and MONTH2 that are produced in sentences with cardinal numbers. These signs are not able to change their location according to previous signs, thus they are not suffixes.

8.3 Suffixed Verbs

We have recently identified a process verb NOT-TO-UNDERSTAND produced with contact at the chin which was signed after the sign BOOK, thus moving to this sign's location in space at the torso level. So far we think that due to the modality of sign languages and to linguistic economy this process is also possible in other verbs. However, this area needs further research. Sentence in Figure 20 shows the verb sign in its regular position at the chin.

Fig. 20: BOOK DO-NOT-UNDERSTAND. The sign DO-NOT-UNDERSTAND makes contact with the chin – first photo – but can move at the end of the noun sign BOOK.

8.4 Copula Verbs

There are two signs TO-HAVE/TO-BE/ and NOT-TO-HAVE/NOT-TO-BE which indicate possession and existence (Massone et al. 1997).

(3) SOPHIE SONS THREE NOT-HAVE.
     "Sophie does not have three sons."

$$\overline{\hspace{2.5cm}\text{int}}$$
(4) X: PETER ARRIVE?
     "Has Peter arrived?"

$$\overline{\hspace{2.5cm}\text{af}}$$
     Y: TO-SAY-YES BE.
     "Yes, yes he is here."

Fig. 21: Sign TO-BE- 1st position – moves downwards.

Fig. 22: Sign NOT-TO-BE- oscillating movement.

(5) PRO1 BROTHER THREE BE.
    "We are three brothers".

9 Basic syntax

Word order

The analysis showed that LSA can be characterized as a verb-final, agglutinating language (Massone and Curiel 2004). The unmarked basic order is SOV (Curiel 1993; Massone and Machado 1994; Curiel and Massone 1995). This grammatical preference of locating the verb in final position is also common with stative and intransitive predicates. Besides, LSA is not a pro-drop language. Semantic or pragmatic effects may alter this basic order as, for example, topicalization. Modal verbs in LSA are generally the first element of the predicative phrase, that is to say, immediately after the overt subject or as the first element of a sentence with subject ellipsis (Curiel and Massone 1995). The constituent that depends upon the modal verb can be a verb sign or an embedded clause. The marked order is therefore SV(modal)OV, but the modal verb may be repeated in final position in the sentence, thus the resulting order is SV(modal)OVV(modal).

(6) PRO1 BE-SURE PRO3 MARRY PRO3 BE-SURE(+).
    "I am sure that she will get married."

The basic marked order for topicalization of the direct object is in the initial position of the sentence accompanied by a series of non-manual features: head backwards, eyes opened, eyebrows upraised, plus a longer duration of the last segment of the last topicalized sign. The topicalization of the subject, the locative and temporal expressions were also observed. This shows that the topic need not be an

argument of a predicative constituent and thus it not always coincide with the subject at the syntactic level or the agent at the semantic level. The fact that adverbs may also be topicalized in LSA shows that not only noun phrases or nominal entities are thematic in discourse.

We have also studied sentences with subordination (de Bin, Massone and Druetta 2011). This is a very difficult area of research for linguists who are not Deaf and for Deaf people who are not linguists. In the first place we adapted the protocol used by Padden (1981) for American Sign Language and we initially filmed four different signers who could not understand or produce in LSA the difference between coordination and subordination. Due to this inconvenience we decided to train Juan Druetta, a native LSA speaker, in the understanding of such difference. In the second place we analyzed subordinate clauses in Deaf political discourse. Results of these analysis showed that LSA marks the difference between subordination and coordination through a series of different non-manual features and three different signs which function as pronouns that introduce the subordinate clause. We gloss these signs as SUB as in the following example.

(7) WORK PETER STUDY SUB LITERATURE STUDY PRO3.
    "I work with Peter who studies Literature".

We also observed that the adverb NOTHING is used to negate the independent clause, while the adverb NO negates the subordinate clause. These grammatical resources are similar to the ones observed by Padden (1981) although they are not used in the same distribution in LSA and they constitute the evidence of different levels of subordination in this language.

10 History of research

María Ignacia Massone started working in sign linguistics in 1984 (Massone 1985). At the time there were no works done in the field. She had to struggle not only against an extremely oralist country but also against linguistic prejudices in the academic field. At the beginning her works were even rejected in meetings because they mentioned LSA as a natural language and Deaf people as having a culture. However, the National Council of Scientific and Technological Research [CONICET] has always sponsored and supported her research. Thanks to this support she was able to finish her PhD Thesis at the University of Buenos Aires under the supervision of Robert E. Johnson, at the time Director of the Department of Linguistics at Gallaudet University. Her dissertation addressed the grammar of Argentine Sign Language and was the first done in Argentina in sign linguistics, and so far the only one. She received her doctoral degree in 1996.

Massone participated in a wide variety of activities – social, cultural, religious, recreational, and political – performed within Deaf clubs and associations in different cities of Argentina. She has also worked as Director of the Linguistics Department of the Argentine Deaf Confederation for almost ten years, and is presently its linguistic external advisor as she is part of the solidarity community. Besides, many Deaf leaders have been working as consultants and collaborators in her research and therefore are coauthors. Paraphrasing Malinowski (1922/1975), she has always occupied as a linguist a structural position that is neither ambiguous nor confusing within the Argentine Deaf community. She always had the opportunity to observe recurrent patterns, and become aware of their cultural differences. "My insertion as a linguist within the life of the community has been one of the important aims in order to understand their experience, their language and their culture so as not to perform an academic centered research – the type of research so criticized by Boas (1964) and Malinowski (1922/1975) – or produce hearing versions of signs" (Massone, 2009: 266). This emic perspective gave Massone the recognition by the Deaf community and the possibility to write the first bilingual LSA-Spanish dictionary with the collaboration of more than 200 Deaf people from all over the country and the first grammar, both explicit demands made by the community. She is also today one of the founding members of the *Movimiento Argentino de Sordos*.

Massone was able to train different professionals, some with fellowships given by CONICET, as BA. Mónica Curiel, who nowadays train Deaf people as LSA teachers and also teaches Deaf people to read and write with a methodology of her own that gives excellent results; Dr. Virginia Buscaglia; Dr. Mariana Fuentes, former member of CONICET and now currently working at the Universitat Autónoma of Barcelona; MA Rosana Famularo; BA Marina Simón, who is finishing her PhD Thesis at Gallaudet University; Dr. María Inés Rey, anthropologist who recently finished her Doctoral dissertation under Massone's supervision. Rey is the first and the only anthropologist that has been interested and did research on ethnographic aspects of Argentine Deaf community. Her thesis has been recently published (Rey 2013).

Massone has also worked in the acquisition of writing by Deaf children in collaboration with Dr. Mónica Baez and her team, research sponsored by the University of Rosario (Massone and Baez 2009). We also have to mention Sandra Cvejanov, who works at the University of Comahue in the province of Neuquén, who is in close contact with Massone as she has also worked with her corpus and has been working in the field since 2002. Her area of interest are movement verbs from a generative grammar approach and more recently aspect and Aktionsart in LSA (Cvejanov 2002, 2005, 2011, 2012; Benedicto et al. 2007, 2008).

The main Deaf collaborators have been Emilia Machado, former president of the Confederation, Alejandro Makotrinsky, Juan C. Druetta, Natalia Kenseyán, María Rosa Druetta, president of the Confederation, and Pablo Lemmo, former vice-president of the Confederation and Diego Morales.

Massone currently directs two fellowships from CONICET: Cecilia Serpa, who analyzes educational documents that regulates Deaf education in Argentina, and Rocío Anabel Martínez. Martínez is currently working on her Doctoral dissertation at the University of Buenos Aires on "*A reconsideration of word classes in the Argentine Sign Language grammar according to the Cognitive-Prototype Model: The adjective.*" She is also a member of the *Movimiento Argentino de Sordos* and the first hearing person that has participated in different political events of the Argentine Deaf Confederation. Furthermore, Martínez continues to discuss issues related to her research with Sherman Wilcox with whom she met at the University of New Mexico.

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Katharina Schalber
3 Austrian Sign Language

1 Basic facts about the language

Language name: The sign language of the Austrian Deaf community is called Öster-reichische Gebärdensprache (Austrian Sign Language), abbreviated as *ÖGS*.

Location: ÖGS (and its dialectal variations) is used in all nine provinces of Austria.
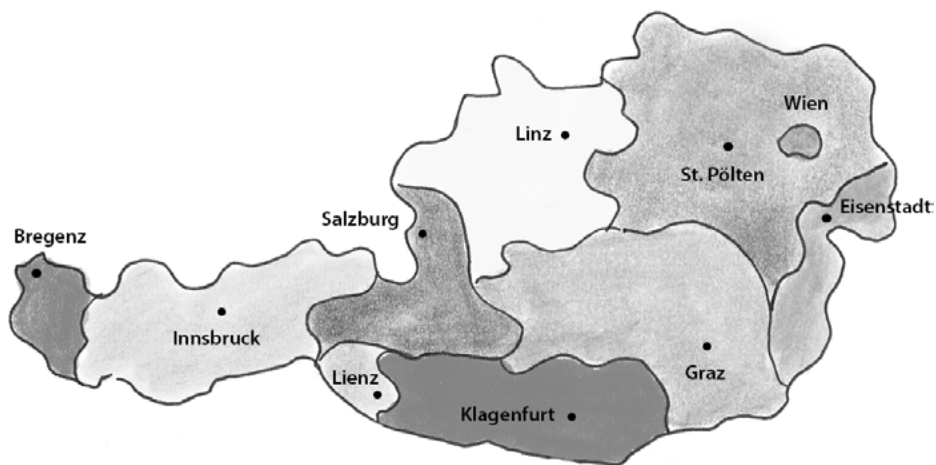
Map of Austria (© Barbara Schuster, Deaf illustrator, sign language teacher and co-founder of the organization kinderhände).

Varieties: ÖGS includes a variety of dialectal variations, which are mainly obvious in the lexicon and can also be seen in the manual alphabet. There is no fully documented standardized version of ÖGS yet, but efforts to establish a standardized lexicon for ÖGS.

Number of Signers: The Deaf community in Austria is estimated to consist of 8,000–10,000 Deaf people and is well-structured and organized. ÖGS is also getting more popular among hearing people and therefore the number of signers is increasing.

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Organizations: There are many political and cultural associations and clubs in Austria. The head association for the Deaf in Austria is the *Österreichischer Gehörlosenbund* (ÖGLB),[1] which was founded in 1913 and is now located in Vienna, the capital city of Austria.[2]

2 Origin and history

Whereas little is known about the origin of Austrian Sign Language, there is evidence that ÖGS played a crucial role at the beginning of Deaf education in Austria. During the time of the Austro-Hungarian Empire, Emperor Joseph II (1741–1790) came to know Abbé de l'Epée's Deaf school in Paris during a stay in France in 1777. Impressed by l'Epée's work, Joseph II sent two teachers, Joseph May and Friedrich Stork, to Paris in order to learn more about de l'Epée's school and method. After they returned to Vienna, the first Deaf institute was founded in 1779 – the so-called *k.u.k. Taubstummeninstitut*. It was one of the first state institutes for the Deaf funded by the government (Schott 1995, Berger 2006). Due to the lack of Deaf schools in the Crown-countries of the Hungarian-Austrian Empire, quite a few Deaf children from these countries were also sent to the institute for the Deaf in Vienna. Thus, many children from the surrounding countries were educated in Vienna, which may partially explain some of the obvious lexical and syntactic similarities between ÖGS and sign languages used in countries which were historically and geographically closely related to the Habsburg history. For example, cross-linguistic research has shown common features with Croatian sign language (Šarač Kuhn et al. 2007) as well as the dialectal variation of Italian sign language used in Trieste, Italy (Corazza & LeRose 2008).

3 Bilingualism and language contact

Teaching philosophy: In the 18th and 19th centuries the teaching philosophy of the Deaf institute in Vienna was a mixture of the two opposing methods still known

as the French sign-oriented and the German oral-oriented teaching methods. Thus, utilizing both sign and written language. The idea of this so-called "Viennese method" was to use written German, the finger alphabet and signs to acquire content and grammar rules before focusing on learning spoken German. This method influenced many other schools that were founded over the following years (Schott 1995:112). Nevertheless, the influence of the German method was stronger and eventually displaced the Viennese method in 1867, i.e. already 13 years prior to the Congress in Milan. Thus, the teaching philosophy at the Deaf institute in Vienna became oral-oriented (Schott 1995).

Almost 30 years after the first institute for the Deaf was established in Vienna, a second school for the Deaf opened in Linz/Upper Austria (1812). Within the following centuries more schools were founded in Vienna and the various provinces of Austria: Mils/Tyrol (1830), Graz/Styria (1831), the Israelite school for the Deaf in Vienna (1844), St. Pölten/Lower Austria (1846), Vienna, 19th district (1881), Salzburg (1898), Wiener Neustadt/Lower Austria (1903) (Schott 1995, 1999, 2002) and Dornbirn/Vorarlberg (1989). Due to historical and political reasons not all of them still exist today. Many schools were closed under the National Socialist regime (Krausneker & Schalber 2009), others only opened a couple of decades ago (Schott 1999, 2002, Krausneker & Schalber 2007). Today, there are six schools for the Deaf in Austria (Vienna, Upper Austria, Graz, Salzburg, Tyrol and Vorarlberg), but ÖGS is still not the language commonly used in classrooms.

Education: Bilingualism is practiced in daily life by (almost) all Deaf sign language users. In Austria Deaf people are exposed to spoken/written German, the language of the hearing majority,[3] and ÖGS. Thus, it would be in the interest of Deaf children to be educated bilingually in both German and ÖGS. However, despite national and international research and the recognition of ÖGS in the Austrian constitution in 2005 (B-VG § 8, Abs. 3), ÖGS plays a minor role in the educational system. Beginning with early intervention programs, most of the schools for the Deaf and the mainstream class-settings focus on the oral teaching tradition by using spoken German as the main teaching language. The six Deaf schools in Austria are special schools for the Deaf (and increasingly more for children with additional special needs), however, ÖGS is not used systematically in the classrooms and is often actively excluded. In fact, the special curriculum for schools of the Deaf (Bm:ukk 2008) does not include or even mention bilingual education. Neither are teachers for the Deaf obliged to have any knowledge of ÖGS, nor is there any mandatory language and educational training program for teachers who want to become teachers of Deaf students. Although there is obviously need for "native signers" in classrooms, there are only very few Deaf teachers for the Deaf since regulations

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3 The official language in Austria is German, the other official spoken minority languages are Hungarian, Slovenian, Burgenland-Croatian, Czech, Slovakian, and Romany.

made it almost impossible for Deaf people to become teachers until fall 2013. None of the important positions and functions within the educational system are occupied by a Deaf person (Krausneker und Schalber 2007; Holzinger et al. 2007). As a result of these structural deficits, the educational system does not cater to the needs of Deaf students and teachers (cf. Krammer 2001, Eisenwort et al. 2002, Fellner-Rzehak & Podbelsek 2004, Breiter 2005, Holzinger 2007, Grünbichler and Andree 2009, Kramreiter 2011, 2012, Dotter 2013). Similar deficits are also found in mainstream settings. In accordance with the current movement towards 'inclusion', the student population in the Deaf schools is decreasing. Due to ideological, economic, educational or geographical reasons, increasingly more children are educated in mainstream classes. In these settings they usually do not receive any interpreting services and they only have the right to a few hours of assistance per week (Krausneker & Schalber 2007). The resulting problems are well known.

Bilingual education: Only a few regular schools and some of the schools for the Deaf offer bilingual classes with a team of Deaf and/or hearing teachers (Pinter 1992, 2005, Krausneker 2004, 2006, Kramreiter 2011). These classes are positive exceptions within the existing educational system and therefore the central demands of the Deaf community still persist: better and equal education and more Deaf teachers for the Deaf.

Despite the unequal opportunities for Deaf children the interest in getting higher education and thus getting better jobs is increasing among the younger Deaf generation. More students and their families take the opportunity to fight against the system, take the burden and the pressure to work, learn or study harder in order to graduate from high school or from university. As for students in Vienna, the fight against barriers in higher education has improved their situation. Since 2010 the project "GESTU – Gehörlos erfolgreich studieren" (Successful Deaf Students) supports Deaf and hard-of-hearing students in Vienna by organizing interpreters and note-takers or providing speech-to-text interpreters. Still, the right for bilingual education and higher education has been an individual battle fought by Deaf children, their parents and teachers until today.

4 Political and social context

Organizations: The head association for the Deaf in Austria is the *Österreichischer Gehörlosenbund* (ÖGLB), which was founded in 1913 and is now located in Vienna. The aims of the ÖGLB, which is also a member of the EUD and WDF, are mainly of political nature such as fighting for the rights of the Deaf community, achieving equal opportunities in society, and lobbying. The other large and even older association in Vienna is WITAF, which was founded in 1865. Its focus is mainly on social issues and the needs of the Deaf community, their services include social workers and work assistance for adults and youth.

In the other eight provinces of Austria, the community is organized in *Landes-verbände* (provincial associations), which are (mostly) members of the ÖGLB and which head the many Austrian Deaf clubs dedicated to cultural, religious, sports or traditional topics.

Deaf sports clubs are headed by the *Österreichischer Gehörlosensportverband* (ÖGSV), students are organized in the *Verein Österreichischer Gehörloser Studieren-der* (VÖGS) and Deaf and hard-of-hearing academics are organized in the association *Deaf Studies Österreich,* which was founded in 2013. ÖGS interpreting as a professional occupation was established in 1998, with the professional organization being *the Österreichischer Gebärdensprach-DolmetscherInnen- und -Übersetzer-Innen-Verband (ÖGSDV).*

ÖGS in its political context: Since Deaf organizations and associations were found-ed, political lobbying and campaigning for equal opportunities have always been one of the main focus. The Deaf community successfully established health care centers for the Deaf in Vienna, Salzburg, Linz and Graz as well as social work services, work assistance or training centers for the Deaf. One of the recent major achievements was the official recognition of ÖGS in the Austrian constitution on September 1st, 2005 (Austrian Constitution, § 8 Abs. 3). In 2013, ÖGS was inscribed on the UNESCO world heritage list. Both recognitions are more symbolic and did not affect the everyday needs of Deaf sign language users immediately, but it was a very important achievement which can be the basis for amending or passing relevant laws as well as for changes in the society. More impact on the daily Deaf life has been caused by the anti-discrimination law (*Behindertengleichstellungsge-setz*), which was passed in 2006 (Krausneker 2013). However, the Deaf community still faces many barriers due to unequal opportunities, especially in terms of educa-tion as discussed above (see also ÖGLB's reports on discrimination 2006 and 2007). Other limitations and barriers are a result of restricted access to interpreters and information. This is particularly due to the lack of a professional, nation-wide tele-phone relay system and the non-barrier-free program of the national TV station ORF, which does not provide all programs with subtitles and only offers minimal ÖGS interpreting. Also, the budget for interpreting services available for Deaf indi-viduals is limited and does not cover all needs.[4] For example, children under the age of 15 are not eligible to get a budget for interpreters in school settings. The Deaf community actively fights against these barriers. Since June 2009, the president of

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4 In Austria ÖGS interpreting services are classified into employment-related interpreting settings (professional training, off-the-job training, work) and non-employment-related settings (community interpreting), which are in general funded by different institutions (Bundessozialamt and Fonds Soziales Wien/Federal State Governments). Since 2006 public authorities are also required to pro-vide their own funding to cover interpreting services. Since 1998 interpreting services in court are covered by the state and the police must also provide interpreters.

the ÖGLB, Helene Jarmer, has also been the first Deaf member of the Austrian parliament ever. She is spokeswoman on disability issues for the Green party.

5 The structure of signs

Standardization and dialectal variation: ÖGS is a fairly underinvestigated sign language with a short history of research (see also section on the history of research). Many aspects of this language have never been investigated and are therefore not documented. There is no standardized version of ÖGS, but there exist dialectal variations which are mainly obvious in the lexicon (see Figures 7–9). In recent years there have been efforts to develop a standardized lexicon of ÖGS (cooperation of the commission on ÖGS within the ÖGLB and the Zentrum für Gebärdensprache und Hörgeschädigtenkommunikation (ZGH) (Center for Sign Language and Deaf Communication), the results of which are published in books and are also available online and on DVD. Aside from lexical variations, dialectal differences can also be seen in the manual alphabet, which is used to spell proper names or items that do not have an equivalent sign, and in the manual counting system. While the international manual alphabet is the one most commonly used now,[5] the signing community in the province of Styria, for example, has their own unique and partially two-handed alphabet. The manual counting systems of ÖGS are also two-handed, but – beginning with the number 11 – show significant differences across Austria. The numbers 1–10 are signed alike in all provinces, the number "1" being articulated with an extended thumb as in "thumbs up".

Manual signs and non-manuals: As all other natural sign languages, ÖGS does not only consist of manual signs, but also of non-manual signals which play a crucial role in grammar. Manual signs can be one-handed or two-handed and are composed of distinctive sets of the features of handshape, orientation, place of articulation and movement, which can be modified in their intensity, speed and duration to convey grammatical and aspectual information (for an overview of the ÖGS handshapes see Skant et al. 2002: 241). It is evident that the composition of manual signs follows specific rules in accordance with ÖGS phonology and morphology and that the combination of the four sets that make a sign is limited. Phonological rules also limit the possible articulation of two-handed signs (Hofstätter & Stalzer 2004), which follow the rule of "symmetry" and "dominance" (cf. Battison 1978).

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5 It is noticeable that the elder generation rarely uses the international finger spelling system but variations of a two-handed system that resembles the one also known among the hearing population. Other differences among the older and younger signing generations include lexical items (creation of new signs vs. loss of old signs) and phonological differences (Krausneker 2009).

Non-manual signals include movements of the eyebrows, head, mouth, shoulders and torso and may be used for syntactic marking, adverbial modification or may be lexical. The heavy use of non-manual markers is evident, however the function of only a few non-manual signals and mouth gestures in ÖGS have been identified so far (cf. Skant et al. 2002, Hofstätter & Stalzer 2004, Schalber 2006, Lackner 2013, see also section on morphology). Also quite common in ÖGS is the use of mouthing i.e. borrowed words or partial words from spoken German.

As any gestural-visual language, ÖGS uses the space in front of the signer's body, which allows a range of unique strategies including simultaneous articulation of signs and non-manual markers, expression of time (vertical and horizontal timelines), syntactic and topographic agreement, incorporation, role shifting, localization and indexation.

6 Basic morphology and lexicon

6.1 Word classes

The categorization of signs into word classes is not always straightforward. There are signs that can be clearly identified as nouns, verbs or adjectives, but derivation processes may obscure these classifications (i.e. adjectival predicates). Many nouns and verbs in ÖGS clearly differ in their articulation, i.e. they are different signs. However, for these noun/verb pairs, which appear to use the same manual form, differences can be found in the duration of the articulation (i.e. to-interest/interest). That is, nouns and verbs that look the same are actually differentiated by the length of the sign, with verbs being articulated longer than their corresponding noun (about 2.2 times longer) (Hunger 2006).

6.2 Mouth movements

Both nouns and verbs can be accompanied by movements of the mouth (mouth gestures) as well as mouthings (derived from spoken language). As is known from the literature on other sign languages (cf. Anderson 1998, Boyes Braem & Sutton Spence 2001), mouth gestures have different functions, including phonologically echoing the manual form, lexically specifying manual forms or adverbially modifying. Teaching material, grammar books and research show that ÖGS is no exception and that mouth gestures are heavily used for various functions including the ones mentioned above (see for example Skant et al. 2002, Schalber 2006, Schalber & Grose 2008). In accordance with other European sign languages and countries with a strong oral tradition in Deaf education, mouth patterns are an evident part of ÖGS, too. That is, both nouns and verbs may be accompanied by voiceless

articulated words or parts of them that are borrowed from German. However, it is suggested that they accompany nominal categories more frequently than verbal ones (cf. Hunger 2006). One function of mouth patterns is to distinguish signs such as BEWEGUNG (movement) and DYNAMISCH (dynamic), the manual forms of which are identical. They may also be used for further specification of the meaning of the sign, as in the sign for METALL (metal) and EISEN (iron). Again, the manual sign is identical, but different mouth patterns are visible on the lips.

Adjective modification of nouns may be expressed manually as a separate sign or non-manually by being articulated at the same time as the noun. The syntactic position of adjective signs has not yet been clearly determined. However, in the available grammars and textbooks on ÖGS, it has been noted that adjective signs may either precede or follow the noun sign, with a strong preference for the latter (Fink 2006). Comparative forms of adjectives include individual comparative signs (GUT, BESSER, AM-BESTEN/good, better, best), non-manual marking (NM) and/or additional special comparative signs like MEHR (more), MEIST (most) for the superlative or lexical incorporation, i.e. as part of the lexical noun/classifier sign.

6.3 Plural

Plural marking of nouns can be indicated with reduplication of the sign as in the sign for "person" or "children". A single movement indicates singular, reduplication of the sign the plural (PERSON (singular) vs. PERSON +++ (plural)). This is a very common strategy, but may not be possible with all signs (e.g. KATZE (cat) and especially other body-anchored signs). Other strategies of pluralization include the use of separate number signs or additional classifier constructions. The number signs, however, may not necessarily be a separate sign. Certain signs also allow the number to be incorporated and thus only one manual sign is made to carry both meanings. For example, the signs for HUNDERT (hundred) and 3-HUNDERT (three-hundred) do not differ in their movement, orientation and place of articulation, but show differences in the feature of handshape. The latter sign is articulated with a "3" handshape and thus includes information about the number to the sign. Adding additional information to manual signs is very common and may also be found with adjectives or time (Hofstätter & Stalzer 2004).

6.4 Verbs and classifier constructions

Verb morphology in ÖGS is very rich. Little research on this aspect has been carried out so far, but from what is known (cf. Skant et al. 2002), ÖGS possesses different types of verbs that may also include grammatical or spatial information: plain, agreement and spatial verbs (cf. Padden 1988). Verbs can be either modified in their intensity, size of movement or they can be reduplicated or accompanied by non-manual signals for various reasons. Modification of the movement may convey

information about the internal timing of a verb, i.e. habitual, iterative, durative etc. For example, the sign for "wait" is articulated with the handshape of "L" with cyclic movements of the wrist and the thumb having contact with the chest. Expressing the notion of "waiting for a long time", the feature movement changes in that the cyclic movement is not based in the wrist anymore, but based in the arm, which results in bigger circles and thus conveys the notion of the duration of the activity. Changing the intensity of the movement may also add adverbial information, but only with the according adverbial mouth gestures. Although ÖGS possesses a number of adverbial signs, mouth gestures are a more common strategy to add adverbial information. For example, the difference between "learning happily" or "learning in a bored mood" is not expressed by a separate adverbial sign, but by according mouth gestures, i.e. pursed lips (and possibly changes in the manual movement) (cf. Skant 2002, Hofstätter & Stalzer 2004).

Quite common are also more complex constructions such as different types of classifier constructions (classifier handshape with verbal/locative stem), which may convey the notion of handling an object, shape and size of an object, or stand for an instrument or body part (for a list of ÖGS classifier handshapes and examples see Skant et al. 2001: 60 ff.). In accordance with the basic word order and given the fact that classifier signs are complex constructions, they are typically found sentence finally. Classifier constructions may also be combined with CA constructions (constructed action).

7 Basic syntax

7.1 Sign order

Like any sign language, ÖGS allows simultaneous articulation of signs as well as manual and non-manual signals. Nonetheless, the linear order of signs in basic sentences is SOV (Skant et al. 2002, Krebs 2013). Thus, the verb is sentence final, whereas modal verbs are typically pre-verbal. A change of signing order might be due to wh-clefts (also so-called "rhetorical questions"), topicalization, or heavy objects. In any case, non-manual signals are mandatory markers for these structures. For example, in topic constructions, the topic of the sentence is moved to the initial position with a short pause before the theme-construction and according non-manuals (Hausch 2008). The proposed syntactic tree for ÖGS (Wilbur 2002, 2005, Šarac Kuhn et al. 2007) suggests Spec CP (complementizer phrase) to branch to the left with the head C (complement) on the left, whereas IP (inflectional phrase) and VP (verb phrase) are headed to the right. This allows also for doubling signs such as indices, modals or wh-signs sentence finally. Like other sign languages, deletion of arguments is grammatical in ÖGS, if they have already been established in the context.

7.2 Tense

Tense in ÖGS is usually not marked on the verb or any other word class, but expressed with non-manuals and separate lexical items like GESTERN (yesterday), VERGANGENHEIT (past) or MORGEN (tomorrow). Typically, these signs are sentence-initial and are used as reference point of time. Their articulation is usually in accordance with the horizontal time-line, one of the two main time-lines. With the horizontal time-line, the past, the present and the future are indicated by signing towards the back, closely in front of the body and in forward direction, respectively. On the vertical/diagonal time-line, the passing of time can be expressed, i.e. the growing of people and things. Another way to express the past is the sign FERTIG (both B handshapes, the edge of the dominant hand contacting the other palm), which may also indicate a perfective aspect or temporal/conditional information in conditional sentence constructions (Okorn et al. 2001). Subjunctive mood in ÖGS is expressed manually with separate signs like SCHAUEN (look), MÖGLICH (possible), KANN (can), and BEISPIEL (example) (Hofstätter & Stalzer 2004).

As mentioned above, little is known about syntactic rules, the structure of sentences and the syntactic use of non-manuals. However, the research carried out so far provides some insights into the language and how non-manuals are used. As examples, the structures of interrogation, negation and possession will be presented here.

7.3 Interrogative constructions

In ÖGS, interrogative sentences are not marked by a change of the sign order, but non-manually with possible question signs or particles. Looking at the two basic interrogative types, polar (yes/no) and wh-questions, they are both marked with non-manual signals, the non-manual articulator being the head. The non-manual marker for y/n questions is the signal 'chin down' (cd) which accompanies the entire question. A possible additional marker is furrowed eyebrows, movements of the eyebrow, however, more typically expressing the signer's attitude. There is no specific and required question sign for this type of question. However, optionally

Fig. 1:   IX-2.   POSS1.   TELLER.   ESSEN.

the question particle *5–5* (two-handed 5 handshape, palm facing downwards with short twist with the wrist upwards) may occur sentence final (Example 1) (Schalber 2006, Šarac Kuhn et al. 2007, Lackner 2013).

<pre>
                              cd
(1) DU POSS1 TELLER ESSEN
     you my   plate   eat
     'Did you eat from my plate?'
     (Snow White was asked by one of the seven dwarfs)
     (Schalber 2006: 140)
</pre>

In contrast, wh-questions do contain wh-signs and are marked with the non-manual signals 'chin up' (cu) or 'head forward' (hf), with possible furrowed eyebrows. ÖGS possesses a rather rich paradigm of wh-questions, including 'where, what, who, when, why', and 'how'. These appear usually in sentence initial position and may be doubled at the end. (2) (Schalber 2006, Lackner 2013).

Fig. 2: WAS.   WILL.   KAUFEN.   WAS.

<pre>
        cu   hf
(2) WAS WILL KAUFEN WAS
     what will buy   what
     'What will you buy?
     (Schalber 2006: 143)
</pre>

7.4 Possession

As seen in the examples above (compare examples (1) and (2)), personal pronouns are pointing signs. ÖGS possesses a rich set of pronouns including 1st, 2nd and 3rd person singular, plural and dual (Table 1, Schalber & Hunger 2008: 170–171).

Tab. 1

Sign	Person/Number	GLOSS
IX (pointing to chest)	1st person, sg	I
IX (towards/in alignment with 2nd person)	2nd person, sg	YOU
IX (towards/in alignment with 3rd person)	3rd person, sg	HE/SHE/IT
IX (arc mov, beginning and ending at signer)	1st person, pl.	WE
IX (arc movement)	2nd person, pl.	YOU
IX (arc mov in front of signer)	3rd person, pl.	THEY
IX+thumb/IX+middle finger	dual	WE-TWO

A similar set of signs also articulates the meaning of possessive pronouns, with the difference being the handshape (Table 2, Schalber & Hunger 2008: 170–171). The possessive pronouns are articulated with the handshape of "B" and can be used with all types of semantic categories, including animate, inanimate, concrete, kinship, abstract possessor, alienable or inalienable.

Tab. 2

Sign	Person/Number	GLOSS
B (pointing to chest)	1st person, sg	MY
B (towards/in alignment with 2nd person)	2nd person, sg	YOUR
B (towards/in alignment with 3S person)	3rd person, sg	HIS/HER/ITS
IX (arc mov, beginning or ending at signer)	1st person, pl.	OUR
IX (arc movement)	2nd person, pl.	YOUR
IX (arc mov in front of signer)	3rd person, pl.	THEIR

The signing order of possessive pronouns and the possessum is very strict, with the possessor always preceding the possessum (3).

(3) POSS1 SCHWESTER
    poss1 sister
    'My sister'
    (Schalber & Hunger 2008: 172)

On the predicative level, possession can be expressed with the sign glossed as DA, which is equivalent to the German word *haben* ('to have'). It is a two-handed sign articulated with an open 8 handshape (5 with bent middle finger) and short movement downwards (4) S.[6]

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6 Another sign for 'have' may be the sign glossed as HABEN. This is a sign that can be inflected for person which, however, is not common in ÖGS and thus suggests that the sign may be influenced by spoken German or is a sign used for LBG (*Lautsprachbegleitende Gebärden*/Signed German).

Fig. 3: IX1 OMA.   OPA.   DA.

(4) IX1 OMA   OPA   DA
     ix1 grandmother grandfather da
     'I have a grandmother and grandfather.'
     (Schalber & Hunger 2008: 156)

The sign DA may not only be used to express the notion of possession, but also indicates existence and presence (5), which are two closely linked notions.

(5) WAND LOCH DA
     wall   hole   da
     'There is a hole in the wall.'
     (Schalber & Hunger 2008: 165)

7.5 Negation

Negation in ÖGS is expressed either manually or non-manually, the most prominent non-manual signal being 'head shake'. This non-manual element seems to be a mandatory marker for negation that can co-occur with a single sign/sentence, other negation signs or it can stand alone. Depending on the scope of the marker 'head shake', it may either negate a single lexical sign or an entire sentence (Hofstätter & Stalzer 2001, Skant et al. 2002, Skant et al. 2002a, Lackner 2013). Typically it co-occurs with a negation sign, such as NICHT 'not', KEIN 'no' (adj.), NEIN 'no' (adv.), NICHTS 'nothing', NIEMAND 'no one', NIE 'never'. Within a VP or NP, negative signs typically precede the verb/noun-object (6)–(7):

(6) IX-3 FRAU   KEIN ARBEIT DA
     ix-3 woman no   job   have
     'The woman has no job'.

(7) IX-1 NICHT2 LERNEN
     ix-1 not   learn/study
     'I have not studied (for it yet).'
     (Skant et al. 2002a: 179)

Some signs may also have their own negated form, which is expressed by adding a negative movement (alpha-movement or shaking movement of the wrist) also known as incorporation (Skant et al. 2002a). This can be found with most of the modal verbs (e.g., KANN-NICHT 'cannot') and other verbs such as KLAPPT-NICHT ('not working'), BRAUCH-NICHT ('don't need') or GLAUB-NICHT ('don't believe'). Additionally, ÖGS possesses a variety of special signs and idioms with negative meaning (Hofstätter & Stalzer 2001, Skant et al. 2002, Skant et al. 2002a) like 'keine Ahnung' (no idea) signed with an F handshape that contacts the forehead as it is also found in ASL.

7.6 Discourse

As seen above, non-manual markers play a crucial role in the grammar of ÖGS, but they are also used for turn-taking strategies in conversations. These strategies may include a bundle of non-manual markers, but also manual ones (Lackner 2009, 2013). The most obvious manual signals for turn-taking are lowering or lifting up the hands, respectively. Usually, this goes along with eye-contact, which is typically turned away shortly after the signer has taken over the turn. To indicate that the signer is willing to give away his turn, the non-manual signals are nodding, slowing down movements of the head or leaning forward. In order to get the interlocutor's attention and thus taking over the turn, waving the hand (at the wrist) or tapping on the shoulder or arm of him/her is a common strategy (Lackner 2009, 2013).

8 Examples of words and sentences[7]

8.1 Examples of signs

Fig. 4: FAMILIE 'family'.

As noted above, ÖGS consists of dialectal variations, which may differ significantly. The next three pictures will give examples of the same lexical item in different variations.

Fig. 5: NAME 'name' (variation 1).
This sign for 'name' is used in Vienna, Lower Austria, Styria and Salzburg.

Fig. 6: NAME 'name' (variation 2). This sign is mainly used in Upper Austria.

Fig. 7: NAME 'name' (variation 3) … the community in Carinthia uses this sign.

The sign for 'dialect' concerning spoken and sign languages are similar in terms of handshape, orientation and movement (wiggle of the fingers), but they differ in the place of articulation – which does not need any further explanation.

Fig. 8: DIALEKT 'dialect' (signed languages).

Fig. 9: DIALEKT 'dialect' (spoken languages).

Fig. 10: GEHÖRLOS 'Deaf'.

Fig. 11: KULTUR 'culture'.

8.2 Examples of Sentences

Fig. 12:   IX-1.   KINDER.   DA.

(7) IX-1 KINDER   DA
     ix-1 children have
     'I have children.'

Fig. 13:   IX-3.   MOTORRAD.   CL:B-B: um die kurve fahren.

(8) ɪx-3 ᴍᴏᴛᴏʀʀᴀᴅ ᴄʟ:ʙ-ʙ: um die kurve fahren
ix-3 motorcycle ᴄʟ:ʙ-ʙ: drive around corner
'He drives with a motorcycle around the corner.'

9 History of research

The beginning of ÖGS research can be dated back to the 1990s when a group of interested linguists and Deaf people from the University of Klagenfurt (Carinthia) started the first projects on ÖGS by investigating and analyzing the structure of this language. The results were then eventually published as the first (and still the only) grammar of ÖGS (Skant et al. 2002). What started as a small project has since turned into a center affiliated to the University of Klagenfurt. Since 2004 it has been called "*Zentrum für Gebärdensprache und Hörbehindertenkommunikation*" (ZGH) and it unites hearing and Deaf people working together in a team (Dotter 1999, Dotter et al. 2003). The ZGH has been engaged in a variety of projects, including developing teaching material, creating the sign language database LedaSila, providing online and academic educational opportunities for Deaf people (e.g., the online learning platform SignOn or a course of study to become a certified teacher for Austrian Sign Language) and publishing their own linguistics series (see the homepage of the ZGH for more information about current projects). Since the beginning, the ZGH has worked together with other national and international institutions as well as the Department of Translation Studies at the University of Graz (ITAT), which also started to introduce ÖGS as an academic field in the early 1990s. The department offered the first ÖGS courses at university level and in 2002 the first program for ÖGS interpreters was introduced.[8] Their research focuses on interpreting studies, sign language didactics (digital learning material) and lexicography (SignLex series) (cf. ITAT homepage). However, research cannot keep up with the growing interest in ÖGS and expanding course levels (beginners to more advanced). Universities all over Austria may offer ÖGS courses or lectures on grammar of ÖGS, but there is no single department focusing on Deaf Studies or sign language research. That means that Austrian university students do not have the opportunity to be trained as sign language researchers or become experts in this field.

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8 Besides the university program, there are two other possibilities to become an ÖGS interpreter: First, GESDO, a three-year training program in Linz (Upper Austria). Second, *AchtungFertigLos*, a series of seminars organized by the ÖGSDV that allows interpreters-to-be to do the national exam and thus become certified interpreters. This exam is mandatory, also for graduates of the university program in Graz and GESDO in Linz. In 2014 also the first training course for Deaf interpreters and translators started in Salzburg (Logo!).

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Shake Hands – ÖGS educational DVD (A1 & A2, B1 & B2, C1 & C2): www.dvd-shakehands.com

SignIt – ÖGS educational system: www.sign-it.at

SignLEF – Common European Framework of Reference for Sign Languages: http://signlef.aau.at/de/home

SignOn – English for Deaf Sign Language Users on the Internet: www.sign-on.eu

Sign media – online learning tool for Deaf Media Professionals to improve their written English skills: www.signmedia.tv

ÖGS-online

Gebärdenwelt (online news channel): www.gebaerdenwelt.at

ServiceCenter ÖGS.barrierefrei: www.oegsbarrierefrei.at

SignTime (online news channel): www.signtime.tv
Sign Library (books in ÖGS): www.signlibrary.eu

Deaf Associations, clubs and educational centers

ÖGLB – National Austrian Deaf association: www.oeglb.at
Deaf Studies Österreich – Verein interdisziplinärer Forschung und Lehre gehörloser und
    schwerhöriger AkademikerInnen und WissenschaftlerInnen [Deaf and hard-of-hearing
    academics]: www.deafstudies.at
equalizent – consultation and vocational training for Deaf and hard-of-hearing:
    www.equalizent.com
Gehörlosenambulanzen [Health Care Centers for the Deaf] in Vienna, Salzburg, Linz and Graz:
    www.barmherzige-brueder.at
GESDO – Fachausbildung Gebärdensprachdolmetschen [ÖGS-Interpreter-Training]: www.gesdo.at
GESTU – Gehörlos erfolgreich studieren [Successful Deaf students]: www.gestu.at
KommBi – Bildungs- und Kommunikationszentrum [educational center]: www.gehoerlos-tirol.at/
    kommbi
Logo! – Interpreting training course for the Deaf http://www.logo-salzburg.at/
PLIG – Plattform Integration und Gebärdensprache: www.plig.at
Poly Bildungsberatung – educational counselling: www.polycollege.at
ÖGSDV – ÖGS-interpreter and translator association: www.oegsdv.at
ÖGSLV – Deaf teachers association: www.oegslv.com
ÖGSV – Austrian Deaf Sports association: www.oegsv.at
Vis.Com – Schule für visuelle und alternative Kommunikation [school for visual and alternative
    communication]: www.barmherzige-brueder.at/site/linz/medizinpflege/abteilungeninstitute/
    sinnesundsprachneurologie/fachschule
VÖGS – Deaf students association: www.voegs.at
WITAF: www.witaf.at

Research facilities

Research group at the University of Salzburg: www.uni-salzburg.at > Department of Linguistic
Translation studies at the Karl-Franzens-University Graz: http://translationswissenschaft.uni-
    graz.at
Zentrum für Gebärdensprache und Hörbehindertenkommunikation (ZGH) [Center for Sign
    Language and Deaf Communication], University Klagenfurt: www.uni-klu.ac.at/zgh (here you
    can find a list of all their research projects, studies and publications)

André Nogueira Xavier and Regiane Pinheiro Agrella
4 Brazilian Sign Language (Libras)

1 Basic facts about the language

Language name: Libras or língua brasileira de sinais.

Alternative names: língua de sinais brasileira or LSB.

Location: Brazil

Varieties: To date, there are no linguistic studies on dialectal differences in Brazilian Sign Language (Libras). Anecdotal evidence of regional variation mostly comes from lexical differences generally related to kinship, color and number signs. Brazilian deaf individuals usually associate dialectal differences with Brazilian states. According to them, for example, deaf individuals from Rio de Janeiro use more signs derived from fingerspelling and deaf individuals from Rio Grande do Sul use many signs also used by Argentinean sign language users. The variety of Libras considered here is the one used in São Paulo city.

Number of signers: According to the 2010 census, 9,722,163 reported having permanent hearing loss in different levels, but the number of deaf signers is not reported.

Organizations: FENEIS (The National Federation for the Integration and Education of the Deaf), established in 1977. There are deaf associations all over the country. The deaf association in São Paulo city is called ASSP (São Paulo Deaf Association).

2 Origin and history

Little is known about the origins of Libras. Its birth is associated with the foundation of INES (The National Institute of Deaf Education) in Rio de Janeiro in 1857. INES, the first school for the deaf in Brazil, was established by Brazil's second emperor, Don Pedro II, with the help of a French deaf teacher, Father Huet. Huet used in his teaching the methodical signs he learned from Abbé de l'Épée. The French methodical signs, mixed with the signs already in use before INES's foundation, developed into what is called nowadays Libras (Berenz 2003). As a result,

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Brazilian Sign Language exhibits signs that are quite similar not only to modern French Sign Language, but also to American Sign Language, which was influenced by Old French Sign Language through education, as well.

3 Political and social context

Since April 24, 2002, a federal law has recognized Libras as the language of the Brazilian deaf community (Law 10,436). This law was regulated by the decree 5626 of December 22, 2005. Both the law and the decree, resultant from the efforts of Brazilian deaf people's political movement, have guaranteed that deaf people have their right to have sign language interpreters in education and public services. The law has determined the inclusion of Libras as a discipline in university courses training teachers and speech therapists. The decree has determined the creation of university courses to train Libras teachers and interpreters. The first Libras teacher training course offered by a public university in Brazil started in 2006. This course, promoted by UFSC (Federal University of Santa Catarina), was carried out in a semi-distance learning modality and involved, in its first edition, eight other public higher education institutions throughout Brazil. A more recent achievement was the official recognition of sign language interpreting as a profession by a federal law of September 1, 2010.

4 The structure of signs

This section draws on the results of a study carried out by Xavier (2006) which aimed to describe articulatory properties of Brazilian Sign Language signs. This study follows the work of Liddell and Johnson (1989), which not only proposes a segmental analysis for signs but also comprehends and offers a way to transcribe a great range of articulatory features involved in the production of signed languages lexical items.

4.1 Xavier's database

At the time Xavier (2006) started his research project aiming to offer a preliminary phonetic-phonological description of Libras signs,[1] Capovilla and Raphael (2001) was the largest available lexical documentation of the language. This dictionary

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1 This preliminary description can be seen in Xavier (2006).

contains 4,340 entries, out of which 2,274 are simplex signs, 861 are complex, and 1,205 are different Portuguese translations for one of those simplex or complex signs. Xavier's work focused exclusively on simplex signs, that is, signs made up of one morpheme, such as TEACHER (Figure 1).

Fig. 1: TEACHER.[2]

The 2,274 simplex signs were included in a database where they were categorized in terms of the articulatory properties described in Liddell and Johnson's framework. Specifically, Xavier classified these signs in terms of the number of hands used to produce them; the presence or lack of movement and local movements; the number and type of hand configuration and point of contact (location); and, finally, the presence or lack of contact or non-manual marks.

This categorization allowed the author to retrieve signs through one or a combination of articulatory properties and, based on the frequencies obtained, to offer a preliminary outline of Libras signs in terms of their articulatory characteristics.

4.2 Number of hands

In terms of their number of hands, Libras signs can be of three types: zero-handed or non-manual, that is, exclusively produced by activities of the face, one-handed or two-handed. Out of the 2,274 simplex signs, only five are non-manual. As Liddell and Johnson's work focused on the articulatory description of manual signs, Xavier concentrated his description on 2,269 Libras manual signs that can be one-handed such as AGE (Figure 2) or two-handed such as BIRTHDAY-PARTY (Figure 3).

In his database, as Table 1 shows, 56 % of signs are realized with two hands, whereas 44 % are produced with one hand.

Interestingly, the dictionary offers, for a few signs, two entries: one for their one-handed variant and another for their two-handed variant, as illustrated by the

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2 For copyright reasons, the dictionary pictures are not used here to illustrate signs. The pictures shown throughout this paper are of the deaf co-author Regiane Agrella.
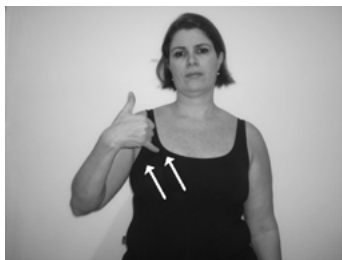
Fig. 2: AGE.   **Fig. 3:** BIRTHDAY-PARTY.

Tab. 1: Frequency of one and two-handed signs.

Articulatory property		Amount	%
Number of hands	Two hands	1267	56
	One hand	1002	44
Total		2269	100

sign ACCEPT (Figure 4). This fact indicates a phenomenon also observed in ASL regarding the variation in the number of hands of some signs (see Woodward and DeSantis 1977). However, the dictionary does not seem to deal with this variation in a principled way, since many other two-handed signs that have also been observed to exhibit the same variation do not have two separate entries.

Fig. 4: ACCEPT.

4.3 Movement

In Xavier's database, signs with movement are more frequent, occurring in 91 % of the data, than signs without movement, which appear in 9 % only.

Tab. 2: Frequency of signs with and without movement.

Articulatory property		Amount	%
Movement	With	2056	91
	Without	213	9
Total		2269	100

In terms of the absence or presence of movement, Libras two-handed signs, as in other signed languages, exhibit three patterns: 1. they can be like AMERICA, where both hands do not move; or 2. PARTY (Figure 6), in which both hands move; or 3. like WHY (Figure 7), where one of the hands moves while the other remains stationary and functions as the moving hand's point of contact (location).
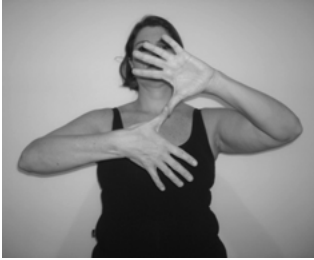
Fig. 5: AMERICA.   **Fig. 6:** PARTY.

Fig. 7: WHY*.[3]

In addition, signs produced with two moving hands can exhibit simultaneous or alternating movement. An example of a Libras two-handed sign with alternating movement is BICYCLE (Figure 8).

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3 The asterisk indicates that the sign movement is produced twice.

Fig. 8: BICYCLE.

As Table 3 shows, in Xavier's database two-handed signs with movement are more frequent (52.2%). Among these, signs where the hands move simultaneously predominate (43.3%).

Tab. 3: Frequency of different types of two-handed signs.

Articulatory properties			Amount	%
Two hands	With movement	Simultaneous	549	43.3
		Alternating	114	8.9
	One hand stationary		510	40.2
	Without movement		94	7.4
Total			1267	100

Liddell and Johnson proposed phonetic-phonological features to describe the contour of movement, that is, the way the hand moves from one point to another. According to them, these features are of two types: [straight], as in PARTY (Figure 6) or [circular], as in BICYCLE (Figure 8). Although most Libras signs can be described by these features, Xavier also found in his database signs whose contour of movement are of two other types, namely: [zigzag] and [undulatory]. An example
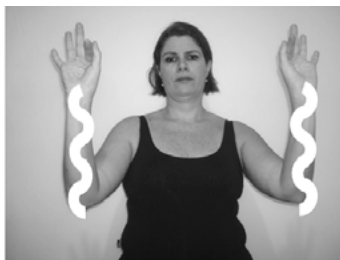
Fig. 9: PEACE.   **Fig. 10:** HAPPY.

of a sign with a zigzag contour is PEACE (Figure 9) and an example of a sign with an undulatory contour is HAPPY (Figure 10).

Despite the existence of different movement contours, in Xavier's database signs with a straight contour outnumber signs with other contour types, since they occur 73 % of the time.

Tab. 4: Frequency of signs per their contour of movement.

Articulatory property		Amount	%
Contour of movement	Straight	1213	73
	Circular	403	24
	Undulatory	30	2
	Zigzag	16	1
Total		1662	100

4.4 Local movement

According to Liddell (1990), local movements are quick and uncountable repeated movements of the fingers or wrist that can co-occur with one of the main activity of the hands: a movement or a hold. Liddell supports his analysis on the existence of pairs of signs in ASL where clearly a movement or a hold occurs with a local movement, in one case, and without it, in the other. An instance of a Libras sign containing local movement is ELECTRICITY (Figure 11), which consists of a quick and uncountable repeated twisting of the wrist produced while the hand moves away from the signer.

In Xavier's database signs with local movement are not frequent, occurring in a mere 7.3 % of the total signs (Table 5).

Fig. 11: ELECTRICITY.

Tab. 5: Frequency of signs with and without local movement.

Articulatory property		Amount	%
Local Movement	Without	2097	92
	With	166	7.3
Total		2269	100

Following Liddell, Xavier distinguished, among the signs containing local movements, three subtypes of this articulatory property: 1. *wiggling*, which consists of alternating movements of the fingers (e.g., SEVERAL (Figure 12)); 2. *circling*, which consists of rotations of the wrist or forearm (e.g., HURRICANE (Figure 13)); and 3. *oscillating* which may consist of rapid oscillations of two handshapes (e.g., WAR (Figure 14)), orientations (e.g., ELECTRICITY (Figure 11)), or locations (e.g., RIDE (Figure 15)).

Fig. 12: SEVERAL.

Fig. 13: HURRICANE.

Fig. 14: WAR.
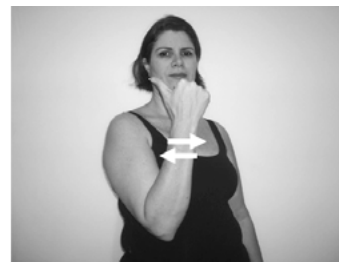
Fig. 15: RIDE.

As shown in Table 6, in Xavier's database wiggling and oscillating orientation are the most frequent subtypes of local movement, since they represent 65 % of all signs with this articulatory property.

Tab. 6: Frequency of signs per type of local movement.

Articulatory property		Amount	%
Local Movement	Wiggling	57	34
	Oscillating orientation	51	31
	Oscillating handshape	32	19
	Circling	21	13
	Oscillating location	5	3
Total		166	100 %

4.5 Handshape

Libras signs can be articulated with one or more handshapes. In Xavier's database, one-handed signs produced with only one handshape are more frequent (77.8 %).

Tab. 7: Frequency of one-handed signs exhibiting one, two or three handshapes.

Articulatory property		Amount	%
One hand / Handshape	One	780	77.8
	Two	211	21.1
	Three	11	1.1
Total		1002	100

The analysis of the signs articulated with more than one handshape revealed that they predominately involve only two handshapes, as in LIKE (Figure 16), but less frequently can include three handshapes.[4] No simplex signs involving more than three hand configurations were identified in Xavier's database.

As for two-handed signs with or without movement in both hands, Xavier's data show that Libras exhibit three patterns. One of the patterns comprises signs such as BIRTHDAY-PARTY (Figure 3), AMERICA (Figure 5), PARTY (Figure 6), and BICYCLE (Figure 8), where both hands are equally configured. A second pattern is composed of signs, such as PARACHUTE (Figure 17), in which each hand displays different handshapes. Finally, a third pattern includes signs such as YOUNG (Figure 18), in which the hands change together from one handshape to another.

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4 Six of the 11 signs containing three handshapes derive from the fingerspelling of a three-letter acronym in Portuguese (e.g.: CEP, which stands for zip code).

Fig. 16: LIKE.

Fig. 17: PARACHUTE.   **Fig. 18:** YOUNG*.

In Xavier's database, two-handed signs with the same handshape in both hands are more frequent (73.5 %) than signs that exhibit different handshapes in each of them (9 %) (Table 8).

Tab. 8: Frequency of two-handed signs exhibiting the same handshape or handshape change in both hands, or different handshapes in each hand.

Articulatory properties		Amount	%
Two hands / Handshape	One	557	73.5
	Handshape change	133	17.5
	Different handshapes	67	9
Total		757	100

This fact suggests that Libras follows the *Symmetry Condition*, as proposed by Battison (1978) for ASL. According to this principle, signs articulated with two hands in movement tend to exhibit the same handshape and movement, as well as a symmetric point of articulation and orientation. As shown in Table 7, 73.5 % of Libras two-handed signs display the same handshape and the other properties described by Battison. This number increases if we add two-handed signs in which

there is handshape change. Although Battison does not mention this type of sign, we can consider them to follow the Symmetry Condition, because their initial and final handshapes are identical.

Similar patterns are also observed for two-handed signs produced with one of the hands stationary and functioning as the point of contact (location) for the moving hand. One pattern comprehends signs such as WHY (Figure 7), where both hands exhibit the same handshape. The second pattern comprises signs like AR-RANGE/SET (Figure 19), in which each hand displays a different handshape. Finally, the third pattern involves signs such as RENT (Figure 20), where both hands are differently configured but where there is also handshape change in the dominant hand.

Fig. 19: ARRANGE/SET*.　　　　**Fig. 20:** RENT*.

Table 9 shows that, unlike two-handed signs with two moving hands, two-handed signs with one of the hands stationary appear more frequently, in Xavier's database, with both hands exhibiting different handshapes (56 %).

Tab. 9: Frequency of two-handed signs with one hand stationary exhibiting one or more handshapes.

Articulatory properties	Value	Amount	%
One hand stationary / Handshape	Different handshapes	287	56
	One	154	30
	Handshape change	69	14
Total		510	100

The analysis of signs belonging to the category in discussion suggests that Libras also seems to follow another articulatory principle proposed by Battison for ASL: the *Dominance Condition*. According to this principle, two-handed signs produced with one of the hands stationary exhibit one of the two following pat-

terns: either they have the same handshape, as in WHY (Figure 7), or they have different handshapes as in ARRANGE/SET (Figure 19) or RENT (Figure 20), the passive hand being configured as one of the seven handshapes described by Battison as more basic or unmarked.

From 358 signs produced with one of the hands stationary and both hands exhibiting different handshapes (with or without handshape change in the dominant hand), only 53, 15 %, exhibit in their passive hand a handshape different from the seven illustrated in Figure 21.

Fig. 21: Unmarked handshapes, reproduced from Battison (1978).

4.6 Point of contact (location)

The two different types of movement contours proposed by Liddell and Johnson, [straight] and [circular], involve the traveling of the hands across the signing space. More precisely, they are realized through what the authors call a *path movement*. Nevertheless, according to Liddell and Johnson, ASL signs not only exhibit path movements. They may also display a *non-path movement*, which consists of a change in handshape (e.g., WHITE (Figure 22)) or orientation (e.g., FALSE (Figure 23)) without a change in location.

Fig. 22: WHITE*.

Fig. 23: FALSE.

Liddell and Johnson do not treat the distinction between path and non-path movement in the same way they treat the distinction between different movement contours, that is, they do not propose phonetic-phonological features to describe them. In their model, the distinction between these movements stems from the number of points of articulation, called by the authors *point of contact*, that each sign has. Signs articulated with more than one point of contact exhibit path movement because the hand must travel from one point to another. On the other hand, signs produced with only one point of contact display non-path movements, since the hand remains at the same position during their entire articulation. The only movement that can be observed in these signs is the one resulting from the handshape or orientation change.

As shown by Table 10, in Xavier's database, signs produced with more than one point of contact outnumber the ones realized with only one, since the former comprises 84 % of the data, whereas the latter represents 16 % only.

Tab. 10: Frequency of signs exhibiting one or more points of contact.[5]

Articulatory property	Value	Amount	%
Point of contact	More than one	1487	84
	One	271	16
Total		1758	100

The analysis of signs produced with more than one point of contact revealed that, in spite of a few exceptions,[6] this type of signs mostly exhibit no more than two points of articulation.

4.7 Contact

Libras signs may involve contact between articulators (e.g., MAN (Figure 24)) or may not (e.g., DAWN (Figure 25)).

As shown in Table 11, in Xavier's database the difference between signs with and without contact is, respectively, 53 % and 47 %.

Liddell and Johnson distinguish between two types of contact: *contacting* and *contact*. The *contacting* feature describes contacts that are produced while the hand is traveling between two points. This type of contact, also referred to by the authors as *brushing movement*, can be observed in signs such as PROHIBITED (Figure 26),

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5 These results exclude two-handed signs articulated with one of the hands stationary.
6 One example is the sign for CHINA, in which the hand moves from the contralateral chest, briefly stops at the ipsilateral chest and then moves down.

Fig. 24: MAN*.

Fig. 25: DAWN.

Fig. 26: PROHIBITED.

Tab. 11: Frequency of signs exhibiting contact or no contact.

Articulatory property		Amount	%
Contact	With	1197	53
	Without	1072	47
Total		2269	100

Fig. 27: REGRET.

Fig. 28: SELFISH.

Fig. 29: TALK*.

in which the index finger of the dominant hand briefly touches the index finger of the non-dominant hand, while it performs a downward movement.

The *contact* feature, in turn, describes one of the four degrees of proximity that the hand can have with a location on the body, the others being: medial, distal and extended. In Xavier's work, signs exhibiting *contact* are distinguished from signs exhibiting *contacting* (or *brushing movement*). The author also differentiates the contact that occurs at the beginning of a sign (e.g., MAN (Figure 24)), from others that may occur at the end of a sign (e.g., REGRET (Figure 27)), or at both the beginning and end (e.g., SELFISH (Figure 28)), or even during its whole production (e.g., TALK (Figure 29)).

Tab. 12: Frequency of signs exhibiting per different types of contact.

Articulatory property		Amount	%
Contact	Permanent contact	552	46.1
	Final contact	304	25.4
	Initial contact	186	15.5
	Contacting	87	7.3
	Initial and final contact	68	5.7
Total		1197	100

As shown in Table 12, signs described by the feature [contacting], that is, containing a brushing movement, are not very frequent (7.3 %) and, among the signs described by the feature [contact], permanent contact is more frequent than the other three subtypes (46.1 %).

4.8 Non-manual Marks

According to Liddell and Johnson, there are some signs whose articulation involves not only activities of the hand, but also activities of other parts of the body, namely, the face, the head, or the torso, or, in some cases, activities of more than one of these. By classifying signs in terms of the presence of non-manual activities, Xavier demonstrated that, although this articulatory property also occurs in Libras signs, it is not common, since it was observer in 16 % of the data only (Table 13).

Xavier also distinguished between non-manual marks that consist of facial expressions only (e.g., FAT (Figure 30)) and the ones that involve solely head (e.g., APRIL (Figure 31)) or torso (e.g., DANCE (Figure 32)) movements.

Xavier also reports the occurrence of signs articulated with more than one non-manual activity, such as NOT-YET (Figure 33), whose production requires a manual, as well as a non-manual activity. The latter consists of pursing the lips (facial expression) and shaking the head (head movement), as well.

According to Xavier, among the signs possessing non-manual marks, the ones that require a specific facial expression are more frequent (90 %). Moreover, it seems that signs with non-manual marks tend to exhibit no more than one of these (Table 14).

Tab. 13: Frequency of signs exhibiting or not exhibiting non-manual marks.

Articulatory property		Amount	%
Nonmanual Marks	Without	1897	84
	With	372	16
Total		2269	100

Fig. 30: FAT.　　　　**Fig. 31:** APRIL.
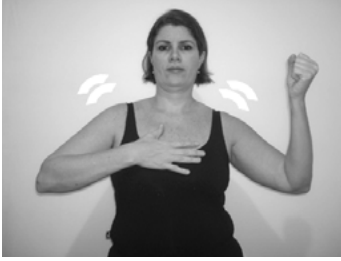
Fig. 32: DANCE.

Fig. 33: NOT-YET.

Tab. 14: Frequency of signs per type of non-manual marks.

Articulatory property		Amount	%
Non-manual Marks	Facial expression	333	90
	More than one non-manual marks	23	6
	Head movements	10	2.5
	Torso movements	6	1.5
Total		372	100

4.9 Conclusion

In summary, Xavier (2006) showed:

1. a relative balance between signs produced with one or two hands, and with or without contact;
2. the predominance of signs produced with one handshape, with movement, with a straight contour, with simultaneous movement of the hands, with more than one point of contact and, among the ones with contact, of signs with permanent contact and;
3. low frequency of articulatory features such as local movement and non-manual marks. Xavier's work also allowed us to see that two articulatory principles proposed for ASL are also valid for Libras: the symmetry and the dominance conditions.

5 Associated sign system

Our research indicates that there is no such system like Sign Exact English (SEE) for Libras. What we do have is a Contact Libras, usually referred to as Signed Portuguese, which has, among other characteristics, signs for Portuguese grammatical words such as prepositions (TO/FOR (Figure 34); WITHOUT (Figure 35)) and stative verbs such as BE (Figure 36) and STAY (Figure 37)), rarely or never used in natural Libras uses.

Libras also has a manual alphabet, which contains signs for the 27 Portuguese letters.
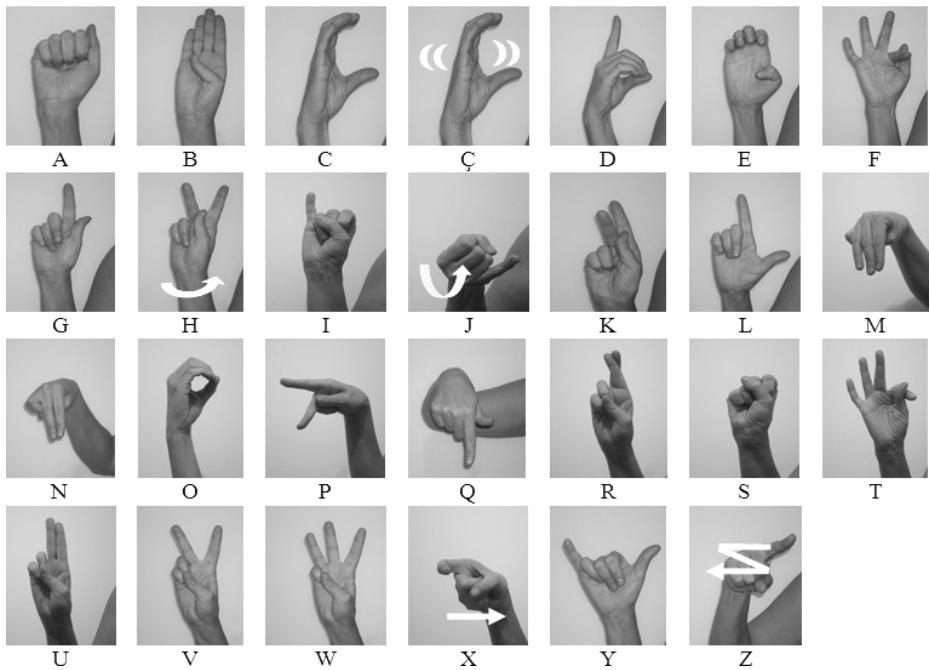
Fig. 34: TO/FOR.   **Fig. 35:** WITHOUT.
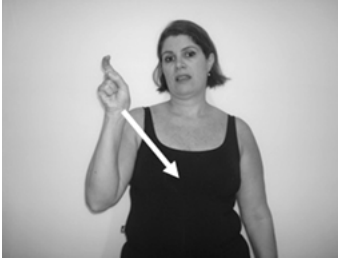
Fig. 36: BE.   **Fig. 37:** STAY.

6 Basic morphology and lexicon

As will be discussed in the section "History of research", little is known about Libras, since research on this language is still in its very beginnings. This section and the following will rely mostly on the few existing studies, as well as on this paper's authors' knowledge of Libras.

6.1 Classifiers

Libras has at least three whole-entity classifiers: one that can be used for both people and animals (Figure 38), another that can be used for vehicles like cars (Figure 39) and a third one that can be used for vehicles like motorcycles (Figure 40). Interestingly, the only difference between the classifier in 39 and the one in 40 is the palm orientation.
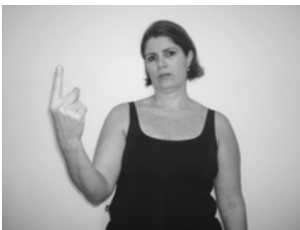
Fig. 38: Whole entity classifier for people and animals.   **Fig. 39:** Whole entity classifier for vehicles such as cars.   **Fig. 40:** Whole entity classifier for vehicles such as motorcycles.
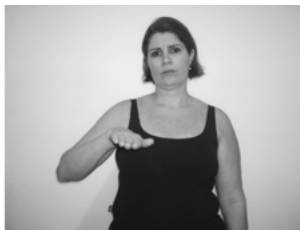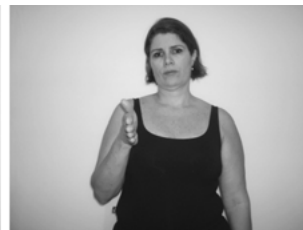
6.2 Number incorporation

Some Libras signs can undergo number incorporation, that is, their handshape can change to a number handshape so as to express quantity. These are semantically

related to time (hour, duration in hour, day, week, month, year and frequency in time), money or order in a sequence (ordinals and grades in school). Dedino (2012) showed for Libras what has also been reported for other signed languages: variation among signers in relation to the extent to which number incorporation occurs. Furthermore, she also showed that signers vary in whether or not they treat as number-incorporating signs those signs that can undergo this process. Although most Libras signs that incorporate number show the incorporation in the dominant hand (e.g., DAY (Figure 41)), there is one exception, MONTH (Figure 42), where the quantity is expressed by changing the handshape of the non-dominant hand.

Fig. 41: DAY.

Fig. 42: MONTH.

6.3 Negation incorporation

Based on our current data, only four Libras signs undergo negation incorporation. As in other signed languages, the negated counterpart of signs undergoing this process systematically show a change in their palm orientation.

Fig. 43a: CAN.   **Fig. 43b:** CANNOT.
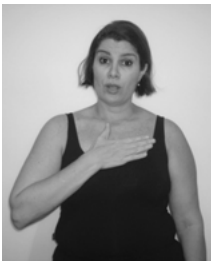
Fig. 44a: LIKE.   **Fig. 44b:** NOT-LIKE.

Fig. 45a: HAVE*.   **Fig. 45b:** NOT-HAVE*.

Fig. 46a: WANT.   **Fig. 46b:** NOT-WANT.

6.4 Personal and possessive pronouns

Libras personal pronouns are characterized by exhibiting a 1-handshape in their plain forms. First-person plural pronoun can be inclusive or exclusive and, according to Moreira (2007), undergo number incorporation up to number four.

As for Libras possessive pronouns, they are characterized by being produced with a P-handshape. The first-person singular form can also be expressed by a sign produced with a flat hand touching the chest.

6.5 Verb morphology

According to Felipe (1998), Libras has plain, directional, handling and locative verbs. The difference between these types of verbs concerns the fact that plain verbs do not incorporate the person(s) involved in the event they express, directional verbs, on the other hand, incorporate the person(s) involved in the event they express, handling verbs incorporate an instrument or an object and locative verbs incorporate location. Moreira (2007) showed that the class of directional (or indicating) verbs in Libras is as complex as it has been demonstrated for ASL (Liddell 2003). Libras directional verbs can express both the subject and the complement (usually the one equivalent to the indirect object in spoken languages such as English) respectively by the beginning and end of the movement (e.g., TELL (Figure 47)) or, conversely, by the end and beginning of the movement (e.g., IN-
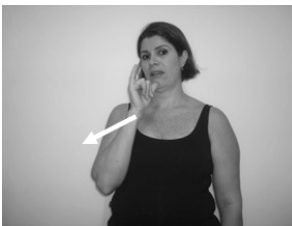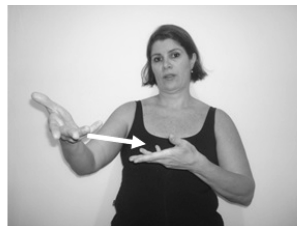
Fig. 47: TELL.   **Fig. 48:** INVITE.   **Fig. 49:** ASK-FOR.
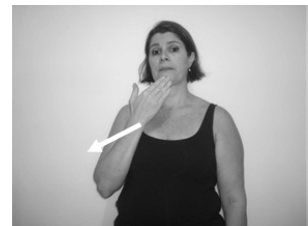
VITE (Figure 48)). Some of these verbs only express the dative complement. Usually they do so by the end of the movement (e.g., ASK-FOR (Figure 49)).

6.6 Reduplication

One way Libras seems to make use of reduplication is to create new signs from existing ones. As suggested by the following examples, EVERYDAY (Figure 50b) and RESEARCH (Figure 51b) consist of a reduplicated version of DAY (Figure 50a) and ASK (Figure 51a), respectively.

Fig. 50a: DAY.　　　**Fig. 50b:** EVERYDAY.　　　**Fig. 51a:** ASK.　　　**Fig. 51b:** RESEARCH.

　　　Based on the data discussed by Xavier and Barbosa (2012), it seems that in Libras reduplication is employed to express plurality (PAY$_{multiple}$ (Figure 52b)), in-

Fig. 52a: PAY.
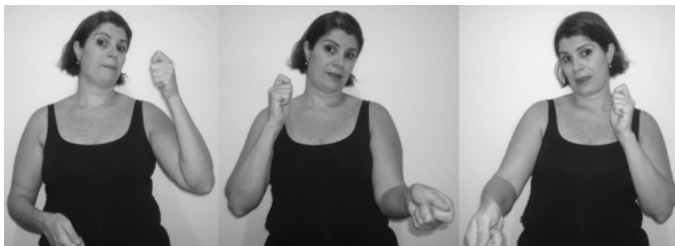
Fig. 52b: PAY$_{multiple}$.
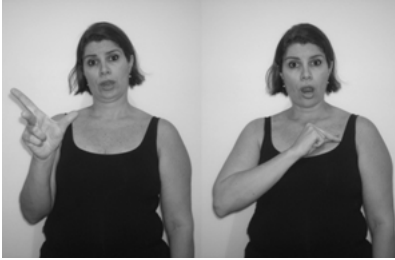
Fig. 53a: OH-MY-GOD.

Fig. 53b: OH-MY-GOD$_{intensified}$.
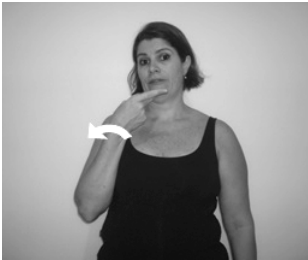
Fig. 54a: SPEAK.

Fig. 54b: SPEAK$_{durative}$.

tensity (OH-MY-GOD$_{intensified}$ (Figure 53b)) or aspect (SPEAK$_{durative}$ (Figure 54b)) and may also involve, when the sign is one-handed, the doubling of manual articulators. The movement in these cases may be simultaneous or alternating.

6.7 Compounds

In Libras new signs are also created by compounding. Examples of compound signs in Libras are CHURCH (Figure 55), HOLIDAY (Figure 56) and SCHOOL (Figure 57).

Fig. 55: HOUSE^CROSS – CHURCH.

Fig. 56 RED^NOTHING-TO-DO – HOLIDAY.

Fig. 57: HOUSE^STUDY* – SCHOOL.

6.8 Derivational morphology

Besides reduplication and compounding, Libras also makes use of derivation to create new signs. As in most signed languages, it does not seem to use prefixation or suffixation, though. Rather, Libras seems to prefer changing one or more of the phonological parameters of a sign to derive new forms. This change seems to be semantically motivated as in the sign MISCOMMUNICATION (Figure 58b) derived from COMMUNICATION (Figure 58a). As suggested by the pictures, the derivation of MISCOMMUNICATION from COMMUNICATION consisted of changing the back-and-forth movement of the latter sign to an interrupted movement, so as to convey the idea of lack of fluidity of ideas and, as a consequence, a blockage in understanding.
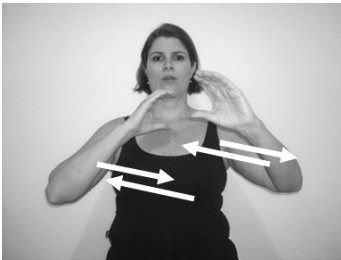
Fig. 58a: COMMUNICATION.   **Fig. 58b:** MISCOMMUNICATION*.

A similar process seems to underlie the derivation of NEIGHBOR (Figure 59b) and SLUM (Figure 59c) from HOUSE (Figure 59a). The sign NEIGHBOR might have been created with the addition of a side-to-side movement to the sign HOUSE to suggest the idea that neighbors are people who live beside each other. SLUM, in turn, might have been created with the addition of a twisting movement to suggest the idea that slums are made up of shabby houses.

Fig. 59a: HOUSE.

Fig. 59b: NEIGHBOR*.

Fig. 59c: SLUM.

6.9 Personal names

Sign names in Libras are usually of two types: iconic with no reference to a person's name or iconic and initialized. This paper's second author's sign names (Figure 60) illustrates the first type, whereas this paper's first author's illustrates the second type (Figure 61).

As suggested by the pictures in 60 and 61, Regiane Agrella's sign makes reference to her cheek and no reference to her name, while André Xavier's sign name makes reference to both the fact that he wears glasses and the fact that his name's initial is the letter 'a'.

Fig. 60: Regiane Agrella's sign name*

Fig. 61: André Xavier's sign name*.

7 Basic syntax

Quadros (1999) analyzed Libras syntactic structures. She offers empirical data to corroborate that SVO is the basic word order from which others such as SOV and OSV are derived. She states that the word order in Libras is also dependent on the type of verb a sentence has. According to her, sentences containing directional verbs may have a more flexible word order than sentences containing plain verbs. She also reports that sentences containing a classifier verb, handling verbs, or verbs aspectually inflected will always present the verb in a sentence-final position.

8 Examples of words

8.1 Color terms

As shown in the pictures below, Libras color terms used in São Paulo are mostly native signs, since they are not initialized or derived from fingerspelling. Only the sign for 'blue' comes from fingerspelling and the signs for 'purple' and 'brown' are initialized.[7]

WHITE*

BLACK

RED*

GREEN

YELLOW

BLUE

---

7 The sign BLUE retains the initial and the final letters of the Portuguese word 'azul'. The signs PURPLE and GREY, in turn, have as their handshape the initial letter of their corresponding word in Portuguese: 'roxo' and 'cinza', respectively.

BROWN*
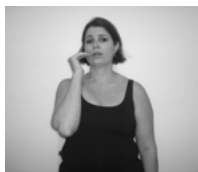
PINK

ORANGE*

PURPLE*

GREY

8.2 Some culture terms

CULTURE
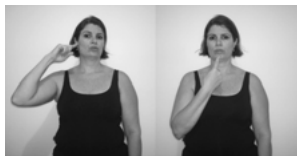
DEAF
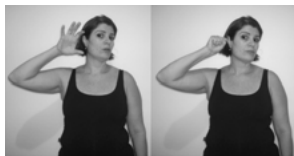
HEARING*

HARD-OF-HEARING[8]
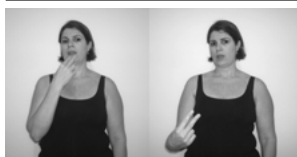
LANGUAGE
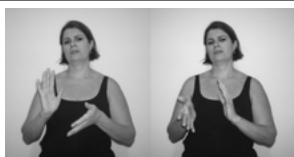
SIGN-LANGUAGE*
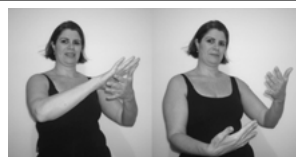
LIBRAS

SPOKEN-LANGUAGE*

PORTUGUESE*

8 This sign is an acronym for the expression 'deficiente auditivo', that means hard-of-hearing in Portuguese.

9 History of Research

The first Brazilian linguist to work on Libras was Lucinda Ferreira Brito (1984, 1990, 1995). In her 1995 book, she offers a comprehensive outline of Libras grammar by discussing general aspects of its phonology, morphology, syntax and semantics/pragmatics. Later on, Berenz (1996) analyzed person deixis in Libras, Felipe (1998) analyzed Libras verb categories and Quadros (1999) studied Libras syntactic structures. Research on Libras acquisition has also been conducted, Karnopp (1994, 1999) and Quadros (1995).

Recently, other researchers have become involved in Libras description. Among the work they have done, we can cite McCleary and Viotti (2007) and McCleary, Viotti and Leite (2010), who propose a system to transcribe Libras data; McCleary and Viotti (2010), who discuss the relation between language and gesture in Libras; Xavier (2006), who offers a preliminary phonetic-phonological description of Libras signs; Moreira (2007), who proposes an analysis of Libras pronouns and directional (indicating) verbs; Leite (2008), who discusses the segmentation of Libras signing based on conversational data and, finally, Bolgueroni (2013), who offers an analysis of the referenciation process in Libras narratives.

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James Woodward, Anastasia Bradford, Chea Sokchea and Heang Samath

5 Cambodian Sign Language[1]

1 Basic facts about the language

Language name: Cambodian Sign Language. The name in the sign language appears in Figure 1.

Fig. 1: Language name in Cambodian Sign Language.

Alternative names: CSL, CBDSL, Khmer Sign Language, KSL. Normally in English, CSL is used as an abbreviation for Cambodian Sign Language. In this paper we use the abbreviation of CBDSL to avoid confusion with other sign languages that may be abbreviated as CSL. It is best to avoid using the term Khmer Sign Language, since the term Khmer refers to the language used by hearing people in Cambodia, and Cambodian Sign Language is a different language from spoken/written Khmer.

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1 The research on which this paper is based was conducted at The Deaf Development Programme, and three of the authors were employed by The Deaf Development Programme during the production of this paper. However, the views represented in this paper do not necessarily reflect the views of The Deaf Development Programme or other individuals employed by The Deaf Development Programme.

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Location: Used in Phnom Penh and the areas surrounding Phnom Penh, possibly throughout Cambodia as shown in the map in Figure 2.

Fig. 2: Map showing the area where Cambodian Sign Language is used in Phnom Penh, Cambodia within the larger context of Southeast Asia.

Varieties: The variety described in this paper is used in Phnom Penh proper, especially by Deaf adults at the Maryknoll Deaf Development Program in Phnom Penh, and by Deaf adults in the provinces surrounding Phnom Penh.

Number of signers: Since there has never been a census of deaf people in Cambodia, the real number of signers is unknown. However, some estimate of the number of signers can be made. The website www.citypopulation.de/Cambodia.html lists the population of Cambodia at 13,388,910 for 2009. Using United Nations estimates of 1 person out of every 1,000 person born profoundly deaf or becoming profoundly deaf at an early age, there would be an estimate of 13,389 deaf people living in Cambodia. Assuming that most Cambodian deaf people attended school and assuming that they had opportunities to interact frequently with other deaf people, a reasonable estimate of users of CBDSL would be up to 13,000 users. The situation in Cambodia, however, is one in which many deaf people are isolated. The Deaf Development Programme in Cambodia estimates that 1,500 deaf people in Cambodia may use CBDSL.

2 Origin and history

Very little is known about the history of Cambodian Sign Language (CBDSL). Some people claim that there were no sign languages in Cambodia prior to 1997, the year the first school for deaf people was established in Cambodia and the year that the Deaf Development Programme was established. However, sign languages can and do develop in communities before the establishment of formal schools for Deaf individuals. Martha's Vineyard Sign Language developed as an indigenous sign language long before the beginning of formal schools for deaf people in the United States and long before the development of Modern American Sign Language (ASL). Similarly in Thailand, Original Bangkok Sign Language and Original Chiangmai Sign Language, developed as original sign languages in urban Chiangmai and Bangkok, long before the establishment of the first school for deaf people in Thailand.

Direct evidence of a Cambodian Sign Language or sign languages before the establishment of a school for deaf people is hard to come by. Many records were destroyed by the Khmer Rouge during the period of their rule (1975–1979)[2] of Cambodia, and many deaf people were among those killed by the Khmer Rouge.

Indirect evidence is available, however. CBDSL shows no significant relationship with any of the sign languages in Viet Nam (Ha Noi Sign Language, Hai Phong Sign Language, Ho Chi Minh City Sign Language) and shows no significant relationship with any of the original sign languages in Thailand (Original Bangkok Sign Language and Original Chiangmai Sign Language). Therefore CBDSL must have originated independently of these sign languages.

CBDSL does show a significant relationship with Modern Thai Sign Language (MTSL). Cambodian Sign Language shows a 42% rate of similarity in basic core vocabulary with MTSL. However, a 42% rate of similarity in basic core vocabulary between CBDSL and MTSL indicates that they are very distinct languages. (Modern French Sign Language (LSF) and ASL show a 62% rate of similarities in core basic

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2 During the time of the actual Khmer Rouge rule (1975–1979) of Cambodia (called Democratic Kampuchea by the Khmer Rouge) approximately 2,000,000 people out of a population of approximately 6,000,000 people died as a result of torture, execution, forced labor, starvation, and disease. Most reports of the deaths of Cambodian citizens related to Khmer Rouge rule focus on the official period of Khmer Rouge rule in Phnom Penh (1975–1979). However, after their removal from Phnom Penh in 1979, the Khmer Rouge maintained a government in exile until 1990 and still controlled large portions of the countryside until 1991. The Khmer Rouge maintained pockets of resistance until approximately 1997. It should be noted that the United Nations recognized the Khmer Rouge as the only legitimate representative of Cambodia until 1990. No one knows how many people in the countryside died as a result of Khmer Rouge activities from 1979–1990. For more information, please see www.cambodia.tribunal.org/history/khmer-rouge-chronology.html or Khamboly Dy. 2007. *A History of Democratic Kampuchea* (1975–1979). Phnom Penh: Documentation Center of Cambodia.

vocabulary. Ha Noi Sign Language, Hai Phong Sign Language, and Ho Chi Minh City Sign Language show between 54 % to 58 % in core basic vocabulary, so CBDSL and MTSL are more distantly related).

There is evidence of direct contact between Cambodian signers and Thai signers during the time of the Khmer Rouge when a number of Cambodian deaf people were in refugee camps in Thailand.

However, the most important conclusion of the low rate of similarity of core basic vocabulary in CBDSL and MTSL is that there were very likely one or more original sign languages in Cambodia before the Khmer Rouge. Otherwise, where do the 58 % of Cambodian signs not related to MTSL come from? As stated earlier, they don't come from any known sign language, so they had do develop independently. The question is did the 58 % of the basic core vocabulary that is unique to CBDSL develop after 1997 or before 1997. If we posit no sign language(s) in Cambodia before 1997, then we have to assume that Deaf people in Cambodia had no sign language and no way to communicate effectively for hundreds or thousands of years and then suddenly developed a full language in a few years. If we posit that a sign language or sign languages existed before 1997, then we are making the assumption that Deaf people in Cambodia paralleled Deaf people in Thailand, Viet Nam, and other countries in Southeast Asia, where there is documented evidence of sign indigenous sign languages before the establishment of Deaf schools.

It is important to remember that LSF and ASL share 62 % of basic vocabulary after a separation of more than one hundred years and that the 38 % difference of LSF and ASL could only be accounted for by the existence of indigenous or original sign languages in the U. S. before the arrival of LSF. [At the time this argument was made (Woodward 1978), there was no direct evidence of previous indigenous or original sign languages in the U. S. The evidence of the existence of Martha's Vineyard Sign Language first appeared two years later (Groce 1980.)] Similarly, using these same linguistic principles is reasonable to posit indigenous and/or original sign languages in Cambodia to account for the large number of differences between CBDSL and MTSL.

3 Bilingualism and language contact

No formal schools for Deaf people in Cambodian use CBDSL. Formal schools for Deaf people use a modified version of ASL that follows Khmer word order. Only one organization providing informal education in Cambodia currently uses CBDSL as it is used by fluent Deaf users (and as CBDSL is described in this article). This organization, The Maryknoll Deaf Development Programme, offers informal education to Deaf adults in Phnom Penh and some other provinces in Cambodia.

4 Political and social context

4.1 Other sign languages in Cambodia

At present, no one knows how many sign languages there may be in areas outside Phnom Penh, and no one knows how much variation exists in Cambodian Sign Language outside of Phnom Penh.

Currently the Cambodian government does not yet officially recognize CBDSL. This may change over time.

4.2 Organizations

There is no national association and no local associations of Deaf people in Cambodia. However, many Deaf people who use CBDSL can be found at The Maryknoll Deaf Development Programme in Phnom Penh.

5 The structure of signs

CBDSL, like all sign languages, has a sub-lexical level of structure analogous to but not dependent on the phonological structure of spoken languages. Handshapes, orientations, locations, and movements, and non-manual expressions follow expected patterns found in other sign languages. However, there are some handshapes that are not commonly found in the world's sign languages. In particular there is a handshape that uses the ring and pinky fingers with the thumb extended. In addition, there are also two complex R handshapes that have a space between the index finger and the mid-finger. A chart of handshapes that occur naturally (not dependent on fingerspelling) in CBDSL appear in Figure 3.

Fingerspelling for the Khmer alphabet appears in Figure 4 and Figure 5. There are 33 consonants, 12 independent vowels, 23 dependent vowels, and 5 diacritics. The 33 consonants and 12 independent vowels are shown in Figure 4; the 23 dependent vowels along with 5 diacritics are shown in Figure 5. In fingerspelling, the dependent vowels and diacritics are produced by pointing with the index finger of the dominant hand to the indicated location on the non-dominant hand.

Fingers	closed	closed bent	open	extended	extended bent	rounded	rounded tapered	contact	contact tapered	inserted
0										
0										
1 (I)										
1 (P)										
2 (I+M)										
2 (I+M) Spread										
2 (I+M) Crossed										
2 (I+M) Crossed (space)										

Fingers	closed	closed bent	open	extended	extended bent	rounded	rounded tapered	contact	contact tapered	inserted
2 (I+P)										
2 (R+P)										
3 (I+M+R)										
3 (I+R+P)										
3 (M+R+P) Pinky										
4										
4 Spread										

Fig. 3: Handshapes that occur naturally in CBDSL.

Fig. 4: Fingerspelling Chart for 33 Consonants (Cons) and 12 Independent Vowels (Ind Vow) in CBDSL.
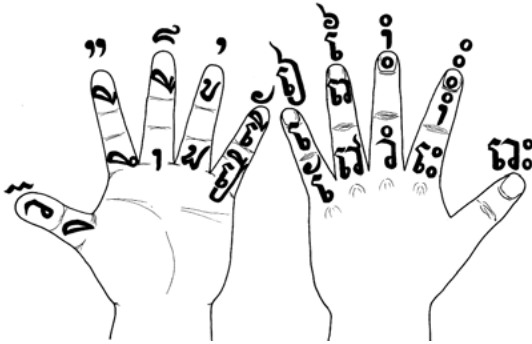
Fig. 5: Fingerspelling Chart for 23 Dependent vowels and 5 Diacritics in CBDSL.

5.1 Phonological Processes

CBDSL exhibits all the common phonological processes and changes found in the world's signed and spoken languages: fluidity, deletion, assimilation, as well as the less common process of epenthesis.

Oldest and newest signs for numbers of hours, such as "eight-hours" shown in Figure 6 illustrate these changes.

Oldest sign phrase for eight-hours		
eight-hours =	hour	eight
Newest sign for eight-hours		
eight-hours =	eight-hours	

Fig. 6: Oldest and newest signs for eight-hours in CBDSL.

Assimilation of the handshape in the sign for "eight" from second sign to first sign.

Deletion of inward orientation of dominant handshape.

Epenthesis of initial outward orientation of dominant handshape.

Deletion of second sign.

Coalescence occurs because two signs become one sign.

6 Basic morphology and lexicon

The CBDSL signs for most of the days of the week (Monday through Saturday), shown in Figure 7 are quite striking. These signs for days of the week in CBDSL bear no resemblance to signs in any known sign language. (Although many hearing people who have learned some Cambodian signs think the signs for Monday through Saturday came from one of the Vietnamese sign languages, they are in no way similar to any signs in any Vietnamese sign languages.)

Monday	Tuesday	Wednesday

Thursday	Friday	Saturday
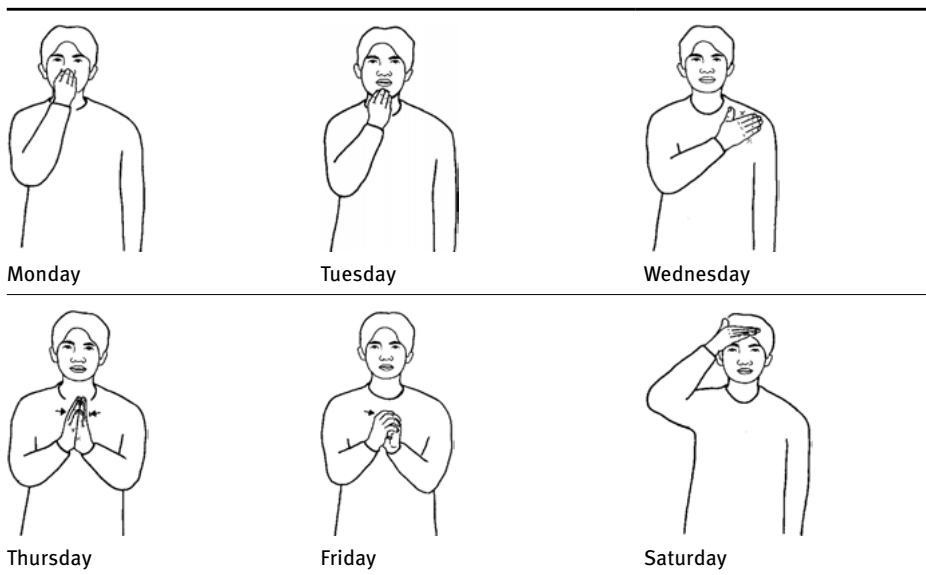
Fig. 7: Signs for Monday through Saturday in CBDSL.

In addition to signs for days of the week, the numbers from 6 to 9 are not commonly found in other sign languages, especially other sign languages in Southeast Asia. It should also be noted that there is a distinct orientation change in the signs from 1 to 5 and those from 6 to 9. Signs for the numbers 1 to 9 in CBDSL are shown in Figure 8.

one	two	three
four	five	six
seven	eight	nine
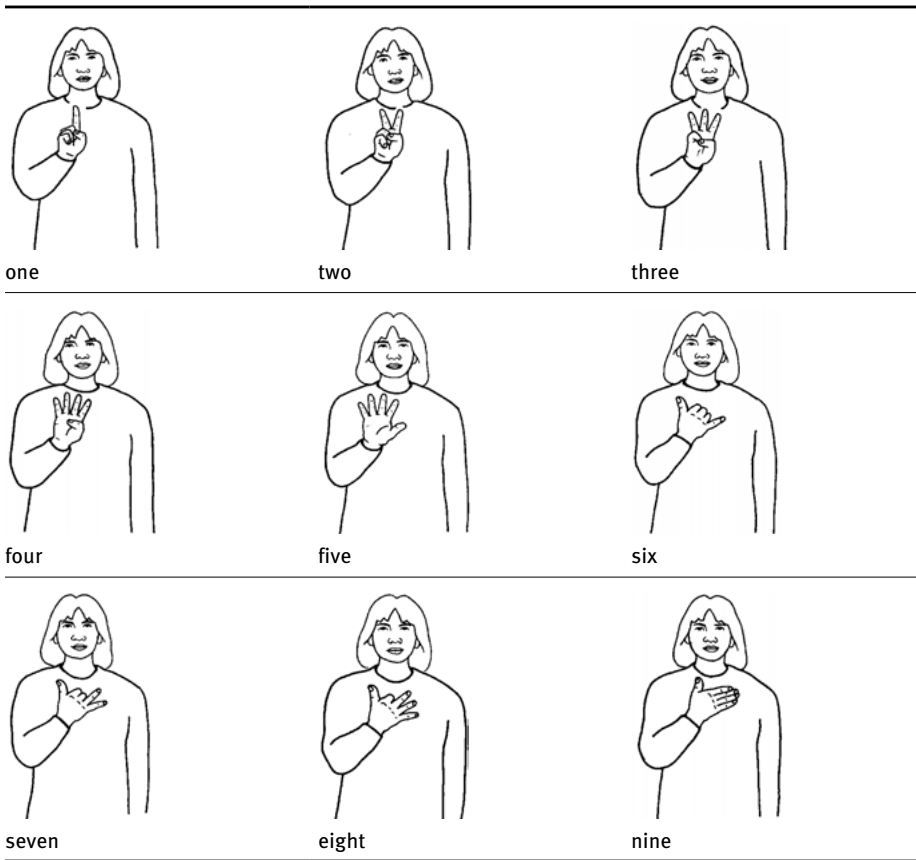
Fig. 8: Signs for the numbers one to nine in CBDSL.

Finally, Figure 9 illustrates that CBDSL has signs for different sizes of bananas and the way to eat bananas of different sizes. This has not been observed in other Southeast Asian Sign Languages.

In terms of morphology, CBDSL has directional verbs that indicate first person, second person, and third person. Some verbs like GIVE-A-GLASS do not change orientation or have minor changes in orientation. Other verbs like ASK radically change orientation. Examples of differences in these two types of directional verbs are shown in Figure 10.

big-banana	medium-banana	small-banana
eat-big-banana	eat-medium-banana	eat-small-banana
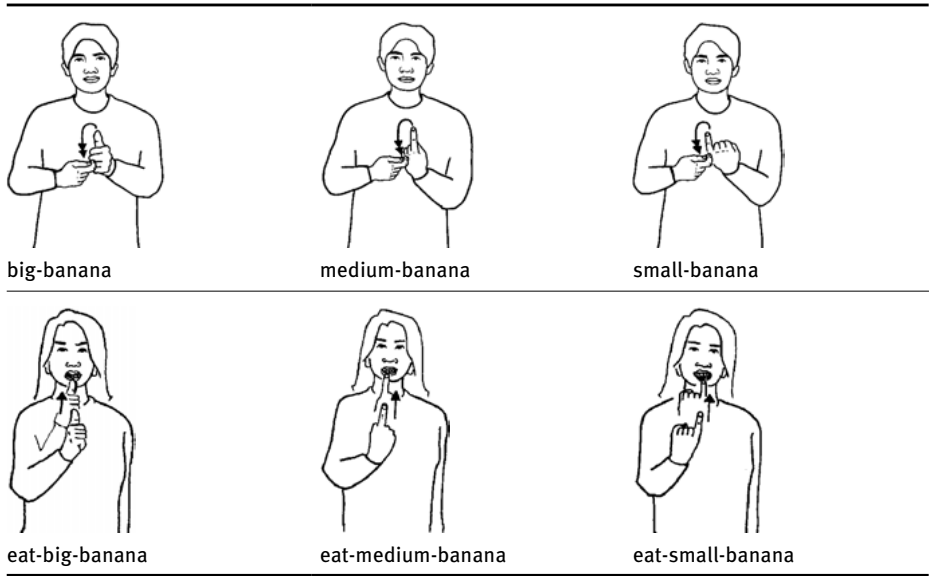
Fig. 9: Signs related to bananas of different sizes in CBDSL.

I-give-a-glass-to-you	you-give-a-glass-to-me	person-on-the-right-gives-a-glass-to-person-on-the-left
I-ask-you	you-ask-me	person-on-the-right-asks-person-on-the-left
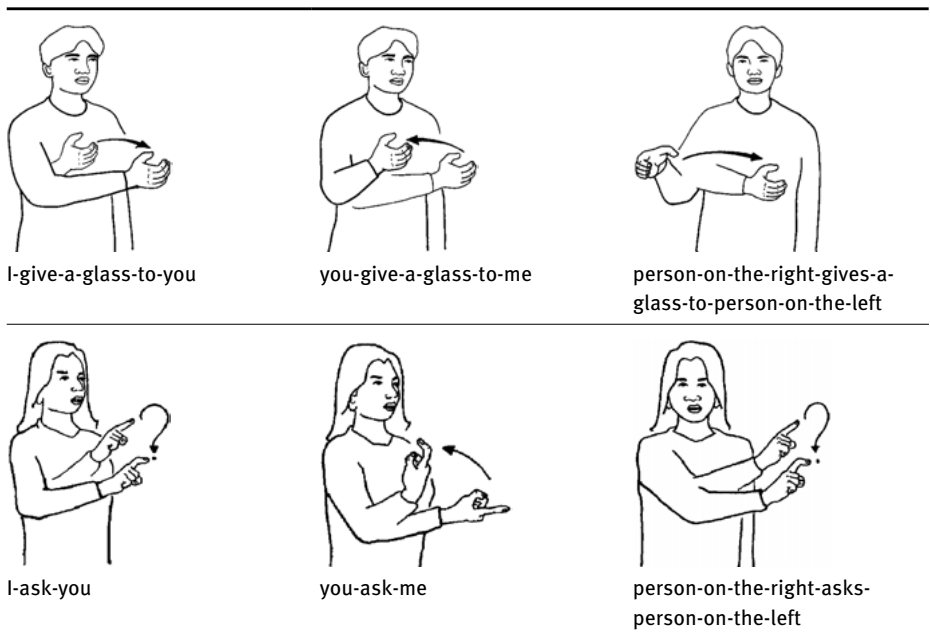
Fig. 10: Some examples of CBDSL directional verbs.

6.1 Basic Morpho-syntax

Possession involving pronouns can be expressed in two morpho-syntactic ways. The first is uninflected pronoun + noun. The second is noun + inflected pronoun (inflected for possession). Examples of these morpho-syntactic differences are shown in Figure 11.

her mother = she + mother		
her mother =	PRO (uninflected)	N
her mother = mother + her		
her mother =	N	PRO (inflected for possession)
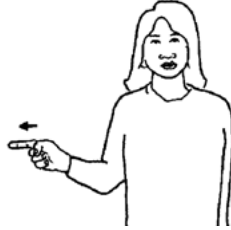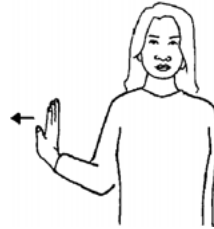
Fig. 11: Examples of morpho-syntax in CBDSL.

7 Basic syntax

In CBDSL phrases, modifiers occur occur after the head. Thus, in verb phrases, auxiliaries occur after the verb head (EAT + LIKE), negatives occur after the verb head (EAT+ NOT), and long verb phrases follow the pattern: Verb + Auxiliary + Negative (EAT + LIKE + NOT). Similarly, in noun phrases, adjectives follow nouns (APPLE + GREEN), numerals follow nouns (APPLE + TWO), and long noun phrases in CBDSL follow the pattern: Noun + Adjective + Numeral (APPLE + GREEN + TWO).

7.1 Word Order in Simple Statements and in Simple Yes/No Questions

In CBDSL, if the object is a single noun or pronoun (and not a noun phrase), the normal word order in simple statements is Subject + Object + Verb as shown in Example 1a and 1b. If the object is a noun phrase and the verb does not have an incorporated object, there are two equally possible word orders in simple statements. Example 2a illustrates one of these possible words orders: Subject + Object (Head&Modifiers) + Verb. Example 2b illustrates the second possible word order: Subject + Object (Head) + Verb + Object (Modifiers). However, if the object is a noun phrase and the verb has an incorporated object, there is only one possible word order for simple statements: Subject + Object (Head) + Verb + Object (Modifiers) as shown in Example 3.

(1) (a)

| Subject | Object | Predicate |
| [N] | [N] | [V] |

Best English translation: "The man eats/ate small bananas."

(b)

| Subject | Object | Predicate |
| [N] | [N] | [V] |

Best English translation: "The man wants small bananas."

(2) (a)
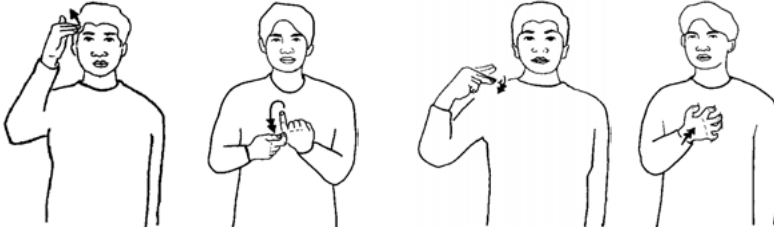
Subject	Object (Head	Modifiers)	Predicate
[N]	[N	AJ]	[V]

Best English translation: "The man wants small bananas that are yellow."

(b)
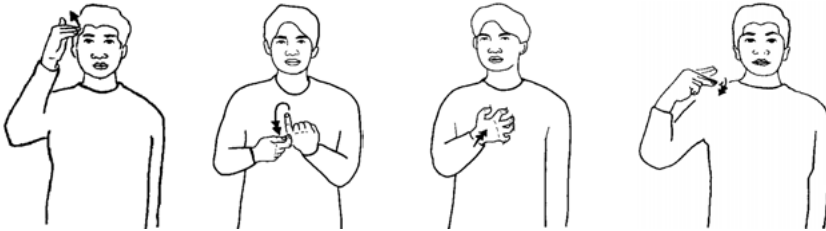
Subject	Object (Head)	Predicate	Object (Modifiers)
[N]	[N]	[V]	[AJ]

Best English translation: "The man wants small bananas that are yellow."

(3)
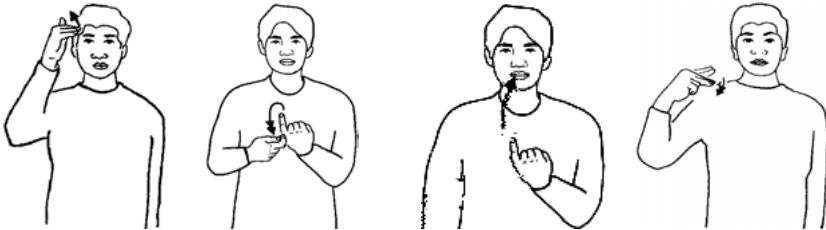
Subject	Object (Head)	Predicate	Object (Modifiers)
[N]	[N]	[V]	[AJ]

Best English translation: "The man eats/ate small bananas that are yellow."

7.2 Word Order in Simple Content Questions

In CBDSL, content question words like "who", "what", "where" always occur at end of a sentence. If the subject is a content word or phrase, the normal word order in is OVS as shown in Examples 4a and 4b. If the object is a single content word, the normal order is Subject + Verb + Object as shown in Example 5. If a the object of a content question is a noun phrase, the content question has the word order Subject + Object (Head) + Verb + Object (Modifier-QW) as shown in Example 6.

(4) (a)

Object	Predicate	Subject
[N]	[V]	[QW]

Best English translation: "Who eats/ate small bananas?"

(b)

Object	Predicate	Subject	
[N]	[V]	[N]	[QW]

Best English translation: "How many people want small bananas?"

(5)

Subject	Predicate	Object
[N]	[V]	[QW]

Best English translation: "What did the man eat?"

(6)

Subject	Object (Head)	Predicate	Object (Modifiers)
[N]	[N]	[V]	[QW]

Best English translation: "How many small bananas did the man want?"

8 History of research

Formal intensive linguistic research on CBDSL began in 2003, when the Cambodian Sign Language Production Team was formed as a result of a project at Centre for Sign Linguistics and Deaf Studies at The Chinese University of Hong Kong, entitled "Practical Dictionaries of Asian-Pacific Sign Languages". The practical dictionaries project, funded by The Nippon Foundation in Tokyo, was designed to develop high quality, low-tech, low cost teaching materials for Cambodia, Hong Kong, Philippines, and Viet Nam (Ho Chi Minh City Sign Language).

Six Deaf signers from Phnom Penh were trained in sign language analysis and two have gone on to do extensive research on CBDSL.

The following have been published: ten teaching handbooks (five in English and five in Khmer) on the grammar and lexicon of CBDSL (The Cambodian Sign Language Production Team 2007a, b; 2008a, b; 2009a, b, c, d; 2011a, b) and one comprehensive dictionary (The Cambodian Sign Language Production Team 2010). Each teaching handbook is a combination student handbook and minidictionary for the vocabulary covered.

The Cambodian Sign Language Production Team includes Chea Sokchea, Heang Samath, James Woodward, and Anastasia Tashi Bradford, as well as Mat Seila, Long Lodine, Justin Smith, Lisa Clews, and Charles Dittmeier. All members of the Cambodian Sign Language Production Team are Deaf except for Lisa Clews, Charles Dittmeier, and James Woodward.

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The Cambodian Sign Language Production Team. 2009b. *Student handbook 3: Level 1, lessons 11–15 (Khmer edition)*. Phnom Penh: Maryknoll Deaf Development Programme.

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Junhui Yang
6 Chinese Sign Language

1 Basic facts about the language

Language name: in Chinese: 中国手语 (*Zhongguo Shouyu*)
in English: Chinese Sign Language (CSL)

Location: Mainland China

Fig. 1: Mainland China Map.

Varieties: In general, there are two major regional varieties of CSL (Gong 2009, Fischer and Gong 2010): the North regional variety (based in Beijing) and the South regional variety (based in Shanghai, see Figure 1). The main difference between all regional varieties is at the lexical level (Gong 2009, Lin, Gerner de García and Pichler 2009). Lexical signs (e.g., names of objects, colours, numbers, kinship terms) are created by local deaf people, and they use different signs to express the same meaning. Fischer and Gong (2010) indicate that the deaf signers in the northern regions use more Chinese mouthing and borrowing signs based on Chinese word sounds and are influenced by Chinese word order more than deaf signers in the southern areas. There are more visually motivated signs and facial expressions used in the South variety than in the North variety.

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Numbers of signers: The actual number of deaf CSL users is unknown. The 2006 census on disability in China, done by the China Disabled Persons' Foundation, reported that there are an estimated 20.57 million people who are deaf and hard of hearing. The language is being increasingly used due to the provision of CSL courses offered over the past 10 years at university level and because of higher levels of access to the language through its use on television and in other media (Xiao and Li 2012).

Organisations: The China Association of the Deaf (CAD) was established in 1956, an ordinary member of World Foundation of the Deaf since 1995. The CAD Executive Office located in China Disabled Persons' Foundation in Beijing. Its official website is http://www.zglx.org.cn/.

The National Research Centre for Sign Language and Braille was established in 2010 and is located in Beijing Normal University. Its office website is http://ncslb.bnu.edu.cn/.

2 Origin and history

The origins of CSL are recorded in Chinese historical documents, which have included some signs with facial expressions, taken from the communication between deaf and hearing people at home and shared in the neighbourhood (Yang 2008). There are some home signs of isolated deaf children and adults documented by Yau (2003).

Most Chinese deaf people and educators believe that the origin of CSL is the traditional schools for the deaf (Yau 1986, Zhao 1999). The first school for the deaf in China was established by an American minister, the Rev. Charles Rogers Milles, and his wife, Annette Thompson Milles, in Chefoo, Dengzhou, Shandong in 1887. There is no evidence as to whether the Milles used American Sign Language or Chinese Sign Language in their teaching. This school adopted an oral method with written texts and visual speech (Lyon's signs). Other schools established by deaf graduates in the South with family support, and by hearing teacher trainees in the West, used sign language, as according to what old deaf teachers wrote in their memorials and narratives (Dai and Song 1999). Consequently, there is the emergence of the language related to the establishment of deaf (boarding) schools.

There is no documentary evidence on the relationship between a high incidence of genetic deafness and sign language development in China. The author's field work observations show that there appears to be only second generation deafness across families, possibly due to the culture of unaccepted inter-family marriage, and deafness does not reach into further generations, hence the language does not appear to be transmitted generationally to any significant level. The influence of oral dominance (with some sign support) in education, and the traditional (hearing) grandmother care-taker role may also have influence here.

3 Bilingualism and language contact

3.1 Education

Chinese Sign Language is formally used in teaching from preschool to university, the media, and public places used by educated deaf or hard of hearing people, sign language interpreters, teachers of the deaf, and by other professionals who work with the Chinese deaf community. CSL is often taught alongside oral/written Chinese in deaf schools or training workshops for learning the national standard variety of CSL.

Most deaf children learn CSL from local schools for the deaf and pass it down to the next generation. There are school varieties which differ in regional and stylistic content. For example, there were four schools for the deaf in Beijing in the 1970–1990s, and some deaf graduates of the four schools were employed in a local welfare factory; which school they had graduated from could be identified by the school variant signs they used. There are stylistic variations between the school style of signing (childish and combining manual-oral methods, with high amounts of fingerspelling in some schools) and the social style of signing (natural, fluent and more sophisticated).

Since 1996, information in sign linguistics and sign bilingual education from Western countries has become available to scholars in mainland China (Callaway 2000). With financial and academic support from UNICEF, the UK, America, Canada and Norway, more than 20 schools for the deaf have established sign bilingual classes for deaf children, have hired appropriate deaf adults to be teachers and have involved local and national deaf communities (Yang 2008). The sign bilingual projects with different sponsors, such as UNICEF, Save the Children [UK], the Amity Foundation or the Signo Foundation in Norway, have also shared their achievements with the government and the Ministry of Education. It has had some impact on some national policy makers. However, it is unclear what the role of the natural sign language is in the Chinese deaf education system. It is identified as a communication option more than a linguistic right.

3.2 Standardisation

The China Association of the Deaf has been making efforts to unify and standardise CSL since the late 1950s. It published the first lexicon *The Illustration of Deaf People's Sign Language in Common Use,* which was revised in 1979 and again in 1987, when its name was changed to *Chinese Sign Language*. It was expected that individual signs of CSL would be standardised in the same way that Mandarin and simplified Chinese scripts are standardised by the government (Huang and Gu 2014). The attempted modification of the lexicon of Chinese Sign Language has had a strong tie-in with the sign language policy development.

3.3 Influence from dominant languages

Chinese Sign Language is a visual-gestural-spatial language used by the deaf community in mainland China. It is also used as an umbrella term (Zhao 1999, Huang and Gu 2014) to cover natural sign language, natural signing systems, Chinese character signs (Fischer and Gong 2010) and the Chinese Phonetic alphabet, which fingerspells the sound of each Chinese word. CSL contains a substantial amount of regional varieties.

Yang (2008) found that language contact is a very natural phenomenon in deaf bilingual schools, where both CSL and written Chinese are used as the medium of instruction and natural contact between the languages occurs. This language contact situation is only successful, however, when a deaf child has a strong foundation in CSL as a first language. With this natural language in place, the child then masters the ability to deal with the contact from written Chinese as influence from another language and is able to function accordingly; where the deaf child does not have a first language CSL foundation, and is attempting to become proficient in the use of the two languages at the same time, the language contact is generally not successful. Successful sign bilingualism also requires exposure to deaf adult language role-models.

4 Political and social context

4.1 Deaf organisations at national, provincial/regional, and local levels

The China Association of the Deaf (CAD) is the national deaf organisation. It was originally named "China Deaf Welfare", established by the New China government on the National Deaf Assembly in Beijing in 1956. It was renamed and reformed in 1988 and since then has been administrated by the China Disabled Persons' Foundation (CDPF). There are 30 deaf associations in various provinces and municipalities, but these are not really branches of the national deaf organisation because they are administrated or sponsored by the regional level branches of CDPF. There are numerous local deaf associations in middle-sized cities and regions, and they are individually sponsored by the local branches of CDPF, where deaf and hard of hearing people can register and receive a disability identity card free of charge. The association memberships at all levels are life-time and free of charge. There are many sports teams, leisure groups and social clubs at all levels, and these are primarily led by deaf people.

4.2 State of the language

The China Disabled Persons' Foundation (CDPF), a semi-governmental organisation, has declared and documented CSL as a national sign language or the standard variety of Chinese Sign Language, strongly proposed as for use above regional varieties.

There is an official published Lexicon entitled *Chinese Sign Language* (1987 edition, 1992 supplement, 2003 edition) which collected the signed forms of over 5,000 Chinese words in common use in Beijing and Shanghai (representing the northern and the southern varieties). There is a volume of *Basic Signs of Chinese Sign Language* (2009), which has rearranged these signs according to the hand-shape order and the location suborder, and this CSL lexicon could be used as a national standard (coded GB/T 24435-2009, project director Yu Lianjia).

Largely due to the use of this standard variety in education, on television and by interpreters, there is now a noticeable gap between older and younger generation signers. The younger generation are now increasingly using this standard variety.

Chinese Sign Language has been used as a resource in the system of supporting people with disabilities and in the media, but has not been recognised as a language or included among the nation's ethnic/minority languages.

4.3 Language maintenance efforts

The China Disabled Persons' Foundation and its branch, China Association of the Deaf, have launched a national project to unify Chinese signs based on the CSL lexicon, which was collected through a list of 5,000 Chinese words, as previously mentioned. The editorial team found signs to fit the Chinese words, and if there was not a lexical equivalent, they made up signs. In the CSL lexicon, Chinese words and CSL signs are therefore one-to-one matched, but sign choices often are contextually dependent. The deaf community in China have expressed their dissatisfaction with the published lexicon (1987, revised in 2003), which failed to include a lot of natural sign vocabulary. The deaf community prefer to use natural regional variants for everyday communication; at the same time, they want to have a unified CSL variety to be used in nation-wide domains, such as higher education, conferences and on TV broadcasts (Xiao and Li 2012: 7 & 9). The CSL national standardising project has not been completed because of lack of support from the deaf community (Gu et al. 2005). The China Association of the Deaf has slowly taken on some leadership roles in sign language research projects and language policy development.

4.4 Attitudes to sign language

Traditionally, the sign language of the deaf community in China has been viewed as a problem for deaf students, said to inhibit their learning of written Chinese and

to impede their integration into the mainstream society. In the Special Education School Regulations released in 1990, spoken Chinese is stated as being the only primary language for instruction, while sign language and writing Chinese texts on the blackboard are for secondary support and supplement. Schools for the deaf have developed a signed Chinese system to support Chinese language instruction. Many deaf students, however, still use their natural sign language after class in social activities, and continue to do so after graduation. In recent years, the general public and universities have accepted sign language and there have been improved attitudes toward deaf people and sign language users (Lytle, Johnson and Yang 2005, Yang 2011).

4.5 Social and geographical varieties

Main regional varieties of CSL are usually identified by the city names: for example, Beijing, Shanghai, Tianjin, Chongqing, Nanjing and other large and middle-size cities where well-established deaf communities exist and where schools for the deaf have been established for more than 60 years. As deaf pupils move into other areas of the mainland for secondary and tertiary education, and for employment and travel purposes, they may also become proficient in several varieties and retain flexibility with their use.

In the west of China, the regional varieties (except Tibet) are more similar or related to the South regional variety because there has been a great deal of deaf connection between the west and south deaf communities in the past, largely due to people travelling from Shanghai to western China through the Yangtze River, and also due to the location of teacher training sites, e.g. Nanjing, near Shanghai. In the centre of China (near the Yellow River, e.g., Xi'an and Zhengzhou), there is a remarkable mixing between the North and South regional varieties. There is also a mixing of regional variation in the south west area of China, as teachers of deaf children were sent to either the north (Beijing) or the south (Shanghai) to train to become teachers before returning to work at the schools in the south west. The varieties acquired by the two groups of teachers were maintained.

In the traditional Shanghai variety of CSL, some signs are similar to old British Sign Language, and some signs were passed on to Hong Kong Sign Language. There are several identical signs and Chinese character signs used in China, Hong Kong, Macau, and in Taiwan where the Chinese characters are used (Fischer and Gong 2010).

4.6 Other sign language in use in the country

Tibetan Sign Language (TSL) has been officially recognised as a minority sign language in China since 2000 and two volumes of the TSL dictionary were published

in 2002. TSL and CSL are different and not mutually intelligible; for example, the number signs for 0, 1, 2, 3, 4 and 5 use iconic handshapes and are shared with many sign languages, whereas the TSL and CSL signs for 6 and above are completely different. TSL is further distinguishable from CSL, as it does not contain the influence from written Chinese characters and it does not contain borrowings from spoken Chinese in the form of fingerspelling/initialisation.

5 The structure of signs

5.1 Parameters of a single sign

A single unit of signs in CSL is usually recognised as having five parameters: 1. handshape, 2. location of hands, 3. orientation of palms and direction of fingers, 4. movement of hands and fingers, and 5. non-manual features including facial expression, mouthing Chinese words, mouth gestures, head and body movements.

Based on an analysis of 5056 lexical items in the CSL lexicon (2003), 61 handshapes were identified by Luo Weiwei (2008), and there are more two-handed signs than one-handed signs. Locations are from the top of the head to the waist, and include hand arrangements. The orientation of the palm and the direction of the fingers are listed as seven types: 1) palm facing inwards and fingers pointing sideways, 2) palm facing sideways and fingers pointing outwards, 3) palm facing outwards and fingers upright, 4) palm down and fingers pointing sideways, 5) palm down and the fingers pointing outwards, 6) palm partially down and fingers forward and angled upwards, and 7) palm partially down and fingers pointing sideways and upwards (Yu 2009: 2–3). There are more than 20 types of hand movements (including external movements and internal motion) listed and illustrated in the CSL Lexicon (2003, Yu 2009). For example, wave-like movement, tracing dots in the air (small circular movement), crossing both index fingers (or arms) to form a cross, interlinking rings, fingers of both hands interlaced, open (hollow) fist (Yu 2009: 3).

The assimilation of handshapes and locations is common in CSL numeral incorporation and compounding. For example, the basic number signs ONE, TWO, and THREE are compounded with a root sign (e.g., PERSON or YEAR, a unit of measurement), the number handshape taking over the handshape of the compounding sign, but the location and orientation of the number sign are modified. For example:

(1) 人　　REN　　　　'person' (singular or plural):
　　一人　YI-REN　　　'one person',
　　两人　LIANG-REN　'two persons',
　　三人　SAN-REN　　'three persons';

(Note: the sign PEOPLE in CSL is made up of PERSON and a sweeping movement but cannot contain number; specific number with person is expressed only by the compound method above.)

(2) 年　　NIAN　　　　'year':
　　 一年 YI-NIAN　　　'a year',
　　 两年 LIANG-NIAN 'two years',
　　 三年 SAN-NIAN　　 'three years'.

(3) 岁　　SUI　　　　　'year(s) of age'
　　 一岁 YI-SUI　　　　'one year old'
　　 两岁 LIANG-SUI　　 'two years old'
　　 三岁 SAN-SUI　　　 'three years old'

6 Associated sign systems

The Chinese Hand Alphabet is one-handed and includes 30 hand configurations from A to Z, plus ZH, CH, SH and NG (see Figure 2). It is used to fingerspell Chinese phonics (with or without tracing the tone marks).

Fig. 2: Chinese Hand Alphabet (Yu, 2009: 5).

With 20 additional hand configurations, they can be used on two hands to simultaneously fingerspell Chinese syllables without tones or with tone marking movement (Zhou 1982, Shen 1991). For example, the Chinese word 玫瑰花 ('rose') includes three syllables: *mei gui hua*, which may be articulated in any of the following three ways (see Clip 1 https://youtu.be/aV-kCWsw61g):

(1) *m-e-i –g-u-i –h-u-a*   (one-handed fingerspelling, letter by letter, 9 letters)

(2) */m-ei/ /g-ui/ /h-ua/*   (two-handed fingerspelling, syllable by syllable, 3 syllables)

(3) M G FLOWER   (the sign 'rose' combines two initials and a sign for 'flower')

7 Basic morphology and lexicon

7.1 Classifiers

CSL signers naturally use various classifier handshapes to describe shape and size, to represent an entity in narratives, to demonstrate the use of instruments, to make subjects visual, and to create metaphors in the signing space (Li 2010). For example, a Y-hand in the thumb-up position (CL:Y) is used to represent a person or body in classifier predicates and some lexical signs (to indicate meaning) and classifiers (to show movement):

(1) SIT   'sit in a row', 'two people sit down face to face', 'seats arranged in a half circle',

(2) LIE   'sleeper train',

(3) COME   (CL:Y moves toward the signer),

(4) GO   (CL:Y moves away from the signer),

(5) HESITATE (CL:Y represents doubting of the mind),

(6) WEAK   (CL:Y represents shaking of the body).

Further research in this area by Chen Xiaohong (2009) investigated classifier predicates and their directional movements in the Shanghai variety of CSL, analysed the adverbial-head structure classifiers formed by spatial directional verbs and the verb-object structure classifiers formed by agency/recipient directional verbs, and found that most classifiers have meaningful directions and locations.

He Jia (2011) analyses verbal classifiers in the Tianjin variety of CSL and found that the whole entity classifier handshapes can be used as an object of the classifier

verb, a group of highly iconic instrumental classifier handshapes can contain both the whole entity classifier and the handling classifier in one classifier predicate. The body of a signer is also an important classifier, which can function as the subject and agree with the classifier predicate in the sentence. Non-manual features (e.g., facial expression) serve an adverbial function in the classifier predicate structures.

7.2 Compounds

There are two types of compounds in CSL: simultaneous compounds (indicated below by two hyphenated words) and sequential compounds (indicated by two words with a 'plus' sign in between). Simultaneous compounds are often shown in two-handed signs and used with a number. A number handshape can be simultaneously combined with a root sign, e.g., PERSON, YEAR or AGE to form new single signs TWO-PERSON, TWO-YEAR, TWO-YEAR-OLD. To form sequential compounds, many single signs can be sequentially combined with a root sign to represent a group of new concepts. For example, signs for 'school' (STUDY+HOUSE), 'restaurant' (EAT+HOUSE), 'hotel' (SLEEP+HOUSE), 'bank' (MONEY+HOUSE), 'museum' (DISPLAY+HOUSE) are sequential compounds including a root sign for HOUSE. The signs such as SCHOOL PRINCIPAL, MAYOR, GOVERNOR, DIPLOMAT and PROSECUTOR include a root sign for LEADER 'official'.

In other cases, more than one root is combined, such as the CSL sign for 'Mexico' (see Figure 3). The left photo of Figure 3 shows the first root for 墨 /mo/ ('ink') and the righthand photo of Figure 3 shows the second root 西 /xi/ ('west') and the third root 哥 /ge/ ('older brother'). This sign is based on the spoken and written word in Chinese: 墨西哥. This spoken Chinese word for 'Mexico' borrows the syllabic sounds from the English word "Mexico" and adapts them phonologically, and three characters 墨 西 哥 are then selected based on the three syllabic sounds

Fig. 3: The CSL sign for 'Mexico' (by Ernesto Escobedo 2011).

/ *mo* / *xi* /*ge* /, not their meanings. The CSL sign for 'Mexico' has three roots because it is borrowed from the meaning ('ink', 'west', and 'older brother') of the three Chinese characters 墨 西 哥, and each root of the sign represents a Chinese character and its meaning. It is a sequential compound that combines three roots (see Figure 3). The first root is a two-handed sign for 墨 ('ink'), the second root is a sign (B handshape) for 西 ('west'), and the third root is a sign (A handshape, thumb-up) for 哥 ('older brother') in the traditional Beijing variety. Each root of the sign for 'Mexico' borrows the meaning of Chinese characters and reflects their syllabic sounds.

7.3 Personal pronouns

Single personal pronouns in CSL use a D handshape (index finger) and double personal pronouns use a V handshape (the number two handshape). The index finger points at a location such as on the signer's chest (representing the first person), opposite of the signer (representing the second person), and to the side of the signer (indicating the third person location). If the D handshape is changed to B (flat hand) and combined with a sweeping movement, the new pronoun is plural. In relation to phonological variation, it is interesting to note that the D handshape first person pronoun may be alternatively located at the nose and when the first person pronoun is located at the chest, either the D or the B handshape can be used.

7.4 Verb morphology

Verbs in CSL can be categorised in three groups: plain verbs (e.g., KNOW and LIKE) agreement verbs (e.g., GIVE and HELP), and spatial verbs (e.g., TAKE and PICK). Ni (2007) adds the fourth category "double-directional verbs" (e.g., COMMUNICATION and TWO-WAY-TRAFFIC) and she confirms that the directionality in CSL is as important as in other sign languages. The direction of movement in agreement verbs marks the subject and the object, or the location of object.

In storytelling and conversations, the movements of verbs are often modified to incorporate aspect and manner. Facial expression and mouth gesture are frequently used as adverbs to describe verbs of motions. Zheng Xuan (2009) found that metaphor and metonymy are two main natural approaches in expressing non-visual concepts in CSL.

7.5 Personal names

Members of the deaf community in China often have their own individual name signs. Shen and Shao (2009: 9) listed six approaches to the creation of personal

names in CSL: 1) descriptive sign names reflect the body shape and size, facial features and hair styles; 2) visual sign names are related to the clothing, assortment, and objects that people often wear; 3) social sign names are adopted from the person's social identity (e.g., teacher, officer or leader); 4) sign names borrow Chinese character signs of the person's names; 5) single letter sign names are the first Pin Yin letter of the personal names; and 6) some sign names are loan translation of the names in Chinese.

8 Basic syntax

Word order in CSL is flexible in some cases. Yau (1977b, 1986: 55) and Gong (2005: 39) state that the basic word order in CSL is Subject-Object-Verb (SOV) or Noun-Noun-Verb, and that the Subject-Verb-Object (SVO) word order is sometimes used. Yang and Fischer (2002) analysed negation sentences and pointed out that negation signs are often placed at the end of a sentence. They also described a question tag "*GOOD-or-BAD?*" attached to a statement at the end of the sentence to mark a question. This type of question is used to make a requirement or to ask for permission. Examples of CSL syntax include (see Clip 2 https://youtu.be/WPZqqAfzYVY):

(1) HELP-ME DRAW-a-picture GOOD-or-BAD
     'Can you help me draw a picture?'

(2) HELP-HIM WRITE NOT-ALLOW
     'You are not allowed to help him write'.

(3) FLOWER CL:bed-of-flowers RED BEAUTIFUL
     'All the red flowers are beautiful.'

A topic-comment structure is commonly shown in CSL statements, descriptions and imperatives. For example, FLOWER is the topic of the sentence 3. above and is placed at the beginning, then the size/quantity, colour and the overall impression are described thereafter.

Additionally, Sun Hanlin (2003: 178) summarises some word order patterns that are the opposite of the written Chinese word orders: 1. two nouns (subject and object) appear before a verb; 2. a main noun is shown before descriptive words; 3. Wh-signs are placed at the end of a sentence; 4. negation words/signs are placed after the topic or object of negation; 5. the number sign (quantity) is shown after the noun and the classifier (presenting a unit of measurement) is either shown in the handshape or by repeating the sign. Sometimes, it can be omitted, or implied in the context or spatial movement. For example:

(1) (a) FLOWER ONE
    'one flower'

(b) FLOWER CL:handful-of-flowers GROUP
    'a bunch of flowers'

In the spoken Chinese language, there is a fixed pattern: Number word + unit of measurement (classifier) + noun.

(2) (a) 一　朵　　花
    one single flower
    'one flower'

(b) 一　簇　　花
    one bunch flower
    'a bunch of flowers'

These patterns and examples show that CSL has its own word order in the topic-comment structure because of its spatial grammar and visual motivation. It is not appropriate if a signer follows Chinese word order all the time to combine lexical signs. CSL and the spoken Chinese are different in modality and primary users' characteristics.

Lv Huihua and Gao Liqun (2011) investigated the structure of relative clauses in Chinese Sign Language and found simultaneous and sequential relative clauses. There is not a manual relative pronoun to link the matrix clause and relative clause in CSL, but non-manual signals such as blinking, mouth gestures, raising eyebrows and body shift are important for marking the boundary of the relative clause.

9 Examples of words and sentences

There is a list of examples of Chinese Sign Language vocabulary (Dai 1992) on the website of the Shanghai Disabled Persons' Foundation:

http://www.shdisabled.gov.cn/clinternet/platformData/infoplat/pub/disabled_132/xcjy_4004/xcjy.jsp

The topics include Chinese manual alphabet, numbers, personal pronouns, family members, and people, verbs and classifier predicates, animal, flowers and plants, time, and direction.

The website also includes an instructional video, namely *learning CSL 100 sentences*:

http://www.shdisabled.gov.cn/clinternet/platformData/infoplat/pub/disabled_132/sy100j_6002/sign_language/sign_language.htm

10 History of research

Research into Chinese Sign Language is relatively recent and began with attempts to compile and edit a dictionary of its central vocabulary. The completion of this motivated further research, which moved to consider aspects of phonology, morphology and eventually syntax (Yau 1977a, 1977b, Fu and Mei 1986, Zhao 1999, Gong 2009). Language contact between CSL and the surrounding spoken language has also been of some interest (Callaway 2000, Gong 2003, Yang 2008). More recently, the research has been applied to the classroom teaching and learning of the language and has become more formalised by the establishment of a sign language research centre at a university and the goal of collating a corpus of language use for further investigation. Methods of examining CSL have seen a changing trajectory, beginning with CSL users collecting lexical items for making the sign dictionary (e.g. Yang 2011), to input from teachers of deaf children, whose primary involvement was to provide explanations of the sign dictionary entries in comparison with the spoken language equivalent. This has led, eventually, to the input from linguists, who have expanded the research to other areas, worked with the deaf community, and aided the collection of the corpus data.

China Association of the Deafleaders firstly drafted, then discussed and produced a CSL lexicon *Longyaren Tongyong Shouyu Tu* (1980) in order to unify Chinese regional varieties of natural signs. Chinese–French linguist Yau Shun-Chiu (1977a) translated this CSL lexicon into English, titled "*The Chinese Signs: Lexicon of the Standard Sign Language for the Deaf in China*", which was also supplemented with photographic illustrations and his own phonological analysis and was published in Hong Kong and Paris. This book is the first published document of the linguistic features of CSL. Yau (1977a: 3) identified 41 handshapes, 12 locations and 10 movements; he described each CSL sign by distinguishing five sublexical components: "the hand configuration, the place of articulation, the movements and their orientations, the facial expression, and finally the intensity of the gesture (force and speed)". He (1977a, 1977b, 1986) discussed the CSL sign order "Noun-Noun-Verb" and indicated that CSL syntax differs from spoken Chinese. Yau (1977a, 1988) also criticised the newly invented initialised signs made up to code Chinese words, or compound signs created to match Chinese characters, which were rarely used or met with little acceptance in the deaf community in China.

In 1986 two teachers of the deaf in Shanghai, Fu Yiting (deaf) and Mei Cikai (hearing), published the first Chinese book "*Shouyu Gailun* [An Introduction to Sign Language]", which describes the word and sentence structure of Chinese Sign Language. They found that the formation of CSL lexical items is in some way similar to the six methods for forming Chinese logographic characters, in terms of iconicity, indicating, pictographs, pictophonetic compounds, associative compounds and borrowing. In the same book, Cai Haozhong (1986) wrote a chapter titled "Linguistic Status of Deaf Sign Language", in which he explained that the sign language

used in China by deaf people is a fully-fledged language, and suggested that this signed language has all the properties of human language, such as lexical formation, vocabulary and grammar. He confirmed and promoted that the sign language used by deaf people is real human language based on linguistic theories. This statement is supported by his colleague, Ji Peiyu (1988) who remarked that the Chinese Sign Language is not a visual representation of spoken Chinese, and pointed out that the signed Chinese used by teachers of the deaf would create additional communication and learning problems for deaf students.

Ye Liyan (1990), a teacher of the deaf in Beijing who published a book after returning from a one-year academic exchange in America in 1986–1987, described the sign language used in schools for the deaf, compared the order of signs used in native CSL and in Signed Chinese, and emphasised the role of non-manual features in grammar and discourse. Additionally, Yang and Fischer (2002) analysed morphological and syntactic features of negation in CSL, finding movement negators, largely of the dominant hand or the head, are a major feature that expresses negation, in addition to negating facial expressions. The research also found a paradigm, driven by the extension of the pinky (little finger) to express negation and in polar opposition with the extended thumb paradigm, representing bad/good respectively. While some morphological similarities were found across CSL and spoken Chinese, this research also showed that the use of spatial grammar enables morphological features to be used that are distinct to CSL, and not found in Chinese, rendering this a morphologically rich language, distinct from its spoken language counterpart.

National research bids, submitted by universities in Beijing and Shanghai, have recently secured funding for postgraduate level research related to CSL, hence the future should see more advanced information regarding the language (Gong 2009). The grant projects have included a national survey led by Professor Gu Dingqian, Beijing Normal University, regarding the use of the published CSL lexicon (Huang and Gu 2014), a deaf-led research project classifying of CSL lexical items and producing the CSL place name sign dictionary by Yang Guowei (2011), and a series of sign linguistic research fieldwork trips led by Professor Gong Qunhu, Fudan University in Shanghai, related to the regional dialects of CSL and discourse analysis (Gong 2009). This project has included doctoral research investigating linguistic aspects, such as directional verbs (Ni 2007), classifiers (Chen 2009, Li 2010), and expressing non-visual concepts (Zheng 2009). On-going investigation related to the CSL corpus in several universities is also investigating advanced information about regional variation, place name-signs, discourse analysis and syntax. The National Research Centre for Sign Language and Braille was established in July 2010 in Beijing Normal University led by a collaboration of CDPF, Ministry of Education, and the State Language Affairs Commission, as part of the Chinese Sign Language planning and dissemination initiative. Deaf CSL users have been involved in all of the above projects, though rarely in leadership positions.

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Deaf People in China http://cndcm.cn/
National Centre for Sign Language and Braille http://ncslb.bnu.edu.cn/
The Deaf Association of Hongkou District in Shanghai City www.shdeaf.com

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7 Danish Sign Language

1 Basic facts about the language

Language name: The Danish deaf community refers to their language as *dansk tegnsprog* [Danish Sign Language] in Danish; Figure 1 shows the autonym for the language name.

Fig. 1: *Dansk tegnsprog* [Danish Sign Language][1] (reproduced with permission from www.tegnsprog.dk).

Alternative names: From the late 1800s to around the mid-1920s the terms *tegn-eller gebærdesproget* [the sign or gesture language], *de dövstummes tegnsprog* [the sign language of the deaf mute], or just *tegnsprog* [sign language] were used, without indication of national provenance. National specification is first attested in a 1926 dictionary. Since 1967 the terms *dansk døve-tegnsprog* [Danish deaf sign language] and *dansk tegnsprog* [Danish sign language] have been used; the language is referred to as *Danish Sign Language (DSL)* in English. The Danish Deaf Associa-

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1 The first picture in Figure 1 shows the sign DENMARK; this is a depiction of the logo of the Danish company Royal Copenhagen, world famous for its classic blue and white porcelain. The second picture shows the first segment of the compound SIGN^LANGUAGE. The third and fourth pictures show the final segment, LANGUAGE.

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tion recommends the abbreviation DTS (*dansk tegnsprog*); this acronym is used in this paper.

Location: Denmark (see Figure 2).

Fig. 2: Map of Denmark (source: Wikipedia).

Varieties: Regional and age-related variation in the lexicon exists. However, no research on variation has been undertaken, although some variants of certain signs have been documented and appear in the online DTS dictionary (www.tegnsprog. dk).

Number of signers: Around 4,000 native signers according to *Danske Døves Landsforbund* [Danish Deaf Association] (http://deaf.dk/viden-om-doeve, accessed 15 May 2014). This is an estimate, and is not based on official statistics (Bergman and Engberg-Pedersen 2010: 75).[2]

Organizations:
- *Danske Døves Landsforbund* [Danish Deaf Association], the umbrella association for a number of regional associations
- *Danske Døves Ungdomsforbund* [Danish Deaf Youth Association]
- *Dansk Døve-Idrætsforbund* [Danish Deaf Sports Association]

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2 Bergman and Engberg-Pedersen (2010) and Lewis, Simons and Fennig (2013) give the slightly higher figure of about 5,000 signers, based on a 2007 estimate.

2 Origin and history

DTS is the language of the deaf community in Denmark. According to the Danish Deaf Association there are, in addition to the approximately 4,000 native signers, up to 10,000 people with a greater or lesser degree of competence in the language, including family members of deaf persons, professionals working with deaf persons, and colleagues of deaf persons (http://deaf.dk/viden-om-doeve, accessed 15 May 2014).

When exactly DTS emerged is not known. Its first attested use dates to the beginning of the nineteenth century (Holm et al. 1997: 11). Prior to this, deaf individuals were usually isolated from one another, and most had no family members with hearing loss. They used home sign systems, which varied widely from signer to signer (Castberg 1818: 55). With the establishment in 1807 of the first Danish school for deaf, *Det Kongelige Døvestummeinstitut i København* [The Royal Deaf-Mute Institute in Copenhagen], larger groups of deaf people came into contact with one another, triggering the development of a common sign language (Castberg 1818: 55). Another early influence on DTS was French Sign Language, which contributed some lexical signs – though little else (Bergman and Engberg-Pedersen 2010: 94) – to DTS. These were presumably brought to Denmark following a visit by Peter Atke Castberg (1779–1823), the founder and first principal of the school, to the Paris school for the deaf (see Section 11 below).

DTS is partly mutually intelligible with Icelandic Sign Language, Faroese Sign Language, and Greenlandic Sign Language due to historical and political ties between these countries and Denmark (Bergman and Engberg-Pedersen 2010: 81–82). Deaf children in Iceland were sent to deaf boarding schools in Denmark up until 1892, when the first private school was founded in Iceland. Deaf children in the Faroe Islands (until 1962) and Greenland (from 1957 until 1978)[3] were likewise sent to Danish boarding schools for the deaf (Holm et al. 1997: 62; Aldersson and Mcentee-Atalianis 2008: 45). These sign languages appear to share a number of signs with DTS, though the extent of the similarities is uncertain. Signers may regard them as separate languages. Consistent with this, Aldersson and Mcentee-Atalianis (2008: 76) conclude, based on a lexical comparison, that DTS and Icelandic Sign Language "constitute distinct but related languages that belong to the same language family".

Norwegian Sign Language and Swedish Sign Language also show a number of similarities with DTS, though they are regarded by signers as distinct languages (Bergman and Engberg-Pedersen 2010: 81, 94). One of Castberg's students, Andreas Christian Møller, a Norwegian, returned to Norway and established a school for the

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3 Prior to 1957 deaf individuals in Greenland stayed in their hometowns and villages and received no education (Petersen and Billund 2009: 12).

deaf in Trondheim in 1825. There may have been some DTS influence on the emergent sign language via Møller, though it seems that a form of manual communication was already used by Norwegian deaf. Swedish Sign Language probably arose in the General Institute for the Blind and the Deaf-Mute in Stockholm, established in 1809 (Bergman and Engberg-Pedersen 2010: 81). This sign language also seems to have been constructed on the foundation of an existing sign system.

3 Bilingualism and language contact

The majority of deaf children are born into families with hearing parents and siblings. Only 5–10 % of deaf children have deaf parents and thus the vast majority grow up in familial environments in which everyone speaks a language that the child is unable to acquire naturally (Hansen 1985: 7). Few deaf children thus acquire DTS from their parents as their native language.

Hearing parents of deaf children used to be offered courses in DTS. More recently, with the development of cochlear implants, parents have been advised not to use signing with their deaf child. It is claimed – on the basis of a 2006 investigation (Percy-Smith 2006) – that this will impede the development of the child's spoken language. However, not all children benefit from cochlea implants, and, as Bergman and Engberg-Pedersen (2010: 78) point out, this confound was not taken into account in the 2006 study.

3.1 Education

In 1803 Castberg received a grant from King Christian VII to study practices in deaf education in Europe. Castberg visited schools for the deaf in Germany and France. On his return to Denmark in 1805 he taught two deaf boys from Copenhagen (Holm et al. 1997: 10). Inspired by the teaching method used in the French school for deaf, Castberg used sign language. He was, however, critical of the use of 'methodical signs', invented by Charles Michel de L'Epée (1712–1789) the founder of the world's first school for deaf in Paris in 1760 (Castberg 1810: 4–5; Holm et al. 1997: 14), as many of the signs were artificial and represented aspects of French grammar. Castberg, who was regarded as a skilled signer, used the signs that the deaf students used among themselves. If there was a concept lacking a sign, the deaf students were asked to suggest an appropriate one: "[r]egarding the determination of signs one follows the most natural and reliable method when one is dealing with a quick-witted deaf-mute as one puts the deaf-mute in the situation to come up with a sign for the concept one has led him to." [translation JBJ] (Castberg 1810: 7–8).

In 1817 compulsory school attendance was enforced for deaf children (Von Der Lieth 1967: 65; Holm et al 1997: 13). In the mid-1800s some schools for deaf began

to focus on oral education. In 1880 a law was enacted by King Christian IX that divided deaf children into four groups, which were taught by different methods: (a) The most intelligent 'genuinely deaf-mute' children were taught by the oral-based method; (b) the less intelligent 'genuinely deaf-mute' were taught by the sign-based method; (c) the 'not genuinely deaf-mute' were taught by the oral-based method, and (d) the mentally handicapped were taught by the oral-based method with some use of signing (Holm et al. 1997: 28). The oral-based teaching method was thus in use in Denmark prior to the 1880 Second International Congress on Education of the Deaf held in Milan, which passed a resolution that oral-based teaching be used in favour of sign-based teaching of deaf students.

However, the oral method was never fully adopted in Denmark, and different schools focused on different methods. Thus the Copenhagen school continued to concentrate on sign-based education, whereas the Fredericia and Keller schools primarily used the oral method. Moreover, whether or not to use sign language in deaf education was hotly debated in *Nordisk tidsskrift för döfstumskolan* [Nordic Journal for the School for Deaf Mute] in the early twentieth century (Holm et al 1997: 63–66). Priest and teacher of deaf, Johannes Jørgensen (1871–1939), was in favour of using sign language in deaf education. In the introduction to his outline of DTS grammar he writes: "[t]he sign language is created by the deaf himself and therefore it is to him the most natural language through which we get the purest and clearest picture of his mental condition ... it must be the duty of any teacher of deaf to know the sign language." [translation JBJ] (Jørgensen 1910: 7). Others were of the opinion that in order to educate and integrate deaf into hearing society, sign language had to be abandoned. The principal of the school for deaf in Nyborg, Anders Hansen (1867–1953), was against the use of sign language in deaf education. Thus, the teaching method at the Nyborg School during his time as principal (1909–1938) was purely oral (Holm et al. 1997: 50). Citing an American colleague, he averred that "[s]ign and speech cannot at all be reconciled [...] Think in signs and there is no hope. Think in speech and the battle is won." [translation JBJ] (cited but not referenced in Holm et al. 1997: 64).

The situation began to change in the 1970s, when DTS began to become more widely accepted as the natural language of the Danish deaf. DTS was used and taught in the schools for deaf alongside oral based teaching methods in what was called "total communication" (Hansen 1975: 255).

In 1995 a statutory act on primary and lower secondary school education was endorsed granting deaf children the right to education in sign language. This act specifies that Danish and DTS are to be used equally, and that the responsibility for ensuring the use of DTS lies with the teacher. However, on account of cochlear implants and integration of deaf students into public schools, both of which are actively promoted by the government, few deaf children have made use of the right to sign language education in recent years.

3.2 Influence from other languages

As a minority language in Denmark DTS is surrounded by, and influenced to some extent by, the majority language Danish. Some lexemes are based on finger spellings of the whole or part of the corresponding Danish word in the hand alphabet (on which see Section 6.1 below). Often just one letter of the corresponding written Danish word is represented by a hand alphabet handshape, normally the first letter; the handshape is often accompanied by an additional movement pattern (see Section 5.4). For instance, signs such as NECESSARY, UNCLE, MALE COUSIN and FEMALE COUSIN involve the handshape of the initial letter of the Danish words *nødvendig, onkel, fætter*, and *kusine*, along with movement of the hand, e.g., in a circular or a short downward, repeated movement. Similarly, for some toponyms; for example VEJLE (V-handshape moved in a circular path) and RANDERS (R-handshape moved in a circular path). By contrast, BEER involves the handshapes of both letters of the written Danish word *øl*; the handshape changes from that of Ø (sometimes with assimilation of the middle, ring and pinkie fingers to the fully flexed position they occupy in L) into that of L and simultaneously the hand moves in a straight line rightwards. The signs for the weekdays, except Sunday, are also derived from the hand alphabet. Thus for example the M-handshape is used for MONDAY (*mandag* in written Danish) and the T-handshape followed by the I-handshape are used for TUESDAY (*tirsdag* in written Danish).

In some cases the handsign for the initial letter of the written Danish word is followed by a DTS sign serving as a type of classifier indicating the semantic domain of the word. For example, COSTUMER is formed with the initial letter K of the corresponding to Danish word *kunde* followed by the sign PERSON.

In some cases the written form of a Danish word is represented in the Mouth-Hand System (MHS) (see Section 6.2 below). Again it may be either part or all of the Danish word that is represented in sign. For instance, in the sign OF-COURSE just the first and the last letters of the written Danish word *selvfølgelig* are expressed manually; the handshape changes from the S handshape to the G handshape and simultaneously with the local handshape movement the hand moves in a straight line path away from the signer.

Some DTS signs involve a native lexical root along with a derivational morpheme comprising a MHS representation of a Danish derivational morpheme. For example, the signs LOVE and HEALTH involve DTS roots with a MHS representation of the spoken (not written) Danish nominalising suffix *-hed* '-hood'. Again there is an accompanying path movement, leftwards for a right handed signer.

There are also lexical borrowings from other sign languages, including American Sign Language (e.g., WORKSHOP, BITCH, MOTIVATION, ANTHROPOLOGY), Swedish Sign Language (e.g., IT-SEEMS, CONTENTS, ATTITUDE, EVENING), Finnish Sign Language (e.g., NEWSSTAND, SEX) and British Sign Language (e.g., DEAF-HOOD). In many instances signs for the names of countries have been adopted

from the sign language of that country, although there is often a native DTS sign for them.

4 Political and social context

4.1 Organizations

In the late nineteenth century a number of regional deaf unions were founded. These played an important role in forming the language and social knowledge of the Danish deaf community (Widell 1988: 11–12).

The first deaf association in Denmark was established in 1866 in Copenhagen, but was converted into a local deaf club in 1935, when the *Danske Døves Landsforbund* [Danish Deaf Association] (DDL) was formed. The DDL is a private organization that has worked towards securing better conditions for deaf citizens, and has fought for equality with the hearing population of Denmark and for official recognition of DTS. The DDL is financially supported by the government through the *Udlodningsmidler* [Danish Lottery].

Danske Døves Ungdomsforbund [Danish Deaf Youth Association] (DDU), a second national deaf association, was constituted in 1994 in Copenhagen, although it had functioned since 1969 under the umbrella of the DDL. The DDU is also financially supported by the Danish government through the Danish Lottery.

Dansk Døve-Idrætsforbund [Danish Deaf Sports Association] (DDI), the national association for Danish deaf athletes, was constituted in 1922 and is an independent association under *Danmarks Idrætsforbund* [The Danish Sports Association].

In 1972 the *Center for Tegnsprog* [Centre for Sign Language] was founded in Copenhagen; some twenty-four years later a branch was established in Aarhus. The purpose of the centre was to enhance deaf peoples contact with the wider Danish society, to train sign language interpreters (at the time an unofficial and non-accredited program), to develop teaching methods and materials for education of deaf, and to conduct research on DTS. Later, the centre hosted the accredited DTS interpreter program (see Section 4.4). Since its foundation, the Centre has gone under various names (initially *Døves Center for Total Kommunikation (KC)* [Centre for Total Communication of the Deaf]), and is now a part of University College Capital in Copenhagen.

4.2 State of the language

The Danish Deaf Association considers DTS to be an endangered language since – largely as a result of cochlea implants – very few children today learn the language as their first language. Based on information provided by the Danish Deaf Associa-

tion, however, the UNESCO-funded project *Sign languages in UNESCO's Atlas of the World's Languages in Danger* places it in the category "vulnerable" – that is, in the category of least endangered sign languages (http://www.uclan.ac.uk/research/environment/projects/sign_languages_in_unesco_atlas_of_world_languages_in_danger.php).

4.3 Social and geographical variation

Regional and age-related variation in the DTS lexicon is known to exist, although it appears that it is not sufficient or systematic enough to permit the identification of distinct regional or age-related varieties. What follows are a few remarks on some of the known sign variation according to region and age; it should be cautioned, however, that this variation has not yet been researched.

From the nineteenth to the mid-twentieth century deaf children from all over Denmark were sent away from their families to boarding schools for the deaf in Copenhagen, Fredericia, and Nyborg. These boarding schools became cradles for emergent sign language dialects. After graduation deaf students usually settled nearby, forming deaf communities, further entrenching the dialectal variation (Toft 1985: 22). However, subsequent social changes resulted in levelling of these regional differences. One such change occurred after 1962, when the Nyborg boarding school was turned into a continuation school for deaf students aged 14–18 years, and took in deaf students from all over the country (Toft 1985: 22). Another change, also dating to the early 1960s, was increasing exposure to a particular variety of DTS through TV and video materials produced by *Døvefilm* [Deaf Film]. Deaf Film, established in 1963, produced videos in DTS that were distributed to families with deaf members.[4]

Age related variation can be partly attributed to changes in the educational system. Older signers were trained extensively in the MHS, and tend to use more signs employing MHS handshapes and mouthings than do younger signers who have had more limited exposure to the MHS. Another factor contributing to the language gap between the generations is that deaf clubs that used to be attended by individuals of all ages are now mainly attended by the older generation of signers (Madsen 2014: 23).

4.4 The sign language in its political context

Denmark has a number of laws relating to sign language, though only one explicitly mentions DTS. These laws mainly concern rights to the services of an interpreter:

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4 As of 1973, families with deaf family members could apply for a video player funded by the local authorities (Holm et al 1997: 233).

1. *Lov om tolkning til personer med hørehandicap* [Act on Interpretation for persons with Hearing Disabilities] gives deaf people the right to unlimited use of interpreters in activities considered essential to participation in society on an equal footing with other citizens.

2. *Bekendtgørelse af lov om kompensation til handicappede i erhverv m.v.* [Act for Compensation of Disabled Employees] gives deaf people the right to an interpreter in the workplace for up to twenty hours a week.

3. *Bekendtgørelse af lov om specialpædagogisk støtte ved videregående uddannelser* [Act on Special Educational Support in Further and Higher Education] and *Bekendtgørelse om specialpædagogisk støtte under erhvervsuddannelser m.v.* [Act on Special Educational Support in Training] provide deaf students in training and in further and higher education with sign language interpreters in all courses and meetings.

4. *Bekendtgørelse af sundhedsloven* [Consolidated Health Act] gives deaf persons the right to a free interpreter in the medical domain, when hospitalized and when under treatment by general practitioners and specialists. However, it is not easy to get interpreter assistance in hospitals due to financial cutbacks.

5. *Bekendtgørelse om uddannelsen til professionsbachelor i dansk tegnsprog og tolkning* [Act on Professional Bachelor Degree in Danish Sign Language and Interpreting] provides for a training program in DTS–Danish interpreting for hearing people. The program was established in 1988 and has produced a number of interpreters qualified to serve in health and education settings. This program is located in the Centre for Sign Language in Copenhagen and Aarhus (Bergman and Engberg-Pedersen 2010: 93).

6. *Lov om ændring af lov om Dansk Sprognævn* [Act on Changing the act on the Danish Language Committee] was ratified by the Danish Parliament in May 2014. This amendment pledges the establishment on 1st January 2015 of an autonomous Danish Sign Language Council in the Secretariat of the Danish Language Committee. The Council will be responsible for recommending principles and guidelines for the documentation of, and research on, DTS, as well as providing advice and information about the language. It is to consist of five members, appointed by the Minister of Cultural Affairs, each for a period of four years. These will be nominated by the Danish Language Committee, the Danish Deaf Association, the Ministry of Education and Research, and the Ministry of Children, Equality, Integration and Social affairs; the Chairman of the Board will be appointed by the Minister of Cultural Affairs from the members. An explanatory memorandum to the amendment states that DTS is a self-contained language with its own grammar, syntax and evolutionary history, and is actively used by thousands of deaf and hard of hearing persons, their hearing relatives, and professionals. It states in addition that the language is a strong part of deaf people's identity and lies at the core of Danish deaf culture. There is therefore a need to work on strengthening the stewardship of DTS and to

anchor it in the existing academic environment. The amendment also affirms that Denmark prospectively complies with United Nations Convention on the Rights of Persons with Disabilities, according to which under Article 21 (e) State Parties must recognize and promote the use of sign language.

The Danish Sign Language Council is to be serviced by a secretariat located at the Danish Language Committee, which will have a full time employee. The secretariat will be responsible to the Danish Sign Language Council, which defines its tasks, such as answering questions from authorities concerning DTS, guidance on sign language use, and the publication of works in and about the language. Secretarial services for the Danish Sign Language Council will be carried out in collaboration with relevant interest groups and institutions in sign language.

How the 2014 act – which focuses exclusively on language – will affect the deaf community and its culture remains to be seen. Furthermore, the Danish Deaf Association is still discussing what "[r]ecognizing and promoting the use of sign language" means within the framework of the UN Convention on the Rights of Persons with Disabilities, and how the UN requirements may be most effectively achieved.

5 The structure of signs

The phonetics and phonology of DTS are under-researched domains. The little that has been written does not go beyond identification of the major parameters and, to a limited extent, their contrastive values (Engberg-Pedersen 1998: 29–42, 1993: 35–42; and Hansen 2011). Phonotactic phenomena such as sandhi processes and syllable structures have barely been touched on; see Engberg-Pedersen (1998: 48–52) for a few remarks on sandhi.

As in other primary sign languages, both manual parameters (handshape, location, orientation, and movement) and non-manual parameters (including facial expressions, head movements, eye gaze, mouth actions, nose wrinkling, and body movements) are significant in DTS. Almost all lexical signs involve a manual component: that is, they involve the hand as active articulator. There may be a non-manual component as well, either optionally or obligatorily. The majority of signs illustrated in the online dictionary of DTS involve some type of mouth action; it is not clear, however, in which cases the mouth actions are obligatory and in which they are optional. In some instances, certainly, they are obligatory, and serve to distinguish lexemes that are identical in manual parameters. For example, SPRING and CHAMPAGNE (Figures 3 and 4) differ only in terms of the accompanying mouth actions. On the other hand, there are a few lexical signs that never involve accompanying mouth action.

Fig. 3: SPRING (reproduced with permission from www.tegnsprog.dk).

Fig. 4: CHAMPAGNE (reproduced with permission from www.tegnsprog.dk).

Manual signs are either one handed or two handed. Signers usually use their dominant hand in the production of one handed signs, although they may use their other hand, e.g., if the dominant hand is employed on another task. It makes no difference to a sign which hand is used. In two handed signs the signer's dominant hand is normally the more active one. Two handed signs are usually balanced, that is, the non-dominant hand adopts the same configuration as the dominant hand. A smaller proportion of two handed signs are unbalanced, with different configurations for the two hands. There are constraints on the shape and movement of the non-dominant hand in unbalanced signs, though it appears that they are somewhat freer than in ASL: almost twice as many handshapes are permitted, and the non-dominant hand may move, albeit in concert with the dominant hand.

As already mentioned in Section 3.2, some DTS signs are modified representations in the letters of the hand alphabet or MHS (see Section 6 for information on the systems) of written Danish (sometimes English) words. It seems that DTS signers do not use fingerspellings as frequently as do ASL signers.

The majority of lexical signs in DTS involve, as we have seen, a manual component, and may be accompanied by non-manual components, either optionally or obligatorily. More often than distinguishing between manually homophonous

signs, non-manual gestures frequently provide grammatical information concerning the unit they accompany – see Section 8 for some examples. To some extent, then, non-manual features behave more like prosodic features (such as intonation) in spoken languages than segmental features.

5.1 Handshape

Sixty-five handshapes are listed in the online DTS dictionary. Based on an investigation of a subset of just over five hundred of them, Hansen (2011: 62) finds that twenty-five are emically contrastive. However, this must be considered a minimum number as not all of the handshapes are represented in her corpus. Hansen (2011) suggests that the position of the thumb is non-contrastive, and that it is largely predictable from the part of the hand that makes contact with the body. She further proposes (Hansen 2011: 62) that just two handshapes – ✋ and ✋ – contrast in term of the degree of flexion of the digits (whether they are straight or partly bent). Otherwise, the degree of flexion is dependent on place of articulation and orientation of the hand.

5.2 Place of articulation

Hansen (2011: 77) argues that forty-one places of articulation are distinctive in DTS, which fall into five main areas: the head, the trunk, the arm, the hand, and neutral space (the space immediately in front of the signer's body extending from their neck down to about the waist). For instance, six distinctive places are identified in the trunk area: shoulders, chest, armpit, stomach, waist, and thigh; seven distinctive places of articulation are identified on the hand: back, palm, wrist, index finger, fingertips, radial side (side on which the thumb is located), and ulnar side (side on which the little finger is located).

Place of articulation correlates to some extent with semantic domain, via metonymy. Thus, for instance, signs articulated on or near the top of the head typically relate to entities associated with the top of the head, e.g., SHOWER, HAT; signs articulated on or near the temple often denote mental processes or states, e.g., THINK, KNOW; many signs articulated at the mouth specify oral activities, e.g., SAY, EAT.

5.3 Orientation

Five orientations of the hand are emically contrastive in terms of the positioning of the palm: up, down, lateral, towards signer, and away from signer (Hansen 2011: 86). For instance, TODAY and STAY-HOME are both two handed balanced signs

with the B2 handshape 👌, articulated in neutral space and moving downwards. They differ only in that TODAY has palms up, STAY-HOME, palms down.

When the hand is oriented laterally no contrast is made between left and right orientations: signs made with the right hand are left oriented, signs made with the left hand are right oriented.

5.4 Movement

Two different types of manual movement can be involved in a DTS sign, path movement, in which the hand(s) shift from one location to another, and internal movement, in which the hands undergo non-translational movement.

Four different features are relevant to path movement. First is whether they are unidirectional or bidirectional (in which the hands move along a path to a particular location, and then back again to their original position). Second is the orientation of the path with respect to the signer, distinguishing towards, away, up, down, left or right. For example, MUST is unidirectional, with path movement away from the signer; ALREADY is bidirectional, with path movements away from and then towards the signer (Figures 5 and 6). Third is the shape of the path,

Fig. 5: MUST (reproduced with permission from www.tegnsprog.dk).

Fig. 6: ALREADY (reproduced with permission from www.tegnsprog.dk).

whether it is straight, curved or circular. The fourth feature concerns the plane in which the path is enacted, for instance, whether it is horizontal or vertical.

Internal movements are of various types: change of handshape, change of orientation, rubbing, shaking, squeezing, waving, wiggling, and wrist twisting. For example, EMBASSY involves a curved path movement together with internal movements of both handshape (from flat to closed hand) and orientation (palm of dominant hand moves from facing left to away from the signer). In most instances internal movement extends over the entirety of path movement, beginning at its beginning, ending at its termination. One of the few exceptions is AUSTRALIA, in which the internal movement begins subsequent to the path movement.

5.5 Mouth actions

Mouth actions in DTS comprise mouthings (mouth gestures that derive from spoken Danish) and mouth gestures (mouth gestures that bear no relation to spoken Danish) (see Kristoffersen and Niemelä 2008 for further information). In some instances the accompanying mouth action serves to distinguish between semantically related lexemes whose manual components are identical. Thus SOFT DRINK and CHAMPAGNE share the same manual gestures, but differ in their accompanying mouth actions.

Mouthings of some signs imitate, not necessarily exactly, the mouth actions of the corresponding Danish lexeme. In other cases the mouthing of a DTS lexeme does not imitate that of the corresponding lexeme in spoken Danish. Some signs are accompanied by mouth gestures that mimic combinations of Danish phones that represent possible, though not actual Danish words. Examples include the mouth actions that would be involved in the articulation of the nonsense sequences /blabla/, /bo/, /bi/ and /faw/ in Danish. The sign for LUCKILY involves the mouth action /bo/ (Figures 7a and 7b).

Other signs are accompanied by mouth actions that do not imitate the visible gestures of Danish phones. For example, the sign EXIST involves a mouth gesture

Fig. 7a: LUCKILY (reproduced with permission from www.tegnsprog.dk).

Fig 7b: The mouth action /bo/ used in the sign LUCKILY (reproduced with permission from www.tegnsprog.dk).

Fig. 7c: The mouth gesture <tongue-in-cheek> (reproduced with permission from www.tegnsprog.dk).

comprising a quick side to side movement of the tongue. Eighteen different mouth gestures of this kind are found, including <bite tongue>, <lick lips>, <munch>, <pout>, <tongue in cheek> (see Figure 7c), <chattering teeth>, <puff of air>, <puffy cheek>, and <bilabial trill>.

6 Associated sign systems

6.1 Hand alphabet

Introduced in 1977, the hand alphabet mostly used in Denmark today is an adaptation of the international hand alphabet (Figure 8), though the one that it superseded, which was introduced in 1808, is still used to some extent by the older generation of signers. The modern hand alphabet consists of the twenty-six handshapes from the international manual alphabet plus three extra signs for the letters <æ>, <ø> and <å> of the Danish alphabet. The handshape for Å is the same as the handshape for A, but the hand simultaneously describes a circle. The handshape for Ø is the same as for O, with the hand moving in a straight line diagonally upwards and rightwards. No distinction is made between lowercase and uppercase letters.

Aa	Bb	Cc	Dd	Ee
Ff	Gg	Hh	Ii	Jj
Kk	Ll	Mm	Nn	Oo
Pp	Qq	Rr	Ss	Tt
Uu	Vv	Ww	Xx	Yy
Zz	Ææ	Øø	Åå	

Fig. 8: The Danish hand alphabet (© Janne Boye Niemelä).

6.2 Mouth-hand System

The Mouth-hand System was developed by Georg Forchhammer (1861–1938) – a principal at The Royal Deaf-Mute Institute from the late 1800s until 1920 – and described in Forchhammer (1903). The MHS is a one-handed system designed as a tool for teaching spoken Danish in deaf education. The signing hand is held under the chin in order to facilitate lip-reading.

/b/, /v/	/p/, /f/, /h/	/m/
/d/	/t/	/n/
/g/	/k/	/ŋ/
/s/	/l/	/r/
	/ð/ ("soft *d*")	/q/ ("soft *g*")

Fig. 9: The Danish Mouth-hand System (© Janne Boye Niemelä).

The MHS consists of fourteen different handshapes, as shown in Figure 9.[5] All represent Danish consonants, though the correspondence is imperfect. A single handshape represents /p/, /f/, and /h/, and another represents /b/ and /v/ as well as all vowels. Stød (realized by creaky voice or a glottal stop) is not represented in the system.

Although the system was developed for the purpose of facilitating acquisition of spoken Danish, several of the signs used in DTS today derive from the manual representation of Danish words or morphemes signed in MHS. It must be noted, however, that in some instances the MHS-derived form represents the written Danish word, not the spoken one. This is the case for OF-COURSE (see Section 3.2): the G represents the final <g> of the written Danish word; there is no corresponding consonant in the spoken word.

6.3 Numeral systems

Two sets of number sign systems are employed in DTS, one set representing cardinal numbers, the other representing ordinal numbers (Figure 10). The cardinal system most used today in DTS is the one-hand system that is described in the Døvestumme-Raadet (1926) dictionary of DTS (see Toft 1985: 22–31). How long the system had been in use before 1926 is not known. It seems that this system was predated by two earlier numeral systems, one of which is still occasionally used today (see Section 9 below).

The cardinal number signs can also be used as ordinals. However, they are accompanied by mouthings of the corresponding Danish ordinals *første* 'first', *anden* 'second', *tredje* 'third', etc. ... This system is used, among other things, when talking about grades in school, the order of Kings and Queens, and trimesters of pregnancy.

In addition three different systems of specifically ordinal numbers are employed; in each system the ordinal number involves modification of the corresponding cardinal number. These systems are restricted to ordinal numbers below ten; for higher numbers the system referred to in the previous paragraph is used. The following observations are based on preliminary research by Janne Boye Niemelä.

In one system of ordinals the dominant hand is shaped in the same way as the corresponding cardinal number; the prominent digit begins in contact with the tip of the nose, and moves forward. For example, FIRST is signed with the same handshape as ONE, with the thumb initially in contact with the nose tip; it is then

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5 There is a fifteenth handshape representing /j/. However, this is used only by signers who have become deaf as adults. In the original MHS /j/ was represented by the same handshape that represents /b/, /v/, and the vowels.
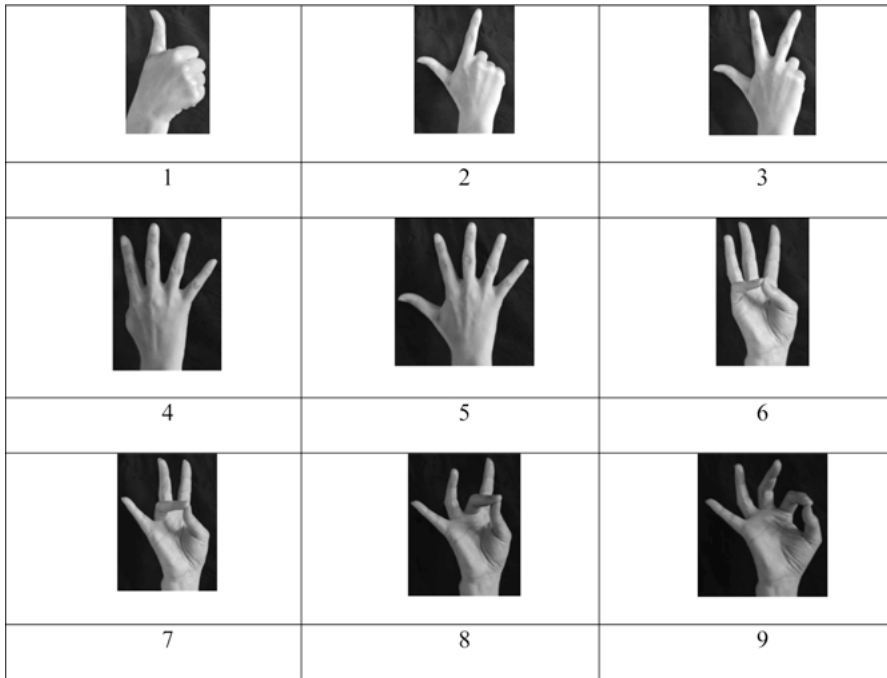
Fig. 10: The first nine cardinal number signs in DTS (© Janne Boye Niemelä).

moved away from the nose tip; SECOND is signed with the 2-handshape, and the index finger is moved away from the nose tip. The sign may be accompanied by either mouthing of the initial segment of the Danish word *nummer* 'number' followed by mouthing of the corresponding number word in Danish, or by mouthing of the corresponding Danish ordinal. This system is very commonly used, for instance, in talking about the ordinal number of an edition of a book, a child's birth order in a family, position in sport competition, and so on.

A second system is used in enumeration and to express adjectival or adverbial meanings such as 'the first/second/third child', 'at first/second/third …', 'firstly/secondly/thirdly …', and 'in the first/second/third/ … place'. In this system the non-dominant hand adopts the shape of the corresponding cardinal number while the index finger of the dominant hand touches the prominent finger of the non-dominant hand. For example, FIRSTLY is signed with ONE on the non-dominant hand while the index finger of the dominant hand touches the thumb of the non-dominant hand; SECONDLY is signed with TWO on the non-dominant hand while the index finger of the dominant hand touches the index finger of the non-dominant hand. The sign may optionally be accompanied by a mouthing of the corresponding Danish ordinal.

A third system is employed for just the first five ordinals. The handshape of the corresponding cardinal number is adopted on the dominant hand, which is

moved in small downward movements; the palm is left oriented if the signer has a dominant right hand, otherwise it is right oriented.

7 Basic morphology and lexicon

The morphology and syntax of DTS have been subjected to much more intensive research than its phonetics and phonology. However, no systematic and comprehensive description is available, and information is scattered over many publications. A number of fundamental features of the grammatical structure of the language are only briefly touched on in the literature: there is, for instance, no thorough description of the pronominal system, compounding, noun phrase structure, or clause structure. Thus the selection of topics in this section and the next is largely determined by what is covered in the literature augmented by our own observations and preliminary studies.

As is the case in all languages, signs in DTS show differences and commonalities in their grammatical behaviour, on the basis of which they can be grouped into a smallish set of parts of speech categories. Based on the categories mentioned in the existing literature it would seem that at least eight distinct parts of speech are identifiable in DTS: nouns, verbs, adjectives, adverbs, pronouns, conjunctions, prepositions, and interjections. However, this list must be regarded as tentative, given that there is no comprehensive treatment of the parts of speech; nor does any publication provide defining criteria for any part of speech.

Nouns, verbs, adjectives, and adverbs are open classes in the sense that they admit new words. By contrast, pronouns, conjunctions, prepositions, and interjections are closed classes, which cannot normally be added to by the creation of new members. Pronouns, conjunctions, and prepositions provide mainly grammatical information, whereas members of the other parts of speech provide lexical or content information.

The parts of speech overlap to some extent, and some signs belong to more than one category. This is the case for FOOD/EAT and CHAIR/SIT, for instance, which sometimes serve as nouns (specifying things), sometimes as verbs (specifying the corresponding activities). In other instances there are morphological relations between nouns and corresponding verbs with closely related meanings: for example, by use of a derivational morpheme or by reduplication (see Section 7.1).

7.1 Reduplication

Nouns and verbs can be reduplicated or repeated either wholly or partially, with the repeated instances of the sign either made in the same location or displaced somewhat within a pattern of movement such as a straight line or circular path.

Usually the sign is repeated once or twice. Reduplication has various functions in DTS.

In some cases reduplication of a lexical sign serves to create a new lexical sign of another part of speech. A number of nouns are formed from verbs by reduplication. For instance, the lexical verb OPEN-DOOR is a two-handed sign with flat hands and palms oriented towards the signer. The dominant hand begins in contact with the non-dominant hand, and moves away from the signer until it is oriented left. The sign for DOOR involves repetition of the movement component: the dominant hand moves outwards, back, and outwards again. Reduplication does not always, however, result in change of part of speech. For example, no change is involved in the reduplication of the noun CHILD to GRANDCHILD, also a noun.

Reduplication of a noun can indicate plurality. Typically the reduplicated sign is displaced, and the reduplication is incorporated into a straight or curved line movement pattern. The noun CHILD can be reduplicated and integrated into a straight line movement to indicate plurality; thus CHILDREN and GRANDCHILD are both reduplications of CHILD but differ in that the former involves displacement of the repeated instances of CHILD, while the latter does not.

Reduplication of a verb can indicate iteration (i.e. repetition) of action, and/or plurality of an argument referent. For instance, the sign JUMP can be reduplicated with the repeated instances occurring on a straight-line path moving outwards from the speaker to indicate iterative action of jumping along. The verb BECKON involves local movement only, but can be reduplicated on a sideways path movement of the hand to indicate that a number of people were beckoned.

7.2 Compounds

Like other sign languages DTS employs compounding to create new lexical items: two signs are combined together in a single sign with a related – though not entirely predictable – meaning. Processes of assimilation may affect the shapes of the signs in a compound. For instance, in the compound MAN^WOMAN 'people' the handshape of WOMAN is adopted in the sign MAN, and the movement pattern of the former becomes an arc from the forehead to the breast, instead of a straight line movement away from the signer. In some cases the compound is of the classificatory type, where the compound represents a subtype of the type represented by one of the lexemes, as in SNOW^MAN, SIGN^LANGUAGE, and MAIL^BOX. In other cases the compound is additive, as in MAN^WOMAN 'people' and MOTHER^FATHER 'parents'.

7.3 Personal pronouns

Personal pronouns consist of points towards the actual or imputed spatial location of the referent. The system distinguishes three persons and various numbers.[6] In the singular number the point typically employs the index finger, which touches the signer's chest in the case of first person, points in the direction of the addressee in second person, and points in another direction (towards neither the signer nor addressee), to a location that is assigned to a third person referent. In the case of first person only the point need not be by the index finger, and may instead be made with e.g. the ring and little fingers, all fingers, or even the handshape of a following verb.

Non-singular pronouns involve a combination of handshape and movement pattern which differs according to who is included and how many they number. Numeral handshapes for the numbers two to five can be used to specify referent numerosity within this range. The pattern of movement distinguishes the three persons, and, depending on whether the addressee's location is indicated, between inclusive and exclusive in the first person. For instance, for first person dual inclusive the index finger of the 2-hand handshape points to the addressee, the thumb to the signer, and the hand is shaken back and forth; for first person dual exclusive the index finger points towards the location established for the third person referent included with the signer and the hand is shaken back and forth between these locations.

For larger numbers than five and for non-specific or unknown plural numbers the index finger is used, and the hand is moved in an arc or circular trajectory. In the case of second and third person pronouns the hand describes an arc which either passes by the addressee (for second person) or is made to the side of the centreline joining the speaker and addressee (for third person). In the first person the hand describes a circle that either begins or ends with the speaker; the inclusive-exclusive distinction is maintained: the circle passes by the addressee in the inclusive, and is offset from the centreline between speaker and addressee in the exclusive.

Third person pronouns are formally identical with definite determiners. They can also, according to Engberg-Pedersen (1993: 133), be used in reference to places as well as to persons and other entities.

Possessive forms of the pronouns are distinguished by use of a closed hand or flat hand, the palm of which faces the direction of the referent(s). The number contrast is between singular and plural, and the same movement pattern is adopted as for the corresponding ordinary pronoun.

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6 Engberg-Pedersen (1993: 133–136) suggests that the system distinguishes just two persons, first vs. non-first. However, the evidence she adduces argues for the distinctiveness of points to the addressee from points in other directions, i.e. to the left and right of the line between signer and addressee. We conclude that the system is indeed a three person one.

7.4 Verb morphology

Three broad categories of verb can be distinguished in DTS according to Engberg-Pedersen (1993: 160–161): agreement verbs, plain verbs, and polymorphemic verbs. In general it is impossible to predict which type a verb will be assigned to on the basis of its meaning. Brief discussion of each of these categories follows.

Agreement verbs are verbs that admit spatial modification: their beginning and/or end point or the initial and/or final hand orientation may be modified according to the location established in the interactive situation for a referent that serves as an argument (Engberg-Pedersen 1993: 154–155). All agreement verbs are transitive, but differ in terms of the number of arguments they agree with: either a single argument (the object or indirect object) or with two arguments (subject and object). VISIT is a double agreement verb. Its articulation begins in the direction of the subject and ends in the direction of the object. By contrast, DECEIVE is a single argument verb, for which the hand moves in the direction of the location associated with the object. Some double agreement verbs show "backwards agreement": the verb begins with the place or orientation of the object and ends with that of the subject. Such verbs include INVITE, BORROW, and TAKE.

Plain verbs by contrast do not admit spatial modification in regard to arguments (or any other feature). These verbs form a very large class in DTS, and include verbs such as KNOW, LOVE, HATE, CRY, SLEEP, SWEAR, BE-ASHAMED, TRY, STUDY, among others (Engberg-Pedersen 1993: 162). The line between plain verbs and agreement verbs is not entirely clear-cut. Thus the transitive verb TELEPHONE-TO is a plain verb in some idiolects, and an agreement verb in others.

As the term suggests, polymorphemic verbs are verbs that typically involve a number of morphemes in their realized forms, including the verb stem plus morphemes denoting motion or location, orientation, direction, relative position, manner, aspect, and distribution (Engberg-Pedersen 1993: 253–254). These may be simultaneous or sequential.

What is referred to as the verb stem in this analysis corresponds with what is generally called the classifier in sign language linguistics. According to Engberg-Pedersen (1993: 273–279) four major subtypes of verb stem can be distinguished in DTS. These are as follows:

a) *Whole entity stems*, which occur in verbs of motion and stasis/location. A wide range of different handshapes represent entities such as persons (e.g. by the 1-hand, an inverted V hand, and the index finger up), vehicles (e.g. flat hand palm down for car, flat hand vertical with thumb uppermost for bicycle), tree, lump-like entities, flat entities, animals, long-thin entities, and so on.

b) *Handle entity stems*, which occur in polymorphemic verbs denoting events of handling, carrying, and instrument use. The handshape depicts the prototypical manner of handling entities of various sort, such as handle flat object, handle lump like object, handle cylindrical object, handle scissors, handle gun, and so forth.

c) *Limb stems*, which occur in verbs denoting motion or state of an animate. For example, the handshape may indicate whether the motion or state is effected by legs, feet, arms, or paws.

d) *Extension stems*, which are used only in verbs indicating the state of an entity or mass, and occur only with morphemes specifying extension. These stems depict the outline of the entity or mass, and include flat surfaces, curved surface, thin entity surface (e.g., sticklike thing), and two-dimensional outline.

7.5 Personal names

At least six different patterns for forming personal names are used in DTS.[7]

1. *Initialized name sign.* In most cases of initialized personal names the first letter of a person's written name is signed by the corresponding handshape in the hand alphabet; the hand may be simultaneously shaken from side-to-side. Sometimes the first two letters of the person's written name are signed, in which case no additional hand movement is involved.

2. *Number name sign.* During the period when deaf children were sent to boarding schools for deaf, the students' school registration number, represented in the DTS number system (see Section 6.3 above), was sometimes used as their personal name. This number was used either alone, in which case the hand representing the number sign was shaken from side to side, or it was used in combination with the initial letter of the person's written name represented in the hand alphabet or the MHS. For example, a person whose school registration number was 7 was named by a shaken 7-handshape.

3. *Nickname sign.* In some instances an individual characteristic of a person (such as their appearance, a hobby, their occupation) is used as the person's name. This can be accompanied by manual representation of the first letter of that person's first name. For example, a person who used an old type of hearing aid and carried the battery box in their shirt pocket was named with an 'M-handshape' (the person's name in Danish begins with M) located on the left side of the chest.

4. *Surname name sign.* In some instances a meaningful component of the person's last name is signed as their personal name. An example is the use of the DTS sign 'to dig' for a person whose last name is *Graversen* [digger-son].

5. *Folk etymological name sign.* In some cases a person's name in Danish is folk etymologized and the component formatives of that analysis are translated into DTS. For instance, the name *Jakob* may be folk etymologized as *ja* 'yes' and *kop* 'cup', and thus the name sign is the compound YES-CUP.

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7 The following is based on a small interview- and questionnaire-based research project undertaken by Julie Bakken Jepsen in 2010 and 2014.

6. *Rebus name sign.* Some name signs are more or less fixed rebus-type representations of Danish names: the name is signed as per a DTS lexical item that translates a Danish lexeme that is phonemically identical with or very similar to the personal name. Examples are the name *Mikkel*, signed by FOX based on the similarity to the initial two syllables of the Danish baby-talk word *mikkelræv* 'fox', and *Hanne*, signed by ROOSTER on the basis of phonemic similarity with the word *hane* 'rooster'.

8 Basic syntax

8.1 Structure of the simple clause

The basic word order of simple intransitive verbal clauses is subject verb, and for transitive clauses subject verb object, as shown by the following examples, respectively:

(1) CAT SLEEP
   'The cat is sleeping.'

(2) CAT LICK DOG
   'The cat licked the dog.'

However, other orders are possible. For instance, in (1) CAT can also follow SLEEP, while in (2) it is possible for DOG to occur initially (while retaining the meaning 'the cat licked the dog') – see (5) below. Ellipsis of subject and/or object noun phrases is also common, and applies equally to subjects and objects.

There is no copular verb in DTS, and identifying clauses (in which some entity is identified by another designation) and attributing clauses (in which a quality or property is attributed of an entity) involve noun phrases in apposition, as in:

(3) CAT 3SG MY (identifying)
   'That cat is mine.'

(4) MY CAT BLACK (attributing)
   'My cat is black.'

Again, the two noun phrases may occur in either order, though in the case of attributing clauses such as (4) the reverse order is less frequent. Ellipsis is also common in identifying and attributing clauses.

A noun phrase can be topicalized by putting it in clause initial position and accompanying it by non-manual markers extending over the phrase: chin pulled back or lowered, eyes squinted, and/or brows raised. Thus DOG can be topicalized

in (2) by placing it at the beginning of the clause, and accompanying it with squinted eyes, as shown in (5). In addition, the end of the topicalized noun phrase may be marked by a head nod.

<pre>   squint</pre>
(5) DOG CAT LICK
    'The cat licked the dog.'

Of course, the noun phrases in examples such as these may be realized by pronouns (see Section 7.3) rather than lexical noun phrases. For instance, CAT in (1) and (2) could be replaced by 1SG – I SLEEP, I LICK DOG. A third person pronoun – pointing to an established locus or establishing a locus – may also accompany a lexical nominal, either preceding it, as in (6), or following it, as in (7), from the online dictionary.

(6) 3SG CAT SLEEP
    'The cat is sleeping.'

(7) 3SG WOMAN NICE 3SG
    'She is a nice woman.'

8.2 Negation

A clause can be negated by shaking the head from side to side while it is being signed, or while some part of it, usually including the verb, is being signed. For instance, (1) can be negated by shaking the head while producing the sign SLEEP, as in (8).

<pre>   head shake</pre>
(8) CAT SLEEP
    'The cat isn't sleeping.'

In addition to the non-manual sign of negation a manual negator may be added. The following two examples from the online dictionary both involve manual negators in addition to the non-manual headshake. In (9) the headshake extends over the entire first clause, which ends with the manual sign NOT; in (10) the headshake begins after the sign 2SG, at the beginning of the manual negator MUSN'T. These negative signs may occur either before or after the verb.

<pre>   head shake</pre>
(9) 1SG WORK NOT 1SG GO HOME 1SG
    'I'm not working, I'm at home.'

<u>head shake</u>
(10) 2SG MUSTN'T HIT
‘Don't hit.’ Or ‘You shouldn't hit.’

A number of other manual negators are used in DTS, including DON'T-WANT, CAN'T, HAVEN'T, WON'T, and DON'T-KNOW (see Figures 11a–b and Figures 12a–b). Most, if not all, of these appear to be monomorphemic, including DON'T, DON'T-KNOW, and WON'T. However, in some instances there is a formal similarity with a corresponding non-negative sign. For example, CAN'T shares the same

Fig. 11a: CAN (reproduced with permission from www.tegnsprog.dk).

Fig. 11b: CAN'T (reproduced with permission from www.tegnsprog.dk).

Fig. 12a: WILL (reproduced with permission from www.tegnsprog.dk).

Fig. 12b: WON'T (reproduced with permission from www.tegnsprog.dk).

handshape and place of articulation as CAN, but involves a different path and internal orientation movement.

There is also a noun phrase negator NOTHING, which usually precedes the head noun (regardless of animacy), as in NOTHING HEAD 'without a head, headless', NOTHING THING 'nothing'.

8.3 Interrogatives

Polar interrogatives are marked non-manually, primarily by raised eyebrows; in addition the head may be tilted forward and the eyes widened. These non-manual markers are simultaneous with, and have scope over, the whole clause excluding an initial topic or conditional clause if present. (11) is an example.

<div align="center">raised eyebrows</div>

(11)   YOU KNOW MY BROTHER YOU
       'Do you know my brother?'

Content interrogatives involve both manual and non-manual markers. Manual markers include six basic WH-interrogative signs: WHAT, WHO, HOW, WHY, WHEN, and WHERE. Mouthing of what appears to be the corresponding Danish WH-interrogative word is often used simultaneously with the WH-interrogative sign, although it is not obligatory, and the mouth may be closed and the lips compressed.

The WH-interrogative sign often comes at or near the end of the clause; as in (12), a repeated instance of the subject pronoun may follow it. It may also occur clause initially, as in (13). Sometimes two instances of the WH-interrogative are found, one at the beginning of the clause one at the end, as in (14). Rarely, the WH-interrogative occurs medially. Non-manual markers of content interrogatives are lowered eyebrows, head forward, chin up, body in backward position, and head shake. The first two markers, lowered eyebrows and head forward, are obliga-

tory and may extend over the entirety of a complex sentence, just the interrogative clause, or just the manual WH-interrogative sign. The other three markers are optional, and if present usually co-occur with the manual WH-interrogative sign.

    <u>lowered eyebrows & head forward</u>
(12) 2SG MEET MY BROTHER WHEN 2SG
     'When did you meet my brother?'

    <u>lowered eyebrows & head forward</u>
(13) WHY ANGRY 2SG
     'Why are you angry?'

    <u>lowered eyebrows & head forward</u>
(14) WHO BUILD THAT HOUSE WHO
     'Who built that house?'

8.4 The expression of time

Verbs do not inflect for tense. Time reference and temporal relations are established through the use of space, temporal adverbials, and/or aspectual modification of verbs (not discussed here, but see Engberg-Pedersen (1993: 62–63, 1998: 108–109).

Spatial representation of time and temporal relations is by means of a calendar plane and four different timelines: a deictic timeline, an anaphoric timeline, a mixed timeline, and a sequence timeline (Engberg-Pedersen 1993: 80–89), which are used in different contexts. The calendar plane resembles a virtual two-dimensional calendar on which the months are expressed by points along the horizontal dimension starting with January on the left, and dates by points on the vertical dimension (Engberg-Pedersen 1991: 72).

The deictic timeline is used to specify times in relation to the time of the communicative event (Engberg-Pedersen 1993: 84, 1999: 140). This line runs forwards from just behind the signer's dominant shoulder. A point at or behind the dominant shoulder indicates past time; a point in neutral space just in front of the signer indicates present time; and a point further in front represents future time. The other timelines specify temporal relations of other types. The anaphoric timeline specifies time in relation to a point of time established in discourse; the sequential timeline relates events in terms of their order of occurrence in time, and involves no inherent temporal reference origin; the mixed timeline specifies time in relation to either the here-now of the interaction or a point of time established in the discourse.

Temporal adverbials are lexical signs that indicate the time of occurrence of a situation in relation to the time of utterance, usually in accordance with established time frames such as days, weeks, and years. They include JUST-NOW, TO-

DAY, TOMORROW, and YESTERDAY. These adverbials do not occupy a fixed position in the clause, though they tend to occur in initial position, as shown in (15).

(15) YESTERDAY 2SG MEET MY BROTHER 2SG
      'Did you meet my brother yesterday?'

9 Interesting or unusual features of the language

The origin of one of the two older cardinal number systems mentioned in Section 6.3 can be traced back to 1907, when deaf students attended the deaf school in Fredericia. Each student was given a registration number, which the students linked to a nickname specifying a personal characteristic of the student (see Section 7.5). For example one boy who always had a runny nose was given a nickname signed by a thumb rubbed downwards along the nose. This sign was subsequently associated with the boy's registration number, 14, and eventually became lexicalized as FOURTEEN (Toft 1985: 22–31). Numerals from TEN to FORTY were coined by this process, as was FIFTY.

Numerals below TEN were constructed differently. ONE is the same as in the modern system. Larger numbers except FIVE are either one or two handed, and the hand(s) trace the outlines of the corresponding Hindi-Arabic numerals. In the two handed numerals the non-dominant hand moves in the mirror-image of the dominant hand.

Some of these lexemes, in particular the signs SIXTEEN, SEVENTEEN, EIGHTEEN, and NINETEEN, are still used in DTS in reference to the corresponding centuries. A few elderly people still use these numerals in other contexts.

10 Examples of words and sentences

Fig. 13a: MAN.

Fig. 13b: WOMAN.

Fig. 13c: MOTHER.

Fig. 13d: GRANDMOTHER.

Fig. 13e: FATHER.

Fig. 13f: GRANDFATHER.

Fig. 13g: FAMILY.   **Fig. 13h:** SIGN-LANGUAGE.
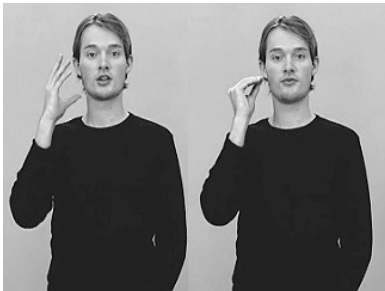
Fig. 13i: DEAF.   **Fig. 13j:** HEARING.

| 3SG | SAY | MUST | 1SG | HELMET | PUT-ON. |

Fig. 14a: 'She says I must put on a helmet.'

| EACH | MORNING | 1SG | 3SG | TRAIN | READ | NEWSPAPER. |
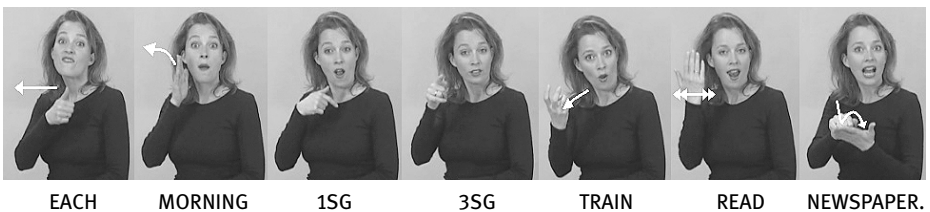
Fig. 14b: 'I read the newspaper on the train each morning.'
(All of the above photographs are reproduced with permission from www.tegnsprog.dk)

11 History of research

It is convenient to distinguish two phases in the research on DTS. The first phase, from 1809 to 1926, was dominated by the work of amateurs and primarily concerned the documentation of lexical signs. Following a lull of some forty years in which almost no research was done on DTS, the second phase began in 1967 and extends to the present. This phase saw increased professionalization and diversification in research topics to embrace grammatical description, sociolinguistics, educational linguistics, and historical concerns. In what follows we deal with the two phases in turn.

11.1 First phase

Peter Atke Castberg, who founded the first school for deaf in Denmark, was originally a medical doctor. His initial contact with deaf people was through experiments with electrical shock therapy, widely believed in the early nineteenth century to be useful in curing medical conditions, including deafness. Castberg performed experiments on thirty-three deaf patients in which electrodes were inserted into their ears, leading him to conclude that the treatment had no effect and was quite painful to his patients (Fabricius 1979: 11). This motivated Castberg to turn attention to deaf education, and to establish The Royal Deaf-Mute Institute in Copenhagen (see Section 2).

Castberg authored the first publications on DTS. In three booklets, Castberg (1809), Castberg (1810), Castberg (1811), and a book Castberg (1818), he described a number of DTS signs and remarked on their origin and development. His descriptions lack in detail, and no illustrations are provided. Nevertheless, these publications provide a rare insight into the early stages of the language. The four works also discuss methods in deaf education, and the role of sign language.

In the remainder of the first phase, research focussed primarily on the documentation of DTS signs through the production of dictionaries.[8]

The author of the first DTS dictionary was Andreas Christian Nyegaard (1823–1908), a teacher at The Royal Deaf-Mute Institute in Copenhagen from 1853–1907 and a deaf native signer of DTS. This was the illustrated *De Dövestummes Haandalphabet samt et Udvalg af deres lettere Tegn* [The Hand Alphabet of the Deaf Dumb and a Selection of their Signs] (Nyegaard 1871), which comprised lithographs of the manual alphabet and 118 signs (including nouns, verbs, adjectives, prepositions, pronouns, possessive pronouns, and temporal signs) along with their Danish gloss-

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8 Almost all of the works we refer to as dictionaries in this and the following subsections are more aptly described as bilingual wordlists.

es.[9] Unfortunately the only information provided on sign articulation of was whether or not movement was involved.

In 1907 Johannes Jørgensen published a second dictionary of DTS, Jørgensen (1907). The number of signs in this dictionary (280) was more than double the number in Nyegaard (1871), and the representation of DTS signs was more detailed: included were both descriptions of their articulation and supporting photographs. This dictionary was also structured differently to the earlier one. It was divided into four sections. Section 1 was a set of photographs of the handshapes of the manual alphabet. Section 2 was a list of Danish lexical entries organized alphabetically, along with descriptions of the articulation of the corresponding signs in terms of their handshape, hand orientation, and movement of the hand with respect to the signer's body. Each lexical entry made reference to a photograph in Section 4, and listed up to five Danish words with related meanings. Section 3 was an alphabetical finderlist linking the range of Danish senses to the headwords of Section 2. As just mentioned, Section 4 presented photographic representations of the signs listed in Section 2, with arrows illustrating the hand movements.

In March 1925, *Døvestummeraadet* [The Deaf Mute Council] set up a committee 'for the preservation and embellishment of the sign language' (translation JBJ) (Døvestumme-Raadet 1926). The committee, which comprised mainly deaf members, compiled material for a new dictionary. Published in 1926, this dictionary covered approximately 1,200 signs, listed alphabetically according to Danish glosses. Each entry had a description of the articulation of the sign and made reference to the appropriate photograph in an appendix of thirty photographs of hands in different configurations and orientations. Another appendix showed forty-five pictures of signs and their accompanying facial expressions. Also included in appendices were a further seventy-five signs illustrated by line drawings and showing movement patterns, as well as the manual alphabet, and numeral signs.

It was not until 1910 that the first description of DTS grammar was published, Jørgensen (1910). This sixty-three page booklet outlined the word classes of DTS, comparing them with word classes of spoken languages, and dealt briefly with morphology and syntax. An appendix provided example sentences illustrating word order and the use of loci in reference. Given that he was not a linguist, Jørgensen's description was impressive, and revealed a deep understanding of the language. Jørgensen later prepared religious materials for the deaf.

11.2 Second phase

Denmark was one of the first countries outside the USA in which linguistically informed research on sign language was conducted (Hansen 1985: 7). This began

9 The drawings were by the deaf artist Peter Nikolaj Møller, and the lithographs by Bernhard Klein, also deaf.

in the mid-1960s – not in the mid-1970s as claimed by McBurney (2006: 314) – with the work of linguist and psychologist Lars Von der Lieth. His PhD dissertation, Von Der Lieth (1967), provides a historical overview of the emergence of deaf education in Europe, particularly Denmark, and discusses the use of DTS in deaf education and in the Danish deaf community. It traces the historical development of a selection of DST signs and discusses how new signs are coined. Von Der Lieth (1967) describes the emergence and development of numeral signs and the manual alphabets in DTS and draws comparisons with their development in other sign languages. Grammatical aspects of DTS are touched on only very briefly.

The same year, 1967, also saw the appearance of the first DSL dictionary of the second phase, *Håndbog i Tegnsprog* [Handbook in Sign Language], Danske Døves Landsforbund (1967). The dictionary was produced under the auspices of the Nordic Council for the Deaf, the original aim of which was standardization of signs between the Nordic sign languages. The dictionary covered some 2,300 signs. These include a number recommended for all Nordic sign languages, though not all of these recommendations have been adopted in DTS (see Section 2 and Bergman and Engberg-Pedersen 2010: 74). Like the previous DTS sign lists it was arranged alphabetically according to Danish glosses, each sign being provided with a description and an illustrative photograph. Also included in the dictionary were photographs of the letters of the manual alphabet, the hand configurations of the MHS, and the thirty handshapes illustrated in the 1926 dictionary.

The Centre for Sign Language has been one of the main driving forces in sign language research in the second phase. In 1975, Britta Hansen, a social worker and head of the Centre for Sign Language, studied the use of signed varieties in different communicational settings. She distinguished three such varieties. (1) Speech supported by signs, known by most hearing signers, and deaf signers with good proficiency in spoken and written Danish (Hansen 1975: 8), follows the lexicon and grammar of Danish. Hansen argued that it is primarily used in spoken interactions that require simultaneous interpretation to a deaf audience, and to some extent in deaf education. (2) Signs supported by spoken language, known by hearing signers and deaf signers with good proficiency in spoken Danish and its grammar (Hansen 1975: 250), involves mixing of grammatical elements and features of DTS and Danish. (3) DTS, which Hansen referred to as "the original sign language", was the language used between deaf signers.

Between 1979 and 1998 the Centre for Sign Language published a series of five books – in Danish – comprising articles written by sociologists, psychologists, linguists, educators of the deaf, deaf individuals, and children of deaf adults, who in one way or another were involved in research on sign language, deaf culture, or deaf education. During the same period the Centre, in collaboration with *Døveskolernes Materialecenter* ['The Deaf School's Material Centre'] in Aalborg, also published several topical dictionaries on food, geography, mathematics, sexuality, sports, and the like. These booklets mostly provided just photographs of the signs

alongside Danish glosses. The centre also produced numerous texts in DTS for the sign language interpreter training program (see under Section 4.1).

In 1979 another dictionary of DSL appeared, Danske Døves Landsforbund (1979), published by the Danish Deaf Association and Centre for Sign Language. It covered 3,200 monomorphemic signs, each illustrated with a photograph. The recommended common Nordic signs were distinguished by an N, and the manual alphabet introduced in 1977 by the Danish Deaf Association was also illustrated.

In the mid-1970s the linguist Elisabeth Engberg-Pedersen joined the research team at the Centre for Sign Language. In 1981 the team published a learners' grammar, Engberg-Pedersen et al. (1981), covering some aspects of DTS grammar, including the use of loci, the pronominal system, and the expression of time. Comparisons were drawn with other sign languages (notably American Sign Language), and it was concluded that many structural features of DTS are shared with other sign languages.

Twelve years later Engberg-Pedersen, who had in the meantime taken up a position in the University of Copenhagen, published her doctoral dissertation on space in DTS. This work, Engberg-Pedersen (1993), examines how space is employed in DTS in the expression of, among other things, locative relations, agreement, reference, point of view, and temporal relations. Since then she has published another learner's grammar (Engberg-Pedersen 1998), and articles on a variety of topics in the linguistics of DTS, including: reported speech (Engberg-Pedersen 1995), classifiers (Engberg-Pedersen 2003, 2010), and the expression of causation (Engberg-Pedersen 2010).

From 1998 to 2001 Elisabeth Engberg-Pedersen was also involved with a team comprising Lise Lotte Kjær, a priest to the deaf, and five native DTS signers, Eva Abildgård, Janne Boye Niemelä, Anne Skov Hårdell, Bo Hårdell, and Kasper Bergmann in translating religious material into DTS. They translated a total of twenty-six texts including the Lord's Prayer, the Creed, and eight psalms.

In May 2008 a digital dictionary of DTS covering around 2,000 signs was released on the internet (www.tegnsprog.dk). It was compiled by a group consisting of Jette Hedegaard Kristoffersen (sign language interpreter), Thomas Troelsgård (linguist), Janne Boye Niemelä (sign linguist and native signer of DTS) and several other deaf language consultants. Funded by the Ministry of Employment and the Ministry of Social Affairs, the sign dictionary was a joint venture of the Danish Deaf Association and Centre for Sign Language. The dictionary is searchable by sign form (handshape and place of articulation), meaning domain (general, society, trade/economics, technic/electronics/IT, nature, education/science, home/family, human, and culture/leisure), and Danish search-word. An illustrative video is provided for each lemma, along with example sentences (also shown in video clips and in word by word Danish glosses and a translation into Danish).

From 1978 until 2004 Elisabeth Engberg-Pedersen was the only professional linguist involved in sign language linguistics in Denmark. Then in 2004 the second

author of this paper, Janne Boye Niemelä, became the first deaf person to be awarded a master's degree in linguistics. She was involved in the digital sign dictionary project and in the Bible translation project. However, due to the demands of her position as chair of the Danish Deaf Youth Association and later chair of the Danish Deaf Association, she has been unable to remain active in linguistic research.

The third author of the paper, Julie Bakken Jepsen, began a PhD on the phonetics and phonology of DTS in 2009. This research is still in progress, though along the way she completed an MA thesis (Hansen 2011) presenting a preliminary analysis of the inventory of emic parameters of the manual signs.

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Døvefilm [Deaf Film]: http://www.deaftv.dk/
Nordisk Landsby [Nordic Village]: http://www.nordisklandsby.dk/sprog.html
Ordbog over dansk tegnsprog [Dictionary of Danish Sign Language]: www.tegnsprog.dk
Street Signers: www.streetsigners.dk
Wign: http://wign.dk/

Rezenet Tsegay Moges
8 Eritrean Sign Language

1 Basic facts about the language

Language name: Thee three major spoken-written languages in Eritrea are Tigrinya, English and Arabic. However, in the Deaf communities, Tigrinya and English dominate the national sign language. In English, the national sign language is "**Eritrean Sign Language;**" the phonetics of Tigrinya is translated in English text, rather than Ge'ez written system, called the "**Quwanquwa** (Language) **Mïlïkït** (Signage/Symbol) **Eritra** (Eritrea)."

Location: Eritrea, Africa
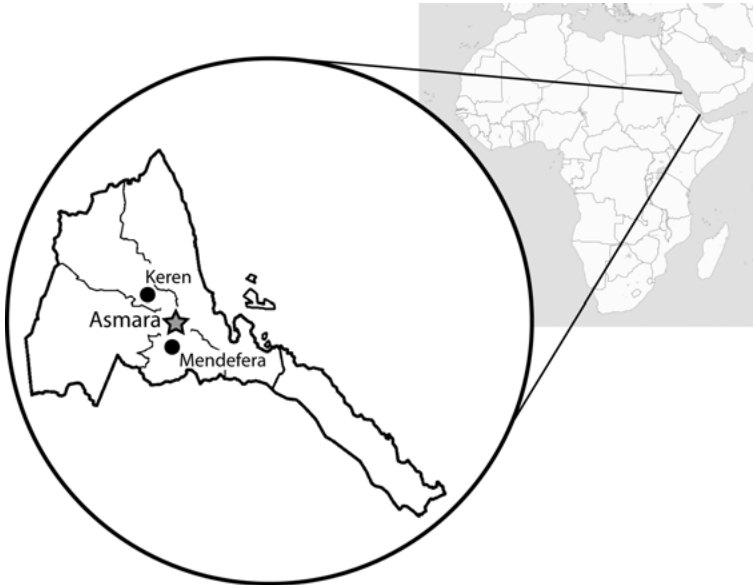
Fig. 1: Map illustrating the three critical locations of Deaf Eritrean community.

Varieties: Language planners claimed a large lexical variation within 6 regions (*zoba*) of Eritrea, likely given the multiple spoken tribal languages and limited access to education and heritage language. The varieties outside of urban areas are often called "Village signs" or more obscurely known as "Farm people's signs."

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Number of signers: The Ministry of Human Welfare and Labor estimate 15,000 deaf Eritreans reside in Eritrea but this number does not account the total population of signers, regardless to their hearing capability. This total is possibly incomplete, due to a certain stigma in reporting of disabilities. More information available in the 'Attitudes to sign languages' section.

Organization: The National Association of the Deaf in Eritrea (EriNAD) is the only organization for Deaf people. The main office is located in Asmara and two branch offices are in Keren and Mendefera (see map in Figure 1).

2 Origin and history

There is no documentation of indigenous sign languages prior the establishment of both deaf schools in Keren and Asmara, where "standard" Eritrean Sign Language was founded. It is mistaken to assume that sign languages did not exist before the establishment of schools, given the facts of lexicon variations appearing in villages across the country. The history of Eritrea shows a series of colonization; from 1555 the Ottoman Empire ruled for three centuries, and the Italians colonized from 1889 to 1941 until the British temporarily took over for ten years before relinquishing the country to Ethiopia in 1952. There is no influence from the national sign language from either colonial regime. Signs from Italian Sign Language and British Sign Language are non-existent in EriSL. Finally, Ethiopian Sign Language (EthSL) had no effect on EriSL, since Ethiopia's national sign language was standardized approximately 20 years after the first deaf school in Eritrea. Therefore there is no colonial influence on EriSL. However, evidence of missionary influence has been recognized, and consequently, EriSL is considered as a missionized sign language (Moges 2011).

What led to the establishment of the first school in Keren was a meeting between a missionary and three deaf Eritrean siblings in 1945. An archival resource, written by Besserat Tekleab, one of first Eritrean teachers in deaf schools, described the history of assimilating missionary sign languages for the foundation of Deaf education in Eritrea. A Swedish pastor, Reverend Olgar Haganer, lived next door to a widowed Eritrean mother with three deaf children (Tekleab 1980s). Fikado, one of the deaf children, worked for Rev. Haganer's wife. The reverend witnessed how she communicated with her deaf sisters. He then sought an opportunity to create a space for those deaf children in Eritrea to gather and practice literacy. In 1955, after finding funds from a Finnish missionary, who had cooperated with Swedish missions before the foundation of the Deaf African Mission, Rev. Haganer recruited volunteers to teach the first deaf class with five children, including Fikado. Two years later, a new school named "Evangelical Church School for the Deaf, Keren" (ESDK) was inaugurated on April 1957 (Tekleab 1980s). It is noted that those

deaf sisters did indeed communicate before the establishment of ESDK, and thus indigenous sign language did exist before institutional sign language. More evidence of pre-existing home signs or indigenous sign language came from an interview with another of the first five deaf students, Letuyse, who also had deaf siblings. She explained that she had signed conversations before starting school, but she did not value the home signs as much as Finnish-Swedish signs, which were legitimately taught at the school (Moges 2011).

During the civil war between Ethiopia and Eritrea (1962–1991), Besserat and Neguyse transferred all the schoolchildren to safety in Asmara as a temporary site for their continued education in 1977. In 1980, they moved back to the nearly demolished school in Keren. Eight years later, the temporary site became a permanent school, presenting opportunities for more admissions from urban deaf children in Asmara. The types of school establishments at Asmara and Keren are respectively a day school and residential institution. ESDK provided a different environment for a deaf child where it could access EriSL frequently, and where the proximity among other schoolmates created a more deaf-centric space than the day school. ESDK could only admit 120 maximally, and Asmara day school, 80. Therefore, their waiting lists with registered children were constantly growing. Because only two schools provided education for deaf children nationwide, we found great lexical variation and some unintelligibility among people in the deaf community, especially among those from other regions that lacked deaf education.

The launch of the deaf organization Eritrean National of the Deaf (EriNAD) took place in 1998 at Asmara, the capital, five years after the independence of Eritrea was officially recognized by the United Nations. It branched out two more offices to broaden their services in Keren and Mendefera. Their services accommodate deaf people's needs, such as interpreting, vocational-training, and advocacy. Unfortunately, since each office was staffed with only four people dedicated to their *zoba*, this is hardly adequate. EriNAD reported that they have nearly 2,000 members, which means they cover under 15 % of the whole deaf population of Eritrea.

3 Bilingualism and language contact

3.1 Education

The history of deaf education in Africa shows a pattern of impact on languages, creating an extreme complexity of multiple language contact within several language modalities. In Eritrea, Elsie Roos, a Finnish missionary teacher, initially taught deaf children in the Swedish Manual Alphabet using mostly Finnish signs to represent English spoken-written words. She was assisted by volunteer teachers, who were dominantly Finnish and Swedish, as well as Eritrean teacher aides. The conflict between Eritrea and Ethiopia began with its uprising in 1970, and it caused

friction in deaf education for both teachers and Eritrean children. When war erupted and posed immediate danger to the area of Keren, all foreign teachers fled and consequently, two Eritrean teachers (Neguyse and Besserat Tekleab, a married couple) took over in 1972. They changed the pedagogical method by teaching the students in sign language with the native spoken language, Tigrinya (Tekleab, 1980s).

In 1979, Ethiopians developed a manual system for Ge'ez script (hereafter *Manual Ge'ez*), in which Ge'ez is the mother language of both spoken languages, Amharic and Tigrinya in Ethiopia and Eritrea respectively. This appealed to both Eritrean teachers, and they borrowed the fingerspelling method in order to more conveniently present the literacy practice between Tigrinya and Manual Ge'ez. Each change of pedagogical methods affected language contact for each modality, which had a profound impact on three generations in the Deaf communities and created distinctions of L1 and L2 learning groups (Moges 2011). The age groups of the first and second student assembly are, as of 2011: (i) between 50–70 years old, (ii) between 35–50 years and (iii) between 15–35 years. The first age group is fluent in English writing and fingerspelling with the Swedish Manual Alphabet, while the second group is moderately skillful in both English and Tigrinya, respectively associated with International Manual Alphabet and Manual Ge'ez. Finally, the last group's first spoken language is Tigrinya and they are extremely fluent in Manual Ge'ez and intermediately fluent in written-English.

Besserat explained in her interview (Moges 2011) that Eritreans were resistant – for many reasons including its association with the formerly opposing nation, Ethiopia, during the early civil war period – to borrowing lexicon from EthSL, which is heavily influenced by American Sign Language (ASL).

ASL is the most influential missionary sign language in West and Central Africa, due to the influence of Andrew Foster in 1960–1970 (Lane, et al. 1996; Schmaling 2003; Kiyaga and Moores 2003; Nyst 2010). Besserat emphasized that the first teacher groups of deaf Eritrean schools did not want to borrow every sign from Swedish or Finnish Sign Languages because of some cultural differences, such as the culturally inappropriate body indication of Swedish and Finnish's GIRL, which referred to a breast, while Eritreans preferred a more modest indication to an earring instead.

Aside from language contact, the education policy for Deaf schools continues through Grade 1–6; the year of 6th grade is committed to vocational training to prepare the future and young graduates for general occupations such as embroidery, carpentry and/or metal shop. The first 3 grades are taught in EriSL and Tigrinya; then the next two grades involve elementary English courses.

The Ministry of Education recently issued an inclusive program for Deaf students to continue their education with other hearing children at public schools. However, the deaf children are not provided with any interpreting services; yet, they are expected to excel in lip-reading their teachers to follow instructions or to take study notes. There is a mandatory test at the end of each year for students to

pass a grade in order to enter a higher class. Through this inclusive-education policy, the success of Deaf students entering next grades reduces dramatically, so the number of deaf high school graduates is very small. This has been reported as a concern to the Ministry of Education – Special Needs, as their representatives had stated in the interview (Moges 2011). The issue of few Deaf graduates affects the potential of increasing the number of Deaf teachers significantly due to the qualification. There were only two Deaf Eritreans reported to graduate from high schools and colleges. By 2009, a new Deaf teacher began her employment at ESDK and that increased the Deaf teachers to merely three. Two of them teach vocational training courses while the other one covers reading and math subjects.

Finally, the school administrator, Pastor Zere Bekit (Keren) and the director of the Deaf schools, Medhin Yohannes (Asmara), were very fluent signers. Pastor Zere has been dedicated to the Deaf community for a long time. Since 1985, he began teaching and then became director approximately ten years later. The teachers in both schools are in general moderately-fluent in EriSL.

3.2 Standardization

For a long time, there has been insufficient documentation or educational resources on EriSL although a few handbooks on basic Eritrean signs have been available. Those handbooks were produced from collections of basic signs from Finnish Sign Language and Swedish Sign Language. In the late nineties, a Finnish volunteer produced another handbook (without any printed credit) with colorful printed images of 28 basic signs, which some examples are shown later in this report. As mentioned, there are two schools in the whole nation with limited deaf student admissions to less than 150, which is merely one percent of the deaf population of Eritrea. The graduates from the deaf institutions tend to remain in the vicinity of Asmara and Keren, where they build a community among themselves, sharing and communicating with the same institutional sign language they were trained in through schooling or language socialization. Deaf villagers, on the other hand, who do not have the same educational opportunities as Deaf people in the urban areas, have less language access and infrequent socialization with Deaf urbanites. Because of their different living situations, these two groups have different language acquisition paths, which creates a schism between the two groups.

Due to the variations of village signs and frequent misunderstandings between villagers and urbanites, in 2006, a committee of EriNAD decided on producing a dictionary and conduct a sign-selection process. A group of language planners was appointed to work on dictionary development and to gather data from a variety of large villages in all six regions/*zoba* and to arrange a small assembly of deaf villagers from remote areas, to save finance from transportation cost and time to each single deaf villager's home and to elicit information from them, working in solidarity. The aim of this dictionary project was not only to standardize the language but

also to expand the lexicon and revitalize some village signs, by replacing some incongruent loanwords with village signs. In addition, the ultimate goal of this dictionary was to validate the sign language of the Deaf community to the Eritrean government, in order for them to recognize EriSL's minority language status. The project was completed in 2009 and, once after obtaining the final authorization from the Ministry of Information, their dictionary was published in 2010.

4 Political and social context

From an anthropological study on EriSL dictionary development, the political structure of the Deaf community and authority on language change became explicitly divided in three hierarchal parties (Moges 2011). The core of the hierarchy was the grassroots of the dictionary development, the only Deaf organization, EriNAD, that served the nation and accommodated Deaf needs such as interpreter services or advocacy for equal rights or court hearings, to name a few of their services. EriNAD initiated the dictionary project and provided volunteers willing to invest their time to work on their own language. Their language-planners were sign language experts who documented their language and provided a dictionary with some lexicon changes. Since a dictionary is considered an educational resource; therefore, the authorization needed to come from the implementers of education policy for the Deaf schools. That was the second-level group of political hierarchy, which is the Church-School Administration and they determined the stake of the new changes to EriSL though the effort of revitalization and neologisms. Since they were teachers in deaf education, they would decide whether to accept or reject the new signs. Finally, after getting the approval from the administrations, a governmental section of the Ministry of Education (Special Needs Department) and the Ministry of Information with no fluency in sign language forms the top of the hierarchy that would finalize the process of the dictionary project by publishing it as an official education resource on EriSL. The conclusion is that neither fluent users of the language nor those who identified as "Authentic Speakers/Signers" possessed the final authority to shape their own native language in the language planning for this Deaf community (Moges 2011).

4.1 Language maintenance efforts

Beside the ultimate goal of validation of their sign language through a dictionary, EriNAD formed a language-planning group in search for a method to document all the variation among Eritrean signs and to decrease incomprehension among their own community. During the effort of language maintenance, there had been frustration expressed among language planners about unclear abstracts and mis-

understanding with repeatedly-used signs with different meanings. The large difference in the ratio of schooled and non-schooled Deaf Eritreans yielded a clear distinction in language competence, which became an issue for the community. Consequently, the dictionary project resulted in standardization and guidance for the general signing community to achieve better understanding, recognition, self-teaching resources, as well as uniformity in EriSL. Moges (2011) documented the dictionary development, analyzed the decision-making process and detected the level of authority and the strategies of standardization. She found the approach of revitalization to replace foreign signs, which are incompatible with native culture, an act of language purism. In addition to language maintenance efforts, language expansion is committed to distinguish some repeated signs for multiple word-references. For instance, there often was misunderstanding between ingredients used daily, such as BERBERA, SALT, and SUGAR, which share the same manual sign but show difference in mouthing BERBERA and SALT/SUGAR (Moges 2011). In the end, the language planners created neologisms that relates to their Eritrean customs accordingly and made three distinguishable signs for these common food ingredients.

The action of language purism is a specific term, "demissionization" (Moges 2011), that restores the language to its native status. In the Deaf Eritrean case, it is a dissociation of historical linkage to the missionary sign language(s) in order to revive and/or bring in village signs to their everyday lexicon. Language purists attempted to eliminate loanwords that presented any incongruities with the native culture. For instance, the borrowed sign *ABOY*/FATHER had been used to refer to both the father figure of a family and in religious reference to "Our God, Our Father." The borrowed sign is now used with only the deity reference whereas for the kinship term the popular village sign is adopted, which portrays a chin beard/goatee on an elderly man.

The sign-selection process for language policy on EriSL was documented as a five-step procedure to compile 2,000 signs. Language planners (1) ventured from village to village in search of native and "authentic" signs; (2) deliberated over each sign "to arrive at a culturally and linguistically appropriate consensus sign"; (3) illustrated each sign and arranged photographs; (4) set up two community meetings at Asmara and Keren to share and gather feedback and consensus on neologistic words and/or revitalized village signs; and (5) printed the dictionary including signs with trilingual written glosses – in Tigrinya, English, and Arabic (Moges 2011: 121). Since their dictionary project is complete, the next goal of the language planners is to describe the grammatical structure.

4.2 Attitudes to sign language

In Tigrinya, there was no specific term to denote the method of communication among deaf people, and in the general, Eritreans would label it as "*Be-edom-zizare-bu*". In transliteration, it reads as *be* 'with' *edom-* 'their hands' *zizarebu* 'talk' – to communicate with their hands. EriNAD gave a proper standard title for their sign language in Tigrinya that reads *Quwanquwa* 'Language' *Mïlïkït* 'Signage/Symbol' *Eritra* 'Eritrea' which is also the title of their dictionary.

Attitudes of using sign language in public vary between people who live in villages and the urban areas where diversity is more tolerable. Haile Bokure (1981) illustrated appositely the psychological affects of Deaf lives in Eritrea and the stigmatization Deaf people endure in their milieu. He stated that in Eritrea, deafness is commonly believed to be caused by evil spirits. "My child was slapped in his face by Satan and became deaf" is a quotidian saying. This is frequently expressed when one is unable to "explain the apparent causes of hearing loss," and rather naturally leads to a stigma of deafness related to a curse (Bokure 1981: 10). "Among the Christians, deafness is looked upon as a curse that befalls the victim on account of sins committed by present or past members of kinsfolk" (ibid.). A testimony from Bokure about parents hiding their "hearing impaired children […] in their houses for fear of endangering their [family's reputation]" paralleled another story (ibid.). "Eden's story" (Moges 2011) shared a similar anecdote, but this story turned out to be a "hidden misfortune-to-greatest success," since Eden Tareke became the first certified Deaf teacher in Eritrea.

In other cases, Bokure's psychological analyses of deafness depicted how society affects attitudes toward the usage of sign languages. Humility is vital to Eritrea's culture; one should avoid attracting attention or standing out. Large movements of arms draw the disdain of bystanders and are signs of evil possession, so sign language in public was discouraged. The pressure on a Deaf Eritrean from society to behave like the norm encourages her or him to socialize with other Deaf community members only in their comfort zone, such as the Deaf centers of EriNAD (Moges forthcoming-b).

4.3 Other social and geographical varieties

As mentioned, a schism exists between the rural and urban areas through variation of language competence due to many factors, such as age of language acquisition, economy, and environment. Insufficiency of deaf education limits or delays language acquisition for those who live in remote areas. In addition, the realization of their deaf identity occurs after they meet another (Moges forthcoming-a), which is rather difficult for deaf villagers because of their remoteness. This also defers their language socialization and increases the possible development of home signs. Out of the population of 15,000 deaf people in Eritrea, it was reported by EriNAD

that 200 are employed. This increases the difficulty of living independence and finances for transportation to commute from town to town.

4.4 The sign language in its political context

The priority of EriNAD is to provide language and communication access from their sites in Asmara, Keren and Medefera, (all in different *zoba*) in order to reach people living in the deaf communities. Each branch office has one interpreter working on-site; sometimes they are requested to meet a deaf person at an employer's office for an interview or work issues, or at governmental offices to deal with identity or property issues, or to work at their own office acting as a phone-relay operator to convey messages over phone communication. Three or four interpreters for 2,000 EriNAD members or 15,000 general deaf Eritreans is to say, at least, insufficient service, and an extremely demanding job for the interpreters.

A recent accomplishment of EriNAD in Asmara in 2009 is that they work cooperatively with the government on setting up a program that mandated one or two governmental employees from institutions such as police stations, hospitals, or teachers from high schools, to take a basic sign language course for a 2-month span with class meetings twice a week. This program was designed to spread awareness about Deaf lives and their language. After the first month with a group of 36 participants, the results have been spectacular: their attitudes changed, the speed of increasing their vocabulary in EriSL and their enthusiasm in creating full sentences in signs. This class has modeled as being groundbreaking in dismantling the initial apprehension with deafness and sign language.

5 Associated sign systems

5.1 Hand alphabet

The contact between orthography and sign languages produces fingerspelling systems, which assign manual codes for each script. Padden and Gunsauls indicated fingerspelling system "as a selective tool for cross-modal borrowing, a way to import spoken language vocabulary into the signed language" (2003: 14). In the Eritrean case, this presents a mechanism to communicate in a visual-gestural modality portraying the syllabic letter-system called "Ge'ez" of the spoken language, Tigrinya. "Fingerspelling system" is the preferred term here instead of "manual alphabet" since Ge'ez script does not follow the Roman "alphabet" but is a syllabary (Moges 2011: 96). Given that no universal fingerspelling system that codes each grapheme exists, Manual Ge'ez presents a unique fingerspelling system for the Ge'ez writing system.

The variations of fingerspelling systems allow Deaf Eritreans to connect with their outside worlds. In the history of changes in pedagogical methods, the Deaf Eritrean community employs four different fingerspelling systems (in a chronological order): Swedish Manual Alphabet (SMA), International Manual Alphabet (IMA), Manual Ge'ez and the newly introduced Manual Eritrean-Arabic. The repertoires of those fingerspelling systems vary in age groups for reasons previously explained about the pedagogical changes. Finally, the last three listed fingerspelling systems are in use nowadays.

IMA is widely used in communication simultaneously with English with foreigners, likely from Western countries and neighboring African countries. There are slight variations of IMA in Eritrea from the general use with "G," "P" and/or "T." The first 2–3 generations of deaf schools are more fluent with IMA than the next six generations because of the shift of spoken languages taught at school. Consequently, the younger generations are more accustomed using Tigrinya and Manual Ge'ez.

Manual Ge'ez, the native fingerspelling system, was introduced in 1979 to Eritrean Deaf education from Ethiopia and is composed in a complex organization of coding the Ge'ez script. Tigrinya has a distinctive written system called a *fidel*, which is composed of 252 letters ordered in a syllabic consonant-vowel system. Following the Ge'ez writing system, 33–36 consonants are associated with seven vowels for each consonant. In turn, 32 handshapes with seven movements are coded in Manual Ge'ez, illustrated with all handshapes as shown in Figure 4. "Thus, in this manual coding system, *the handshapes represent consonants* while *the movements signify vowels*" (Moges 2011: 100, emphasis added).

Those seven movements adhere to the syllabic consonant-vowel system strictly as ordered. Each handshape (consonant) will move uniquely in seven times systemically to represent each vowel or sound respectively: 1. ae – no movement, 2. u – moves to the left, 3. i – moves to the right, slightly downward, 4. a – moves downward, 5. ey – circles counter-clockwise; 6. no sound – shakes, and finally, 7. o – twist upward.

In Figure 2, an example of the first consonant, "H" written in Ge'ez script is pronounced as:

hae   hu   hi   ha   hye   h   ho

ሀሁሒጓ፟ይጓ፟ሀሆ
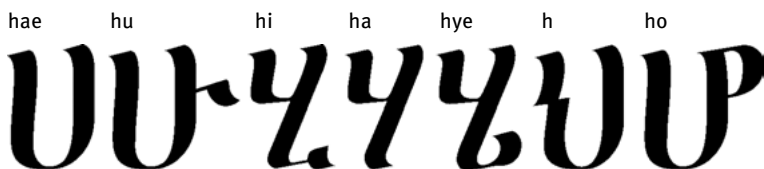
Fig. 2: An example of the first consonant with seven vowels.

6 Interesting or unusual features of the language

6.1 Iconic representation of graphemes in motion, rather than as a static icon

Padden and Gunsauls (2003) explained that sometimes manual codes are arbitrarily iconic when a represented handshape appears similar to its assigned letter. In the description of manual coding of Ge'ez scripts, Moges (2011) noticed the high percentage of iconicity in the fingerspelling parameters moving in the direction of extended markings to the base script (first script for each consonant). 25 of 32 handshapes are formed as an iconic representative of each base script. In Figure 3, a handshape is produced with a partly cupped hand to signify the seven graphemes of "H" (as shown in Figure 2) designed as a small hyperbole.

The grapheme of Ge'ez scripts extends a marking feature to signify the vowel category. That presents another interesting and unusual point about the iconicity of Manual Ge'ez; the seven movements representing the vowels substantially follow the direction of those extension-marking features from the base script. A borrowed illustration, Figure 4, synthesizes an example of a consonant "L" with its systematic movements representing the associating vowel and again, this rule applies uniformly to each consonant/handshape. The first vowel stands still, indicating its base script. The next two movements move not quite precisely, but in considerable resemblance to the extension marks. The second script extends its mark and the movement goes to the right (in the middle). The movement for the third script moves to the left, and the fourth movement follows the extension on the bottom leg of the base script. Fifth, the shake abstractly portrays the absence of voice. Sixth, the extending circle on the right leg of the script elicits the movement to circle counterclockwise. Finally, the seventh extension mark portrays the most transparent iconicity with the upper circle to the base script that is synthesized to the twist-upward identifying the circle on the top. The close relationship of the signed and written graphemes presents convenience to harmonize 252 letters in Tigrinya and Manual Ge'ez and is indeed a useful tool for Deaf education in terms of teaching people to write Tigrinya.

Fig. 3: The partly cupped handshape of the first consonant of the *fidel*, "H".

Fig. 4: Revised from Moges (2011). An Illustration of Manual Ge'ez movements of "Le", the second handshape of the *fidel*.

7 Examples of words and sentences:

The photographs were borrowed from a handbook (created by an anonymous Finnish volunteer) of 28 basic signs or phrases in EriSL. A deep gratitude goes to Eden Tareke and Embafrash Kiros for modeling these signs below.

Fig. 5: *KEMAY ALEKI/A?* / HOW-ARE-YOU (f/m).[1]
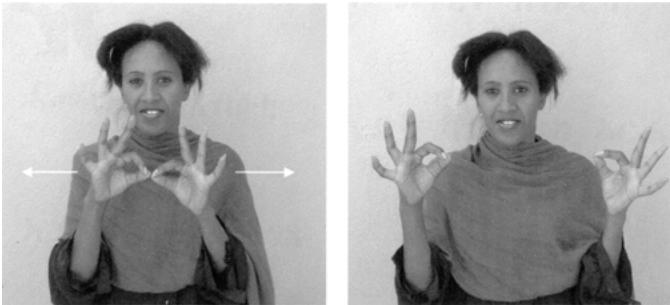
Fig. 6: *TSEBUK* / GOOD or *DEHAN EYEAH* / I-AM-GOOD.

Fig. 7: *ENQUAE DEHAN METSAEKA* / WELCOME-m.[2]

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1 The reference "f/m" signifies the optional conjunctions in order of a feminine or masculine form.
2 The association "-m" connotes to a male reference.

KINSHIP TERMS:

Fig. 8: *SIDRA-BEIT* / FAMILY.

Fig. 9: *ADEY* / MOTHER (several anecdotes mentioned that this sign signifies the breastfeeding or mother as the heart of the family).

Fig. 10: *ABOY* / FATHER (This is a loanword from Finnish-Swedish sign; now it means 'Our God, Our Father'.

Fig. 11: *HAFTEY* / SISTER (Notice the gender marking of sibling: pinkie finger for "sister").

Fig. 12: *HAWIT* / BROTHER (Notice the gender marking of sibling: index finger for "brother.").

8 History of research

The language planner group is called Sign Language Researcher (SLR) and their meeting spot is at the main site of EriNAD in Asmara. The history of this language-planning program started out in 2006 with 22 people originally. Finances and distances however, strained their commitment for regular meets. This program was predominately based on volunteering time and money (for transportation between Asmara to Keren or elsewhere). The main leader of the project was originally Yona-

tan Gherezgiher, the first Deaf college-graduate in Eritrea. Other people on the team obtained a grant from US-Aid for the purposes of dictionary development. Eventually, after purchasing all the necessary equipment for the project, the funds quickly downsized and so did the members involved. The final group of SLR in 2007 was composed of seven main collaborators, all fluent signers and Eritreans and led by the chairperson of EriNAD, Okbamichael Tewelde. Five Deaf people and two hearing persons, who frequently worked as interpreters, formed a 4:3 female-to-male group. One of the Deaf collaborators was deported from Sudan and knew multiple sign languages from the neighboring countries. One of them came from a Deaf family and was thus truly a native signer with natural sign language usage; another one is teacher-certified. Most of the collaborators were employed with Eri-NAD or involved with the committee. Finally, the last four who contributed little feedback were both school administrators and chairpersons of the other branch offices of Keren and Mendefera. With everyone's cooperation as described in "language maintenance effort" section, the success of the first published dictionary distribution continued with the language planners on developing a second edition in 2012.
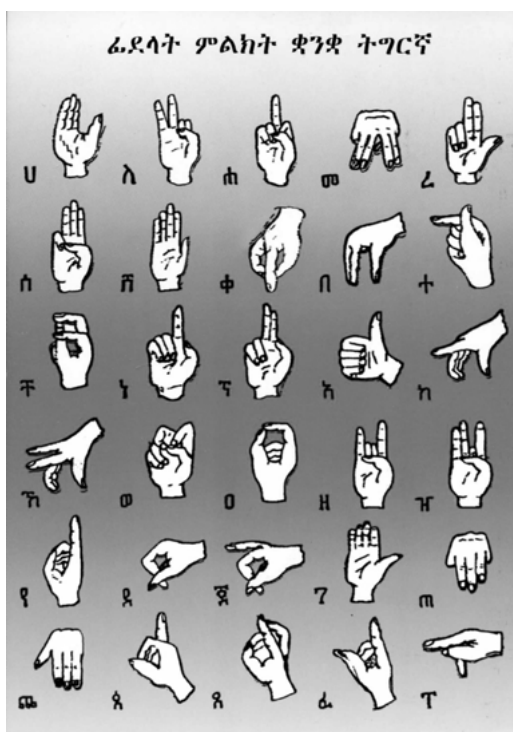
Fig. 13: An Illustration of entire handshapes used in Manual Ge'ez, the manual codes of the *fidel*, the syllabic consonant-vowel system of Tigrinya. Printed in 2009 and reprinted with EriNAD's permission.

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Ritva Takkinen, Tommi Jantunen and Outi Ahonen
9 Finnish Sign Language

1 Basic facts about the language

Language name: Finnish Sign Language, FinSL (suomalainen viittomakieli)

Location: Finland

Varieties: Linguistically, Finnish Sign Language consists of two varieties. The main variety is termed Finnish Sign Language (FinSL) and is used by the deaf who come from Finnish-speaking families and have attended Finnish deaf schools. The other variety is termed Finland-Swedish Sign Language (FinSSL). It is used mainly in the coastal areas of Finland among those deaf people whose family background is Swedish speaking, and who have attended the now closed deaf school in Porvoo. The association of Finland-Swedish deaf (Finlandssvenska teckenspråkiga rf) has estimated that the number of users of FinSSL is about 300, of whom 150 are deaf, mainly middle-aged or elderly people. Politically, the members of the Finland-Swedish deaf community count FinSSL as an independent language because it is connected to Finland-Swedish culture. From the linguistic point of view, a part of the vocabulary of FinSSL is different from the vocabulary of FinSL (Hoyer 2004).

Number of signers: Official statistics put the number of deaf signers at around 4,000–5,000. However, recent surveys indicate that a more accurate estimate for the number of deaf signers is 3,000 (Rainò 2010). In addition to deaf signers, FinSL is used among about 6,000–9,000 hearing native signers (mainly codas) and second language/foreign language users (family members, interpreters, teachers and other professionals) (http://www.kl-deaf.fi/en-GB/).

2 Origin and history

The origin of FinSL can be traced back to the first Finnish deaf teacher, Carl Oscar Malm. Malm studied in Sweden, in Stockholm's Manilla school, and started to instruct deaf people in Finland 1846 in his private school in Porvoo. In his instruction he used the sign language, which he had learned in Sweden. Thus Swedish Sign Language (SSL) is the basis of FinSL. Later in the 19th century several official deaf

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schools were founded in Finland, each of which further spread the use of the sign language Malm had brought from Sweden. The first governmental deaf school was opened in Turku in 1860. After this, schools were founded, for example, in Pietarsaari (1861) and Kuopio (1862). Malm's first school in Porvoo had been closed for a few months, but it was re-opened in the same year, 1859, as a school for the deaf with a Swedish speaking background. (Wallvik 1997; Jantunen 2000).

At first, the language of instruction was the early FinSL, supported by Finnish or Swedish as the second language. However, by the turn of the century FinSL had been superseded almost completely by Finnish and Swedish as the language of formal instruction. The division of schools into Finnish and Swedish schools was the main cause of the current division of the sign language used in Finland into FinSL and FinSSL: the spoken languages used in schools affected and altered, for example, the mouthings which are used along with manual signs.

Although the origin of FinSL is in the early Swedish Sign Language (SSL), the two languages have developed in their own directions. Today, 160 years later, FinSL and SSL are totally different languages. It has been estimated that already at the beginning of the 20th century the congruence in the lexicons of FinSL and SSL had fallen to 71–73 percent. In 2000 congruence was no more than 42 % (Jantunen 2000, Mesch 2006).

3 Bilingualism and language contact

In the 1970s, when the idea of total communication spread to Finland, hearing parents of deaf children were encouraged to learn sign language and communicate by signing with their deaf children. These children acquired sign language at an early age and started to learn Finnish (or Swedish) little by little, first of all before their school years and then at school. Many of those children have become multilingual because they have learned other spoken languages (mostly in written form) and, as the result of international contact, they have also learned other sign languages. In this way, we can say that bilingualism or multilingualism is a natural part of the life of Finnish deaf people.

At the beginning of the 21st century most Finnish deaf children have a cochlear implant. However, many children in those hearing families who have also used sign language with their deaf children have acquired both sign language and spoken Finnish. The level of how well they learn each of the languages depends on several factors, one of which is the amount of use they make of each language. (Takkinen 2010, 2012).

3.1 Education

Since the establishment of deaf education in Finland in 1846, until the 1890s, instruction was bilingual, in sign language and in Finnish or Swedish. Sign language was used in learning the spoken language and reading and writing skills. At the end of the 19th century oralism, teaching in speech only, prevailed over sign language. This period lasted until about 1970, when total communication spread to Finland. The use of signs was allowed and recommended. After sign language research started in Finland FinSL was used more and more in instruction, depending on the sign language skills of the teachers. In 1998 a teacher training program for sign language users started at the University of Jyväskylä. Today, many of the students are deaf teachers working in deaf education and using bilingual methods in instruction.

3.2 Standardization

There is no established and regulated standard language of FinSL (see, however, Section *Language policy*). Experienced signers have an intuitive knowledge regarding how to sign in different contexts. The sign language used in official situations (e.g., in TV news in sign language, Video news, in official speeches and presentations) should be clearly articulated, with easily understood sentence and text (discourse) structure, and vocabulary, which is neither colloquial nor dialectal.

3.3 Influence from dominant languages

There has been no research concerning what kind of influence the majority language, Finnish, has had on FinSL on its different structural levels or pragmatic level. However, practical observations show some influence on sign formation, e.g., the creation of compounds. Some of the formations are similar to the corresponding compounds in Finnish. There are also some signs which are motivated by the close written similarity of words but which are not semantically related. An example of that is the compound sign KORVAUS (refund). The first part is translated from the word *korva* 'ear', and the second part is the sign MAKSAA 'pay'. Another example is the use by some young signers of the colloquial form *mä* as a mouth pattern for the Finnish 1st person pronoun *minä*.

Influences from other sign languages can be seen on the lexical level. There are some loan signs, e.g., from American sign language, although an original FinSL sign also exists, LUENTO 'lesson'. Some signs are adopted into FinSL even with their English mouthing (WORKSHOP, DEAF POWER). Some signs referring to countries have spread in FinSL although there is an original sign in FinSL for them, e.g., the sign for Australia, which has gone through a slight modification of the articulation movement in FinSL.

4 Political and social context

4.1 Organisations

The Finnish Association of the Deaf (FAD) was founded in 1905. It is the parent organisation of the 42 local deaf clubs. The first deaf club in Finland was established in Turku in 1886 and the next one in Helsinki in 1895 (Walvik 1997).

The other main organisations include: the Service Foundation for the Deaf (Kurojen palvelusäätiö), founded 1911; Parents' association of deaf and hard of hearing children (Kuulovammaisten lasten vanhempien liitto), founded 1963; CODA (i.e. the Association of hearing children of deaf parents), founded 1996; The Association of Finland-Swedish deaf (Finlandssvenska teckenspråkiga rf), founded 2002; and Signing Families (Viittovat perheet ry), founded 2005.

4.2 State of the language

In 1995 the constitution of Finland recognised the rights of sign language users. In the constitution of Finland, Section 17 of 1999/731 (Finlex.fi), the right to one's own language and culture is clearly stated:

> … Viittomakieltä käyttävien sekä vammaisuuden vuoksi tulkitsemis- ja käännösapua tarvitsevien oikeudet turvataan lailla.

> … The rights of persons using sign language, and of persons in need of interpretation or translation aid owing to disability shall be guaranteed by an act.

Finland was the second country in the world, after Uganda, to recognise a national sign language on a constitutional level. Our law on basic education 1998/628 section 12 (2nd paragraph) states:

> Äidinkielenä voidaan huoltajan valinnan mukaan opettaa myös romanikieltä, viittomakieltä tai muuta oppilaan äidinkieltä.

> On the basis of the student's choice, also the Romany language, the Sign Language or other mother tongue of the student can be taught as a mother tongue.

Section 10 states that the languages of instruction are Finnish and Swedish, but they can also be Sami, Romany or sign language. FinSL has been used in the instruction of deaf students from the late seventies, but the level of the language used varies depending on the sign language skills of the teacher.

Deaf students get their vocational education mostly via sign language interpretation in a variety of vocational fields. At the Teacher Training Institute of the University of Jyväskylä there has been a teacher training program for (native) sign language users since 1998. FinSL has been an independent subject since 2004 at

the University of Jyväskylä, in the Department of Languages. However, the first year course in FinSL was offered as long ago as 1992, and it became possible to study it to Bachelor's level in 1998 (Keski-Levijoki, Takkinen and Tapio 2012).

Interpreter service provided by municipalities started in 1979. The first short courses for interpreters started in 1962 by Deaf Association and National Board of Social Welfare. Gradually the training has become longer, and since 1983 it has been provided under the auspices of the National Board of Education. Since 1998 interpreter training has been a four year course at a Polytechnic Institute (Salmi and Laakso 2005). In 2010 the responsibility to provide interpreter service moved to Kela (an independent social insurance institution supervised by Parliament).

Finnish television has been broadcasting current affairs programs in sign language since 1975. Broadcasting the news in sign language started in 1994 as part of YLE's (the Finnish Broadcasting Company) news production. The deaf editor of the news for the deaf builds up the news program together with the head news editor and translates it into FinSL and signs the program. In addition, YLE broadcasts a longer program once a week called News Week in FinSL. (http://yle.fi/uutiset/viittomakieliset_uutiset/)

For over 25 years the Deaf Association has produced programs in FinSL, which deal with affairs concerning the Deaf community as well as Finnish society in general. The most important program is a-one-hour Video news about current Finnish society. This video news is sent to every deaf household and paid for by the municipality where the deaf person lives. TV in FinSL started as an information channel of the Finnish Association of the Deaf at the beginning of 2009. (http://www.kl-deaf.fi/fi-FI/Viestinta/)

The deaf theatre company Totti has operated since 1987. Funded by the Ministry of Education, it gives professional performances in FinSL. Totti offers art and culture education through training and workshops all around Finland so that culture-lovers and professionals have an opportunity to develop their skills and show their productions. (http://www.kl-deaf.fi/Page/f43d0113–8058–4642-a6fe-15a6cdfb234 f.aspx)

4.3 Language policy

In Finland each of the national languages (Finnish, Swedish, Sami, Romany, and FinSL) has a language board, which is responsible of the language planning of each of the languages. The language planning and language boards are based in the Research Institute for the Languages of Finland. The aim of the planning is described by the Research Institute as follows:

> ... Language planning aims to describe and issue appropriate guidelines on standard language usage. Because conventions vary with the style and function of any text, language planning provides detailed information on how language is used in specific contexts and how it is changing, as well as issuing related guidelines ... (http://www.kotus.fi/index.phtml?l=en&s=3).

The language board of FinSL started work in 1997, and today it is responsible for planning both FinSL and FinSSL. The Finnish Deaf Association and the Institute of the Languages in Finland have created a Language Policy Programme for the National Sign Languages in Finland in which the language situation of deaf children and adults are described and the actions that need to be taken are identified (e.g., sign language law, the basic servises for sign language users, sign language research) (Suomen viittomakielisten kielipoliittinen ohjelma 2010).

4.4 Attitudes to sign language

Attitudes towards sign language have been positive among hearing people. Many hearing people are interested in taking evening classes in FinSL. FinSL is also taught in many educational institutes, e.g., in the social and health field. In the University of Jyväskylä many hearing students are interested in doing basic courses in FinSL as their minor subject. In addition, FinSL is one of the 15 languages taught in the Language Centre of the University of Jyväskylä.

4.5 Variation

There is no systematic research on regional variation in FinSL. Practical experience shows that there is some lexical variation, which is rooted in the different dormitory schools in Finland. From the late 1800s till the 1970s deaf children went to dormitory schools in Oulu, Mikkeli, Jyväskylä, Kuopio, Turku, and Porvoo. Although sign language was forbidden in classrooms until the 1970s, it was actively used among deaf students outside the classroom. In these different schools some part of the vocabulary became different from that used in other schools.

When studying in Sweden C. O. Malm adopted the Swedish finger alphabet along with SSL. It was used in Finland until the 1960s, when the Finnish Association of the Deaf decided to adopt the international finger alphabet because of international trends. There are therefore two different finger alphabets in Finland, because many older signers use both the "old" and the "new" alphabets. However, the younger generation does not know the older alphabet, and, in fact, the older generation is not so fluent in the use of the newer alphabet and style of fingerspelling.

There is also variation in sign language use and lexicon between the younger and older generation. Many older deaf people do not always understand younger people's language. Many older deaf people are accustomed to mouthing a lot of Finnish or Swedish words if they have to say the names of places or persons, whereas younger deaf people do not always use mouthing (Rainò 2004). According practical experience, older signers of FinSL seem to use fewer different handshapes

than younger signers. They use basic handshapes (/B/, /C/, /A/) more than young signers do.

Variation can also be seen at least in the lexicon when it comes to language used within different professions or hobbies. There is a strong need to create new signs for new concepts and different themes. For example, in university studies the terms in each scientific area need to be translated or used in FinSL. There is a constant creative process going on in the new realms where FinSL is used.

5 Basic phonology

Phonology is the most researched area of FinSL structure. This is evidenced, for example, by the fact that of a total of four doctoral dissertations completed to date (Takkinen 2002; Fuchs 2004; Rainò 2004; Jantunen 2008a), three – Takkinen's, Fuchs' and Jantunen's – have dealt explicitly with phonology. Most of the phonological research has centered on the investigation and listing of simultaneously occurring basic units (i.e. handshapes, places of articulation, movements etc.). Sequential phonological issues (e.g., phonetic and phonological processes) have come to be studied only recently (Fuchs 2004; Jantunen 2008a; Jantunen and Takkinen 2010).

FinSL signs are composed of basic parameters: handshapes, orientations of the fingers and the knuckles, articulation places, articulation movements, and nonmanual elements. There are 84 handshapes of FinSL described in the Basic dictionary of FinSL (Suomalaisen viittomakielen perussanakirja 1998). Takkinen (2002) describes 100 distinct handshapes in FinSL. These are not classified as phonemes because, she argues that the phoneme is not an appropriate concept for sign language. There are some minimal pairs in FinSL in every parameter set, but the minimal pair system does not function in sign language basic structure as effectively as in spoken language phonology.

The most common handshapes in FinSL are the flat hand (B), the fist hand (A/S) and the pointing index finger hand (G). They are structurally the simplest handshapes in FinSL; they are also used as classificatory elements (Takkinen and Leinonen 1996) (e.g., CL-B 'inanimate rectangular object'), and in Size and Shape Specifiers, i.e. SASSes (e.g., SASS-B- 'flat surface') (see *Basic morphology and lexicon*). The most common place of articulation in FinSL is the neutral space in front of the signer. Other main places of articulation are the head, torso, and the arm, and the nondominant hand. The most common movement type in FinSL is the simple straight movement. Complex movements (e.g., combinations of path and local movements) tend to become simplified in production (Jantunen 2006). In general, movements in FinSL can be either manually and/or nonmanually produced (cf. NICE, which contains a simple nonmanual body movement; cf. also mouth movements). Orientations and nonmanual elements have not been extensively

studied in FinSL. However, concerning the latter, it is generally agreed that the most common nonmanual element in FinSL is the mouth movement or posture occurring with signs. These movements or postures are divided into two main classes: FinSL-specific mouth gestures and mouthings influenced by spoken or written Finnish (typically the beginnings of semantically corresponding unspoken Finnish words). Some mouth gestures can be assigned the status of a derivational element (Rainò 2001; cf. *Basic morphology and lexicon*).

In fluent signing there appear several modifications in the basic forms of the signs. These modifications are called *phonological processes* (Liddell and Johnson 1989). Phonetic and phonological processes in FinSL have been studied by Fuchs (2004) and Jantunen (2008a). Fuchs' analysis shows that FinSL exhibits similar phonetic and phonological processes to those previously attested, for example, in American Sign Language (see Liddell and Johnson 1989): for example, handshape assimilation between two adjacent signs (most commonly the change of the G handshape indicating the first person into the B handshape from the influence of the immediately preceding or following sign), neutralisation of contact, and processes affecting the nondominant hand (e.g., weak hand copy). Important findings in Fuchs' study are the observations that there occurs a small recoil movement at the end of many FinSL signs and that in general phonetic complexity and articulatory energy tend to diminish towards the end of the production of a sign. Jantunen's analysis focused on the investigation of movement epenthesis in signs that contain no movement in their citation form. These include FinSL numerals from 0 to 8, and most letters of the hand alphabet used in FinSL. Jantunen showed that, when used as name signs for numbers or letters, numerals and handshapes that do not have a movement are extended by a short straight phonological movement. The movement epenthesis is also a diachronic process. For example, the original pantomimic signs for LEATHER and HEAT have come to be produced with a straight phonological movement in their modern form.

6 Associated sign systems

Beside FinSL, signed Finnish is mostly used by people who have lost their hearing as adults and by some hard-of-hearing people. Kuuloliitto, The Finnish Federation of the Hard of Hearing, has given instructions for the signing conventions of signed Finnish. The signs of FinSL are used mainly according to the syntactic rules of Finnish but without expressing morphological devices with artificial signs. Signs to support speech are used with children or other people who have difficulties expressing themselves and/or understanding spoken language. In this system only some of the most important concepts are signed simultaneously with speech. This system is used e.g., in kindergartens and special schools.

7 Basic morphology and lexicon

FinSL lexicon and morphology have been researched especially from the perspective of the main word classes (cf. nouns, verbs, and adjectives). The lexicon contains roughly four types of signs: word-like signs, signs including gestural components, emblems, and pantomimic gestures. The discussion on word-classes concerns only the first two types of signs; the signs of the last two types (i.e. gestures) cannot be meaningfully divided into word-classes (Jantunen 2010).

FinSL has two main word-classes, *nominals* and *verbals*. Superficially, a prototypical nominal sign resembles the typological prototype of a noun, and many verbals resemble spoken language verbs. However, definitionally the categories of nominals and verbals are broader than those of typical nouns and verbs. For example, both nominals and verbals also include characterizing signs as members (cf. adjectives; below). Moreover, the notion of a verbal is thought to cover more comprehensively than that of a verb the semantically more phrasal and sentence-like predicating expressions (see Type 3 verbals below).

Nominals and verbals are defined by semantic and grammatical criteria. Semantically, a prototypical nominal refers to an entity (e.g., GIRL, POLICE) whereas a prototypical verbal encodes the activity of an entity (e.g., TO-SIGN, TO-CATCH). Morphologically, only the members of the verbal class allow the information concerning the event structure (e.g., duration, repetition) and (perfective) aspect to be coded into their form (see Rissanen 1985, 1998). Information related to the event structure is displayed iconically in the movement of the verbal (cf. reduplication and iteration; see Rissanen 1987), and in the nonmanual structure. Perfective aspect can be expressed through the movement parameter of a verbal but in most cases it is indicated by cliticising or suffixing a semi-bound morpheme to the verbal (cf. signs ALREADY, READY, FINISH). Syntactically, the main feature that distinguishes nominals and verbals is their distribution in the domain of structurally minimal declarative transitive clauses: only nominals can occur at the beginning of such clauses (for more on word order, see *Basic syntax*).

The adjective is not an independent word class in FinSL. Signs denoting property are analysed semantically and grammatically either as marginal nominals or marginal verbals. For example, signs for color (e.g., RED, GREEN) classify as nominals: they refer to abstract 'Color entities', they cannot display event structure or aspect-related information in their form, and they can occur at the beginning of structurally minimal declarative transitive clauses. In contrast, signs expressing feelings and emotional states (e.g., HAPPY, ANGRY) are typically analysed as verbals: they express states (cf. stative verbals), they can code event structure related information in their form (e.g., 'be happy for a long time'), and, like other verbals, they cannot be the first constituent in a structurally minimal declarative transitive clause.

According to Rissanen (1998), nominals fall into two main subcategories that are *lexical nominals* and *grammatical functors*. The subcategory of lexical nominals consists of core-lexical nominals (e.g., GIRL), nominals that allow internal structural modification (e.g., HOUSE), nominals with classificatory origin (e.g., BIRD), and lexical indices (e.g., pointings referring to persons). The subcategory of grammatical functors consists, for example, of *classificatory* handshapes, *size and shape specifiers* (i.e. SASSes), and *topic*-marking indices (see also *Transitive clause*). Classificatory handshapes are bound morphemes that occur as fused elements with certain verbals (see Type 3 below); they have a syntactic function (see section *Basic syntax*). According to the most recent analysis (Jantunen 2010), SASSes are grammatical elements that consist of a morphemic (semi-classificatory) handshape and a gradient gestural component realised by the parameters of movement, orientation, and place of articulation. SASSes can be cliticised to both nominals and verbals; when they are attached to verbals they function as nominalisers (e.g., DRUM > TO-DRUM + both_hands:SASS-"half cylinder"; Rissanen 1998). Topic-marking indices are in most cases pointings that occur at the end of the sentence-initial topic constituent; their function is to establish the location of the topic so that it can be referred back to within the text (Jantunen 2007; see *Topic-comment structure*).

According to Jantunen (2008b, 2010), verbals fall into three main subcategories: *Type 1, 2*, and *3 verbals* (cf. Padden 1990; Rissanen 1998; Liddell 2003; Takkinen 2008b). Type 1 verbals consist of only a morphological component and are formationally the most fixed type of FinSL verbals (e.g., TO-LIKE, TO-BEG). Type 2 verbals include both a morphological and a gestural component, the latter of which allows the verbals to be directed meaningfully in space in order to indicate, for example, discourse participants (e.g., TO-ASK, TO-LOOK-AT). Morphological and gestural components are present also in Type 3 verbals. In these verbals, the morphological component is a classificatory handshape morpheme whereas the gestural component functions to depict mainly topographic locations; it enables the iconic representation of, for example, *figure* and *ground* relationship. Type 3 verbals consist of two morphologically distinct sign types. In the first type, the verbals include two different simultaneously fused morphemes: an "entity morpheme" realised as a handshape, and an existential morpheme realised as a short straight movement. The parameters of location and orientation are gradient gestural elements that can all be varied within the limits of the discourse. In the second type, the verbals include only a morphemic handshape that refers either to the entity itself or to the way the entity is handled; all other structural parameters in these verbals are analysed as gradient and gestural. In general, Type 3 verbals belonging to the first subtype refer to the existence of an entity in a depicted location. Verbals in the second subtype describe how an entity moves or how it is handled in a depicted location.

Takkinen (2008b) proposes that the depicting verbals (cf. Jantunen Type 3 verbals) have also the third subtype. In that subtype the movement of the verbals does

not refer to the movement of the entity, but it depicts the size and shape of it with the handshape. These signs express existence of the entities depicted (e.g., *There is a broad baseboard put in our living room*). In "attributive" position same kind signs can function as merely characterising sign without existential function.

8 Basic syntax

The syntax of FinSL has been studied only marginally. By 2010 the only studies have covered the structure of simple declarative clauses. The term *clause* is taken to refer to a structurally minimal syntactic unit that consists only of a predicating element and its core argument(s), that is, nominal element(s) whose presence is required by the semantics of the predicate. A prosodic well-formedness condition for declarative clauses in FinSL is that there are no pauses between the different constituents of the clause.

8.1 Structurally minimal declarative clauses with Type 1 and 2 verbals

8.1.1 Intransitive clauses

Intransitive clauses are structures that are built around a one-place verbal (V) predicate and that contain one core argument called an S-argument. The S-argument is a unit that refers to the single participant (prototypically the agent) in the situation encoded by the one-placed predicate.

    With respect to word order, intransitive clauses in FinSL all follow the scheme SV. Examples of isolated minimal FinSL intransitive clauses are given in (1):

(1) (a) $_S$[BABY] $_{V1}$[TO-SLEEP]
      'The baby sleeps.'

    (b) $_S$[COUPLE] $_{V2}$[TO-DIVORCE]
      'The couple divorced.'

The type of verbal (1 or 2) does not affect the word order. In more textual clauses the S-argument may be omitted if its referent can be retrieved from the context (see *Transitive clauses* below).
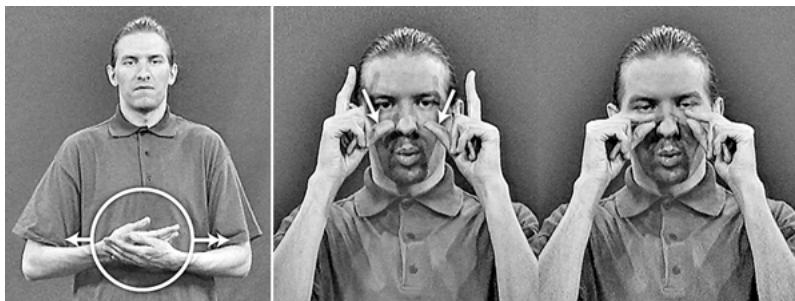
Fig. 1: FinSL signs BABY (left) and TO-SLEEP (right) forming the sentence 'The baby sleeps' in (1a). Images from *Suomalaisen viittomakielen perussanakirja* (1998).

8.1.2 Transitive clauses

Transitive clauses are structures that are built around a two-placed verbal predicate and contain two core arguments. The core arguments are called A- and P-arguments. The A-argument is a unit that refers to the more active participant (prototypically the agent) in the situation encoded by the two-placed predicate. The P-argument is a unit that refers to the more passive participant in the situation (prototypically the patient).

With respect to word order, the main rule of FinSL transitive clauses is that the A-argument always precedes the V. In isolated clauses, the A-argument also precedes the P-argument. The order of the P-argument and the V can be either VP or PV. Consequently, the resulting schemas for isolated transitive clauses in FinSL are AVP and APV. Examples of AVP structures are given in (2):

(2) (a) $_A$[WOMAN] $_{V2}$[TO-VIDEOTAPE] $_P$[MAN]
'The woman videotapes the man.'

(b) $_A$[BOY] $_{V2}$[TO-KISS] $_P$[GIRL]
'The boy kisses the girl.'

Examples of APV structures are given in (3):

(3) (a) $_A$[GIRL] $_P$[TV] $_{V2}$[TO-LOOK-AT]
'The girl watches the television.'

(b) $_A$[TEACHER] $_P$[BOY+B-INDEX-2] $_{V1}$[TO-EXPLAIN]
'The teacher explains to the boy.'

As with intransitive clauses, the type of verbal (1 or 2) does not affect the word order in transitive clauses. If there is a possibility of an ambiguous reading, the P-argument can take a cliticised grammatical functor to disambiguate the participant

Fig. 2: FinSL signs WOMAN (left), TO-VIDEOTAPE (middle), and MAN (right) forming the sentence 'The woman videotapes the man' in (2a). Images from *Suomalaisen viittomakielen perussanakirja* (1998).

roles. In (3b), this grammatical functor is a pointing element with a dative function (see *Basic morphology and lexicon*).

In more textual transitive clauses, the P-argument can sometimes occur at the beginning of the clause, but the order of A and V still follows the general rule. For example:

(4) $_P$[BOOK] $_A$[INDEX-1] $_V$[TO-SEARCH] / TO-FIND / TO-SIGH-ON-RELIEF / …
'I was looking for a book, and fortunately I found it. …'

A typical trait in FinSL texts is omitting core arguments. In (4), this phenomenon is demonstrated by the verbals TO-FIND (a two-placed predicate) and TO-SIGH-WITH-RELIEF (a one-placed predicate). Syntactically, the verbals are analysed as structurally incomplete clauses.

8.2 Topic-comment structure

A topic-comment structure is commonly used in FinSL. The scheme of a minimal topic-comment structure is $_{TOP}$XP/$_{COM}$clause. The topic in this scheme is a clause-external left-detached nominal phrase (XP), whose function is to set an interpretative (e.g., spatial, temporal, or individual) framework for the following main predication, expressed by the comment clause (Chafe 1976). Topics in FinSL are marked syntactic-prosodically (i.e. by their sentence-initial position, pause, and a non-manual feature, "eyes widened and eyebrows raised") and sometimes morphologically (i.e. indexically; see Example 5). In general, the FinSL topic-comment structure resembles topic-comment structures found in topic-prominent languages, for example, in Mandarin Chinese.

Example (5) demonstrates a typical FinSL topic-comment structure in which the topic is an adjunct-like nominal phrase that sets a spatial framework for the following comment clause with the AVP order:

Fig. 3: Frames captured from the video in Suvi displaying the sentence 'That night club, I work (there) as a doorman' (see Example 5).

(5) $_{TOP}$[NIGHT CLUB INDEX-3] / $_{COM}$[INDEX-1 TO-WORK DOORMAN]
   'That night club, I work (there) as a doorman.'

The topic may also be a seemingly core argument-type constituent. For example:

(6) $_{TOP}$[OWN-1 BAPTISE AUNT] / $_{COM}$[LIVE SWEDEN+INDEX-3]
   'My godmother, (she) lives in Sweden.'

However, in (6) and in other similar cases, the topic is not given the status of a (topicalised) core argument. Instead, it is analysed following the general scheme of FinSL topic-comment structure as an independent syntactic constituent not belonging to the semantic-syntactic scope of the verbal predicate. The comment clause is interpreted as a structurally incomplete transitive clause (cf. Example 4).

Utterances containing Type 3 verbals are typically topic-comment structures in FinSL. For example:

(7) $_{TOP}$[HOUSE-2] / $_{COM}$[CL-B-"come to a stop"-4–2]
   'Car (literally: rectangular object) stops near the house.'

Type 3 verbals are analysed syntactically as full head-marking (Nichols 1986) verbals, i.e. as full well-formed clauses. The classificatory handshapes (CL) fused into these verbals are interpreted as the predicate's syntactic core arguments. Their meaning is typically vague, yet it can be usually easily identified from the context or be lexically specified; for (7), the latter option means adding a lexical nominal CAR in front of the verbal, in which case the structure as a whole is analysed as

containing a chain of two topics (i.e. 'house' and 'car'). With respect to word order, Type 3 verbals form a special class as they always occur sentence finally.

8.3 Functional sentence types

8.3.1 Negative sentences

The basic negative marker in FinSL sentences is a headshake, analysed formally as a *negative operator* (Rissanen 1985). The scope of the headshake can be the whole sentence or a shorter sequence. However, no matter where the headshake begins it tends to last to the end of the sentence. An important distributional restriction for the negative operator concerns the topic in topic-comment structures: topics cannot be layered with the negative operator (Savolainen 2006).

Savolainen (2006) argues that FinSL lack a manual sentence or clause negator, that is, a negative sign meaning simply 'not'. However, the sign NOT exists in FinSL and is used sometimes although nonmanual negation is preferred. There are other negative signs in FinSL that always convey some extra information; they are used mostly to express emphatic negation (e.g., ZERO, ABSOLUTELY-NOT) or to predicate, for example, the nonexistence (e.g., NOT-EXIST) or noncompleteness (e.g., NOT-YET) of an entity or an action, respectively. The existence of more than one manual negator in a sentence has not yet been fully investigated (Savolainen 2006; cf. Mikkola 2004).

8.3.2 Interrogative sentences

Interrogative sentences are also formed through nonmanual activity. The nonmanual interrogative operator has two main forms, one for polar (yes/no) questions and the other for content (wh-) questions. In the main polar question marker, the eyebrows are raised and the head tilted forward; another, yet pragmatically limited, option is to push the head forward. In the main content question marker, eyebrows are furrowed and the head tilted forward; it seems that pushing the head forward can be used as an alternative marker also in content questions. The raising of eyebrows can be used to mark content questions too. The scope of the nonmanual interrogative operator is conditioned similarly to that of the negative operator, discussed above (Rissanen 1985; Savolainen 2006).

There is at least one sign (cf. particle) that can be used to mark both polar and content questions in FinSL. This is the PALM-UP gesture that has other functions too. Question words (e.g., WHO, WHAT, WHERE, HOW) are used with content questions and they too have other non-interrogative functions in FinSL. Syntactically, the question words can occur in various positions. However, in general clause ini-

tial (after the topic) and clause final positions are the most typical. The PALM-UP gesture is obligatorily clause or sentence final (Savolainen 2006).

9 History of research

Modern linguistic research into FinSL began in the early 1980's. Research started in 1982 at the University of Helsinki, in the Department of Linguistics. In 1986 the Research Institute for the Languages of Finland funded a position for a sign language researcher. The researcher was involved in dictionary work with The Finnish Association of the Deaf. The basic dictionary of FinSL was published in 1998; since 2003 it has been available online (Suvi http://suvi.viittomat.net/). In addition to the research into FinSL done in the Research Institute for the Languages of Finland, several doctoral dissertations have been written at the University of Jyväskylä and Helsinki. In 2010 the University of Jyväskylä was given nation-wide responsibility for organizing and providing FinSL studies and research at university level.

During the past thirty years the most common research areas have included phonology, morphology and lexicon (e.g., Rissanen 1985, 1998; Pimiä and Rissanen 1987; Takkinen 2002; Fuchs 2004; Jantunen 2008a, 2010), acquisition (e.g., Takkinen 1995, 2002, 2008a), onomastics (e.g., Rainò 2004), history and change (e.g., Jantunen 2003), and sociolinguistic aspects of FinSL (e.g., Hoyer 2000, 2004). Recent research topics include bi- and multilingualism and multimodality in sign language use (e.g., Takkinen 2012, Tapio 2013) as well as sign language technology (e.g., Karppa et al. 2011) and sign language phonetics (Jantunen 2013). The lexicon has also been studied from the perspective of compiling dictionaries (e.g., *Suomalaisen viittomakielen perussanakirja* 1998; *Numeroita ja lukumäärien ilmaisuja* 2002). On the whole, the field of FinSL research has been continuously expanding, and the current emerging research areas include, for instance, research into the teaching and learning of FinSL as a second language. However, FinSL still lacks a comprehensive syntactic description. The first studies focusing on FinSL syntax have been completed only recently (Jantunen 2007, 2008a, b).

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Websites with relevant information such as dictionaries, and websites of national organisations for the Deaf

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http://yle.fi/uutiset/viittomakieliset_uutiset/

Agnès Millet, Nathalie Niederberger and Marion Blondel
10 French Sign Language

1 Basic Facts about the French Sign Language

Language name: *Langue des Signes Française (LSF)*

Alternative names: LSF is also called French Sign Language (FSL) in some English publications. "*Langue des Signes Française de Suisse Romande*" is used sometimes to specify the French Sign Language used in French speaking Switzerland.[1] "*Langue sourde*" ("deaf language"), without the mention of "French", is used by some companies or associations offering LSF classes.

Location: France (including French islands and territories) and some French-speaking parts of the world, for geographical or historical reasons (including Switzerland, Mali, Tunisia, and Vietnam, as far as we know), sometimes in coexistence with local sign languages when LSF has been taught in schools exclusively.[2]

Varieties: Drawing boundaries between LSF (of France and Switzerland) and varieties is particularly complex since, even in contemporary France, lexical items between varieties of LSF are highly variable and seem to be based more on the history of the schools for the deaf than on geography. Its standardization has been a low priority for deaf communities, who are still attached to their specific LSF variety[3] (cf. Section 3.3). Most LSF teachers teach regional varieties, when it is relevant. As observed for many other sign languages, those variations mostly affect the lexical level; the LSF phonology and syntax remain more homogeneous, probably because of the physiologic, iconic and spatial constraints of sign languages. Although these lexical differences may puzzle beginning signers, they do not prevent fluent signers from understanding each other. As for Switzerland, similar lexical variations are observed within Swiss regions and when compared to LSF of France especially from rural deaf communities, which have had less contact with French communities than the deaf community of Geneva for instance.

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1 See Tuller, Blondel and Niederberger (2007) for a more in-depth discussion of sociolinguistic issues around sign languages denominations.
2 The sign languages used in the French speaking areas of Canada and Belgium however are considered as different languages and have specific names (LSQ in the Québec province of Canada, LSFB in the Wallon area of Belgium).
3 Many variations are described in Moody, Girod, Benelhocine and Vourc'h ([1986] 1997).

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Number of signers: The number of LSF signers is unknown, as it would need to take into account not only LSF deaf native and non-native signers, but also hearing family members of deaf signing individuals, some of the hearing professionals working with deaf people (interpreters, educators, social workers, to name a few), scholars interested in deaf studies, and other individuals involved at a personal level with the deaf community. However, the number of deaf people in France was estimated to 80,000 a little over a decade ago (Gillot 1998).

Organizations: *Fédération Nationale des Sourds de France (FNSF). Fédération Suisse des Sourds – Région Romande (FSS-RR).*

2 Origin and history

2.1 The role of Abbé de l'Epée and Chomel in LSF early development

Gestural languages have been mentioned early in French history and literature (Montaigne (de) 1595; Saint-Simon 1856) as communication systems used among deaf communities, especially in major cities. However, it is only during the 18th century, in 1760 when Abbé de l'Epée founded the first school for the deaf where signs were used, that the standardization of the language started.[4] Indeed, the method he created to teach deaf pupils, based on their existing sign communication system and completed with what he called "signes méthodiques", was soon adopted by many schools in France (Abbé de l'Epée [1784] 1984). Abbé de l'Epée was a pioneer in two ways: his school was the first one in France open to many deaf children (up to that date only a few deaf children from noble families could receive an education); and it was also the first bilingual pedagogical experiment.

Through the training of deaf and hearing teachers, some of them previously students of the school, the method was later exported to several other European countries such as Germany, Poland, Austria, Italy, Spain, Sweden, Portugal, Denmark, Holland, Russia and North America (Lane [1984] 1991: 74; Presneau 1998: 113; Bernard 1999). Today this historical influence of the "French method" is still traceable in the relationship found between some of these national Sign Languages ("French sign language family").

One of the most well documented influences of LSF on another national sign language is related to the visit to the Parisian school (Institut Saint Jacques) of Thomas Gallaudet, an American hearing teacher. He hired Laurent Clerc, one of the French deaf teachers, in order to help him open the first deaf school in the

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4 Desloges in particular describes a sign language used in Paris (Desloges 1779).

United States. De Santis (1977) and Woodard and De Santis (1977) suggest that American Sign Language was thus first a creole language resulting from contact between LSF and local sign languages in the United States at the beginning of the 19th century.

A similar story explains how the sign language currently used in the French speaking part of Switzerland is only a variant of LSF. In 1822, Isaac Etienne Chomel, former student of Sicard (Abbé de l'Epée's successor in Paris), moved to Geneva where he created the first class for deaf children in Switzerland. He became the first teacher and consequently the first director of the school. Chomel brought the French method invented by Abbé de l'Epée with him. Since then and until today, the deaf community of Geneva has kept close ties with the deaf of France.

2.2 LSF post Congress of Milan: new scientific and public interest

The bilingual LSF-French pedagogical experiment ended with the Congress of Milan in 1880; LSF went underground, as it was forbidden in classrooms and in any official situations. It is only in the 1980s that LSF resurfaced, thanks to the new interest in sign languages in the Western world. During that decade in France, several personalities contributed in their own field to the new development of LSF. Thus, Bill Moody, an American interpreter, along with Alfredo Corrado, producer, created the International Visual Theatre (IVT) cultural center, promoting plays in LSF. Bill Moody also attempted to describe LSF grammar for the first time (Moody [1983] 1998).

Christian Cuxac, a French scholar, published a book focusing on the history of LSF and its social aspects, with an emphasis on the education of the deaf and the impact of the Congress of Milan (Cuxac 1983). The sociologists Bernard Mottez and Harry Markowicz demonstrated that deafness is not a handicap by itself, but rather a *shared* handicap ("handicap partagé"), affecting the communication between deaf and hearing people. LSF was then described as a mean to "dissolve" the handicap (Mottez 1977; Mottez and Markowicz 1979).

Finally, Danièle Bouvet in France and Claude Maye in Switzerland were re-opening bilingual programs with LSF as the language of instruction (Bouvet [1982] 1989; Maye, Ringli and Braem 1987). In association with deaf adults, a group of parents created an organization in order to promote bilingual and bicultural education in ordinary schools ("Deux Langues Pour une Education", 2LPE).

Today, by necessity, LSF is developing fast, in the semantic fields related to high school and college education. Interpreters and deaf students are working together to develop the sign vocabulary that has been missing since LSF was left out of the educational programs.

3 Bilingualism and language contact

Questions related to deaf bilingualism in the French context are a very sensitive and complex topic for several reasons. First, because of the active debate between the two opposite philosophies of education (oralism vs bilingualism, see section Education), using a word such as "bilingualism" may take various meanings and connotations depending in which camp one is standing. In addition, Millet showed a gap between the actual use of the language by deaf people and what we usually think (or even what the deaf themselves think) of their language practice (Millet 2003; Millet, Estève, and Guigas 2008). Finally, deaf bilingualism studies are still underdeveloped in France. More data is needed in order to get a comprehensive picture of the actual situation.

Following Grosjean's functional definition of bilinguals as "people who use two (or more) languages (or dialects) in their everyday lives", including "the migrant worker who speaks with some difficulty the host country's language (and who cannot read and write it)" and "the professional interpreter who is totally fluent in two languages" (Grosjean 1996: 1), there is no doubt that most deaf French people are bilingual, to some extent, with various levels of language skills in LSF, written and oral French. Another category of LSF/French bilinguals includes hearing family members of a deaf individual, interpreters and hearing members of the deaf community (educators, social workers, teachers and so on).[5]

3.1 Education and political context

France was one the first countries to implement an education for the deaf based on sign language. However, as explained earlier in this chapter, this experience ended with the Congress of Milan in 1880 and was replaced by a pure oral method for about a century (Cuxac 1983 among others). New bilingual programs reappeared only in the 1980s at an experimental level (Bouvet [1982] 1989; Millet 1993; 1995; 2001).[6]

A law passed in 1991 now gives the parents of deaf children the choice between bilingual French/LSF education and oral French education. However, until 2008, the recommendations published by the *Ministère de l'Education Nationale* remained extremely cautious about the use of LSF in the education of the deaf. For instance, one can read in the *Lettre officielle* of 1993 "the bilingual communication

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5 However, it is important to note that in those cases, individuals have a full access to the language input in each modality, unlike a deaf person.
6 State of the art has been provided by the ANPES – national association of parents of deaf children (1999) http://anpes.free.fr/Educ_Bil/ANPES_scolarite_bilingue.htm.

is characterized by the instruction of LSF and its use in association with the French language" (our translation).

Since the *Loi pour les handicaps*, passed in 2005, LSF acquired the official status of language and bilingual classes opened in many areas of France. However, most hearing parents of deaf children favor an oral education, especially with the generalization of the use of cued speech in the late 1980s and now the cochlear implants recommended early for most deaf children by medical teams. The obstacles preventing further development of bilingual education have been well described by Mugnier (2006b) and Dalle (2003). These obstacles are institutional, legal and related to the social representations on deafness and LSF (see section Political and social context, this chapter). The situation is even more complicated by the fact that deaf children can be integrated individually in regular classes, integrated in small groups in special classes located in regular school buildings, or can be attending a special school (Bertin 2005). Thus, there is no real deaf education policy in France, since the government has decided to leave the choice up to the parents, without really providing structures open to a bilingual education.

As for Switzerland, the history of deaf education mirrors the French situation, with a first bilingual experiment, terminated after the Congress of Milan, and replaced by a pure oral method until the 1980s. Currently there are three schools for the deaf in French-speaking Switzerland. Each one has its own philosophy: bilingualism LSF-oral and written French or mostly French language. Some students are attending regular classrooms with or without an interpreter, and go to the deaf center weekly or occasionally. Other students, following their parents choice and school recommendation, may attend a class at the deaf school with other deaf students. Every deaf student is exposed not only to written French, but also to oral French; they also receive speech therapy. In the bilingual program, speech therapy can also include LSF, either to develop a first language or to create bridges between LSF and French (see Niederberger 2005a, 2005b for details).

3.2 Sign bilingualism studies

3.2.1 Adult bilingualism

A recent study on deaf bilingualism (Millet 2007; Millet and Estève 2008) describes bilingual cross-modal communicative practices of three young deaf adults who are using both languages, French and LSF, and both modalities, vocal (including onomatopoeias and vocal language), and gestural (including signs, gestures and mouthing). The range of their communicative practices is represented in Table 1.

Thus, all sorts of language and modality combinations have been observed, including some that are specific to sign bilingualism, when the two languages are combined simultaneously (code-blends, Emmorey, Borinstein and Thompson 2005). Depending on the situation and particularly on the hearing status of the

Table 1: Communicative practices of Tim, Lea and Eva, three young deaf adults aged 20 years old.
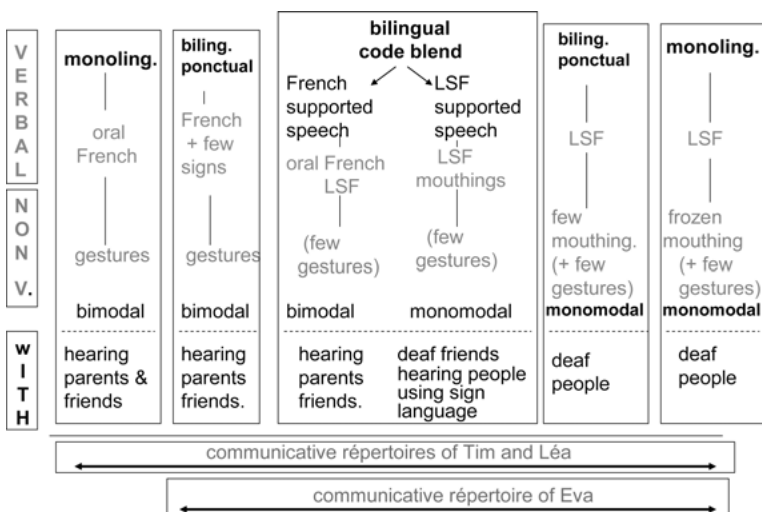
interlocutor, deaf adults will produce monolingual or bilingual utterances that could be either mono-modal or bimodal.

3.2.2 Child bilingualism

In the first longitudinal study focusing on hearing individuals acquiring LSF and French simultaneously, Blondel and Tuller (2008) showed in a case study of a child aged 6 mo. until 2.9 years that the main language milestones were met at the same time in both languages/modalities. Thus, Blondel and Tuller videotaped during the 8;5 session a manual form of babbling previously mentioned to them by the child's parents. Interestingly, several of the more robust occurrences of manual babbling were produced simultaneously with oral babbling. Oral babbling was recorded starting at the first session, at 6;7. However, the first session with a significant number of occurrences of canonical oral babbling is also at 8;5.

The child's first pointing gestures were identified at 8 months, which is consistent with the relevant literature. The onset of the one-word stage was at essentially the same time for both oral words (10 months) and signs (11 months), and fits squarely within the period in which first words appear in monolingual acquisition of French and in monolingual sign language acquisition (around 12 months).

Likewise, the first occurrence of sequences of two signs was found in the same session (at 1;7) as the first occurrence of two-word strings, and, once again, this timing is consistent with what is known about monolingual French acquisition, and with what is known about bilingual, bimodal language development. Blondel,

Tuller and Lecourt (2004) show in the same session that pointing gestures display several new properties: pointing gestures (PNT) with an animate target produced with a verb (1a); absent, animate reference (1b), co-occurrence in the same utterance with a French pronoun (1c) at exactly the same time (19 months) as pronouns appear in French and robust predicative relations emerge in LSF (as well as in French and in mixes).

(1) (a) LSF   PNT > *herself* + [PARTIR]   PNT > *herself* + [LEAVE]

  (b) LSF   [PAPY] PNT > *door* [TRAVAILLER] [GRAND-PA] PNT > *door* [WORK]

  (c) French / *oh et là-bas c'est moi*   'oh! and there, it's me'
     LSF   PNT > *herself* + PNT > *picture*   PNT > *herself* + PNT > *picture*

Code-blends and deaf bilingualism have also been studied by Niederberger (2005b) in oral French narratives produced by a group of 12 deaf children, aged 8 to 16, while interacting with a hearing sign bilingual interlocutor. In this situation, code-blends (simultaneous language combinations) appeared mostly among the deaf children whose oral language and speech were difficult to understand (2a). Sequential language combinations, or code-switching phenomena, were mainly produced using LSF classifier constructions (also called "proforms") to express actions and motions or to describe objects and locations (2b).

(2) (a) code-blend / simultaneous language combination
     French Poussent (riv) poussent   Push (Succeed) push
     LSF   [POUSSER] [REUSSIR] [POUSSER] [PUSH] [SUCCEED] [PUSH]

  (b) code-switch / sequential combination
     French Voiture (pa)   Car (leaves)
     LSF   [ClassifB-flat-AVANCER]   [ClassifB-flat-TO MOVE FORWARD]]
                 (high speed – forward)   Vehicle moves forward, fast[7]

Finally, Niederberger showed in a correlation study on 39 deaf children, aged 8 to 16, the indirect influence of one language on another. Among those deaf children, all raised in bilingual LSF/French programs, the ones presenting stronger skills in reading and writing in French had also developed stronger skills in LSF (Niederberger 2004; Niederberger and Frauenfelder 2005).

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7 In addition to those studies, Mugnier (2006a) analyzed bilingual classroom interactions and Estève (2009) described cross-modal bilingual productions among deaf children in narrative tasks. A specific annotation tool (with ELAN) has been recently elaborated by Millet and Estève (2009).

3.3 Standardization

As mentioned earlier in this chapter, there is only little effort put into a standardization of LSF at this time. Indeed, the idea of a unique standard LSF is not very popular among the deaf community. A good example is found in the LSF dictionaries published by the International Visual Theater, a very commonly used reference for LSF: variants of each lexical signs are put as footnotes; recommendations are made, in case of doubt, for checking with native local signers. In Switzerland, the Federation for the Deaf is involved in a project of creating the first official Swiss LSF dictionary, which will include the lexical variations among national LSF varieties.

Illustrating this low interest for standardization, we can highlight that the teams (deaf people, interpreters, researchers) working on vocabulary are very cautious when creating new signs. For example, since the creation of "pôles surdité" in French hospitals, teams of deaf professionals (LSF instructors and mediators) and hearing LSF signers physicians are developing health information in LSF. Their goals are not to create new specific vocabulary but rather to find a clear way to explain common pathologies in LSF.

3.4 Influence from dominant languages (signed and spoken)

LSF, like most other sign languages, has emerged under very specific conditions, which are related to the gathering of individuals sharing a similar physiologic deficit. Since the majority of deaf people come from a hearing family, LSF and French have always been in contact. The influence of the French language is apparent in LSF mainly in three ways: fingerspelling, initialized signs, and mouthing.

3.4.1 Fingerspelling

A manual alphabet, derived from the alphabet created by Bonet in 1620 (in Bernard 1999), is used in conjunction with LSF. This alphabet is used to spell names manually and to borrow French words. However, fingerspelling is not frequent in LSF, unlike in other sign languages such as ASL, for instance. Indeed, LSF signers are usually prompt to create a signed name for people involved in the deaf community or who are popular in the media. Let us note that the signs that come from the spelling of the corresponding words in French follow the phonologic rules for their handshapes and rythmic patterns (see Miller 2001 for details concerning this processus in LSQ). In the following examples (3a and 3b) one may compare the spelled word and the way it is integrated in the phonological rules of the signed lexicon.

(3) (a) [sûʀ/sure] versus [S.U.R]

sûʀ
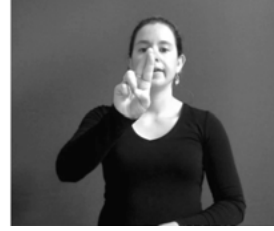
S   U   R

(b) [sec/dry] versus [S.E.C]

sec
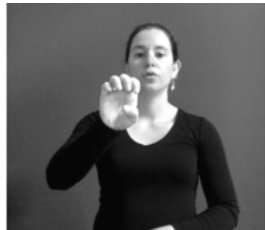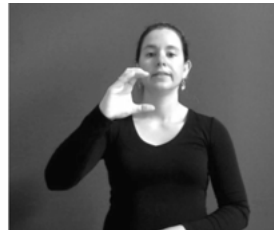
S   E   C

3.4.2 Initialized signs

Many LSF lexical signs are initialized signs, a process that can be found in several sign languages. For example the signs [VACANCES/vacation] and [REPOS/rest] are derived from the sign [SAGE/wise], by changing the handshape from B', which is neutral to V (first letter of "vacances" in French) and R (first letter of "repos"), as shown in Examples 4 (a, b and c).

(4) (a) [SAGE/wise]

(without internal movement)

(b) [VACANCES/vacation]

(movement of hands twice on the shoulders)

(c) [REPOS/rest]

(without internal movement)

3.4.3 Mouthing

Mouthing is frequent in LSF, as described in the first part of this section. This contributes to bilingual practices but in a mono-modal way. Mouthing can be considered as gesture, since mouthing means that no sound is produced. Different types of mouthing are found in LSF: redundant, complementary or fixed (Millet 2007).

Redundant mouthing can be superposed with the entire speech act, but more often with some part of the speech act. Those practices have been observed among both deaf people with hearing parents and deaf people with deaf parents, as in (5a) and (5b) (Millet et al. 2008), where signs are associated with mouthing.

(5) (a) redundant (but partial) mouthing by Pat (hearing parents)

signs	[AVOIR]	[AMI]	[PNT]	[PETITE]	[AGE]	[DIX]	[AN]
mouthing	j'ai	ami			age	dix	ans
signs	[HAVE]	[FRIEND]	[PNT]	[SMALL]	[AGE]	[TEN]	[YEAR]
mouthing	I have	friend			age	ten	year

[VOULOIR]	[IMPLANT]
veut	implant
[WANT]	[IMPLANT]
want	implant

(b) redundant (but partial) mouthing by Gil (deaf parents)

signs	[MAMAN]	[SOURD]	[SIGNE]	[AVOIR]	[SŒUR]	[FRÈRE]
mouthing	maman	sou			seu	fre
signs	[MUMMY]	[DEAF]	[SIGN]	[HAVE]	[SISTER]	[BROTHER]
mouthing	mummy	deaf			sister	brother

[ENTENDANT]	[LES DEUX]
[HEARING]	[BOTH]

Less frequently, mouthing can complement speech. In this case mouthing adds information to the signs produced. Some researchers have claimed that this kind of mouthing is part of LSF (Séro-Guillaume, 1994). However, these practices can be considered as typical sign bilingual practices: the locutor is using both languages in only one modality: gesture, as in (5c).

(5) (c) complementary mouthing by Lea (hearing parents)

signs	[MALADIE]	[MÉMOIRE]	[ILLNESS]	[MEMORY]
mouthing	maladie d'Alzheimer		Alzheimer's disease	

The third type of mouthing is described as "fixed mouthing". It occurs when a mouthing is always associated with a specific sign. One of the most frequent in LSF is the mouthing "fini" associated with the perfective marker [FINI/finish].

There is only limited influence of other sign languages to our knowledge, except a few borrowings, such as the ASL [I-LOVE-YOU].

4 Political and social context

4.1 Organizations

France has one national deaf organization, called "Fédération Nationale des Sourds de France" (FNSF). In Switzerland, the federal deaf organization has a French section, representing deaf and hard-of-hearing people of the French-speaking area of Switzerland (Fédération Suisse des Sourds – Région Romande, FSS-RR). In both countries, deaf communities are also active locally in clubs promoting mostly sports and deaf culture (International Visual Theater (IVT) among the most famous). These local groups provide information and assistance to the deaf and their families, as well as LSF classes for the general public. The promotion of the language is one of their top priorities. They also collaborate with a few universities in LSF and deaf studies. More recently, private and public organizations in France and Switzerland, have created websites in order to facilitate access for deaf individuals to general information and deaf specific information (see links at the end of this chapter).

4.2 Rights of the Deaf and political issues

As mentioned in the Education section, France does not have a definite deaf education policy, but rather allows (theoretically as least) the parents to choose between the two main philosophies of education: oral (with or without cued speech) and bilingualism.

The rights of deaf adults are associated with the rights of the handicaps. They can receive a pension from the social security if they are not able to work or to find employment. Since 2005, the law recognizes LSF as a language and gives the right to LSF interpretation services. However, the access to information still needs to be improved, particularly regarding health (HIV, H1N1) and politic (campaign for elections). In the meantime, deaf organizations are trying to fill the gaps with the help of new visual technologies such as the web, text messaging, and visio interpreting (Dalle-Nazébi 2008).

A similar situation is found in Switzerland: LSF (and the two other national Swiss sign languages, *Deutschschweizerische Gebärdensprache*, DSGS and *Lingua Italiano dei Segni*, LIS) received an official status in 1994. Social security is providing some interpreter services, and a pension when needed. This agency is also funding part of the education of the deaf, as part of the Rights for the Handicap Act. Swiss deaf individuals obtained the right to interpretation services in 1985 for some social situations. Those rights were extended in 2002 and 2005 to now include primary education, continuous education, work site, medical appointments and other appointments, and recently administrative procedures (police, court, civic center, public school, social security). In addition, Swiss public television is pro-

viding LSF interpretation of daily evening news. All official political presentations, such as presidential speeches and election information, are covered as well. The deaf community also has its own LSF show, once a month (*Signes*).

Despite this important progress regarding the rights for the deaf, social representations for the deaf in France and Switzerland are still predominantly medical, as deaf individuals are considered handicapped individuals. The official recognition of LSF as a language, along with the rights to use interpretation services,[8] however, initiated the beginning of a shift. It constitutes an important step toward the recognition of the deaf as full citizens, only with specific communication needs.

The perception of deafness, LSF and deaf individuals can be described as dual. Two opposite types of representations, usually called "medical" and "anthropologic", co-exist. Indeed, LSF is either seen as a potential threat or as a source of total fascination. One can see these two opposite representations, sometimes quite irrational, as the product of the same phenomena: a reaction to facing oddity. The debate around cochlear implants is a good example of the two radical positions. Thus, despite the important progress made for their rights, deaf individuals (and deafness) are still very much unknown for whom they are (Delaporte 2002; Mottez 2006).

5 The structure of signs

As in other sign languages, many phonological, morphological and syntactic phenomena can be observed in LSF. In this chapter, these phenomena will be interpreted and described by using as a reference the model of one of us: "Iconic Dynamics" (Millet 2002; 2006a).

5.1 Different theoretical points of view

International research has tended to adopt one of two diametrically opposed positions with respect to iconicity. Some researchers have constructed specific theories for sign languages using tools that are very different from the epistemological tools used in linguistics. This is the case for authors such as Liddell (for example: Liddell 1998) and Cuxac (2000), who have taken "differentialist positions" (Colletta and Millet 2002: 10). Conversely, other authors have (initially?) set aside the iconic dimension, in order to focus on the dimensions traditionally explored in linguistics (particularly "phonology" and "syntax") from a formal point of view and without considering the theoretical implications of iconicity. These approaches have been labeled "convergent approaches" (Colletta and Millet 2002: 11).

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8 The number of trained LSF interpreters is still however insufficient to meet all the needs.

Regarding the description of LSF grammar, only a few models have been published. The first one, published by Bill Moody (1983), was an attempt to describe the main characteristics of LSF. Soon after, Christian Cuxac (1985) presented a non-parametric model describing the structures of iconicity ("*structures de l'iconicité*") that has been dominating the sign language linguistic field in France for decades (Cuxac 1996, 2000). In his model, Cuxac emphasizes the iconicity of LSF (Highly Iconic Structures, SGI), considering that standard lexical signs and discrete structures have only a small part in this specific sign language (for description of this model in English, see Cuxac and Sallandre 2007).

At the opposite, Nève (1992, 1996) presented a parametric model, following Martinet's terminology, and emphasizing the phonological level.

Finally, the last category is considered as intermediate, with parametric models taking into account iconic factors. In the following paragraph, we will briefly describe one of these intermediate models called "iconic dynamics" ("*dynamiques iconiques*").

5.2 Iconic dynamics

For a number of years, Millet has pursued an intermediate path that places iconicity in a linguistic theory of sign languages, without, however, abandoning the tools forged by research into vocal languages. This intermediate path follows an "iconic dynamics" model, based on the different statuses of the parameters and of the signer's body. This model is consistent with the concept of "semantical phonology" developed by Stokoe (1991).

The linguistic cohesion of LSF is assured by the progressive integration of new elements of iconicity at each linguistic level.

– On the lexical level, the lexical coherence in terms of the structure of the lexical and semantic fields is assured by the interplay between maintaining and varying the components of the sign – handshape, location and movement;
– On the sentential syntactic level, the iconic dynamic is very largely based on the combination of space and handshape – often drawn from the lexis and used as a "proform" (cf. Section 8.1.1). Hence, on this level, the fact that the handshape remains constant is a source of syntactic cohesion;
– On the discursive level, and particularly on the narrative level, the bodily and spatial dimensions are used differently (e.g., corporal proforms and creation of locus) but the cohesion processes remain basically the same.

Hence, the fundamental elements of the formation of signs (handshape, location and movement), which can be considered cenemic on a lexical level, take on elements of meaning on the morphological, syntactic or discursive levels and thereby become pleremic.

The "handshape" parameter can acquire different linguistic statuses that can be explained by the iconic dynamics. In an isolated sign in the lexicon, the essence of the handshape is cenemic and its status is "phonological" or "cheremic". However, in certain cases it can acquire a pleremic status on a morphological level, when it becomes the parameter that assures the structure of a lexical field (Millet 1998), or on a morpho-syntactic level, when it becomes a proform (cf. Section 8.1.1).

This is also the case for movement, which is cenemic on a lexical level and pleremic on a morphological level of the lexical structure. These dynamic structures are represented in Figure 1.

At the discursive level, it is obvious that iconicity and spatiality are the basic foundation of the linguistic cohesion – especially in narratives expressed by global structures. It is not possible to develop here the study of narrative structures in LSF, but several studies (Cuxac 2000; Millet 2006b; Sallandre 2003) show how corporal proforms and loci are interrelated in order to express the internal reference, by adopting necessarily a character's point of view.

However, the basic structures of LSF will be now presented within this general theoretical model.
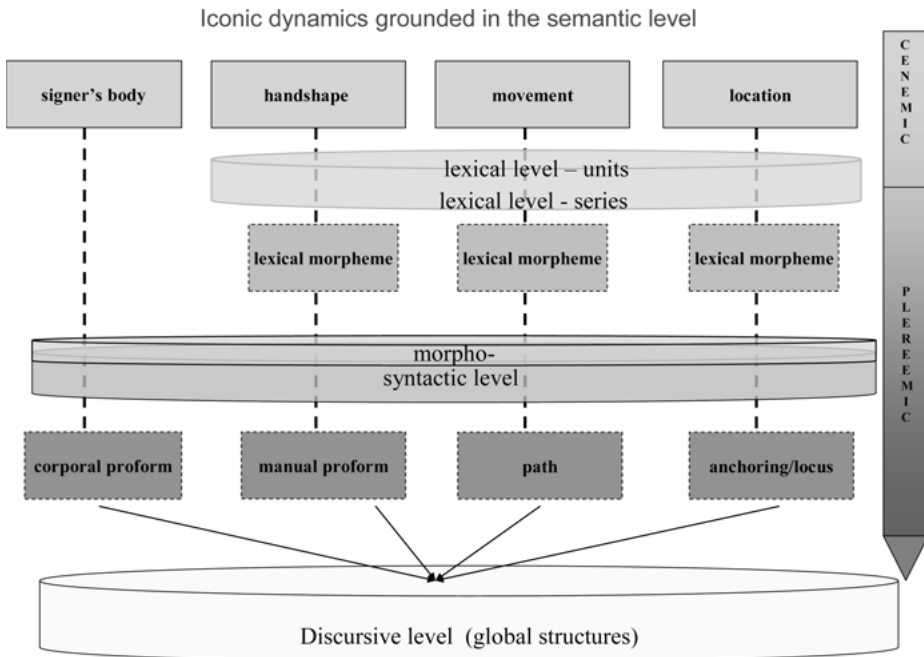
Fig. 1: Iconic dynamics.

6 Associated sign systems

There is no formal or official associated sign system (equivalent as SEE for ASL for instance) currently used along with LSF. Cued speech (named in French L.P.C. or "Langue française Parlée complétée") is used by some members of the deaf community who chose to communicate orally.

7 Basic morphology and lexicon

7.1 Different types of signs

The term "sign" includes:
–   "manual signs",
–   "spatial signs" – especially "the locus",
–   "non-manual signs" – i.e. eyegaze, head and body movement, etc.

This paragraph concerns what we call "manual sign".

Spatial and non-manual signs carry morpho-syntactic values in sentences, as we will see below, while manual signs express lexical values, and can be one-handed (6a) or two-handed signs. The latter can be symmetrical (6b) or asymmetrical (6c).

(6) (a) one handed sign [BOIRE/to drink]
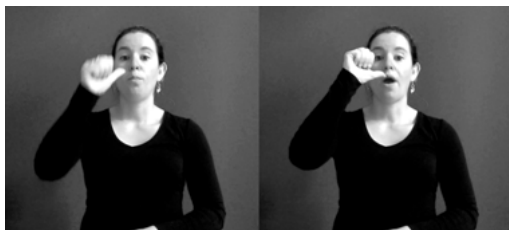
(b) two handed symmetrical sign [TRAVAILLER/to work]

(right hand taps on left hand three times)

(c) two handed asymmetrical sign [FAUX/false]

We can also distinguish in LSF between simple sign and compound signs, which are formed with two signs or a sign and a size and shape specifier (SASS) (cf. Section 8.1.1). For example the sign [MALENTENDANT/hard of hearing] is formed with both [OREILLE/ear] and [MOITIÉ/half] (7a), which are two signs and [ROTI/roast] is formed with a sign [VIANDE/meat] and a SASS, which refers to a cylindrical object (8b).

(7) (a) compound sign [MALENTENDANT/hard of hearing] – 2 signs
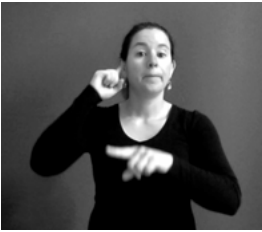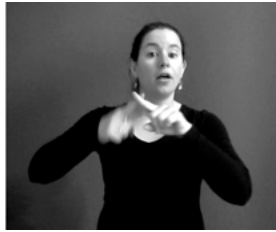
OREILLE/ear.   MOITIÉ/half.

(b) compound sign [ROTI/roast] – 1 SASS + 1 sign
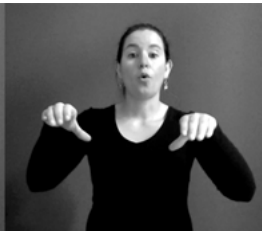
SASS.   VIANDE/meat.

Compound signs are articulated very quickly without any pause between the two elements of the sign. Thus they cannot be confused with the juxtaposition of two independent signs. Compounds are affected by phonological changes such as assimilation (see section "phonology" – Section 6.3).

At another level we can distinguish between proper and common nouns. However, the difference is more semantic than morphological, because the same iconic processes are used in the formation of both types of nouns. For example, to create a proper noun, one has to select one feature:

–   a physical property of a person (e.g., long hair, long nose)
–   a psychological property of a person (e.g., patience, effort)
–   a well-known characteristic of a town (e.g., the Eiffel tower for Paris).

Initialization is often used for the formation of proper nouns. Fingerspelling is used when a sign is not yet established.

It is important to note that, because they refer to a concept, the lexical elements of LSF must be considered as notional elements. However, their grammatical category is not determined *a priori* (Millet 1997; 2002). When the words for signs are written between brackets (e.g., [TRAVAIL/work], [FER À REPASSER/iron], [BALAI/brush], [VOITURE/car], etc.), they do not specify a verbal value or a nominal value. This is referred to as a "verbo-nominal" base. Similarly, signs such as [CHINE/China], [BOULANGERIE/bakery], [BOUCHERIE/butcher] provide no information about the "locative" or animate value of the word. For example, [CHINE/China] can have a locative value (China), or an animate value (Chinese). Because the sign language lexicon is notional, linguistic processes are needed to enable a signer to attribute different values to a sign in a sentence, as we will see below (cf. Section 7.4).

7.2 Distinctive features of signs

Some authors questioned the actual existence of a phonological level in LSF, as mentioned earlier in this chapter. For instance, Cuxac argues that the signs are componential units without a phonological level (Cuxac 2000). In other words, the parameters of signs are semantic units, and therefore there is no duality of patterning.

Other researchers (Millet 1998; Neve 1992; Risler 2000; Voisin 2008) state that the phonological level does exist, and assume that the signs of LSF include parameters at the lexical level, which are « phonological » units. These parameters – Handshape, Location, Orientation and Movement – are phonological classes which are described by researchers working on other sign languages in the world. For a few researchers (Moody 1983 for example) facial expression is another parameter.

7.3 Phonology and phonetics

Boutora (2008) addresses the issues concerned by the study of LSF phonology. Her work focuses on the possibility to take account of the semantic dimension at a low level. The author shows the inadequacy of structural equivalences postulated by classical phonological studies on sign languages, particularly the « sign = word » equivalence. She proposes a new approach, which accounts for the meaning-form relation in sign languages. In addition to her important work, others authors have drawn (Bouvet 1992; Bonucci 1998 among others) an inventory of phonetic and

phonological units (respectively) for LSF, just as it has been done for many other sign languages (see below annexe 1). The number of handshapes varies between 30 and 139 depending on the studies and their phonetic or phonologic perspective (Boutora 2007).

Bonucci (1998) especially addresses the issue of the phonological status of the movement parameter just as Miller (1997, 2000) does for LSQ. Miller argues that only the articulatory/sequential and temporal aspects of movement play a clear role in the phonology of a sign language. This is for two reasons. First, overall dynamic structure (e.g., a feature such as [oscillating]) or geometrical structure (e.g., [arc]), do not behave like other phonological features in contexts of assimilation. Secondly, all path contours and directions, usually described by means of features, can be reduced to sequences of specifications for states of the articulators organized by syllabic structure, thus obviating the need for an additional level of structure.

Miller's syllabic proposals seem in particular to provide the best means for analyzing the rhythmic structure of so-called "secondary" movements. These movements are considered secondary in that they can be combined with the primary path movement of a sign. Thus, in the LSF sign [MONTAGNE/mountain], the path movement (from point A to point B) has a superimposed oscillating twisting movement of the forearm (seen most clearly in the direction in which the palm faces). According to the treatment of the syllable in most models of sign language phonology, these short oscillating movements are treated as a single, indecomposable unit represented by some variety of global features, in which the number of repetitions is considered to be either indefinite or not phonologically significant. Following Miller's proposal for her analysis of poetic register, Blondel (2000) accepts that the number of repetitions is highly variable, but claims that it is nonetheless constrained and in part predictable on the basis of metrical and syntactic structure.

[MOUTAIN].

In LSF too, we observe assimilation processes. In example (8a), the presence of a sign [PARTIR/to leave] in the surrounding of the pointing gesture affects the handshape of the pointing gesture in a regressive assimilation (8b): index handshape turns to a B (bent) handshape. In example (9b), [APRES-MIDI/afternoon] proceeds from an assimilation of orientation.

(8) (a)
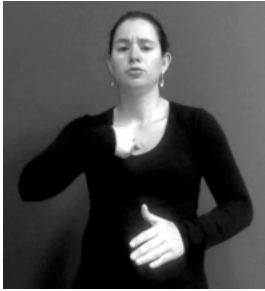
[PT1]   [PARTIR] 'I leave.'

(b) Handshape assimilation
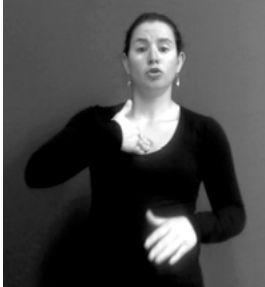
[PT1]   [PARTIR] 'I leave.'

(9) (a)
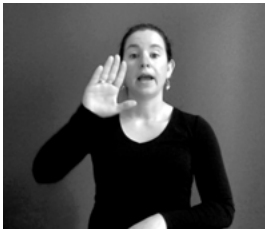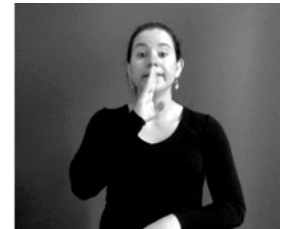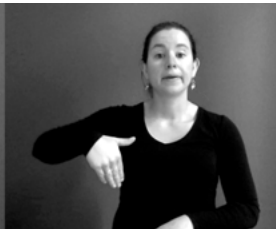
APRÈS/after   MIDI/noon.

(b) Orientation assimilation
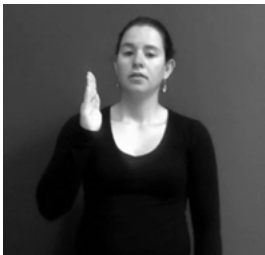
APRES-MIDI/afternoon.
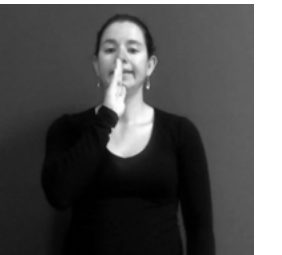
'Signed' prosody has received little attention up until the end of the 90s. The topics addressed so far were the following:

– to attribute appropriate status to manual and non-manual cues (do they both stand at the prosodic layer?);
– to find the right criteria to make the distinction between the paralinguistic markers of the internal emotion state of the signer and the linguistic markers to signal grammatical function.

The question of iconicity in prosody seems all the more complex in sign languages (compared to spoken languages) since the non-verbal and the verbal items are both gestural, and since the iconicity acts "as a major pragmatic constraint in utterance interpretation" (Pietrandrea and Russo 2007: 53). Interestingly, we turn to the questions raised in vocal prosody: discreteness/gradience, segmental/supra-segmental ... and prosodic 'categories'.

Hence, Blondel and Le Gac (2007) argue that it is relevant to look at the sign languages just as one looks at the vocal languages to underline these common properties despite specific channels and claim that intensity, pitch and duration are effective prosodic parameters for either vocal, manual or non-manual gestures. Blondel (2003) makes an assessment of the prosodic means to stress a discourse unit and finds LSF examples to illustrate foregrounding processus. Blondel and Le Gac (2007) address another prosodic issue in LSF that can be considered as the opposite processus: parentheticals. The authors suggest that the prosodic means involved in parentheticals structure (contrasts in the localization and in the rhythmic patterns, shorter duration and amplitude of the movements) are 'gestural' counterparts of the vocal ones.

Limousin and Blondel (2010) explore the prosody of LSF from the very beginning of its emergence. Their longitudinal studies of one deaf child (for Limousin) and one hearing bilingual child (for Blondel) underline the tendencies in the progressive change of the prosodic structures in the two (bilingual and monolingual) longitudinal cases. There is a continuous change in the combination of the sets of manual and non-manual parameters with increasingly distinct boundaries and increased self control over duration, amplitude, and velocity.

7.4 Iconicity and status of parameters

According to many researchers, the four parameters of Handshape, Location, Orientation and Movement therefore have a phonological value. However, Millet (1997) argues that they can acquire a semic value, especially in the creation of lexical families as shown in the Figure 2 below: in LSF signs, the four parameters – handshape, location, orientation and movement – are chosen in relation to the perceptive salience of the referent and the constraints of iconicity, which are specific to gestural modes of expression. When the movement is not iconic, the mere

movement of the hands carries the meaning by articulating the three other parameters. When the movement is iconic, its iconicity is interpreted. Lexical series can be created by varying the form or the force of execution of the movement. The structure of signs and the double status of the movement are represented in Figure 2.
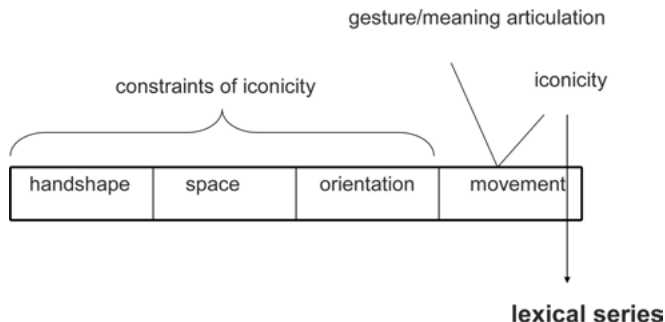
Fig. 2: Manual sign structure.

These basic principles make possible the creation of every sign one needs. The internal mechanisms are grounded in iconicity and allow for periphrases, metaphors and lexical derivation.

7.5 Lexical series

Table 2 (Millet 1997) shows how one of the parameters can be iconically interpreted and so become a morphemic unit. It is a useful and productive process for creating lexical series.

The rule for creating such a series could be: one of the parameters is maintained while another changes. Even though this morphological process is anchored in gestuality and iconicity, it is highly similar to vocal languages' derivational morphology.

Tab. 2: Lexical series [REGARDER/to watch].

SIGN	HANDSHAPE	ORIENTATION	MOVEMENT	LOCATION
[REGARDER/to watch]	« V »	downward	forward	under the eyes
[VISITER/to visit]	« V »	downward	zigzag	variable
[PAYSAGE/landscape]	« V »	downward	half-circle	variable
[LIRE/to read]	« V »	downward	vertical	variable
ETC …				
	↓	↓	↓ - - - - → - - - - ↓	
	MAINTAIN	**MAINTAIN**	**CHANGE**	**CHANGE**

In the Table 2, some examples are given from the lexical series based on the manual sign [REGARDER/to watch].

In this series (Example 10), a change of movement implies a change of location. Sometimes the orientation has to change too, because of articulating constraints.

(10) (a) (a–d), lexical series [REGARDER/to watch].

[REGARDER/to watch]

(b)

[VISITER/to visit].

(c)

[PAYSAGE/landscape].

(d)
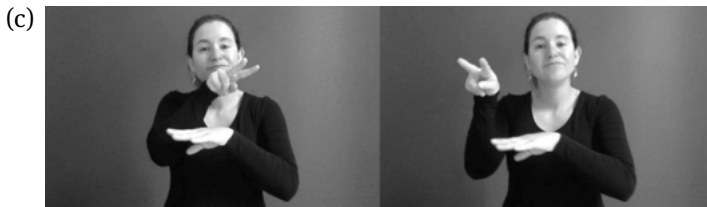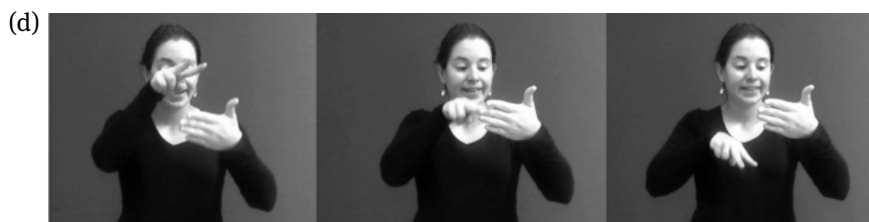
[LIRE/to read].

In other lexical series, the location is maintained. For example, the location near the shoulder on the left on the body refers to the semantic field of "medal". Thus, signs which are supposed to refer to prestigious professions are anchored on this corporal location (Millet 1998).

7.6 Semantic web

The maintenance of one of the parameters can link several lexical series together. This is the case, for example, with the two series [to cry] and [rain], which are related through the handshape referring to [water] (Millet 2008a). In LSF, « rain and tears are the same » (Figure 3), as the old song says.

Those iconic dynamics found at the lexical level play also an important role at the intersection of the morphological and syntax levels, especially when considering the proforms (cf. Fig. 1).
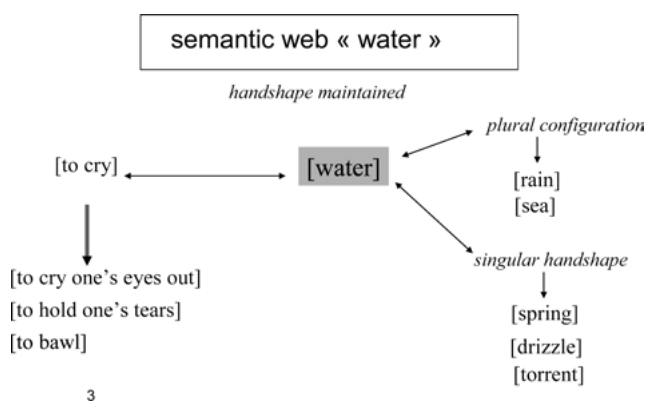
Fig. 3: Semantic web [WATER].

8 Basic syntax

8.1 Interactions between lexical and syntactic level: classifiers

8.1.1 Classifiers, size and shape specifiers, and proforms

For many years, the word "*classificateur*" (classifier) has been used in French to refer to two different phenomena which are now distinguished. The term "size and shape specifiers" (SASS, "*STF-spécificateur de taille et de forme*") refers to a nominal or an adjectival category, which represents the referent's form iconically (Bras, Millet and Risler 2004). Proforms ("proforme") are defined as the manual or corporal elements used with a pronominal function (Engberg-Pedersen 1989).

In the statement 'I buy a lot of bananas' (Example 11a, from Millet 2008b), the element 'a lot' will be given by an SASS referring to the idea of 'pile' or 'heap'.

(11) (a) [ACHETER/to buy]   [BANANE/banana]   [STF/SASS 'a lot'].

In the continuation of the statement, the handshape of the SASS is maintained in the configurations that accompany the movements associated with the verbs. Thus, the SASS acquires the status of an (anaphoric) proform (pr-), as it refers to the object of the verb [APPORTER/to bring] in the continuation of the statement:

  (b) [1APPORTER/bring2 – pr-manual [quantité/quantity]]
    'I'll bring them (the bananas) to you.'

These proforms are included in the general structures generated by verbs, especially in the case of verbs that involve a movement or a path and an idea of prehension. In addition, any element can become a verbal structure through combinations of handshapes and movements, with the movement becoming a sort of light verb. For example:

  (c) [LUNETTES/glasses]. → [METTRE-SES-LUNETTES / put on one's glasses].

  (d) [LAPIN/rabbit].   → [OREILLE-DE-LAPIN – ÉCOUTER / rabbit's ear – listen].

In Example (11d), the change from [LAPIN/rabbit] to [OREILLE-DE-LAPIN/rabbit's ear] involves the reinterpretation of the handshape.

8.1.2 Including proforms in sentences

Thus, handshapes can acquire the status of a manual proforms, which, like pronouns, refer – both anaphorically or cataphorically – to lexical nouns included in global verbal elements of the sentences.

The following rule can thus be stated: a maintained sign handshape ensures syntactic coherence while articulating words and syntax. The syntactic role of the handshape is pronominal, and this handshape becomes a "proforme". For example (12a) 'le verre est sur la table' / 'the glass is on the table' will be signed as follow:

(12) (a) [TABLE] [GLAS] [table-proform _ glas-proform _ proforms contact]

We can also identify a syntactic structure for locative sentences:

[SIGN1] [SIGN2] [sign1-proform _ sign2-proform _ proforms contact]
(*iconic location*)

This structure is also used for sentences including a location linked to a movement or a prehension verb. The verb will be linguistically produced through the movement of the hands (in proform) until the contact of the two hands. Those refer to the two nominal elements of the sentence since they are used as proforms. The new structure can be formalized:

[sign1-proform _ sign2-proform _ VERB movement proforms contact]
(*iconic location*)

For example (12b) 'Je pose le ballon sur la table' / 'I put the ball on the table' will be signed as follow:

(12) (b) [TABLE] [BALL] [table-proform _ ball-proform _ PUT-proforms contact]

To summarize: handshapes, while changing their status, ensure the link between the lexical level and the syntactic level. The syntactic coherence is supported by:
–   maintenance of handshape,
–   spatial iconicity,
–   spatialization of the linguistic elements (especially the signs and the proforms).

We will now present the syntactic role distributed by the iconic movement of the verb, in pre-semantic spaces. This fourth phenomenon involves verbal morphology.

8.1.3 How to define the category of "verb"?

The verb category does not appear at the lexical level in LSF. However, verbal value can be expressed by a lexical element through three different processes: morphological body movements, combinatory elements and morphosyntactic anchorage in space.

It has often been said that a signer indicates a verbal value by more pronounced body movements (Cuxac 2000; Moody 1983). Thus, 'he brushes' is differ-

entiated from 'a brush' by the fact that the body of the signer becomes a corporal proform. Although this body movement may be quite emphatic in narrative discourse, it is much less pronounced in other types of discourse, and therefore it cannot be a determining element for consistently differentiating between a noun and a verb. As a result, sign combinations would appear to provide the most reliable way of determining the verbal value of an element in a sentence.

The morphological variation between the different forms of negation in LSF is a good example of those combinations. In LSF there are (at least) two types of negation: [IL-N-Y-A-PAS / none] (13a) *vs.* [NE-PAS/not] (13b).[9] The first is the negation of a nominal element, whereas the second is the negation of a verbal unit. The use of these two variants allows LSF to differentiate between sentences such as: 'he has no work' and 'he does not work', without using more pronounced body movements.

(13) (a)

IL-N-Y-A-PAS/none (circular movement of the hands).

(b)

NE-PAS/not.

When lexical elements include a path, as is the case for so-called "directional verbs", the start and finish points of the verbs are sufficient for indicating the spaces needed for the actantial reference. In this case, the process is anchored more at a semantic-syntactic level, as the verbs are formed in what we call "pre-semantic spaces".

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9 Millet (2009) Dynamiques iconiques typologies verbales et structures phrastiques en LSF, séminaire fanco-québéquois, 26–27 novembre 2009, Université Stendhal – Grenoble-Alpes. Manuscript.

8.1.4 Morpho-syntactic anchorage in "pre-semantic spaces"

Klima and Bellugi (1979) identified most of these spaces during their early research in American Sign Language. In LSF there are six pre-semantic spaces (see Figure 4), each of which has a clearly defined semantic role (Millet 1997, 2006a). Consequently, this spatial morphology can be considered a form of verbal conjugation.

verbs with path

- ❺ undefined agent = 'one'
- ❻ locative (linked to the verb)
- ❸ animate 1st person agent/patient
- ❶ neutral space
- ❷ animate 3rd person agent/patient
- ❹ inanimate 3rd person goal
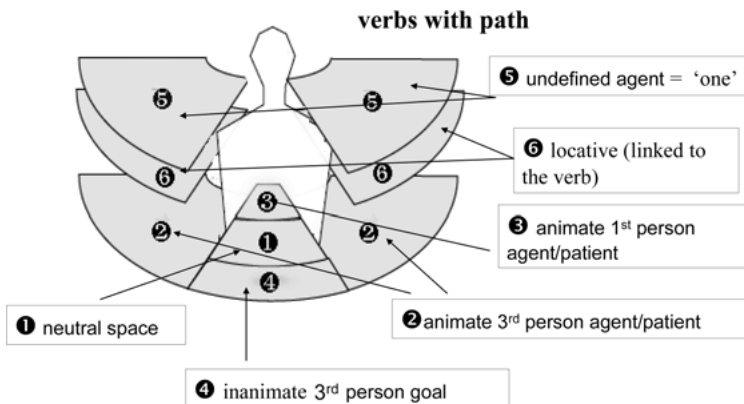
Fig. 4: Presemantic spaces.

All verbs that include a path will be anchored in these pre-semantic spaces. The orientation of the path determinates the agent (starting space) and the patient/beneficiary or locative (arrival space), as shown in Example 14.[10]

(14) verb with path anchored in pre-semantic spaces (pss)
- (a) [PARIS-pss6] [pss2-ARRIVER/to arrive-pss6]
  'he arrives in Paris'

- (b) [LETTRE/letter-pss4] [pss5-ENVOYER/to send-pss1]
  'somebody sent me a letter'

Pointing the presemantic space is necessary when the verb is body anchored and does not include a path, as shown in example 15.

(15) body anchored verbs and pointing in pre-semantic spaces (pss)
[pointing-pss2a] [AIMER/to love] [pointing-pss2b]

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10 For some verbs, generally called "backwards verbs" (Janis 1995; Meir 2002), the path is inverted – e.g., [INVITER/to invite] [VOLER/to steal] [PRENDRE/to take]. Contrarily to Janis and Meir, we argue that the reason of this inversion is semantic. In these cases, the semantic feature "approaching or moving away from the agent" is the salient one.

9 Interesting or unusual features of the language

Recognition of the existence of LSF poetry is relatively recent, as it is true in general for our understanding of the linguistic structure of sign languages. Thus, for example, no records are known to exist of the form of LSF poetry from the 19th century and the only records of deaf poetry from that time take the form of writings produced by deaf authors in French.[11] In the 1970s, the burgeoning of cultural expression within deaf communities brought to light artistic expression in the form of poems and theatrical performances especially in France and in the USA. The history of the IVT (International Visual Theatre) offers a 'French example' of the variety of poetic registers in a face-to-face tradition. Performing art in LSF includes play, dance, poetry, humour, mime, storytelling … Deaf theatre and Poetry serve a dual purpose: deaf culture entertainment for Deaf audiences, and education about Deafness and LSF for hearing people. Humour, theatre, poetry … all these artistic performances belong to the poetic register. As for an illustration of their shared properties, the motifs that Blondel and Miller (2001) have observed in LSF Poetry may also appear, albeit to a lesser degree, in other performance forms including play or poetic narratives (Blondel and Miller 2009). Several actors of the French deaf community contribute to the creation and promotion of the LSF literature. Among others, the Clin d'oeil Festival is an event presenting a cultural panorama about the French and European Deaf creation. Concerning 'deaf humour', Delaporte (1999) gives an overview of the various humoristic performances among the French Deaf community.

As for the contents, much of the literature on deaf poetry in France deals with common themes such as deaf identity, perceptions of the world and feelings of loneliness; but only a few studies have been devoted to the formal description of poetry in LSF. Blondel and Miller (2001) focus on those aspects that more directly concern rhythmic structure. Indeed, it seems that rhythm plays a crucial role in poetic structure, and especially so in poetry addressed to children. For instance, we find the "one, two, one-two-three" routines nowadays in LSF nursery rhymes and in chants (either to support one's team or to protest).

Blondel's (2000) corpus comprises children's poems, performed by deaf teachers, fluent signers, working in schools. Those poems were created either by the teachers for their pupils, or by the children themselves, with some direction from the teachers. As exposed in Section 3.4, LSF is unavoidably in contact with French, and some of the nursery rhymes in Blondel's corpus are adaptations (but not translations) from those existing in the spoken French language. This seems to be an inevitable consequence of living in an oral-centric environment, a fact pointed out by the authors/adapters themselves. Hearing and deaf children share, in part, the

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11 See Bernard (1999), who presents *Poésies d'un Sourd-Muet,* published in 1844 by the Deaf French poet, Pierre Pelissier.

same cultural heritage via themes and topics that appear in poetry. Moreover, poetic processes are similar in both the spoken and signed modes with respect to aspects such as repetition of features (Blondel, 2010) creation of metaphors, and beat patterns. Concerning the hands arrangement, poetry differs from ordinary discourse. In normal signed discourse, only one hand generally takes the dominant role in forming signs and there seem to be certain tendencies in the way the two hands are used, whereas in the LSF poems, the regular alternating motif is comparable to a motif in musical structure. It is clear from Blondel and Miller's (2009) analysis that notions such as balance and symmetry reveal powerful tendencies as organizing principles in LSF poetry and particularly in children's poetry as a distinct register.

10 Examples of words and sentences

In Examples (16a), (16b) and (16c) are presented some examples of existing lexical variations among LSF varieties.

(16) (a)

[MAMAN/mommy].

(b)

[ÉLÈVE/pupil].

(c)
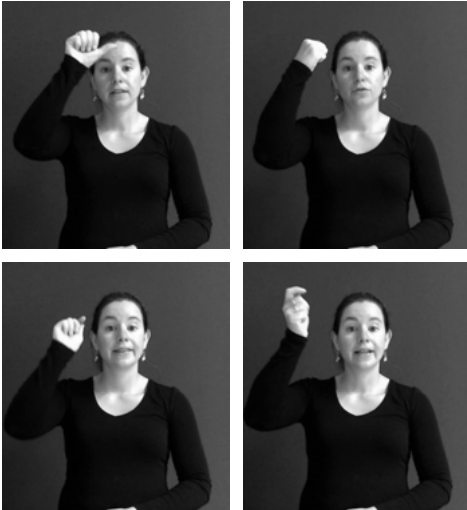
[GARÇON/boy].

Some words
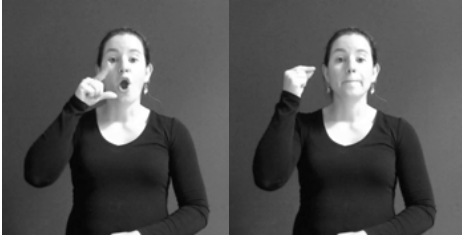
HOMME/man
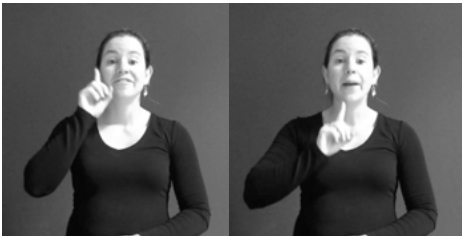
FEMME/woman
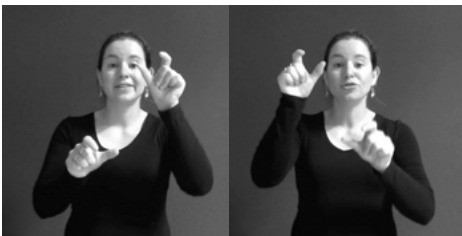
DES-GENS/people
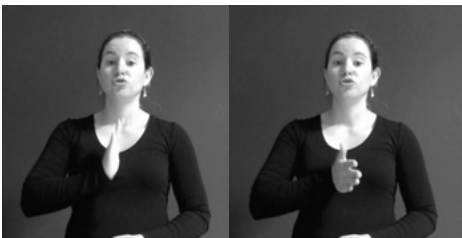
CHIEN/dog (movement ×3)

OISEAU/bird (movement ×2)
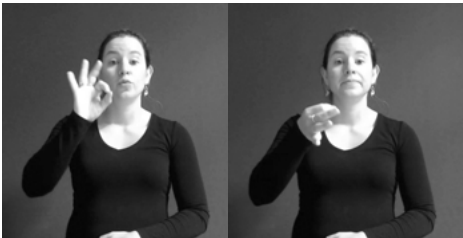
OUI/yes

NON/no
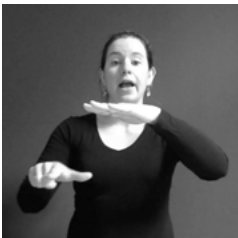
LANGAGE/language[12] (right hand makes 2 circles under left hand)

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12 The French language distinguishes the language one speaks (*langue*) from the core language skills (*langage*). This distinction is also found in LSF and expressed by two separate signs.

LANGUE/language
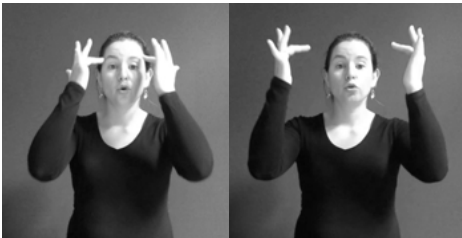
CULTURE/culture
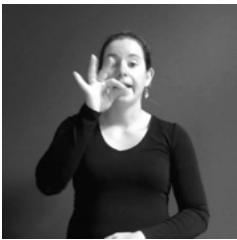
PARLER/speak (movement ×3 from lips)

SIGNER/to sign
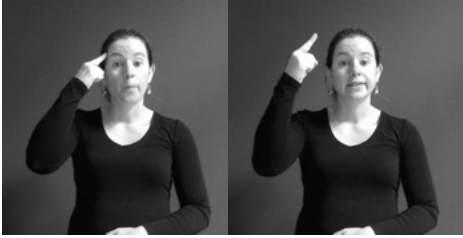
PENSER/to think

Some sentences
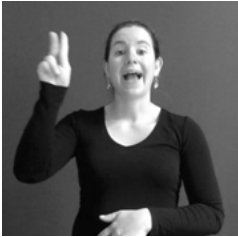
PARIS (mvt ×2) pss6
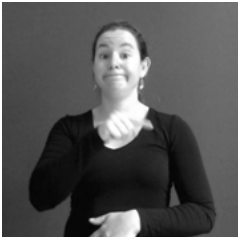
PT3
'He arrives to Paris'
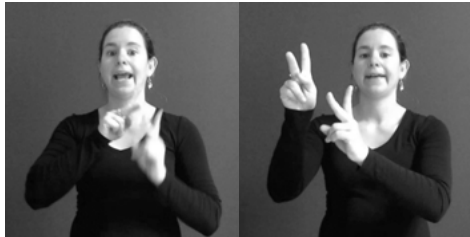
ARRIVER/to arrive

LETTRE/letter
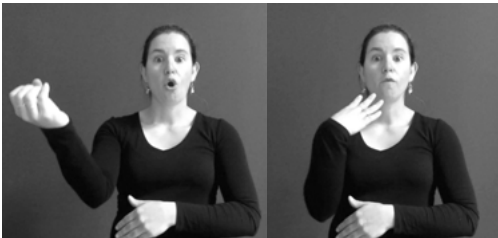
ENVOYER/send (pss5 to pss3).
'Somebody sends me a letter'
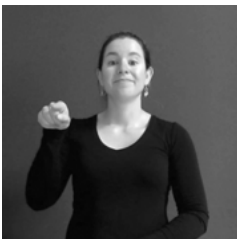
PT3(pss2a)
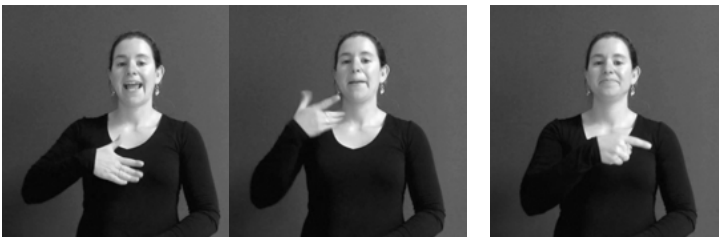
AIMER/love
'He/she loves him/her'

PT3(pss2b)
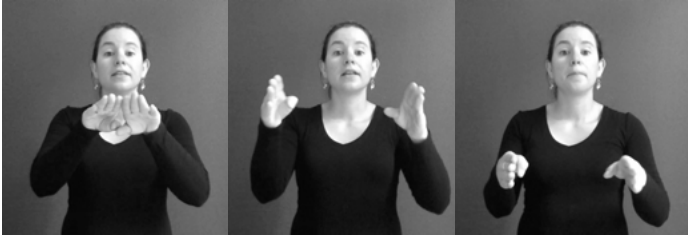
TABLE/table

BALLE/ball   POSER-SUR/put on (pr-ball on pr-table)
'I put the ball on the table'

Acknowledgment

Appendix

Fig. 5: Main static handshapes in LSF (Braffort 1996: 213).

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http://www.websourd.org/
http://www.languedessignes.fr/

LSF Dictionary
http://www.dico-lsf.org/
http://signsuisse.sgb-fss.ch/#
http://www.pisourd.ch/

Transcription of LSF
http://www.signecriture.org

Deaf organisations
Fédération Nationale des Sourds de France – http://fnsf.org/
Fédération Suisse des Sourds – Région Romande, FSS-RR – http://fr.sgb-fss.ch/

Deaf culture
International Visual Theater – http://www.ivt.fr/
Signes TSR – http://www.tsr.ch/signes
Fais-moi Signe (Journal des Sourds de Suisse Romande) – http://www.sourds.net/2010/02/01/site-fais-moi-signe-le-journal-des-sourds-de-la-suisse-romande/

General information for the deaf
http://www.pisourd.ch/
http://www.mains-dire.org/
http://www.cis.gouv.fr/

Education
Deux Langues Pour une Education 2LPE – http://www.2lpeco.fr/
ANPES (1999) Groupe de travail « éducation et scolarisation des enfants et adolescents sourds » http://anpes.free.fr/Educ_Bil/ANPES_scolarite_bilingue.htm
Institut national supérieur de formation et de recherche pour l'éducation des jeunes handicapés et les enseignements adaptés – http://www.inshea.fr/

Schools for the deaf using LSF
http://www.guintzet.ch/instituti.html
http://www.vd.ch/fr/themes/formation/pedagogie-specialisee/enfants-sourds/
http://www.atelier-lsf.net/

Galini Sapountzaki
11 Greek Sign Language

1 Basic Facts about the Language

Language name: Greek Sign Language (GSL); Eliniki Noimatiki Glossa (as pronounced in spoken Greek)

Alternative names: At present, no alternative names.

Location: Greek peninsula and islands; Cyprus, alongside Cyprian Sign Language.

Varieties: Two distinct geographical variations, southern and central/northern, which do not have such extensive differences as to be considered dialects. The main difference between these two varieties is in school vocabulary items, such as colours, months, numerals etc. Additionally, there is a spectrum of two sociolinguistic varieties with more or less on spoken Greek influence. The main trend is for the older Deaf to use the more autonomous sign language structures, while younger Deaf use a variety with more influence of spoken Greek in the lexicon and semantics, as well as in syntactic structures. In this section the older sign language variety will be described.

Number of signers: The Greek Deaf Community has about 40,000 users, many of which are L2 users. Recent estimates (Lambropoulou 1999) state that about 12,600 of these are young Deaf sign language users.

Organizations:
> Greek Federation of the Deaf
> Greek Sports Federation of the Deaf
> National Institute for the Deaf
> Regional Deaf Associations and Social clubs
> Deaf Studies Unit, Patras University
> (for a full description, see political and social context)

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2 Origin and history

GSL in its present form has roots on the one hand in ASL and LSF due to school influence, while on the other hand it relates to various indigenous sign languages of smaller geographical regions in the Southern Balkans and Middle East, which aren't officially documented. An older form of GSL must have been used among deaf pupils of Asia Minor and it most probably merged with the above-mentioned varieties in 1923, when ten deaf orphan children from a boarding school in Asia Minor moved to the first school for the deaf on the island of Syros (Lampropoulou 1994a). This was the point in time when pre-existing varieties finally settled to form one language, around the 1950s (Kourbetis 2005).

Taking a long step back to ancient times in Greece, there is almost no evidence of Deaf education in ancient Greece. Judging from scarce references, ancient Greeks considered Deaf people to be very difficult to educate. Some other sources indicate that Deaf people used sign language; it was acknowledged that Deaf people communicated with each other through signing: Ctesias (late 5th century B.C.), a Greek doctor at the court of Artaxerxes, likens an Indian tribe's signing to the signing of the deaf saying: "These people (Indians) cannot talk with each other but they communicate by signing with their hands and fingers, just as the deaf and dumb do." (Fragmenta, 3c, 688, F. 45.351). During the Byzantine period, according to Lazanas (1984), there was provision for deaf children through social programs of the time in the form of asylum provision, but there is no evidence of possible deaf education policies. There is no readily available evidence of the status of sign language in Byzantine years. However, a short note on St. Markos' life gives an important hint: although he was deaf, he was assigned full sainthood status, which is the highest possible spiritual level, the note on his life reading that he could "hear the word of God, albeit not earthly sounds". Returning to recent decades, a member of Parliament and later Minister of Health and Welfare (1964–1974) named Andreas Kokkevis had a deaf daughter himself. He supported legislative and educational measures in favour of deaf children and his wife Iro Kokkevi established the first private school for the deaf in 1956. Amalia Martinou, a devoted teacher with a strong oral communication policy, was the owner and director of the school throughout her life. In 1986 the school was transferred to the public sector, as "Primary and High School for the Deaf and the Hard of Hearing in Argyroupolis". In approximately the same period another private school establishment was founded by Sofia Starogianni, mother of two deaf sons, in 1973, under the direction of a dedicated language teacher, Victoria Daoussi. This school was not as strongly oral as the Martinou school, and like the Martinou school it was transferred to the public sector in 1982 under the auspices of the National Institute for the Deaf. Graduates and employees of the Martinou-Argyroupolis school today use a form of GSL that is slightly more influenced by Greek than graduates of the Starogianni school.

3 Bilingualism and language contact

Spoken Greek has undoubtedly influenced Greek Sign Language in almost all levels in its grammar, lexicon, compound formation, and syntax to an extent. This is due to language contact phenomena found in all minority language situations; also due to the insufficient level of GSL proficiency by those involved in Deaf education; During the 20th century schools were prompted to use oral methods only, as mentioned above, but informal signing, while suppressed, continued outside the classrooms and in boarding schools. A key factor for the preservation of sign language in deaf institutions were Deaf adults working in institutions for the deaf, such as cooks, child attendants etc. Although these staff members had usually only received primary education in academic terms, they served as positive and strong role models for the deaf children under their care. Especially before the introduction of sign language interpreters for news broadcasting, Deaf adults in deaf schools were the primary gate-keepers to both hearing and Deaf communities for deaf children.

Total Communication as a communication policy in deaf school settings was introduced officially in 1984. In 1986 the first infant program that could introduce sign language to families of deaf children was established in the three largest cities in Greece, as part of the intervention policies launched by the National Institute for the Deaf. A recent report on communication policies in Deaf school settings (Lambropoulou 1994) shows that all schools under the National Institute for the Deaf use Total Communication, while fifteen other school units are reported as oral. Even in Total Communication environments, the key words are signed, very little fingerspelling is used and spoken Greek is always present (Kourbetis 1999). Some significant changes towards bilingualism of the Deaf in educational policies took place in the National Intsitute for the Deaf in the 1990s under the direction of Dr Vassilis Kourbetis, and they have been further promoted through his initiatives in the Pedagogical Institute since 2000. As of 1995 a small but increasing number of deaf teachers work in deaf schools (Lampropoulou 1995, 1999). However, it was only in 2000 that "some knowledge of GSL" was required in order to enter Deaf education, and not until 2008 that "proficiency in GSL was required". Of course, this legislation only applies to younger professionals entering the field. Regarding bilingualism, although many steps have been taken towards its implementation in Greece it is not yet clearly stated as a language policy in most deaf schools. Deaf students' participation in tertiary education was low and problematic, at least until the advent of the 21st century, when a small but growing number of units in tertiary education started providing deaf students with interpreting programs for sign language. Such programs had started much earlier (in late 1980s) but failed due to shortcomings in terms of the infrastructure required.

Standardization

In 2000 Special Education Law 2817 recognized GSL as "the language of deaf and hard of hearing students". Greek sign language interpreters are slowly being assigned professional rights, although their training is still not standardized. But, as of 2014, there is as yet no central committee towards standardization of Greek Sign Language in operation. Some members of the older generation of deaf signers may still refer to their language as "miming", "hands" or "signs", and not as "language". On the other hand, some of the Deaf founders of the first Deaf Clubs can describe how standard Greek sign language developed during the post 2nd World war years as a combination of signs developed in the first schools for the Deaf and the sign language a French-trained Deaf adult (Vassili Smirneos) brought to Greece (Panorios Petros, DOB 7/18/1919, personal communication with permission, as cited by Kourbetis and Gyrtis 2004; also, Quer et al. 2007). Since the 1980s however, Deaf users do have the confidence to state that they share the same language.

As mentioned in the beginning of the chapter, for GSL no major dialectal variation has been documented. This is not to be confused with two different sign languages existing in the broader region, which are not part of the present study: a) some non-organized groups of deaf individuals of gypsy origins are anecdotally reported to use a different sign language; b) likewise, Deaf people in Cyprus are also reported to use a completely different language, which is currently under serious threat of extinction due to the expansion of Greek Sign Language in recent years (Papaspyrou 2010). Overall, the mainland Greek Sign Language as described in this chapter is a viable language, although the means of communication in sign language have changed; members of the Deaf community do not meet as often in Deaf Clubs and Schools for the Deaf are closing down, with numbers of students decreasing. However, social media, sports and art provide a strong link for social connection between the Deaf, and physical travel from one region to another in order to meet with other members of the Deaf GSL community has become much easier.

4 Political and social context

Greek Sign Language was officially recognized by law 2817 in 2000. The political context before GSL recognition and before recent technological developments was similar to other sign languages; Deaf clubs, educational institutions and associations, as well as individual Deaf families were the main islands of linguistic preservation of GSL. The first Deaf club to be established was the Greek Union of Deaf-Mutes, now called Greek Union of the Deaf, in 1948. This also founded the first Deaf newspaper in 1956 (under the title *Problems of Deaf Mutes*) which was soon discontinued due to shortages in funding and poor coordination. In 1954 Iro Kokke-

vis and Sofia Starogianni (both very actively involved in the establishment of deaf schools) formed the Organization for the Welfare of the Deaf. The Greek Federation of the Deaf was established in 1968 and as of 2014 has 19 member clubs. A little earlier than this, in 1963, the club Prophet Zacharias, Friends of the Deaf Mutes, was founded, which initiated the first sign language lessons and compiled the first GSL dictionary, presented by a Deaf man. At that time, also, there was an attempt by the government to ban deaf marriages, which would have harmed social bonds of the Greek Community of the Deaf Bishop Nikodimos, a GSL user, was the first to bless weddings of Deaf couples and undertake pastorship of young Deaf families.

Two Associations of Parents of Deaf Children were founded in 1965 and 1980 and made a significant contribution to the improvement of deaf education, by assisting the deaf organizations and putting pressure on the government. Nowadays, though, there seems to be a change in the way parent organizations react to the communication choices of Deaf individuals and members of the Deaf community. In addition, current policies concerning cochlear implantation do not tend to offer sign language to the implanted infant after the intervention. Many of the implanted individuals only join the Deaf community in their early twenties, becoming members with a less clearcut Deaf identity, and possibly re-creolizing GSL (Josep Quer, Laura Mazzoni and Galini Sapountzaki 2010).

Theatre is an artistic means of dissemination of Greek Sign Language and of empowerment of Deaf identity, as happens in other Western Deaf communities. The Greek Theater of the Deaf was established in 1983. Its impact on the development of GSL was immense, as this was the first time that Deaf people used their language in order to express themselves artistically and in public (Josep Quer, Laura Mazzoni and Galini Sapountzaki 2010). Three more amateur theater organizations sprouted between the years 2000 and 2010, with an increasing impact not only on the Deaf Community but on the hearing audience as well.

Television was the first means to facilitate GSL use outside real time or physical face-to-face communication. Since the early 1990s daily news slots in GSL have been established. A new cable television channel called Prisma addressing citizens with special needs was launched in 2005, offering a variety of broadcasts for more than 12 hours daily. All this was accessible to the deaf audience through real time captioning in Greek and simultaneous GSL interpretation in video windows (Josep Quer, Laura Mazzoni and Galini Sapountzaki 2010). Unfortunately the whole program had to close down in 2013 due to the economic crisis and worse still, archives of the sign language videos produced for Prisma channel are as of 2014 no longer available to the public.

5 The structure of signs

5.1 Basic morphology and lexicon

By and large, the morpho-phonological structure of GSL is similar to that of other European Sign Languages of the same branch. Some selected features of in structure are described below.

5.2 Personal pronouns

The most usual personal pronouns in GSL are in the form of indexes, as in other related signed languages of the French family. Indexicals exploit points signing space in front of the torso for marking immediate referents, as well as upper space points at shoulder level for non-immediate referents. Besides plain indexical pronominals, there are morphological mechanisms of multiple sub-points in a single marked point of space for plurals of identifiable units, as well as allomorphs of handshape from INDEX to B-hand, for plurals of cumulative groups. One last manual form of a pronominal is the sign glossed as INDIVIDUAL/SELF in GSL corpora, for identifiable human entities, which occupies points in signing space following the same syntactic rules. Eye gaze is also a distinctive feature between manual pronominals. Lastly, torso/shoulder leans can be morphemes for person marking, too, especially in fast signing and when referents have previously been established (Efthimiou et al. 2004; Sutton-Spence and Woll 1999).

5.3 Noun morphology

In GSL, gender (see Figures 1–3) is not an obligatory category, and is not marked on nominals. A base nominal sign is usually used in conjunction with a verbal one of the same morphological root (sharing similar semantic properties); this is one of the most fundamental rules in noun morphology in many other sign languages in the same family as GSL, the type of movement to be the one distinctive feature between a verb and a noun as members of a given morphologically marked word family. Plural (see Figures 3–5), also, is marked through movement type (see Section 5.6 below). Compounding of a morphologically complex new noun is realized in GSL through two main processes; either two plain nominals fuse into a) a new dissyllabic nominal form consisting of a single syllable of each component, for example *masculine + sibling = brother*; or b) a monosyllabic fragment of a nominal marking a semantic category and of a *sass* classifier combine to form a compound, for example *house + outside-area = yard*. The latter case is the most common way for the formation of neologisms. Note also that fragment components of the neologism may appear simultaneously one on each hand, as for example in the novel

sign for *YOU-TUBE*, which is formed statically by signing the fingerspelled letter for Y on the non-dominant hand and MOVIE on the dominant hand, both located in the centre of the torso.

Morphemes with adjectival properties like *nice/good* can be formed by incorporating the adjectival value on the nominal head morpheme by means of an appropriate mouth gesture. For example, for the aural string *nice apple*, the GSL equivalent involves signing the head *apple* while simultaneously performing the mouthing gesture that corresponds to the qualitative adjective (*nice*). In a similar fashion, *walking comfortably, eating nicely* etc., in GSL are expressed through a single morpheme, with adverbial information superimposed on it by means of appropriate and specific facial expressions.

Examples
Manual sign GIVE-BIRTH + MALE

Fig. 1: Translation: Son.

Manual sign GIVE-BIRTH + FEMALE

Fig. 2: Translation: Daughter.

Manual sign SIBLING + MALE + FEMALE

Fig. 3: Translation: two siblings, a boy and a girl.

Manual sign GIVE

Fig. 4: Translation: you give me.

Manual sign GIVE

Fig. 5: Translation: I give you (plural).

Manual sign (2 HANDED) GIVE

Fig. 6: Translation: You (plural) give me.

5.4 Compounds

Compounding and derivation are attested in GSL corpora as morphosyntactic patterns, based on semantic properties. For example, use of the base morpheme *masculine* along with a number of bound morphemes produces the signs for *man, boy, uncle and brother* (see Figures 1–2). A more indicative example for the use of this kind of coding in sign language environment is provided by the use of the base morpheme *surface* in the creation of the signs for *table, field* and *yard*. (Efthimiou et al. 2004; Efthimiou, Fotinea and Sapountzaki 2006; Sapountzaki 2003; Sapountzaki et al. 2007).

5.5 Verb morphology

Verbs in GSL morphologically inflect for Aspect, Mood, Modality, Agreement, and sometimes Number/quantity in general terms conforming with what holds for other related sign languages. Means for inflection are: type and size of movement, direction, reduplication, use of space for Agreement, as well as facial expressions, head and shoulder movement (see Figures 7–8) and eye-gaze prosodically co-articulated with non-manual markers of mouth patterns, Aspectual values on predicative heads provide a typical example of behaviour of a sign language in this respect. "Durative aspect" indicates that the sign movement continues for longer than default in order to express durative aspect. "Diminutive aspect" signifies small span of movement to indicate minimal action/event (i.e. with predicative signs such as *it-is-blowing, I-walk, I-speak, I-eat* etc.). "Intense aspect" marking requires bigger span and abrupt pauses in movement in order to indicate intensity (i.e. with signs as *feel-a-pain, it-rains* etc.). "Repeat aspect" marking requires to repeat the sign movement with interval pauses (i.e. with signs as *ask* or *travel*), whereas the feature "syntactic movement" is related to verb declination of the so called verbs of agreement (i.e. *ask, scold, pay* etc.), a group where sign formation obligatorily in-

corporates the subcategorization frame of the head predicate. Different aspects can be mutually exclusive or can occur simultaneously on a given predicate.

Adverbials can also be morphologically incorporated into the verb stem by non-manual modifications, with similar processes as those described in the section of adjectival incorporation of noun morphology. Classifier predicates in particular modulate for opposites (see Figure 9) with a clustering of parameters which incorporate mirror image movement as in the case of the *open – close* or *go away – come here* signs, and change of orientation as in *go-upstairs – go-downstairs* or *upwards – downwards* for opposite formation. (Efthimiou et al. 2004; Sapountzaki et al. 2010; Sapountzaki et al. 2007; Sapountzaki 2003; Efthimiou, Fotinea and Sapountzaki 2006).

Examples
Manual sign WATER

WATER + quantifier (LARGE)

Fig. 7: A lot of water (in a container).

WATER + quantifier (SMALL)

Fig. 8: A little water (in a container).

Manual sign WANT+++ ____neg

Fig. 9a: WANT.   **Fig. 9b:** WANTneg.

5.6 Reduplication

Reduplication in GSL is a morphological pattern for expressing a) verbal aspect for repetitive, habitual or continuative, as well as b) one of the ways of expressing plural in nominals; other ways for plural formation are through numeric values or "two-handedness" of single-handed base signs. Repetition may be accompanied by changes in space. (Efthimiou et al. 2004; Sapountzaki et al. 2007; Efthimiou, Fotinea and Sapountzaki 2006).

5.7 Derivational morphology

The linguistic system of GSL, as with any other given language consists of a) a lexicon and b) a set of structured rules utilizing strings of morphemes to compose derivatives and/or core clauses. In the case of derivation these morphemes are bound, and usually of non-linear modality in GSL, i.e. they combine with the base sign as multiple simultaneous layers.

The main derivational processes are described in the section on noun morphology, above. A specific feature of derivatives as polymorphemic signs is worth mentioning here; adjunct morphemes are allowed a) to be linearly attached on base morphemes to provide for cumulative or derivational morphology information or b) to add information requiring multilayer processing, related to the various lexical and grammatical functions of non-manual features. A further marking on base morphemes signifies the differentiation between verb – noun grammatical categories as mentioned above on nominal morphology, i.e. by movement repetition and/ or modification as regards speed and size. The examples *love* (verb) – *love* (noun), *sit – chair* and *eat – food* constitute typical pairs of this type. Similar production rules apply between other typological categories, which are sometimes still unclear in GSL, as is the case of *grow-up* versus *adult*. It is yet to be determined whether the former, or the latter, is the base sign in GSL.

6 Basic Syntax

Topic-Comment (see Figuers 10–13) prominence is a fundamental rule in GSL structure in all levels of the grammar; parts in a main sentence, types of sentences (mainly interrogation and negation), noun and verb clause formation have a default Topic-first order. Topics in unmarked sentences in GSL are sentence or phrase initial and stand for nouns for concrete entities or place specifiers, accompanied as a rule by eyebrow raising and pause for topic marking. Comments, respectively, are either verbal, pronominal or adjectival attributes to these comments. Moreover, in Comment position forms and functions of classifiers are observed with verbs of movement and verbs of location, similar to patterns of other sign languages of the European branch.

The functions of simultaneous constructions, role shifts and non-manual elements are similar to those of other related sign languages. (Efthimiou et al. 2004; Efthimiou Fotinea and Sapountzaki 2006; Sapountzaki et al. 2010).

Examples
Manual sign CHILDREN

topic	question
CHILDREN	HAVE

Fig. 10: Do you have children?

Manual sign CAR

topic	comment
CAR	quantifier (LARGE)

Fig. 11: A big car.

Manual sign BOAT

topic		comment
BOAT	ONE	entity cl. $loc_{o \to c}$

Fig. 12: A/one boat is sailing away.

Manual Sign COFFEE

___topic1___	___topic2___	___comment2___	___comment___
FRAPPE	COFFEE	ONE,	PUT (handl.cl.)

___comment___	___comment___
SHAKE (handl.cl.)	STIR (handl.cl.)

Fig. 13: I make frappe coffee with one teaspoon of coffee, two teaspoons of sugar and a lot of milk and at the end I mix it up well.

Personal names

As observed in other sign languages, GSL name signs do not necessarily and in fact often do not relate to the name of a given person in the spoken language. First of all, not all people (or places) have a sign name unless they are significant for the Deaf Community. For this reason, it is always interesting to see the roots of any sign name; giving information on how one obtained his/her sign name is indeed a very common *ice-breaker* when two people first meet, and it reflects the importance of a sign name in GSL. It is understood that this name is not given at birth, except in rare cases. In the Greek Deaf community Deaf children most usually obtain their name signs mainly in school from a leader of the children's group (Kourbetis and Hoffmeister 2002). Since the beginning of the 21st century, when many of the deaf schools and classes closed down, a common way of obtaining a sign name has been through Deaf peer groups in late teenhood, or in evening sign language classes, where hearing or deaf students learn GSL as a second language.

Any visible trait in one's behaviour or appearance can be a trigger for a descriptive sign name, as long as it is fast to articulate, pertinent and non-offensive. Ini-

tials of one's name in spoken language are increasingly being used for sign names, especially among late signers. In these cases, the handshape of an individual's initial is assimilated with the location, direction and movement of the sign for a visible characteristic of that individual; for example, the handshape for K located next to the eyes can be the sign name for someone with characteristic eyes, named Katerina. Arbitrary sign names that do not stem from any visible characteristic are quite common, too, especially among late signers or hearing newcomers in the Deaf community.

7 Interesting or unusual features of the language

While GSL shares most features of its structure with other related sign languages, phonological realization of negation is an exception; while most other sign languages of the French – European branch realize negation through the non-manual marker of a side-to-side headshake, in GSL one of the three attested non-manual markers of negation, probably the most common one, is a backwards head tilt. This exception is worth noting, as most other non-manual markers are transparent across users of French – European sign languages (Antzakas and Woll 2002).

8 History of research

The first study of sign language structure by a Greek researcher was not before 1990, when Dr Chryssostomos Papaspyrou, the first Deaf linguist in Europe, published his doctoral thesis on sign language universals. On an institutional level, the only related university unit in Greece as of 2014 is the Deaf Studies Unit established in the Elementary Education Department in the University of Patras by professor Venetta Lambropoulou in 1988. The Unit offers both undergraduate and postgraduate degrees, attendance requires proficiency in GSL use and the educational policy it supports is bilingualism between GSL and spoken Greek as two separate languages of equal status. Its importance for GSL matters was undoubtedly immense during the last decades of the 20th century. At more or less the same time, in 2004, a team led by Dr. Vassilis Kourbetis in the Pedagogical Institute developed a Greek Sign Language teaching curriculum for Deaf students in elementary education. The study of Greek Sign Language theory and applications in teaching it as a second language are part of GSL teaching in the undergraduate curriculum of the Pedagogical Department of Special Education in the University of Thessaly, Volos. Studies of GSL in Thessaly University and in collaboration with European projects include aspects of morphology, typology, syntax and semantics of GSL, as well as teaching methodology of GSL as a second language (Sapountzaki

2003; Efthymiou, Fotinea and Sapountzaki 2006; Sapountzaki et al. 2007). In short, theoretical research on the grammar of GSL has been limited until recently and in most reported cases it involves fragmentary analysis of specific phenomena of its syntax (Antzakas and Woll 2002; Sapountzaki 2003; Efthimiou et al. 2004; Efthimiou, Fotinea and Sapountzaki 2006; Sapountzaki et al. 2007; Sapountzaki et al. 2010). Therefore, a major tutoring difficulty is identified in the lack of a concise grammar handbook of the language.

The most significant ongoing contribution in theoretical research on GSL is by the Institute for Language and Speech Processing (ILSP) in Athens, an institution with rich experience in language resources collection which has been systematically gathering pure linguistic productions and storing them electronically for easy retrieval and analysis. Research projects and applications of GSL documentation, of both a descriptive and explanatory or regulatory nature have been running since the 1990s under the supervision and planning of professor Eleni Efthymiou in order to set the theoretical analysis based foundations of GSL grammar (Sapountzaki gsl documentation; Efthimiou et al. 2004; Efthimiou, Fotinea and Sapountzaki 2006), as well as to construct regulatory grammar textbooks for school use (Sapountzaki et al. 2007). Such projects include the development of two dictionaries with word classification according to GSL morphology and semantic grouping (Noema, and Children's Dictionary of Greek Sign Language); a DVD-ROM with basic lexicon formation rules in GSL for use in the first classes of primary school and an interactive platform for synchronous or asynchronous use with basic vocabulary and formation rules, designed specifically for students that are isolated from deaf peers, as well as for their non-signing teachers or carers. Language planning issues are addressed appropriately, according to guidelines that hold for all cases of vocabulary adaptation and borrowing, towards the creation of new terms. In order to be as safe as possible, the processes of linguistic documentation for GSL are in accordance with formally certified, standard processes of documentation. These involve: a) the recording of terms already in use by the Deaf Community, b) the expansion of meaning of existing terms or colloquial signs, c) the creation of new terms (usually compounds) based on existing root morphemes, and on existing grammatical rules.

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12 Ha Noi Sign Language

1 Basic facts about the language

Language name: Ha Noi Sign Language, ngôn ngữ ký hiệu Hà Nội
    The name in the sign language appears in Figure 1.

Fig. 1: Language name in Ha Noi Sign Language.

Alternative names: HNSL, NNKHHN, Vietnamese Sign Language, Northern Vietnamese Sign Language.

Location: Used in Ha Noi and the provinces surrounding Ha Noi, Viet Nam as shown in the map in Figure 2.

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Fig. 2: Map showing the area where HNSL is used in Ha Noi and the provinces surrounding Ha Noi, Viet Nam within the larger context of Southeast Asia.

Varieties: Minor lexical differences throughout the area that uses this sign language. The variety described in this paper is used in Ha Noi proper and by Deaf adults from Ha Noi who are students in junior high school, in senior high school, and university at The Dong Nai Deaf Education Project at Dong Nai Provincial Teacher's College.

Number of signers: Since there has never been a census of deaf people in Viet Nam, the real number of signers is unknown. However, some estimate of the number of signers can be made. The website at www.citypopulation.de/Vietnam.html lists the population of Viet Nam at 85,789,573 for 2009. The population for the area where Ha Noi Sign Language (HNSL) is used (see above) is 38,878,427. Using United Nations estimates of 1 person out of every 1,000 person born profoundly deaf or becoming profoundly deaf at an early age, there would be an estimate of 38,878 deaf people living in the area where HNSL is used. The estimated number of users of HPSL is up to 39,000 users.

2 Origin and history

HNSL initially developed out of a mixture of original sign languages in Ha Noi with Ho Chi Minh City Sign Language (HCMCSL) used at Lai Thieu School for deaf people in Binh Duong Province in Southern Viet Nam. The Lai Thieu School, established in 1886, was the first and only school for deaf people in Viet Nam until 1976 when a second school was established in Hai Phong in the North of Viet Nam.

Since the Lai Thieu school was established in the South of Viet Nam, more than 1,000 kilometers from Ha Noi, it is likely that only a few students from Ha Noi went to the Lai Thieu School and brought HCMCSL to Ha Noi. Even though, these bilingual deaf people were small in number, there were some effects on HNSL. Some signs of French origin in HCMCSL made their way into HNSL, such as NAME and PIG. However, other signs of French origin in HCMCSL, such as BLACK, and TELL-A-LIE did not jump from HCMCSL into HNSL.

Viet Nam was partitioned into two separate countries from 1954 to 1975. During this time deaf people from Ha Noi had no opportunity for education either at the Lai Thieu school for deaf people in "South Viet Nam" or in Ha Noi. The first school for deaf people in Ha Noi was established in 1978. The 21-year separation of users of HNSL from users of HCMCSL, linked with the 21-year lack of educational opportunities for deaf people in Ha Noi also had effects on the history of HNSL and its relationship to HCMCSL.

One study (Woodward 2000) has used the Swadesh word list modified for sign language research to compare the basic core vocabulary in HNSL with the basic core vocabulary of other sign languages in Viet Nam. HNSL and HCMCSL have a 58 % rate of similarity in basic core vocabulary, and HNSL and Hai Phong Sign Language (HPSL) have a 54 % rate of similarity.

3 Bilingualism and language contact

Almost all schools in the northern part of Viet Nam are oral only or use some simultaneous communication. One program in Ha Noi at the National College of Education has indicated it will start using HNSL as it is used by fluent Deaf users (and as HNSL is described in this article). This program, The Nippon Foundation funded project entitled "Ha Noi Deaf Education Project", will use the bilingual philosophy and methods of the highly successful Dong Nai Project described in the article on HCMCSL in this book.

4 Political and social context

4.1 Other sign languages in Viet Nam

As mentioned earlier in this paper, in addition to HNSL there are at least 2 other major sign languages in Viet Nam: HCMCSL and HPSL. HNSL has a 54 % rate of similarity in basic cored vocabulary with HPSL and a 58 % rate of similarity in basic vocabulary with HCMCSL. It should be noted that these percentages are lower than the percentages of similarity in basic core vocabulary between French Sign Language and American Sign Language (62 %).

Ha Noi signers who have come to the Dong Nai Project and learned HCMCSL as a second language say that it took them about 6 months of interaction before they felt completely comfortable in their interactions with fluent users of HCMCSL. These Deaf people, along with many others, prefer bilingualism to standardization. However, the Vietnamese government advocates standardization to bilingualism, and the Vietnamese government is attempting to create a "unified" sign language, something that many Deaf people do not want.

Currently the Vietnamese government is preparing a law for people with disabilities based on the UN Convention on the Rights of People With Disabilities. While it is known that sign language or sign languages will be mentioned in the law, but it is not know at this time what information about sign languages in Viet Nam will be included in the law.

4.2 Organizations

There is no national association of Deaf people in Viet Nam. However, The Ha Noi Association of the Deaf in Ha Noi (www.deafhanoi.com) attracts many users of HNSL.

5 The structure of signs

HNSL, like all sign languages, has a sub-lexical level of structure analogous to but not dependent on the phonological structure of spoken languages. Handshapes, orientations, locations, and movements, and non-manual expressions follow expected patterns found in other sign languages. Figure 3 shows a chart of handshapes that occur naturally (not dependent on fingerspelling) in HNSL.

Fingers	closed	closed bent	open	extended	extended bent	rounded	rounded tapered	contact	contact tapered	inserted
0										
0										
1 (I)										
1 (P)										
2 (I+M)										
2 (I+M) Spread										
2 (I+M) Crossed										
2 (I+P)										

Fig. 3: Handshapes that occur naturally in HNSL.

The HNSL manual alphabet (letters and diacritics) for the Vietnamese alphabet can be seen in Figure 4 and Figure 5. There are two ways that the diacritics are represented when fingerspelling is used: 1. the earlier way in which all letters are spelled and then all diacritics are added after that and 2. the more recent way in which diacritics are added immediately after the letter they refer to.
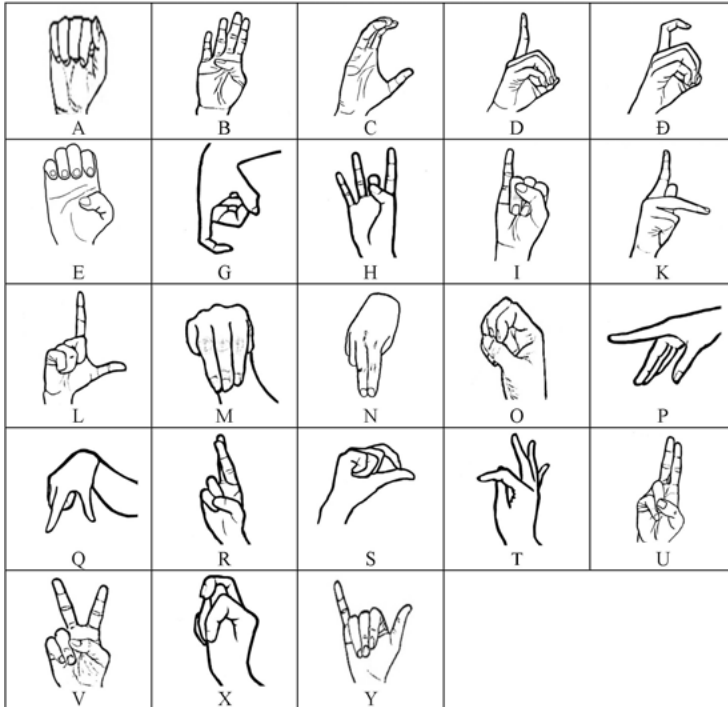
Fig. 4: Letters in HNSL fingerspelling.
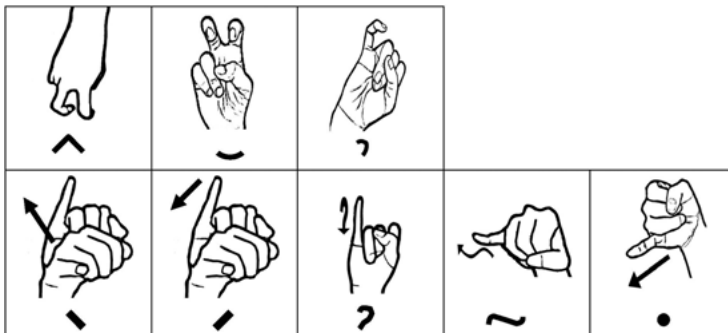
Fig. 5: Diacritics in HNSL fingerspelling.

5.1 Phonological Processes

HNSL exhibits all the common phonological processes and change found in the world's sign and spoken languages: coalescence, deletion, assimilation, compensatory lengthening. No examples yet have been found for less common processes of epenthesis, dissimilation, and metathesis. Oldest and newest signs for days of the week, such as Monday shown in Figure 6 illustrate these changes.

Fig. 6: Oldest and newest signs for Monday in HNSL.

- Assimilation of V handshape from second sign to first sign.
- Coalescence occurs because two signs become one sign.
- Deletion of second sign (including second location).

Compensatory lengthening (circular motion is repeated) to compensate for deletion of the second location in the second sign.

6 Basic morphology and lexicon

It is interesting to note that the difference between "February" ("Noun + Numeral") and "two months" (Numeral + Noun) is expressed by word order in spoken/written but by separate lexical items in HNSL as shown in Figure 7.

| FEBRUARY = | MONTH (1) | TWO |

| TWO MONTHS = | MONTH (2) | TWO |
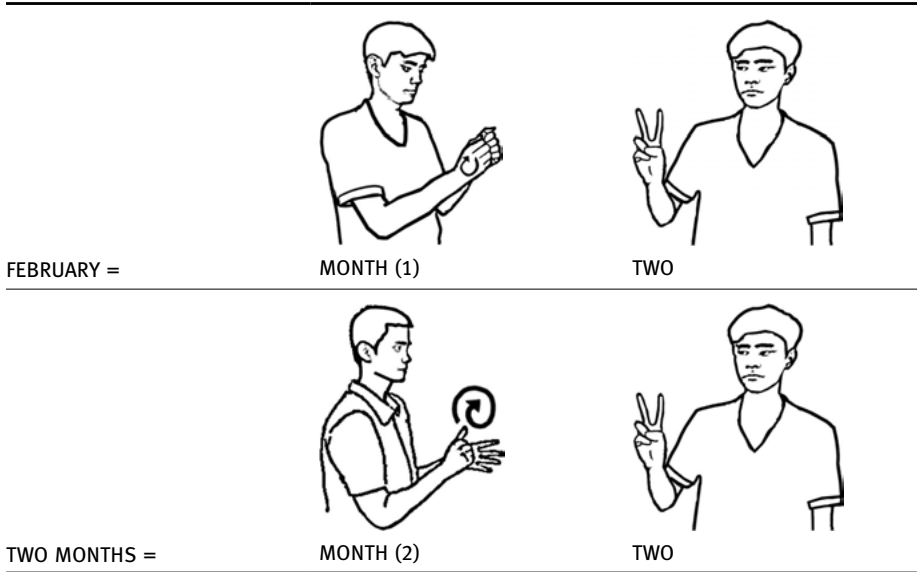
Fig. 7: Lexical differences in the HNSL sign translations of February and two months.

HNSL uses much more initialized signs, initialized abbreviations, and finger-spelled borrowings than HCMCSL. The signs in Figure 8 are examples of initialized signs, initialized abbreviations, or fingerspelled borrowings in HNSL but not in HCMCSL.

Finally, it should be noted that the sign for Viet Nam in HNSL as shown in Figure 9 is different from the sign for Viet Nam used in HCMCSL.

In terms of morphology, HNSL has directional verbs that indicate first person, second person, and third person. Some verbs like GIVE-A-GLASS do not change orientation or have minor changes in orientation. Other verbs like GIVE (unspecified object) do change orientation. Examples of differences in these two types of directional verbs are shown in Figure 10.

brown (N for nau)	green (X for xanh)	gray (X for xam)
silver (B for bac)	color (M for mau sac)	Korea (HQ for Han Quoc)
Thailand (TL for Thai Lan)	Hue (H for Hue)	Saigon (S for Sai Gon)
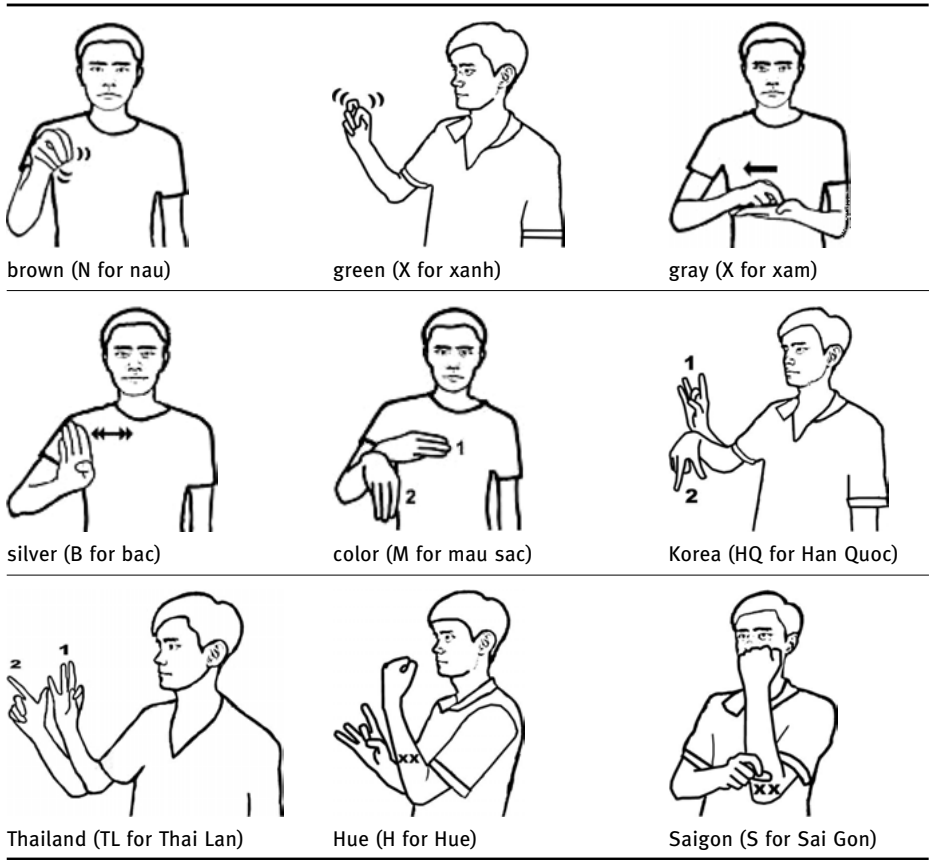
Fig. 8: Some examples of initialized signs in HNSL.

Viet Nam

Fig. 9: HNSL sign for Viet Nam.
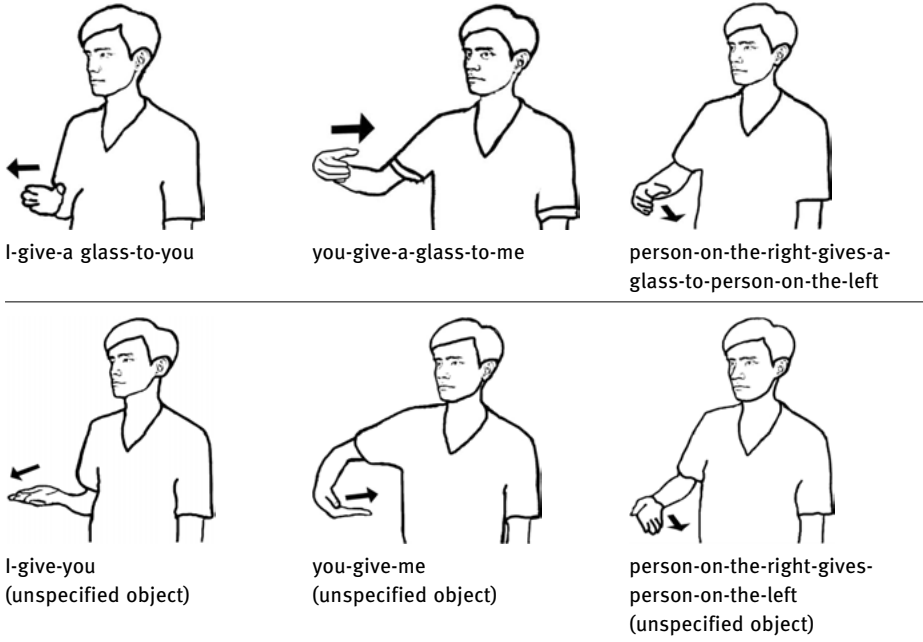
Fig. 10: Some examples of HNSL directional verbs.

7 Basic syntax

In HNSL phrases, the head precedes modifiers. Thus, in noun phrases the noun head occurs before the adjective (GRAPE + GREEN), the noun head occurs before the numeral (GRAPE + TWO), and long noun phrases in HNSL follow the order (NOUN + ADJECTIVE + NUMERAL). In verb phrases, the verb head occurs before the auxiliary and the verb head occurs before the negative, and long verb phrases follow the pattern: Verb + Auxiliary + Negative (EAT + WANT + NOT).

7.1 Word Order in Simple Statements and in Simple Yes/No Questions

In HNSL, if the object is a single noun or pronoun (and not a noun phrase), the normal word order in simple statements is Subject + Object + Verb as shown in Example 1. However, in HNSL, if the object is a noun phrase and the verb does not have an incorporated object, there are two equally possible word orders in simple statements. Example 2a illustrates one of these possible words orders: Subject +

Object (Head&Modifiers) +Verb. Example 2b illustrates the second possible word order: Subject + Object (Head) +Verb + Object(Modifiers).

(1) (a)
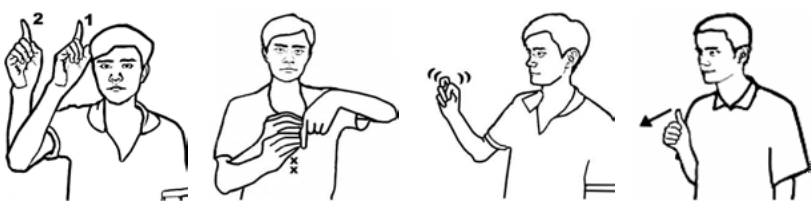
Subject	Object	Predicate
[N]	[N]	[V]

Best English Translation: "The teacher likes grapes."
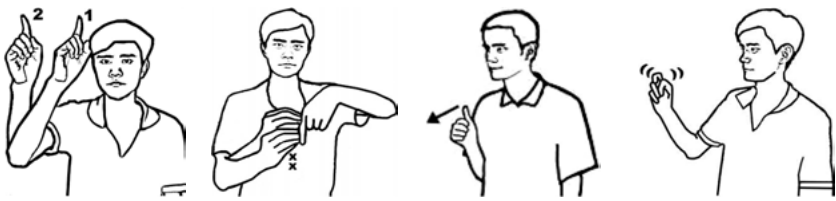
(2) (a)

Subject	Object (Head	Modifiers)	Predicate
[N]	[N	AJ]	[V]

Best English Translation: "The teacher likes green grapes."

(b)

Subject	Object (Head)	Predicate	Object (Modifiers)
[PRO]	[N]	[V]	[AJ]

Best English Translation: "The teacher likes green grapes."

7.2 Word Order in Simple Content Questions

In HNSL, content question words like "who", "what", "where" always occur at end of a sentence. If the subject is a content word or phrase, the normal word order in is OVS as shown in Examples 3a and 3b. If the object is a single content word, the normal order is Subject + Verb + Object as shown in Example 4. If the object of a

content question is a noun phrase, the content question has the word order Subject + Object (Head) + Verb + Object (Modifier-QW) as shown in Example 5.

(3) (a)

Object	Predicate	Subject
[N]	[V]	[QW]

Best English Translation: "Who likes grapes?"

(b)

Object	Predicate	Subject	
[N]	[V]	[N	QW]

Best English Translation: "How many teachers like grapes?"

(4)

Subject	Predicate	Object
[N]	[V]	[QW]

Best English Translation: "What does the teacher like?"

(5)

| Subject
[N] | Object (Head)
[N] | Predicate
[V] | Object (Modifier)
[QW] |
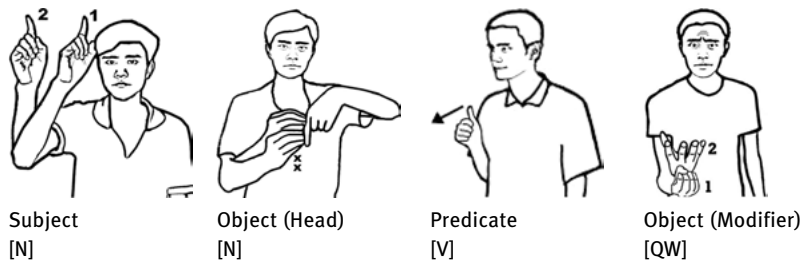
Best English Translation: "How many grapes did the teacher like?"

8 History of Research

Research began on HNSL in 1997, when James Woodward, then working at Ratchasuda College, Mahidol University at Salaya, Thailand, attended a meeting in Ha Noi and collected signs for the Swadesh list from one male signer in his twenties from Ha Noi.

In 1999, Woodward met NGUYEN Thi Hoa, a highly experienced teacher of deaf students in Ho Chi Minh City at a conference in the Philippines. Since no classes of deaf students in Viet Nam had graduated from junior high school, Ms. Hoa and Woodward decided to establish a full high school and university program for deaf students in Viet Nam that would include training in Sign Language Linguistics for deaf students. In 2000, the Project on "Opening University Education to Deaf People in Viet Nam Through Sign Language Analysis Teaching, and Interpretation" was established in Dong Nai Province, where forty-three Deaf students were trained in basic Sign Language Analysis and 8 students (including 2 from Ha Noi) have gone on to work intensively on research on HNSL.

The following have been published: two historical-comparative articles on HNSL (Woodward 2000, 2003). There are currently in preparation two student handbooks (one in English and one in Vietnamese) on the grammar of HNSL (The HNSL Production Team In Preparation a, b) and two (one in English and one in Vietnamese) companion dictionaries (The HNSL Production Team In Preparation c, d). The HNSL Production Team includes NGUYEN Dinh Mong Giang, LE Thi Thu Huong, NGUYEN Hoang Lam, NGUYEN Tuan Linh, NGUYEN Minh Nhut, NGUYEN Tran Thuy Tien, Luu Ngoc Tu, HO Thu Van, NGUYEN Thi Hoa and James Woodward. All members of the HNSL Production Team are Deaf except for NGUYEN Thi Hoa and James Woodward.

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James Woodward
13 Hai Phong Sign Language

1 Basic facts about the language

Language name: Hai Phong Sign Language, ngôn ngữ ký hiệu Hải Phòng. The name in the sign language appears in Figure 1.
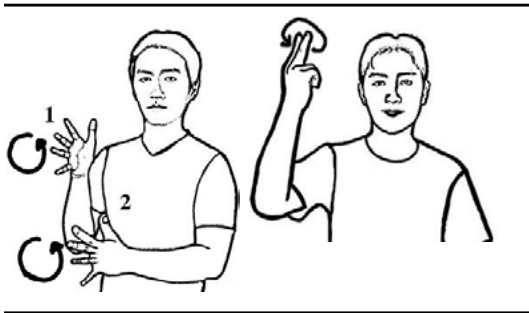
Fig. 1: Language name in Hai Phong Sign Language.

Alternative names: HPSL, NNKHHP, Vietnamese Sign Language.

Location: Used in the Hai Phong Metropolitan area, Viet Nam as shown in the map in Figure 2.

Varieties: Minor lexical differences in the area used. The variety described in this paper is used by Deaf people who are members of the Club for Hai Phong Deaf People.

Number of signers: Since there has never been a census of deaf people in Viet Nam, the real number of signers is unknown. However, some estimate of the number of signers can be made. The website at www.citypopulation.de/Vietnam.html lists the population of Viet Nam at 85,789,573 for 2009. The population for the area where Hai Phong Sign Language (HPSL) is used (see above) is 1,837,302. Using United Nations estimates of 1 person out of every 1,000 person born profoundly deaf or becoming profoundly deaf at an early age, there would be an estimate of 1,837 deaf people living in the area where HPSL is used. The estimated number of users of HPSL is up to 1,800 users.

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Fig. 2: Map showing the area where HPSL is used in Hai Phong, Viet Nam within the larger context of Southeast Asia.

2 Origin and history

HPSL initially developed out of a mixture of indigenous sign language(s) in Hai Phong with Ho Chi Minh City Sign Language (HCMCSL) used at Lai Thieu School for deaf people in Binh Duong Province in Southern Viet Nam. The Lai Thieu School, established in 1886, was the first and only school for deaf people in Viet Nam until 1976 when a second school was established in Hai Phong in the North of Viet Nam.

Since the Lai Thieu school was established in the South of Viet Nam, more than 1,000 kilometers from Hai Phong, only a few students from Hai Phong went to the Lai Thieu School and brought HCMCSL to Hai Phong. Some signs of French origin in HCMCSL made their way into HPSL, such as NAME and PIG. However, other signs of French origin in HCMCSL, such as BLACK, and TELL-A-LIE did not jump from HCMCSL into HPSL.

However, it is important to note that HPSL has treated borrowings from French Sign Language differently from the way Ha Noi Sign Language (HNSL) and HCMCSL has. When a French sign entered HNSL or HCMCSL the original Vietnamese sign was lost. However, when a sign from French Sign Language entered HPSL, the original Vietnamese sign was kept along with the French sign, so that pairs of signs, one original Vietnamese and one French occur for many concepts, such as NAME, PIG, HUSBAND, and so on.

Viet Nam was partitioned into two separate countries from 1954 to 1975. During this time deaf people from Hai Phong had no opportunity for education either at

the Lai Thieu school for deaf people in "South Viet Nam" or in Hai Phong. The first school for deaf people in Hai Phong was established in 1976. The 21-year separation of users of HPSL from users of HCMCSL, linked with the 21-year lack of educational opportunities, also had effects on the history of HPSL and its relationship to HCMCSL.

One study (Woodward 2000) has used the Swadesh word list modified for sign language research to compare the basic core vocabulary in HPSL with the basic core vocabulary of other sign languages in Viet Nam and with original sign languages in Thailand. HPSL and HCMCSL have a 54 % rate of similarity in basic core vocabulary; HPSL and HNSL share a 54 % rate of similarity in basic core vocabulary; HPSL and Original Bangkok Sign Language (OBSL) have a 48 % rate of similarity in basic core vocabulary; and HPSL and Original Chiang Mai SL (OCMSL) have a 46 % rate of similarity in basic core vocabulary.

The relationship between HPSL with OBSL and OCMSL is due to the fact that HPSL kept many original Vietnamese signs when they borrowed a French sign for a concept. It is this fact that makes HPSL a link language which links the family of original sign languages in Thailand (OBSL and OCMSL) and with the family of modern sign languages in Viet Nam (HNSL and HCMCSL).

3 Bilingualism and language contact

Almost all schools in the northern part of Viet Nam are oral only or use some simultaneous communication. No schools have yet been found which use HPSL as it is used by Deaf people in Hai Phong and as it is described in this article.

4 Political and social context

4.1 Other sign languages in Viet Nam

As mentioned earlier in this paper, in addition to HPSL there are at least 2 other major sign languages in Viet Nam: HPSL shares 54 % of its basic core vocabulary with HCMCSL and HNSL. It should be noted that these percentages are lower than the percentages of similarities in basic core vocabulary between French Sign Language and American Sign Language (62 %).

Hai Phong signers who have come to the Dong Nai Project and learned HCMC Sign Language as a second language say that it took them about 6 months of interaction before they felt completely comfortable in their interactions with fluent users of HCMCSL. These Deaf people, along with many others, prefer bilingualism to standardization. However, the Vietnamese government advocates standardization

to bilingualism, and the Vietnamese government is attempting to create a "unified" sign language, something that many Deaf people do not want.

Currently the Vietnamese government is preparing a law for people with disabilities based on the UN Convention on the Rights of People With Disabilities. While it is known that sign language or sign languages will be mentioned in the law, but it is not know at this time what information about sign languages in Viet Nam will be included in the law.

4.2 Organizations

There is no national association of Deaf people in Viet Nam. However, The Club for Hai Phong Deaf People attracts many users of HPSL. The Club for Hai Phong Deaf People is located at Khu E, Cat Bi Ward, Ngo Quyen District, Hai Phong. Traditionally this has been a social club for Deaf people in Hai Phong, but is gradually evolving into an advocacy group for Deaf people. (See Woodward 2003 for more details.)

5 The structure of signs

HPSL, like all sign languages, has a sub-lexical level of structure analogous to but not dependent on the phonological structure of spoken languages. Handshapes, orientations, locations, and movements, and non-manual expressions follow expected patterns found in other sign languages. A chart of handshapes that occur naturally (not dependent on fingerspelling) in HNSL appear in Figure 3.

The HNSL manual alphabet (letters and diacritics) for the Vietnamese alphabet can be seen in Figure 4 and Figure 5. There are two ways that the diacritics are fingerspelled: (1) the earlier way in which all letters are spelled and then all diacritics are fingerspelled and (2) the more recent way in which diacritics are spelled immediately after the letter they refer to.

Fingers	closed	closed bent	open	extended	extended bent	rounded	rounded tapered	contact	contact tapered	inserted
0										
1										
1										
2										
2										
3										
3										
4										
4										

Fig. 3: Handshapes that occur naturally in HPSL.

Fig. 4: Letters in HPSL fingerspelling.
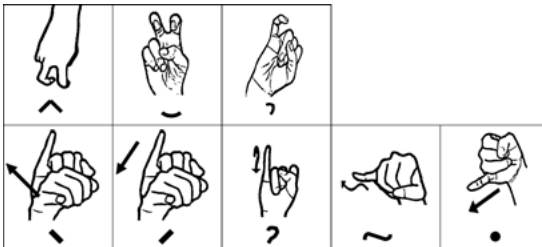
Fig. 5: Diacritics in HPSL fingerspelling.

6 Basic morphology and lexicon

One striking fact about the lexicon of HPSL is that HPSL has a number of signs which appear to be older than comparable signs in HCMCSL and HNSL. These seemingly older signs in HPSL are related to signs in OBSL and OCMSL. Some examples of these older signs are shown in Figure 6.

A second striking fact about the lexicon of HPSL is that HPSL has borrowed far fewer signs from French Sign Language than HCMCSL and HNSL have. In addition, when HPSL borrowed signs from French Sign Language, HPSL signers also retained the original Vietnamese sign. This has resulted in pairs of words, one sign
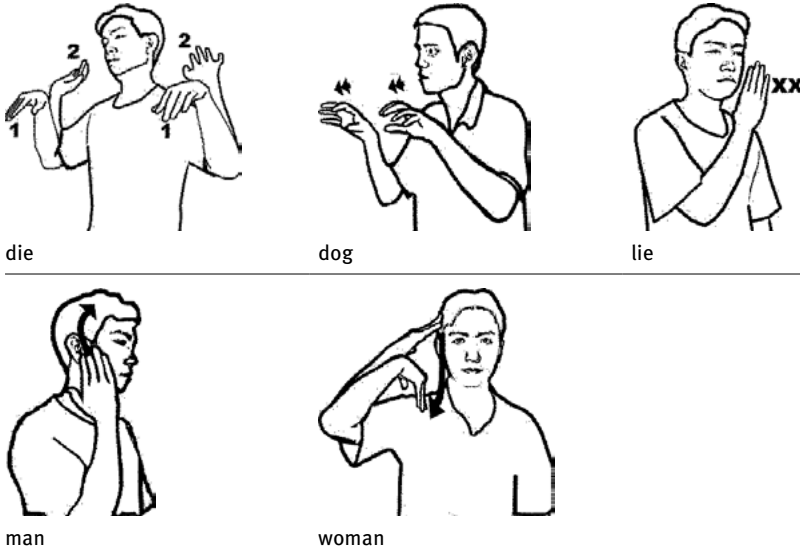
Fig. 6: Older HPSL signs that are cognate with signs in OBSL and OCMSL.

in the pair related to original sign languages in Thailand (OBSL and OCMSL) and one sign in the pair related to modern sign languages in Viet Nam which have been influenced by French Sign Language. Some of these examples of pairs of signs are shown below in Figure 7.

Sign in Pair Borrowed From French Sign Language	Original Vietnamese Sign Retained in Pair
all (1)	all (2)
cat (1)	cat (2)
name (1)	name (2)
pig (1)	pig (2)
wife/husband (1)	wife/husband (2)

Fig. 7: Older HPSL signs that are cognate with signs in OBSL and OCMSL.

7 Basic syntax

No syntactic data has yet been gathered on HPSL.

8 History of research

In 1996, James Woodward, attended a UNESCAP meeting in Ha Noi and collected signs for the Swadesh list modified for sign language from 3 Deaf users of HPSL. Two of the users were female signers from Hai Phong in their late twenties and one was a male signer from Hai Phong in his early twenties. These signs were later confirmed by several subsequent visits to the Club for Hai Phong Deaf people in 1997 and 1999.

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Constanze H. Schmaling
14 Hausa Sign Language

1 Basic facts about the language

Hausa Sign Language/Maganar Hannu (HSL) is the language of the deaf community in northern Nigeria.

Language names

Autonym: MAGANAR HANNU 'language of the hands': In the sign, the slightly bent 5-hands move upward in front of the body alternately several times.[1]

Fig. 1: MAGANAR HANNU / MAGANAR BEBAYE 'language of the hands' / 'language of the deaf' (Hausa Sign Language).

Name in spoken Hausa: *maganar hannu* ('language of the hands') or *maganar bebaye* ('language of the deaf').

Name in English: Hausa Sign Language (HSL).

Location: Northern Nigeria, *Kasar Hausa* ('Hausaland').

Varieties: There are language varieties and lexical variations between different groups of deaf people (see Section 4.3). Described in this article is the Hausa Sign Language used in Kano Municipal and Kano State.

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1 Sign drawings by Bashir Isah Abbas, Kamal Shehu, and Nafi'u Nasidi Mohammed.

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e-mail: constanze.schmaling@t-online.de
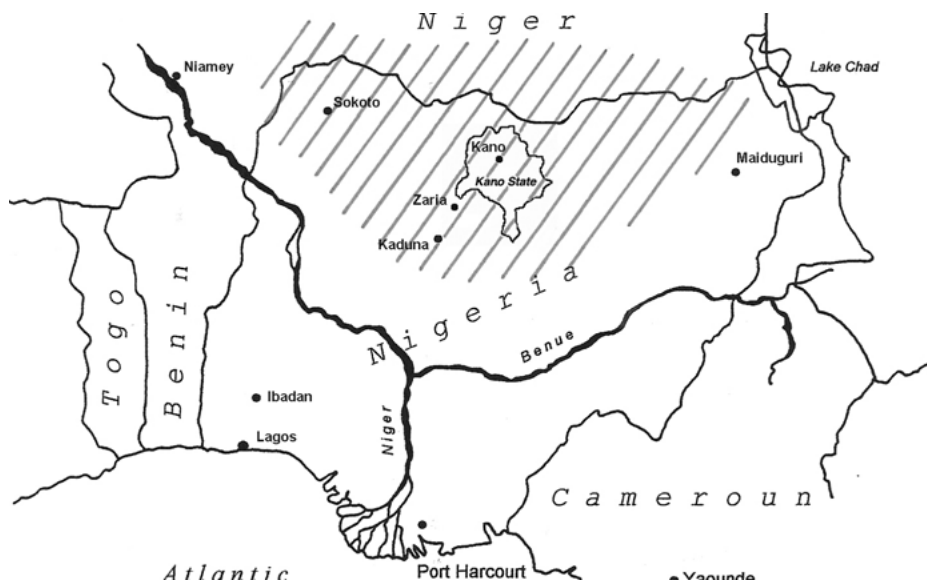
Fig. 2: Map of Nigeria, Kasar Hausa (Hausaland), and Kano State.

Number of signers: There are no accurate statistics. Estimates from different sources vary greatly, ranging from 70,000 to five million deaf people.[2]

Organisations:

Nigerian National Association of the Deaf (NNAD; www.nnadeaf.org).
Kungiyar Bebaye ta Kasar Hausa (Kano State Association of the Deaf, KSAD).

2 Origin and history

There are no written records on when deaf people began using HSL the way it is being used today. As far back as both deaf and hearing people can remember however the deaf have always used *maganar hannu*. Deaf people have always had their meeting places in villages and towns where they come together in the afternoons or evenings to share news, information and experiences – just as the hearing do.

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2 According to the UN, the prevalence of hearing impairment in developing countries is 0.2%. Nigeria has a population of more than 177 million people (May 2015 estimate; CIA). This would give an estimate of at least 350,000 deaf people, but the number is probably even higher due to a large number of cases of deafness resulting from a variety of diseases (including meningitis and measles), from premature birth, but even more important, the lack of medical facilities to diagnose hearing impairment early, and the lack of specialised hospitals.

HSL in northern Nigeria was never taught through formal instruction but developed over time through the interaction of deaf people who had their various local signs (or sign languages or home signs) and through the use by the deaf community. Deaf children learn it from their parents, from their peers or from other members of the deaf community. Thus, one generation learned it from the other and handed it down to the next generation. Like other languages, HSL is constantly enriched whenever deaf people meet, whether informally or in classrooms, associations, clubs or other groups.

3 Bilingualism and language contact

3.1 Deaf education

The first school for deaf children in Nigeria was set up in the southern city of Lagos in 1958. Only 20 years later, the Tudun Maliki School for the Deaf and Blind was opened in Kano in the North. Until 1977, deaf students in northern Nigeria had been either co-educated in schools for hearing children or had not undergone any formal education at all. Tudun Maliki and other schools follow the normal school curriculum. Deaf culture and history, history of sign language, and sign language grammar are not taught at the schools for the deaf.

3.2 ASL in the education system

Influence from American Sign Language (ASL) began with the introduction of formal (Western) education for deaf people in Nigeria. In 1960, Andrew Foster, a deaf African American missionary, opened a school for deaf children in Ibadan and introduced ASL into the deaf education system in Nigeria.[3] In the following decades, ASL was also introduced at other schools. Today, various forms of Total Communication[4] based on signs from ASL are used at most schools for the deaf in Nigeria.

At the Tudun Maliki School in Kano, ASL signs are used as part of a Total Communication policy based on spoken Hausa and English.[5] The influence of ASL

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3 ASL was imported into the deaf education system in many other African countries as well. For a list of foreign (Western) sign languages in Africa see Schmaling (2001: 181).

4 Total Communication is a concept of communication in deaf education that uses any means of communication to achieve the best possible communication results, i.e. sign language, gestures, mime, spoken language, lipreading, writing, etc. In practice, however, it often means that spoken language is accompanied with a few signs or gestures.

5 Schmaling (2003) discusses the problems with using ASL at the Tudun Maliki School (and the lack of knowledge of ASL by the teachers) in detail.

can be seen mainly in the sign language vocabulary of current and former students of the Tudun Maliki School. There is no apparent influence from ASL in the morphological or syntactic structure of the language of these students since ASL is not systematically taught as a foreign language.

The extent of ASL loans in the vocabulary differs from one student to another, but some kind of a common corpus of ASL lexical items is used and understood by all students. Many of these loans are signs for basic vocabulary for which everybody knows the HSL signs. The ASL signs are generally not easier to perform, but they are among the first foreign signs that students learn at school. Often the ASL signs do not fit the Hausa social and cultural context, and none of the Hausa or Nigerian cultural vocabulary or concepts are represented by ASL signs. Some of the loans from ASL have been altered in the way they are performed; others have undergone some semantic change or have received some additional meaning.[6]

Although most ASL signs are used exclusively by the students, some have also become accepted within the deaf community outside the school, especially among younger signers.

3.3 Relationship HSL – spoken Hausa

HSL exists within the context of a wider Hausa-using community. As a minority language, HSL is influenced by the surrounding major language, spoken Hausa. Deaf people in northern Nigeria are typically bilingual, with varying levels of proficiency in HSL and spoken Hausa, and most signers make use of Hausa in some way; the extent depends on social and educational circumstances. Knowledge of both HSL and spoken Hausa may also lead to the simultaneous use of the two languages.

3.4 Borrowings/loan translations from spoken Hausa

HSL has borrowed both single lexical items and compounds from the spoken language. In these vocabulary borrowings, the lexical form is derived from spoken Hausa but the phonological and morphological components conform to the structure of HSL.

Borrowing of single words includes loan translations (or literal translations) that involve the extension of meaning of already-existing signs in HSL due to similarities between semantically unrelated Hausa words. These borrowings, which include complete words or parts of words from spoken Hausa, result from tracings

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6 For examples of ASL loans in HSL (with alteration in performance or semantic alteration) see Schmaling (2001: 183–186).

of similarity of sound (similarity of mouth pictures) in the spoken language. In most instances, tones and vowel length of the respective Hausa words differ; however, neither are visible on the lips and therefore not accessible to deaf signers. For example, the sign MARI 'slap' is also used for a place outside Kano metropolis, called *Mariri*, as well as for the female name *Maryam*.

Loan compounds involve borrowings of expressions from the spoken language, literally translating its parts even if they do not make literal sense in HSL. In some of these compound loans, the order of signs may be or is reversed. Loan compounds may also undergo some of the phonological changes in compounding processes that also occur in "original" HSL signs, i.e. they can lose their compound character (see Section 7.4.2).

3.5 Initialised signs

Initialised signs use the handshape of the manual alphabet (see Section 6) that corresponds to the initial letter of a spoken/written Hausa word: added are arbitrary orientation, location and movement which may vary within the constraints of HSL structure.

Initialised signs began being used in Kano only after the Tudun Maliki School was opened. While initialised signs are used quite often by (former) students of the school, for example, when they do not know the HSL sign for a spoken Hausa word, older signers and deaf people who have not undergone any formal education, and who therefore do not know the manual alphabet, do not use initialised signs.

A special subgroup of initialised signs are initialised name signs (see Section 6).

4 Political and social context

4.1 Organisations

There are various regional and local organisations of deaf people in Kano State and other parts of northern Nigeria. The Nigerian National Association of the Deaf (NNAD), the umbrella organisation of deaf people in Nigeria, has branches in many states of Nigeria (www.nnadeaf.org).

The *Kungiyar Bebaye ta Kasar Hausa*, the Kano State Association of the Deaf (KSAD) is the largest organisation of deaf people in northern Nigeria and conducts different activities for its members such as religious education and job application support, among many others. It was particularly active in the 1990s but stopped some of its activities in the early 2000s, for example its Qur'an classes. Apart from other smaller organisations as well as some informal groups of deaf people in other

towns and villages in the northern parts of Nigeria, deaf people also have their own football (soccer) clubs.

4.2 Attitudes to sign language

Deaf people are highly integrated both within their families and within the wider Hausa society, and HSL is regarded as a "proper" language by both deaf and hearing people.[7] It is widely accepted that deaf people need sign language for communication, and there is a general willingness by hearing people to communicate with deaf people with signs. Many hearing people are in fact able to converse with the deaf effectively through signs or sign language, at least on a basic level, which they have learned informally from their deaf neighbours or other deaf people. Hearing people are not ashamed of talking with their hands. This may result from the fact that the hands are used often by hearing people in Hausaland for communication with other hearing people, either as a substitute or complementary to spoken language. Many gestures have a conventionalised meaning and are used in daily conversations.[8]

This system of integration is still working at the rural level but has slowly begun to dissolve as a result of urbanisation and individualisation. The attitude towards deafness and sign language is changing, and the ready use of signs for communication with deaf people may gradually disappear as a result of this change.

4.3 Language varieties

Different groups of deaf people use different language varieties of HSL. These varieties correspond to lines of division in the social structure of the deaf community which reflect the social structure of the larger Hausa society. There are, for example, differences in the vocabulary according to age – i.e. some signs are only used by old people whereas others are only used by younger people – or to region: signs used in the cities may not be known by villagers, and vice versa. Vocabulary also varies between signers who have attended a school for the deaf and people who have not gone through Western education. The sign vocabulary used by the former group is influenced by ASL.

There are also differences in the vocabulary between *bebaye* 'deaf persons' and *kurame* 'hearing impaired persons', but also in the structure of signed sentences:

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7 For an analysis of the factors contributing to the integration of deaf people in Hausa society see Schmaling (2000: 19).

8 These gestures are part of HSL and can also undergo inflectional processes, e.g., the sign ZAGA "abuse" is used as a directional verb.

Some late-deafened people resort to some kind of "Signed Hausa", i.e. they use signs from HSL but follow the word order of spoken Hausa.[9]

4.4 Other sign languages in the country

There is a lack of research on sign languages in Nigeria. With the data collected to date it is impossible to say whether there is a national Nigerian Sign Language, with Hausa being one of its variants, or whether a number of sign languages exist side by side.[10]

In the 1970s the Nigerian Sign Language Working Group was established with the goal to establish a Nigerian Sign Language, based on ASL. The group disappeared after a short existence and nothing was published on their work.

5 The structure of signs

Signs can be analysed into smaller units, the parameters of signs. These include the manual parameters – handshape, orientation, location and movement – and the non-manual parameters. Each parameter comprises of a set of components.

Signs can be produced with either one or two hands. In one-handed signs, only one hand, mostly the dominant hand, is active, while the non-dominant hand is not involved at all. The choice of hand in one-handed signs is not distinctive; each signer has a preference hand.

5.1 Handshape

Handshape refers to the shape of the hand when articulating a sign. Phonetically, there is a large number of handshapes in HSL but not all observed variations have phonemic status. Handshapes can be either static or dynamic.

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9 The words *bebaye* (sg. *bebe*) and *kurame* (sg. *kurma*) are not only used to differentiate between profoundly deaf people and people with a hearing loss, but also relate to a person's ability to use spoken language. Whereas a *bebe* cannot pronounce well, a *kurma* can make himself/herself understood by using spoken language.

10 There are more than 500 spoken languages in Nigeria (*Ethnologue*).

5.1.1 Static handshapes

The most common handshapes in HSL are the following:

fist, flat hand, extended index finger-hand, 5-hand,

bent 5-hand, *biyar*-hand[11], and F-hand.
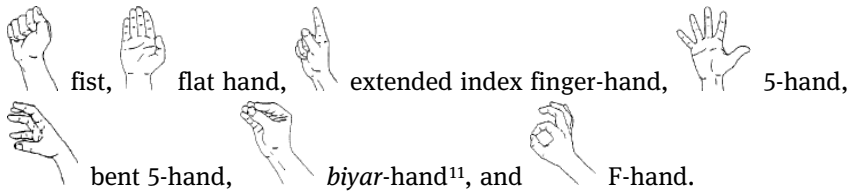
In addition to these seven handshapes, eight other handshapes occur relatively frequently, while eleven handshapes occur less frequently. Five handshapes are rather infrequent or occur only in single signs. Some more handshapes occur but they can be treated as free variants of the other handshapes.

Some rather unusual handshapes include:

The third handshape is only used in one of the negation markers.

Four handshapes occur only in number signs:
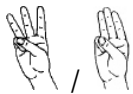
/ UKU 'three' / number classifier GUDA UKU 'three (persons)'

HUDU 'four', ARBA'IN 'forty'

BAKWAI 'seven'

TAKWAS 'eight'

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11 *biyar* 'five': The *biyar*-hand is the handshape used in the sign BIYAR 'five' as well as in numbers that are multiples of five.

There is a large number of minimal pairs which differ only in handshape, for example:

The signs SANYI 'coldness' and TSORO 'fear' are both double-handed signs with the hands at shoulder height and the palms oriented towards each other/ towards the body. There is a small repeated wrist rotation. Whereas TSORO is performed with the 5-hand, SANYI is produced with the fist.

Fig. 3: TSORO 'fear'.   **Fig. 4:** SANYI 'coldness'.

Another minimal pair is TAIMAKA 'help' – AUNA (NA SIKELI) 'weigh (with scales)'. In both signs, the hands move up and down alternately several times. While TAIMAKA is performed with flat hands, AUNA (NA SIKELI) is produced with round hands.
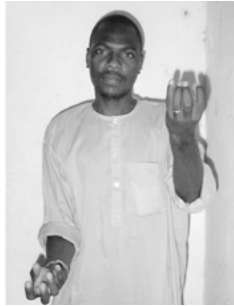
Fig. 5: TAIMAKA 'help'.   **Fig. 6:** AUNA (NA SIKELI) 'weigh (with scales')'.

5.1.2 Dynamic handshapes

There are two types of dynamic handshapes: a) handshape change, i.e. a change from one distinctive handshape to another; and b) fingerplay, i.e. a rapid repeated

movement of the fingers which does not involve a handshape change as such. Fingerplay in HSL can be of two types: "rubbing" (thumb and selected fingers) which only occurs in handshapes where the thumb contacts one or more fingers, e.g., LAUSHI 'softness'; and "wiggling" which only occurs in handshapes where at least one finger is extended, e.g., ROKA 'beg'. If two or more fingers are extended, they must be spread. Only about a dozen signs in HSL have wiggling.

There are two special cases of handshape change in HSL in which the thumb rubs along one or several fingers: either slowly, with constant contact with the selected finger(s) – this is always performed once, e.g., TSAMI 'sourness'; or in a fast, snapping movement: this may be performed once or with repetition, e.g., TSADA 'expensiveness' (see Figure 23). Four of these "snapping" dynamic hand-shapes occur only in number signs (TALATIN 'thirty', HAMSIN 'fifty', SABA'IN 'sev-enty', CASA'IN 'ninety').

5.2 Orientation

Orientation includes information about both the orientation of the palm of the hand and that of the extended fingers. Some minimal pairs can be distinguished by the orientation of the hand, for example: MANTA 'forget' – DUHU 'darkness': Both signs are double-handed, and in both signs the hands are located at each side of the head and move downward/towards each other. While in MANTA the palms face the head, in DUHU they face away from the head.

Fig. 7: MANTA 'forget'.　　**Fig. 8:** DUHU 'darkness'.

Orientation may be either static or dynamic: Dynamic orientation involves some kind of wrist movement. The most frequent type in HSL is the rotation of the wrist ("rotating"); less frequent is "bending" (extension and/or retraction of the wrist joint); "pivoting" (right-left movement in the wrist joint) does not occur often in HSL. These movements may be performed unidirectionally or bidirectionally, optionally with repetition.

Several minimal pairs are differentiated only by having a static or dynamic orientation or by different dynamic orientations, for example, KIFI 'fish' – LUNGU

'recess, alley': In both signs, the right hand with the palm facing left is located in front of the chest and moves away from the signer. Whereas KIFI has a bending wrist movement, LUNGU has a rotating wrist movement.

5.3 Location

Signs are located either in space or on or near the body or the face/head. The non-dominant hand can also function as a place of articulation. The dominant hand may contact the location or be close to it, it may also be far away. A large number of signs in HSL are produced in "neutral space", the area in front of the chest. As in other sign languages, relatively few signs are located above the head. Even fewer are produced below the waist; almost all of these signs have body contact. Very infrequent are signs that are produced on the back of the body; all of them are with body contact. There are a large number of locations on the face; two locations are used only with contact: teeth and tongue.

There are minimal pairs that are distinguished by their relative distance to the body/face, others differ in where they are performed on the body/in space, others again are distinguished by their different locations on the body or on the face. An example for a minimal pair that differs regarding body locations is HAKURI 'patience' and AMFANI 'usefulness': In both signs, the flat hand (with the palm facing the body) moves onto the body in a small movement. While HAKURI is performed on the middle of the chest, AMFANI is performed on the left side/left shoulder.

Fig. 9: HAKURI 'patience'.   **Fig. 10:** AMFANI 'usefulness'.

5.4 Movement

Signs can be either static or have a path movement between two locations. Movement can occur on the body or face, in space, and from the body into space and vice versa. In HSL, a larger number of signs have some kind of path movement. Relatively fewer signs are static. There are some minimal pairs that are distinguished only by the presence/absence of path movement, e.g., ALLAH 'God' –

FANKA 'ceiling fan': In both signs, the index-finger hand (with the index finger pointing up) is held at head height. In the sign ALLAH the hand remains static, in the sign FANKA there is a small circular movement.

Fig. 11: ALLAH 'God'.   **Fig. 12:** FANKA 'ceiling fan'.

Movements can be described regarding type (e.g., straight, circle, zigzag, etc.), direction (horizontally, vertically, diagonally, uni- or bidirectional), manner (size, speed, tenseness), as well as number of movement. All of these features may be combined. In some signs there is a relationship between the number and the size/ speed of movement: in the sign with repetition, the movement is also smaller and/ or faster. There are a lot of (near-)minimal pairs that differ only in one of the above-mentioned features. Some examples include:

– Size of movement: KASUWA 'market' – (YI) DARIYA 'laughter, laugh': In both signs, the 5-hand with the palm facing the signer, performs a right-left movement in front of the mouth. In the sign KASUWA, the movement is of "normal" size, whereas (YI) DARIYA is performed with a small movement.

Fig. 13: KASUWA 'market'.   **Fig. 14:** (YI) DARIYA 'laughter, laugh'.

– Direction of movement: SAYA 'buy' – SAYAR 'sell': Whereas in SAYA the dominant hand performs a movement towards the body on the non-dominant hand/ forearm, the direction of this movement is reversed in the sign SAYAR (see Figures 21 and 22).

- Type of movement: GAFIYA 'rat' – JIRGIN KASA 'train'. In the sign GAFIYA the fist (palm facing left) is moved up and down several times in neutral space. In the sign JIRGIN KASA the hand is moved in a circular movement.
- Speed of movement: In the three signs RAWA 'dance, dancing' – GAGGAWA 'haste quickness – KOKARI 'effort' the hands (fists with palms facing each other) move away from and towards the body several times alternately. The signs differ in that RAWA is performed slowly, GAGGAWA with "normal" speed and KOKARI with a fast movement.
- Number of movement: AMFANI 'usefulness' – HAYA 'hire, rent'. In the sign AMFANI the flat hand (palm facing the body) moves onto the left side of the chest/left shoulder (see Figure 10). HAYA is performed with the same small movement, but the movement is repeated.

In signs produced with both hands, movement can also involve some interaction between the hands, and the hands can move simultaneously or alternately. Some sign pairs differ in whether they have a simultaneous or an alternate movement.

5.5 Non-manual parameters

Non-manual parameters include the position or movement of head, shoulders and trunk, facial expression and eye gaze, shape of mouth and lips, as well as the "spoken" component on the lips. Combinations of different non-manual parameters are possible.

Non-manual features are important in HSL, and some sign pairs are distinguished only by the presence/absence of or a difference in one or more non-manual parameters, e.g., NAWA 'mine (possessive)' (see Figure 25) – TAUSAYI 'pity, mercy': both signs are performed by moving the flat hand (palm facing up) with a small movement onto the chest. There is no particular non-manual feature in the performance of NAWA; in the sign TAUSAYI, the head is slightly bent forward and the tongue slightly protruded.

5.6 Signs produced with two hands

There are different types of signs produced with both hands in which the two hands play different roles. In some signs, both hands are active articulators: in these double-handed signs, both hands have the same handshape, and the configuration of the non-dominant hand is either identical or symmetrical to that of the dominant hand, i.e. it behaves like a mirror-image of the dominant hand. In other signs, the non-dominant hand functions as place of articulation for the dominant hand (two-handed signs). Two-handed signs are almost all produced in neutral

space. In either type, both hands contribute to the representation of a single morpheme.

Some signs can be produced with either one or both hands without resulting in a change of meaning. Producing these double-handed signs with only one hand does not represent diminution of meaning. Even in two-handed signs the non-dominant may sometimes be dropped. Sometimes, one-handed signs are produced with both hands for emphasis or intensification (see Section 7.3.5).

There are no minimal pairs in HSL that are distinguished only by being one- or two-handed.

6 Associated sign systems: the manual alphabet

The manual alphabet was not known and used by deaf people in (northern) Nigeria until the first schools for the deaf were opened. Today, the American manual alphabet is used throughout Nigeria.

There are a few letters in Hausa that are not available in the American alphabet, namely those for the glottalised ("hooked") consonants *ɓ, ɗ, ƙ*. They are produced by holding the flat non-dominant hand above the dominant hand which produces the manual alphabet letters b, d and k respectively. If, for some reason, only one hand can be used, then the "hooks" are produced with the mouth: the hand is held in front of the mouth and one "bites off" the fingers. Since there are no special letters for the two glottalised consonants *ts* and *'y* in the standard orthography, no special handshapes have been invented in the manual alphabet either. The glottal stop is not fingerspelled.

While students at the schools use fingerspelling quite extensively, older signers do not use fingerspelling at all. The systematic use of fingerspelling for the creation of new lexical items however cannot be attested for HSL. Students at the Tudun Maliki School use the manual alphabet for the creation of initialised signs (see Section 3.5).

7 Basic morphology and lexicon

Some signs are monomorphemic, others are composed of two or more morphemes. Polymorphemic signs can be created through various processes of modifying, changing, adding to and combining signs/morphemes, both simultaneously and sequentially.

7.1 Noun morphology

7.1.1 Plural formation

Nominal plurality can be expressed through the repeated production of a sign, e.g., GIDA 'house, compound' (see Figure 28) – GIDAJE 'houses, compounds'. Sometimes a sign is repeated at different locations in space, e.g., YARO 'boy' – YARA 'children' (arc movement).

In some compound signs, repetition is also used to form the plural, but only the second component of the compound sign is repeated, e.g., MASALLATAI 'mosques', composed of SALLAH 'prayer' + GIDAJE 'houses' (both illustrated in Section 8).

7.1.2 Plural markers

Most signs are combined with a plural marker to indicate plurality. HSL has three different plural markers that can all be translated with *da yawa* 'much, many, a lot'. For some signers there are constraints in the use of these forms, each being preferably used with a certain category of nouns: 1) abstract nouns; 2) collectable things; 3) non-collectable things or things that are theoretically collectable but are so numerous in a certain context that collection is infeasible. This is not used systematically across signers; rather there are idiosyncratic preferences.

The plural marker that is used most often may be combined with any noun in any context. This sign which can be glossed as DA YAWA 'many, much, a lot' is also used as a gesture by hearing people.[12] It is performed by moving the dominant 5-hand (or flat hand) several times onto the fist of the non-dominant hand. This sign may also be executed with the non-dominant hand as articulator and the dominant hand functioning as place of articulation.

Fig. 15: DA YAWA 'many, much, a lot'.

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12 In fact, this is part of a group of signs that I have named "pan-African signs". It occurs as a gesture and sign in many countries across Africa.

These plural markers may also be used with those signs that form a plural through repetition; however the sign is then repeated only once. There are also other signs that can be added to express a large quantity, multitude or abundance of objects.

7.1.3 Gender and age markers

Gender is not inherent in signs but is specified with gender markers. There are two gender markers each to refer to female/male persons respectively. Gender markers can be added to differentiate signs such as ƊAN'UWA 'brother' and 'YAR'UWA 'sister'. They are also used in various contexts to specify whether one is talking about a female or male person, e.g., with the personal pronouns.

There are two age markers, signifying "young" and "old" respectively. They are most often found in combination with signs for kinship terms.

7.2 Verb morphology

7.2.1 Invariant versus directional verbs

In HSL, most verb signs do not take inflections for person. These "invariant" verb signs are always performed at the same location on the body or in space and cannot be modified according to the person who is doing an action or the person/object on which the action is performed. Other verb signs can move in space and change their direction of movement to express different types of grammatical relationship, such as that between subject and direct object of an action. These signs are called "directional signs". They exploit the signing space (using the typical locations for 1st, 2nd and 3rd person – see Section 7.5) and have beginning and end points of a movement depending on who acts on whom and who is located where. Their meanings are therefore highly context-dependent, i.e. dependent on spatial interpretations.

The group of directional verbs in HSL is comparatively small. Examples include FAƊA 'say, tell', BA/BAYAR 'give (away)', MATSA 'pester', ZAGA 'abuse', TAMBAYA 'ask, enquire' (see Figure 18).

7.2.2 Pluractionals

HSL verb signs can be inflected for number but also for different verbal actions. In HSL, the pluractionals, which are characterised by different types of multiplicity, i.e. plurality of subjects and/or objects, plurality of process or action, all involve some repetition (of the movement) of a sign.

– **Plurality of subjects**
To express plurality of subjects, a sign may be repeated. Very often, the non-dominant hand is also added as articulator. Both hands can produce the sign simultaneously (possibly repeatedly), meaning "all", e.g., TAFI 'leave' – TAFI TAFI TAFI 'they all left'. The hands may also perform a sign alternately to express "each one". In some signs, this alternate movement can imply "one after the other".

Fig. 16: TAFI 'leave'.

Adding the non-dominant hand as articulator can also be employed to indicate reciprocity: KALLO 'look at' – KALLI JUNA 'look at each other'. In signs where the dominant hand serves as location, dominance is reversed, e.g., TSOKANA 'tease' – TSOKANI JUNA 'tease each other':

In the sign TSOKANA, the extended index finger of the dominant hand is moved onto the palm of the non-dominant 5-hand hand in neutral space. In the sign TSOKANI JUNA, the same movement is performed; then the extended index finger of the non-dominant hand is moved onto the palm of the dominant 5-hand; this may be repeated once or twice.

Fig. 17: TSOKANA 'tease'.

– **Plurality of objects**
  Intensive/exhaustive: "(to) all": Intensive action is characterised by an arc movement of the hand(s) through space, e.g., BA WA KOWA 'give to everybody'. The handshape change that occurs in the sign BA/BAYAR 'give (away)'
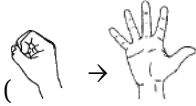
   ( ) is executed once during the entire movement.

  Distributive: "(to) each": To express distributive, there are multiple iterations along the same arc as for intensive action but the single movement is replaced with repeated movements, e.g., in the phrase BA WA KOWANNENSU 'give each one of them': Here, BA/BAYAR is performed several times at different places in front of the signer, each time with the handshape change (see above).

  It is also possible to perform the sign at selected locations in space in order to indicate specific people to which one gives.

– **Plurality of action**
  Iterative: "do something again (and again)": The iterative aspect is expressed by repeating a sign, typically at the same location in space, e.g., TAMBAYA TAMBAYA 'ask again and again': In the sign TAMBAYA 'ask' the index finger of the dominant hand is moved onto the index finger of the non-dominant hand in a small movement.

Fig. 18: TAMBAYA 'ask'.

Durative: "do something over a long period of time": Durative involves repeating a sign several times at the same location in space, e.g., (MU)NA TA DARIYA '(we) laughed and laughed': the sign (YI) DARIYA 'laughter, laugh' (see Figure 14) has in its lexicalised form a repeated movement. In the durative aspect, this movement is repeated several times, each time with a small pause.

7.3 Incorporation

Incorporation (also referred to as "simultaneous affixation") involves "bound" morphemes, parameter-size units, that cannot be articulated unless in combination with other morphemes. Many of these bound morphemes have an established meaning, others acquire their meaning only in connection with the morphemes in the sign in which they occur. Incorporation can be employed for the creation of new lexical items but also for derivation; it can involve any of the manual or non-manual parameters. Incorporation is a highly productive process in HSL. Many of the morphemes described below can also be found in established lexical items.

7.3.1 Incorporation of size, shape and number: handshape morphemes: "classifiers"

Classifiers are handshape morphemes which give information about size (width, length, depth and extent), shape or surface of an object, about how a person interacts with an object, or about number/amount.

There is a large set of classifier handshapes in HSL, which include, among many others:

– actions with a closed fist/hold narrow objects: SHARA 'sweeping', BUHU 'a sack'
– metaphorical use: bodily effort/strain: GAGGAWA 'haste, quickness'

– long thin objects and handling them: ALLURA 'needle'
– instruments/animals with long, narrow component: KADANGARE 'lizard'
– person classifier[13]

– round objects which fit into clawed hand and handling them: FAMFO 'pump'
– objects with several bent extensions, e.g., animal's legs/claws: KWAÐO 'frog'

The appropriate classifier is incorporated in many verb signs according to the (in)direct object of the verb, e.g., BUÐE 'open', ÐAUKA 'carry', KARYA 'break'.

Classifier handshapes can also be found in noun signs with the same orientation, location and movement, depending on the object they refer to. For example, in the signs COKALI 'spoon' – LUDAYI 'ladle' – COKALI MAI YATSU 'fork', the hand with the palm facing down is moved from neutral space upward and towards the

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13 This is not used in HSL as productively as in other sign languages.

mouth; during this movement the orientation changes. Only the handshape differentiates these signs:

COKALI 'spoon'   COKALI MAI YATSU 'fork'   LUDAYI 'ladle'

There are also many dynamic handshapes that can serve as classifiers. These include (among many others):

 →   – emanate/emit; getting rid of: BA/BAYAR 'give (away)', SHUKA 'sow'

 →   – grasping/catching: SAMU 'get, obtain', KUDA 'fly (noun)'
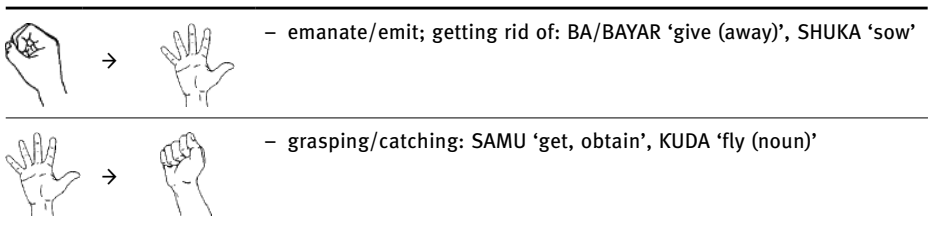
A handshape change may also be reversed to express opposite meaning, e.g.,

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 →   →

ɗAUKE WUTA 'cut electric power'   KAWO WUTA 'restore electric power'
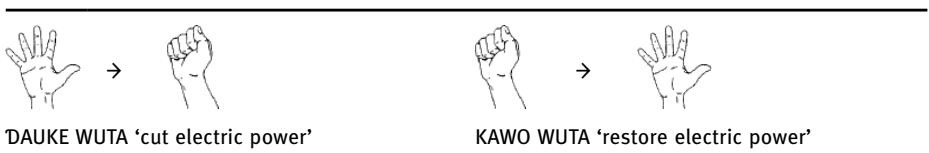
A special group of classifiers are number classifiers. They are not exploited systematically in HSL but are found in a few signs: JIYA 'yesterday' (extended index finger) – SHEKARAN JIYA 'day before yesterday' (extended index and middle finger, spread); HAIHU(WA) '(give) birth' (flat hand) – TAGWAYE 'twins' (extended index and middle finger, spread); see Figures 19 and 20.

7.3.2 Incorporation of location: location morphemes

While some signs have fixed locations on the body or in space, others may be relocated in space and/or on the body to suit the needs of the discourse, for example: The sign ALLURA 'injection' may be produced on any location on the body depending on context. In the sign LEKA 'peep at' the hands may be located any-
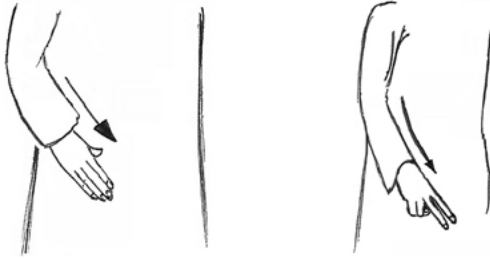
Fig. 19: HAIHU(WA) '(give) birth'.   **Fig. 20:** TAGWAYE 'twins'.

where near the face (peeping over a fence; from beneath the table; around the corner; etc.). The sign BUGA 'knock' can be located at different points in space depending on whether the knocking is performed on a wall, ceiling, table, etc.

Locations in space can also be used for spatial referencing, i.e. points in space may be established to represent persons, objects, places or actions. Reference to these locations is made with indexing signs. These locations are also used in directional verbs (see Section 7.2.1).

Finally, semantically related signs may share the same location. In HSL, signs located on or near the forehead, for example, have a meaning connected with thought and cognitive processes, e.g.: SANI 'know', HANKALI 'sense', TUNA (DA) 'remember', KOYA 'learn', YARDA 'agree', MAHAUKACI 'mad person, idiot'. Signs associated with feelings and emotions, but also with cognitive processes, are often located on or near the chest, e.g., SO 'like, want, love', HAKURI 'patience', FUSHI 'anger, bad temper', SHAWARA 'advice, opinion', NIYYA 'intention, goal'.

7.3.3 Incorporation of manner and direction of movement: movement morphemes

Size, speed and intensity of a sign can be changed to incorporate information about size or extent of an object or about manner or intensity of an action. Very often, these alterations in manner co-occur with changes in facial expression, e.g., DOGO 'tall' – DOGO SOSAI 'very tall' (large movement; tongue slightly protruded); SAMU 'get, obtain' – SAMU DA KYAR 'obtain with difficulty' (slower and tenser movement; tense facial expression).

We have already seen the group of so-called directional signs (see Section 7.2.1) in which information on subject and object of an action are incorporated by regular changes in the direction of movement. However, direction of movement not only expresses grammatical relationship; it can also differentiate semantically related signs, i.e. opposite direction of movement can imply opposite meaning, e.g., in the following sign pairs: HAU 'mount, climb' – SAUKA 'descend, come down'; HADA 'join, unite' – TSINKE 'break; break off'; SAYA 'buy' – SAYAR 'sell': whereas there

is a movement towards the body in SAYA, the dominant hand moves away from the body in SAYAR (see also Section 5.4).

Fig. 21: SAYA 'buy'.   **Fig. 22:** SAYAR 'sell'.

There are also some noun sign pairs of this type, e.g., HASKE 'light, brightness' – DUHU 'darkness' (see Figure 8).

Some groups of signs have a structured correspondence between the direction of the movement of the articulators in space and certain categories of meaning, e.g.,

– conjunction/closing (concrete or abstract meaning): moving hands towards each other, e.g., RUFE 'close', HADA 'join, unite', KUNGIYA 'association'.
– extension, expansion/disjunction, opening, wideness: separation of hands, e.g., TONA ASIRI 'reveal a secret', FILI 'open space, field', BAMBANCI 'difference'.

Finally, signs which trace a path through signing space can be modified to show actual or relative movement.

7.3.4 Incorporation of number of movement: repetition

Varying the number of movements (or repetitions of movements) of a sign, possibly at different points in space, is used both for nominal and verbal plurality (see Sections 7.1.1 and 7.2.2) but also to differentiate verbs and nouns. In HSL, there is a limited number of **verb–noun** pairs that are distinguished by the number (and manner) of movement: while the verb sign involves a single movement, the noun sign has a repeated movement that is also smaller than the movement in the verb sign, e.g., TSUFA 'become old' – TSOHO 'old man/women'; HAKURA 'be patient' – HAKURI 'patience'; CI 'eat' – ABINCI 'food'. In other verb–noun pairs these changes are not compulsory, and only context determines whether a particular sign serves as a noun or verb.

Repeating a sign or movement may also be employed for emphasis; this is usually combined with a change in the non-manual parameters.

7.3.5 Incorporation of handedness

Adding the non-dominant hand as a second articulator may be used for intensification and emphasis. This often involves a change in one of the other parameters as well, e.g., manner of movement or facial expression.

Adding the non-dominant hand is also employed to express plurality of actors (see Section 7.2.2). This is used productively to suit the needs of the context. Some signs that have been created through this process are now fully lexicalised. These derived forms can again undergo inflectional processes.

7.4 Compounding

In compounds, two or more free morphemes or signs are linked with each other in a sequential order to create new lexical items with new meanings, possibly for previously unexpressed concepts. The meaning of the newly created compound formations may or may not be predictable from the meaning of the signs making up the compound.

Compounding is a highly productive process in HSL. There are two types of compounds in HSL, "true compounds" and "blends".

7.4.1 True compounds (bi- or polysegmental forms)

In most compounds in HSL, the components that make up the sign have not undergone any kind of change but retain their phonological shape. However, they show a greater fluidity than signs that follow each other in non-compound phrases, and other signs may not be inserted. In some compounds the order of signs may be reversed.

The components of a compound may consist of established lexical items or of descriptive, imitative or iconic elements – imitating the appearance, usage or location of (new) objects or concepts – which are gradually reduced in their complexity in the process of frequent usage, for example ALKUR'ANI 'Qur'an', composed of LITTAFI 'book' and GASKIYA 'truth'; MASALLACI 'mosque', composed of SALLAH 'prayer' + GIDA 'house' (both illustrated in Section 8).

A special subgroup are compounds with a generic sign as first component. Examples of this type include compounds for the different types/models of cars or motorcycles, of different types of sauces or spices, cigarettes and cloth, e.g., CITTA 'ginger root' = YAJI 'any sharp-tasting spice' + KUTURU 'leper'; SHADDA 'silk fabric' = YADI 'yard; manufactured cloth' + TSADA 'expensiveness' (see Figure 23).

Another subgroup are compounds with enclitic-like morphemes as second component. These include the above-mentioned gender and age markers (see Sec-
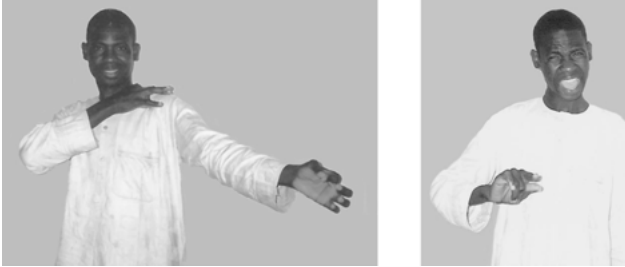
Fig. 23: SHADDA (YADI + TSADA) 'silk fabric'.

tion 7.1.3) but also morphemes to express size, extent or intensity. These signs occur almost exclusively in compound formations and are rarely found by themselves.

7.4.2 Blends

In blends, phonological and morphological processes operate on the internal structure of each component of the compound, resulting in a new monosegmental lexical unit. The two signs making up the blend are still recognisable but it is impossible to isolate them synchronically. Their appearance in the blend differs from their appearance as free forms in isolation, e.g., GOBE 'tomorrow' = KWANA 'spending the night' + DA SAFE 'in the morning'; RANTSE 'swear' = ALLAH 'God' + GASKIYA 'truth'. Blends occur less often in HSL than true compounds.

A special group of blends are those that use one of the negation markers as their second component. The negation marker BABU 'there isn't/aren't any' is mainly used with nouns and verbal nouns (and only a few verb signs). BABU differs from the other above-mentioned enclitic-like signs in that it assimilates in different ways to the preceding sign, e.g., regarding handedness (one- or double-handed). The blending processes described above hold also for signs blended with BABU, for example:

Fig. 24: BEBE 'Deaf person'.

The sign BEBE 'deaf person' is a blend of the signs JI 'hear' and BABU: In the sign JI, the bent index finger is moved towards the right ear in a small movement twice. BABU is performed by moving the flat hand downward; during this movement the palm orientation changes from facing down to facing up. In the sign BEBE, the hand moves down from the ear; during this movement the handshape changes from the extended index finger-hand to the flat hand, and the palm orientation changes from facing down to up.

7.5 Personal and possessive pronouns

Different locations are associated with different persons: pointing to oneself (on or near the chest) indicates 1st person; 2nd person is associated with the area directly in front of the signer; the locations to the right and left of the signer are used for 3rd person. These locations are used for both personal and possessive pronouns. The actual direction in which the finger is pointing is determined by the context, e.g., pointing away from the signer's body may sometimes indicate 2nd or 3rd person (eye gaze may be used to differentiate the two) but may also be a locative or demonstrative index.

There is no gender differentiation in the pronoun signs. To indicate whether the person referred to is female or male one may use one of the gender markers (see Section 7.1.3).

Personal pronouns

The singular personal pronouns are produced by pointing with the extended index finger, with a small movement in the direction of the respective location. Plurality is indicated by using the 5-hand. Optionally, both hands may be used and the movement may be performed slightly larger than in the singular. In the 3rd person plural pronoun the fingers may optionally be bent.

Possessive pronouns

The possessive pronouns are produced with the flat hand with extended thumb (B-hand) and a small movement in the direction of the respective location. Whereas the singular possessive pronouns are produced with one hand, the plural pronouns are performed with both hands. The 1st person singular possessive pronoun is produced with a small movement onto the chest.

Fig. 25: NAWA 'mine'.

7.6 Personal names / Name signs

Name signs in HSL depict a prominent feature or characteristic of a person, for example a body movement, facial expression or facial marking. The phonological form of these signs conforms to the phonological rules in HSL.

At school, students are given initialised name signs by the teachers, i.e. signs that use a handshape according to the first letter of a person's name, adding a location and some movement. These are not commonly used among deaf Hausa people outside the school context. The students themselves give each other name signs that depict a prominent feature of a person.

Non-manual signs

A few signs in HSL that are produced with parts of the body or with the head excluding the hands occur as individual signs in their own right, e.g., MURNA 'pleasure, gladness' and KI 'refuse'. In this sign, the shoulder is pulled up to the head (the ear) – see Figure 26.

Some of these non-manual signs are also used by hearing people in daily conversations.

Fig. 26: KI 'refuse'.

8 Examples of signs

	Explanation on sign performance / **Cultural explanation**
 Fig. 27: HAUSA(WA) / MU / MUTUM / MUTANE 'Hausa (people)' / 'we' / 'person' / 'people'.	Small movement of the *biyar*-hand onto the chest, repeated once.
 Fig. 28: GIDA / SHIGA 'house, compound' / 'enter'.	Movement of the dominant flat hand (or extended index finger-hand) below the non-dominant hand away from the body. Cultural explanation: Traditional houses have entrances where one has to bow one's head to enter.
 Fig. 29: SALLAH / MUSULMI 'prayer' / 'Muslim'.	Small movement with the flat hand onto the forehead, repeated once. Cultural explanation: In the Muslim five daily prayers one bows down and prostrates several times, with the forehead touching the ground.

	Explanation on sign performance / Cultural explanation
	Slightly bent hand close to chin, optionally with small upward movement.

Fig. 30: RUWA / SHA 'water' / 'drink'.

	Repeated up and down movement with the F-hand in front of the body. Cultural explanation: This depicts the movement of the dyers at the dyeing pits in Kano's old city. The sign RINA 'dyeing' is performed with both hands.

Fig. 31: SHUÐI 'blue'.

9 History of research

My research on Hausa Sign Language began in the early 1990s and continues to date. My analysis of HSL (Schmaling 2000) was the first comprehensive linguistic analysis of any African sign language. Until then, there had been little research on sign languages and deaf communities in Africa. Even today, there are comparatively few publications on African sign languages.

The research was done in collaboration with the deaf community in Kano State; this included many deaf individuals as well as the Kano State Association of the Deaf (KSAD), but also other deaf groups and associations throughout Kano State and some others parts of Nigeria. I participated in meetings of deaf organisations on a regular basis both in Kano Municipal as well as in some local governments in Kano State. I also participated in the weekly Qur'an classes that the KSAD organised for its members including serving as interpreter for several months in the mid 1990s.

Deaf people have been involved since the start of the research in the data collection and in checking and cross-checking signs. In 2011, we conducted a workshop at the Goethe Institute in Kano with four artists and a large group of deaf

people. The aim was to produce a series of sign booklets on various topics – instead of a voluminous sign language dictionary – with drawings of HSL signs and a translation of each sign into written Hausa. This work is ongoing. So far two booklets have been published, and others are being prepared for publication.

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15 Ho Chi Minh City Sign Language

1 Basic facts about the language

Language name: Ho Chi Minh City Sign Language, ngôn ngữ ký hiệu thành phố Hồ Chí Minh. The name in the sign language appears in Figure 1.
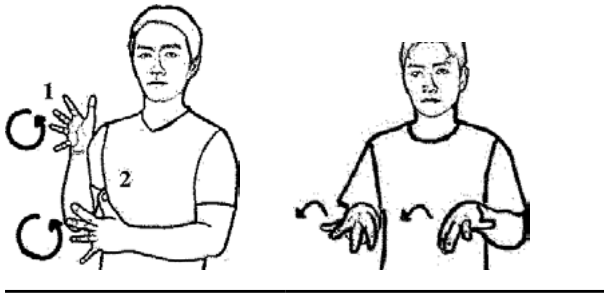
Fig. 1: Language name in Ho Chi Minh City Sign Language.

Alternative names: HCMCSL, NNKHTPHCM, Vietnamese Sign Language, Southern Vietnamese Sign Language.

Location: Used in Ho Chi Minh City, the areas south of Ho Chi Minh City and as far North at Da Nang, Viet Nam as shown in Figure 2.

Varieties: Minor lexical differences throughout the area that uses this sign language. The variety described in this paper is used in Ho Chi Minh City proper and by Deaf adults from Ho Chi Minh City who are students in junior high school,

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LE Thi Thu Huong, Hy Vong 8 School for the Deaf, Ho Chi Minh City, Viet Nam and Intergeneration-
al Deaf Education Outreach Project, World Concern, Viet Nam, e-mail: thuhuonga01@yahoo.com
LUU Ngoc Tu, Center for Supporting Children With Special Needs, Ho Chi Minh City, Viet Nam,
e-mail: ngoctu_diudang@yahoo.com
HO Thu Van, Intergenerational Deaf Education Outreach Project, World Concern, Viet Nam,
e-mail: htvan@wcasia.org

Fig. 2: Map showing the area where HCMCSL is used in Ho Chi Minh City, the areas south of Ho Chi Minh City, and as far north as Da Nang, Viet Nam within the larger context of Southeast Asia.

senior high school, and university at The Dong Nai Deaf Education Project at Dong Nai University.

Number of signers: Since there has never been a census of deaf people in Viet Nam, the real number of signers is unknown. However, some estimate of the number of signers can be made. The website at www.citypopulation.de/Vietnam.html lists the population of Viet Nam at 85,789,573 for 2009. The population for the area where Ho Chi Minh City Sign Language (HCMCSL) is used (see above) is 45,073,844. Using United Nations estimates of 1 person out of every 1,000 person born profoundly deaf or becoming profoundly deaf at an early age, there would be an estimate of 45,074 deaf people living in the area where HCMCSL is used. The estimated number of users of HCMCSL is up to 45,000 users.

2 Origin and history

Ho Chi Minh City Sign Language (HCMCSL) developed out of a mixture of original sign languages in Southern Viet Nam with French Sign Language in 1886, when the first school for deaf people was established in Lai Thieu, Binh Duong Province. Lai Thieu school, a residential school, was established as a result of the meeting of a French priest with a young Vietnamese Deaf man. The French priest was Father Armar or Father Azemar (spellings vary according to different sources); and

the Vietnamese Deaf man was Mr. Nguyen Van Truong (also known as Jacques Cam). In 1880 Father Armar arranged for Mr. Nguyen Van Truong to go to France to be educated. Mr. Nguyen Van Truong returned to Viet Nam in 1886, focused on improving his written Vietnamese, and became the first teacher at the Lai Thieu school for deaf people. The Lai Thieu school remained the only school for deaf people in Viet Nam until 1976 when a second school was established in Hai Phong in the North of Viet Nam.

The signs at the school for Lai Thieu had a dramatic impact on other existing sign languages in Viet Nam, especially those in Saigon (now Ho Chi Minh City), the largest metropolitan area in Viet Nam. (Lai Thieu is located about 30 kilometers northeast of what was then Saigon and what is now Ho Chi Minh City.)

One study (Woodward 2000) has used the Swadesh word list modified for sign language research to compare the basic core vocabulary in HCMCSL with the basic core vocabulary of other sign languages in Viet Nam. HCMCSL and Ha Noi Sign Lanuage (HNSL) have a 58 % rate of similarities in basic core vocabulary, and HCMCSL and Hai Phong Sign Language (HPSL) have a 54 % rate of simularities in basic core vocabulary.

3 Bilingualism and language contact

Almost all schools in the southern part of Viet Nam are oral only or use some simultaneous communication. Only one program in Viet Nam currently uses HCMCSL as it is used by fluent Deaf users (and as HCMCSL is described in this article). This program, The Nippon Foundation funded project entitled "Opening University Education to Deaf People in Viet Nam Through Sign Language Analysis, Teaching, and Interpretation" located at Dong Nai University, 32 kilometers northeast of Ho Chi Minh City. The Dong Nai Project offers bilingual instruction in HCMCSL and written Vietnamese at the junior high school level, the senior high school level, and the university level. The Dong Nai Project, established in 2000, produced the first class of Deaf junior high school graduates, the first and only classes of Deaf senior high school graduates, and the first and only university classes for Deaf students.

4 Political and social context

4.1 Other sign languages in Viet Nam

As mentioned earlier in this paper, in addition to HCMCSL there are at least 2 other major sign languages in Viet Nam: HNSL and HPSL. HCMCSL has a 54 % rate of

similarity in basic cored vocabulary with HPSL and a 58 % rate of similarity in basic vocabulary with HNSL. It should be noted that these percentages are lower than the percentages of cognates in basic core vocabulary between French Sign Language and American Sign Language (62 %).

Signers from Ho Chi Minh City who have met signers from Ha Noi and Hai Phong and who have learned HNSL and/or HPSL in addition to HCMCSL say that it took them about 6 months of interaction before they felt completely comfortable in their interactions with fluent users of HNSL and HPSL. These Deaf people, along with many others, prefer bilingualism to standardization. However, the Vietnamese government advocates standardization not bilingualism, and the Vietnamese government is attempting to create a "unified" sign language, something that many Deaf people do not want.

Currently the Vietnamese government is preparing a law for people with disabilities based on the UN Convention on the Rights of People With Disabilities. While it is known that sign language or sign languages will be mentioned in the law, but it is not know at this time what information about sign languages in Viet Nam will be included in the law.

4.2 Organizations

There is no national association of Deaf people in Viet Nam. However, The Deaf Culture Club of Ho Chi Minh City (www.deafcchcmc.org) attracts many excellent users of HCMCSL.

5 The structure of signs

HCMCSL, like all sign languages, has a sub-lexical level of structure analogous to but not dependent on the phonological structure of spoken languages. Handshapes, orientations, locations, and movements, and non-manual expressions follow expected patterns found in other sign languages. However, there are some handshapes that are not commonly used in the world's sign languages. In particular there are a large number of bent handshapes. A chart of handshapes that occur naturally (not dependent on fingerspelling) in HNSL appear in Figure 3.

HCMCSL fingerspelling (letters and diacritics) for the Vietnamese alphabet can be seen in Figure 4 and 5. There are two ways that the diacritics are fingerspelled: 1. the earlier way in which all letters are spelled and then all diacritics are fingerspelled and 2. the more recent way in which diacritics are spelled immediately after the letter they refer to. (HNSL and HPSL use a somewhat different fingerspelling system than HCMCSL.)

Fingers	closed	closed bent	open	extended	extended bent	rounded	rounded tapered	contact	contact tapered	inserted
0										
0										
1 (I)										
1 (P)										
2 (I+M)										
2 (I+M) Spread										
2 (I+R)										
3 (I+M+R)										
3 (M+R+P)										

Fingers	closed	closed bent	open	extended	extended bent	rounded	rounded tapered	contact	contact tapered	inserted
4										
4 Cupped										
4 Spread										

Fig. 3: Handshapes that occur naturally in HPSL.

Fig. 4: Letters in HCMCSL fingerspelling.
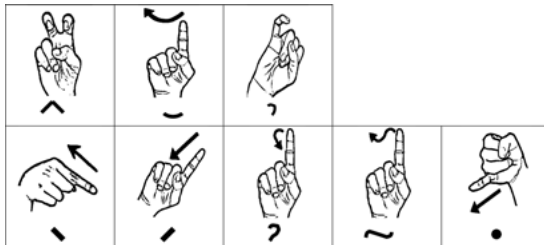
Fig. 5: Diacritics in HCMCSL fingerspelling.

5.1 Phonological Processes

HCMCSL exhibits all the common phonological processes and change found in the world's sign and spoken languages: coalescence, deletion, assimilation, compensatory lengthening as well as the less common process of epenthesis. No examples yet have been found for other less common processes of dissimilation, and metathesis; but these likely occur also. Oldest and newest signs for months of the year, such as February shown in Figure 6 illustrate these changes.

Oldest sign phrase for February		
February =	month	two

Newest sign phrase for February	
February =	February

Fig. 6: Oldest and newest signs for February in HCMCSL.

- Assimilation of V handshape from second sign to first sign.
- Coalescence occurs because two signs become one sign.
- Deletion of circular movement.
- Epentheses of outward movement

While compensatory lengthening is not found in February, it is found in the newest sign for Monday, shown in Figure 7. The HCMCSL sign for Monday has repeated outward movement to "compensate" for the deletion of the first sign in the original compound.

Newest sign for Monday	
Monday =	Monday

Fig. 7: Newest HCMCSL sign for Monday showing compensatory lengthening.

6 Basic morphology and lexicon

It is interesting to note that the difference between "February" (Noun + Numeral) and "two months" (Numeral + Noun) is expressed by word order in spoken/written but by separate lexical items in HCMCSL. Figure 8 shows these differences.
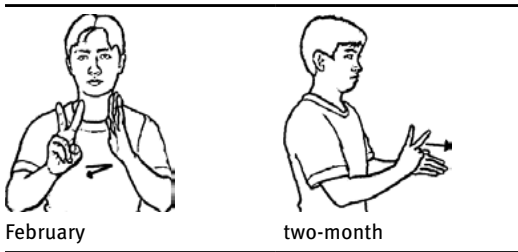
February   two-month

Fig. 8: HCMCSL signs for February and for two-months.

A striking fact about the lexicon of HCMCSL is that there are a large set of verbs related to eating. Figure 9 has examples of some of these verbs related to eating

eat-guava	eat-apple	eat-coc
eat-grape	eat-mango	eat-orange
eat-star-apple (1)	eat-star-apple (2)	eat-watermelon
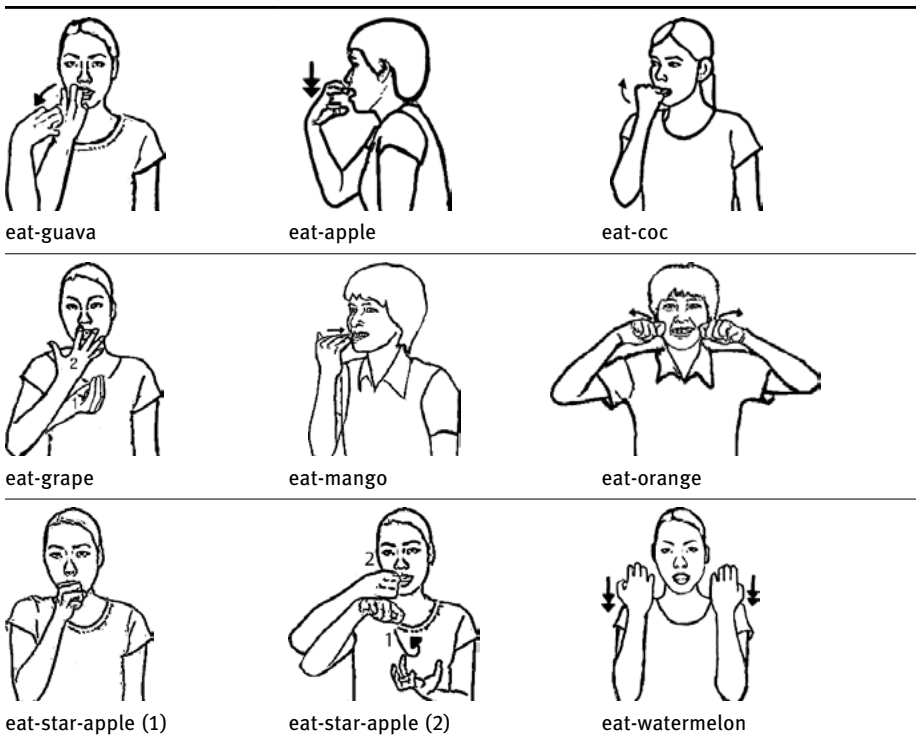
Fig. 9: Some examples of signs for people eating different fruits in HCMCSL.

| eat-grass | chicken-eat | bird-eat |
| duck-eat | eat-bone | cat-eat-fish |
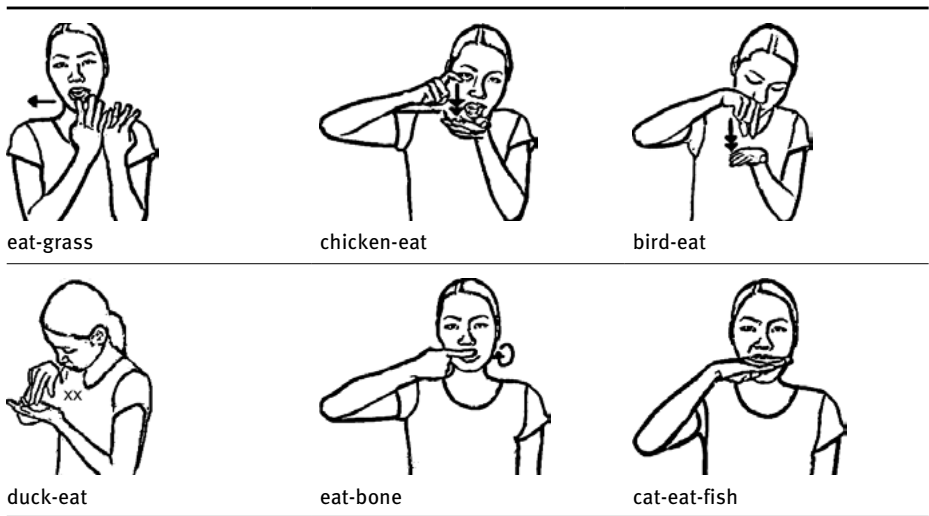
Fig. 10: Some examples of signs for animals eating different objects in HCMCSL.
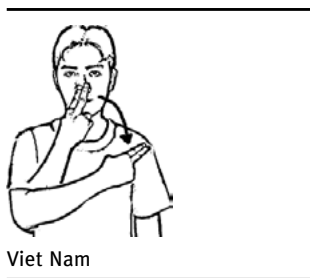
Viet Nam

Fig. 11: HCMCSL sign for Viet Nam.

different types of fruit. There are also verbs for eating different kinds of vegetables, rice, noodles, etc.

In addition to signs for people eating, there are a number of signs related to animals eating. Figure 10 lists some of these signs.

Finally, it should be noted that the sign for Viet Nam in HCMCSL shown in Figure 11 is different from that from the sign used in HNSL and in HPSL.

In terms of morphology, HCMCSL has directional verbs that indicate first person, second person, and third person. Some verbs like ASK-A-QUESTION do not change orientation or have minor changes in orientation. Other verbs like BORROW radically change orientation. Examples of differences in these two types of directional verbs are shown in Figure 12.
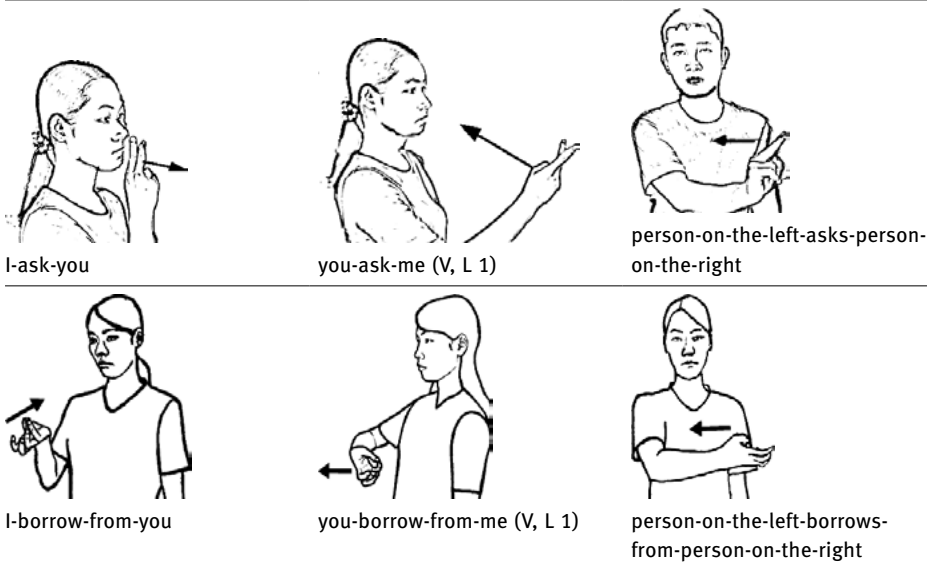
Fig. 12: Some examples of HCMCSL directional verbs.

6.1 Basic Morpho-syntax

Possession involving pronouns can be expressed in two morpho-syntactic ways. The first is uninflected pronoun + noun. The second is noun + inflected pronoun (inflected for possession). An example of these morpho-syntactic differences are shown in Figure 13.

Fig. 13: Examples of morpho-syntax in HCMCSL.

7 Basic syntax

In HCMCSL phrases, modifiers occur occur after the head. Thus, in verb phrases, auxiliaries occur after the verb head (EAT + WANT), negatives occur after the verb head (EAT+ NOT), and long verb phrases follow the pattern: Verb + Auxiliary + Negative (EAT + WANT + NOT). Similarly, in noun phrases, adjectives follow nouns (GUAVA + GREEN), numerals follow nouns (GUAVA + THREE), and long noun phrases in HCMCSL follow the pattern: Noun + Adjective + Numeral (GUAVA + GREEN + THREE).

7.1 Word Order in Simple Statements and in Simple Yes/No Questions

In HCMCSL, if the object is a single noun or pronoun (and not a noun phrase), the normal word order in simple statements is Subject + Object + Verb as shown in Example 1a and 1b. If the object is a noun phrase and the verb does not have an incorporated object, there are two equally possible word orders in simple statements. Example 2a illustrates one of these possible words orders: Subject + Object (Head&Modifiers) + Verb. Example 2b illustrates the second possible word order: Subject + Object (Head) + Verb + Object(Modifiers). However, if the object is a noun phrase and the verb has an incorporated object, there is only one possible word order for simple statements: Subject + Object (Head) +Verb + Object(Modifiers) as shown in Example 3.

(1) (a)

| Subject
[N] | Object
[N] | Predicate
[V] |

Best English Translation: "Mother eats/ate guava."

(b)

Subject	Object	Predicate
[N]	[N]	[V]

Best English Translation: "Mother likes guava."

(2) (a)

Subject	Object (Head	Modifiers)	Predicate
[N]	[N	AJ]	[V]

Best English Translation: "Mother likes green guava."

(b)

Subject	Object (Head)	Predicate	Object (Modifiers)
[N]	[N]	[V]	[AJ]

Best English Translation: "Mother likes green guava."

(3)

Subject	Object (Head)	Predicate	Object (Modifiers)
[N]	[N]	[V]	[AJ]

Best English Translation: "Mother ate green guava."

7.2 Word Order in Simple Content Questions

In HCMCSL, content question words like "who", "what", "where" always occur at end of a sentence. If the subject is a content word or phrase, the normal word order in is OVS as shown in Examples 4a and 4b. If the object is a single content word, the normal order is Subject + Verb + Object as shown in Example 5. If a the object of a content question is a noun phrase, the content question has the word order Subject + Object (Head) + Verb + Object (Modifier-QW) as shown in Example 6.

(4) (a)

Object	Predicate	Subject
[N]	[V]	[QW]

Best English Translation: "Who eats/ate guava?"

(b)

Object	Predicate	Subject	
[N]	[V]	[N	QW]
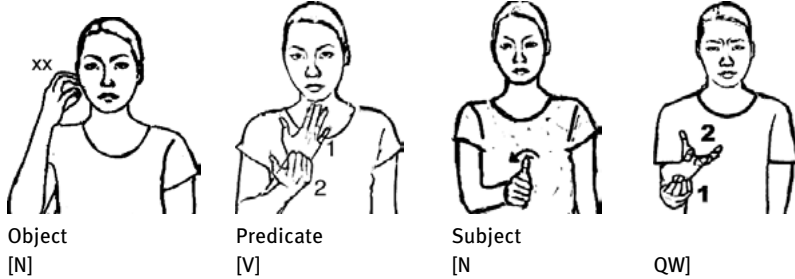
Best English Translation: "How many people like guava?"

(5)

Subject	Predicate	Object
[N]	[V]	[QW]
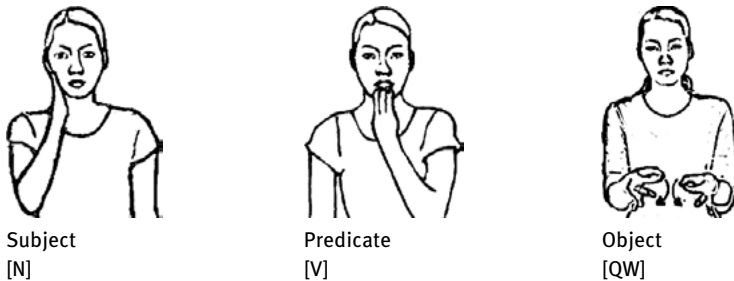
Best English Translation: "What did mother eat?"

(6)

Subject	Object (Head)	Predicate	Object (Modifier)
[N]	[N]	[V]	[QW]

Best English Translation: "How many guava did mother eat?"

8 History of Research

Research began on HCMCSL in 1997, when James Woodward, then working at Ratchasuda College, Mahidol University at Salaya, Thailand, attended a meeting in Ha Noi and collected signs for the Swadesh list from 2 female signers in their early twenties from Ho Chi Minh City.

In 1999, Woodward met NGUYEN Thi Hoa, a highly experienced teacher of deaf students in Ho Chi Minh City at a conference in the Philippines. Since no classes of deaf students in Viet Nam had graduated from junior high school, Ms. Hoa and Woodward decided to establish a full high school and university program for deaf students in Viet Nam that would include training in Sign Language Linguistics for deaf students. In 2000, the Project on "Opening University Education to Deaf People in Viet Nam Through Sign Language Analysis Teaching, and Interpretation" was established in Dong Nai Province, where forty-three Deaf students were trained in basic Sign Language Analysis and 8 students have gone on to work intensively on research on HCMCSL.

The following have been published: two historical-comparative articles on HCMCSL (Woodward 2000, 2003), two articles about bilingual education involving the use of HCMCSL and written Vietnamese (Woodward, Hoa, and Tien 2004 and Woodward and Hoa 2012), four student handbooks (two in English and two in Vietnamese) on the grammar of HCMCSL (The HCMCSL Production Team 2007a, b, c, d), and four (two in English and two in Vietnamese) companion dictionaries (The HCMCSL Production Team 2007e, f, g, h).

The HCMCSL Production Team includes NGUYEN Dinh Mong Giang, NGUYEN Thi Hoa, LE Thi Thu Huong, NGUYEN Hoang Lam, NGUYEN Minh Nhut, NGUYEN Tran Thuy Tien, LUU Ngoc Tu, HO Thu Van, James Woodward, as well as PHAN Hoang Dung, PHAM Van Hai, and DANG Thi Anh Thu. All members of the HCMCSL Production Team are Deaf except for NGUYEN Thi Hoa and James Woodward.

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16 Icelandic Sign Language

1 Basic facts about the language

Language name: Íslenskt táknmál, used both by the Icelandic Deaf community and researchers.

Alternative names: The Icelandic Deaf community also uses táknmál and researchers also use the abbreviation of íslenskt táknmál, ÍTM as well as the English translation Icelandic Sign Language.[1]

Location: Iceland

Varieties: There is no geographical variation in ÍTM as most of its speakers live in or around the capital (Reykjavík). The lack of geographical varieties can also be explained by the fact that at any given time there has only been one Deaf School in Iceland. The school was a boarding school until the late 20th century, and since 1908 it has been located in the capital (see Thorvaldsson 2010). There are also fewer services for Deaf people in the countryside than in the capital area. No gender variation has been attested for ÍTM but all generational variation is significant. Phonological, lexical, morphological and syntactic variation in relation to generation level variation has been attested for ÍTM (see e.g., Thorgrímsdóttir 2010; Sigurbjörnsdóttir 2011; Thorvaldsdóttir 2011; Brynjólfsdóttir 2012; Brynjólfsdóttir and Thorvaldsdóttir 2014) (see further discussion in Section 4.3).

Number of signers: The Communication Centre for the Deaf and Hard of Hearing provides services for 210–250 Deaf signers annually. According to the Communication Centre's annual report from 2013 the Centre had provided interpreter service for 178 Deaf signers in that year but the Centre does not serve all Deaf signers in the country. The Communication Centre provides other services as well, including ÍTM teaching and a family consulting service (see information about the Communication Centre in Section 4.1). According to the Icelandic Association of the Deaf the number of Deaf and hard of hearing members came to 170 in the first months of 2014. The Association affirms that not all members are interpreter users (see

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1 The abbreviation ÍTM will be used throughout this chapter.

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information about the Association in the Section 4.1). The number of Deaf signers in Iceland is usually estimated as somewhat higher, or 250–300 people, as many Deaf children and some other Deaf signers do not use interpreter services nor are they members of the Icelandic Association of the Deaf. According to the Communication Centre the number of hearing signers of ÍTM is estimated at 1000–1500, including teachers, interpreters, students, co-workers, family and friends of the Deaf.

2 Origin and history

The teaching of Deaf children in Iceland began a good decade before the Milan Conference when Rev. Páll Pálsson was appointed a teacher of the deaf-mute in 1867. He founded the first Deaf School in his home, at Prestbakki rectory, in 1868 and started teaching three students. Before the establishment of the school little is known about Deaf people and sign language in Iceland.

In 1820–1867, 36 children were sent to Copenhagen to study at the Royal Institute for the Deaf-Mute (Det Konglige Døvstummeinstitute),[2] among them young Pálsson. He had lost the ability to speak due to an illness but regained speech while he was in Denmark and then returned to Iceland. Because of his experience he felt that he understood the position of Deaf people and became interested in teaching them (see Thorvaldsson's 2010: 8 overview). Pálsson went back to his old school in Copenhagen to study methods for teaching the deaf-mute (Pálsson 1867; Thorvaldsson 2010: 15–17).

Pálsson's students were aged 10–25 and all lived in his home (Pálsson 1867). In Pálsson's home the first community of Deaf people in Iceland was formed and ÍTM's predecessor emerged. The language in the school setting was undoubtedly influenced by Danish Sign Language (DTS, Dansk tegnsprog) as Pálsson had studied in Denmark from a young age, and recent research studies show significant intelligibility between ÍTM and DTS (see Aldersson and McEntee-Atalianis 2007; Sverrisdóttir and Thorvaldsdóttir 2015).

Pálsson described the objectives of his teaching in a newspaper article in 1874. At that time, his students were to be able to express their thoughts and be fairly well understood by others through writing, pointing and finger language, in addition to being able to read and study the basics of Christianity (Pálsson 1874).

Finger language is the term used in Pálsson's and other writings in the late 19th century, both for fingerspelling and other means of communication with the hands and fingers. The Communication Centre preserves video recordings of Deaf individuals born at the turn of the 20th century signing. Fingerspelling is evident in their

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2 Iceland was a part of the Kingdom of Denmark until 1944 when Iceland declared independence.

language use and far more frequent than in modern ÍTM. They both use signs and spell out Icelandic words or word parts. Facial expressions and mouth patterns are prominent in their language. No research has been conducted on the development of finger language into modern ÍTM but a comparison of old lexical items to their equivalents in the modern language has shown that the lexicon has changed quite a bit since the turn of the 20th century. The manual alphabet has also changed. Sigfús Sigurðsson, one of the Deaf children who were sent to Copenhagen to study, carved all the characters in what he called the *finger language alphabet* and printed in a booklet in 1857 (Sigurðsson 1857). Those carvings show a somewhat different manual alphabet than in modern ÍTM; nine new characters have been added and the formation of six has changed. Many of the characters are similar or identical to the characters in the DTS manual alphabet used in the Royal Institute for the Deaf-Mute in Copenhagen in the 19th century (Roosen 1808).

ÍTM has been in contact with other languages, signed and spoken, since it's emergence. The history of Deaf education in Iceland and the teaching philosophy at each time has had an influence on the development of the language. Though only a few research studies have been conducted on the influence of other languages on ÍTM it is clear that the language contact between ÍTM and both DTS and Icelandic has had an influence on the language (see further discussion in Section 3.2).

3 Bilingualism and language contact

3.1 Education

As stated in Section 2, Pálsson's educational objectives in the first school for the Deaf in Iceland was that the students learn to express their thoughts and make themselves understood, through writing, pointing and finger language. According to available data, speaking Icelandic and lip-reading were of no concern to Pálsson. Pálsson's understanding was that deaf people were endowed with all the same mental and emotional traits as hearing people. They only lacked the ability to speak due to hearing loss (News from Iceland Althingi 1871: 187). Pálsson died a sudden death in 1890. Until 1922 his teaching methods remained virtually unchanged except that the school principals who took over did not have the same experience of Deaf schooling he had.

In 1922 the Danish Mouth-Hand system was adapted to Icelandic and the principal, Margrét Rasmus, took it up as a teaching method at the Deaf School (Jónsson 1967). Signs for phonemes which are the most difficult to lip-read were used while speaking Icelandic. The objective of using the system was to teach the children to speak and understand speech. Until 1944 the teaching methods used included the manual alphabet and some signing but with emphasis on lip-reading and speech.

In 1944 a drastic change was made in the educational policy of the Deaf School. Oralism took over and all signing was banned in the classroom. The sole objective was to teach the children to speak and understand Icelandic. Children also started to attend school at the age of four instead of six, as the new principal, Brandur Jónsson, believed that the children needed two years to learn speech before formal schooling started (Jónsson 1967).

It wasn't until the late eighties that Jónsson saw the need for signing, as it was evident that oral teaching methods were not successful. Even though the sign language ban was lifting, the aim was still to teach the children to lip-read and speak Icelandic (Committee Report According to Act no. 26/2007 2009: 145–147).

In the school year 1978–1979 there was an uprising against the teaching methods at the Deaf School. It started with a project assigned to teenagers during which they were to sign and speak at the same time. This was required for the teachers to be able to understand their presentations since their knowledge of ÍTM was very poor. The students refused to mix the two languages together and after a long debate the students were allowed to use only signing. Icelandic was still the dominant language in the school.

When a new principal, Guðlaug Snorradóttir, took over the Deaf School she introduced a new teaching method, Total Communication (Thorvaldsson 2010: 76–78). Total Communication entails various methods, such as lip-reading, writing, gestures, signs and the manual alphabet. However, as before, the school's objective remained "to teach the students to understand the language and to speak" (Snorradóttir 1983). *Language* meant Icelandic; the teachers did not know ÍTM nor did the parents of the Deaf children. At that time it was not possible to learn ÍTM – the only material available was a beginner's course offered by the Icelandic Association of the Deaf and the Deaf School. Only single signs were taught, but no grammar.

In 1985 the next principal, Gunnar Salvarsson put emphasis on ÍTM and Deaf culture. In order to strengthen the status of ÍTM and support the teachers, Salvarsson made a contract with the Iceland University of Education to offer sign language courses for them in the years 1989–1990.

Nevertheless, Total Communication was the main communication form at the Deaf School until 1996 when Berglind Stefánsdóttir was installed as the first Deaf principal of the Deaf School. Bilingualism was the objective in Stefánsdóttir's term of office where ÍTM was supposed to be the language of instruction and for daily communication in the school settings and Icelandic the written language used. The teachers' lack of proficiency in ÍTM was clearly an obstacle. In 2002 the Deaf School and a neighbourhood school for hearing children merged. The former Deaf School became a sign language department in an inclusive school (Thorvaldsson 2010: 92–93; Committee Report According to Act no. 26/2007 2009: 435).

For over thirty years there have been dramatic changes in ideology and didactics in Deaf education though the tendency has mostly stressed assimilation into

the hearing society. The progression has been from Oralism with two completely separate language worlds to Total Communication, to bilingualism and now the inclusive school where the Deaf students most often have to adapt to teaching methods developed for hearing children. The teaching policy of bilingualism is promulgated but ÍTM, nevertheless, enjoys only a weak role and the children are mainly taught in mainstreamed settings.

In 2011 the Icelandic Parliament passed a law legalizing and ÍTM stating that it is the first language of the Deaf in Iceland and that deaf and hard of hearing children should be able to learn ÍTM as soon as they are born or when their deafness is first discovered. ÍTM is therefore now of equal status with Icelandic as a medium of expression for interpersonal communication, and discrimination between individuals on the grounds of which language is used is prohibited (Act on the status of the Icelandic Language and Icelandic Sign Language no. 61/2011).

In the 2013 inference of the Committee for Icelandic Sign Language the committee members stated their concern for the implementation of the law in the school setting as the inclusive school cannot offer a sign language environment for the children even though it is fundamental for language development (Inference of the Committee for Icelandic Sign Language on its status, June 7th 2013).

3.2 Influence from dominant languages

The connection with the Royal Institute for the Deaf-Mute in Copenhagen and other language contacts between ÍTM and DTS over time has had a provable influence on ÍTM. Most of Pálsson's successors also studied in Denmark and Danish teaching methods, e.g., the Mouth-Hand system, influenced the teaching at the Deaf School in Iceland (Thorvaldsson 2010: 46).

In a recent study on colour terms in ÍTM, Sverrisdóttir and Thorvaldsdóttir (2015) argue that DTS, and possibly other Nordic sign languages, influenced a change in ÍTM's lexicon in the seventies due to a standardization attempt. In the foreword of the first and the second ÍTM dictionaries it is stated that signs were borrowed from other sign languages. In the first ÍTM dictionary (Sign Language 1976) there are 600–700 signs that were borrowed from DTS and Swedish Sign Language (STS, Svensk Teckenspråk). In the foreword of the second ÍTM dictionary (Sign Language Dictionary 1987), a Deaf committee member states that some signs in the dictionary are signs that the Nordic Council of the Deaf (Døves Nordiske Råd) decided as Nordic signs during the standardization attempt and others are borrowed from a 1979 DTS dictionary (Guðjónsdóttir 1987; Danish-sign dictionary 1979).

Sverrisdóttir (2000) bluntly states that ÍTM differs from DTS and it has been claimed that ÍTM is based on DTS but has changed and developed into a different language (see Lewis et al. 2015). Bergman and Engberg-Pedersen (2010) imply a possible genetic relationship between ÍTM and DTS due to educational arrange-

ments for Deaf children in the 19th century. Based on the results of Aldersson and McEntee-Atalianis' (2007) comparative study on the ÍTM and DTS lexicons and their recent study on colour terms, Sverrisdóttir and Thorvaldsdóttir (2015) conclude that the relationship between ÍTM and DTS is not a genetic relation but one of borrowing. Nevertheless further comparative studies on the grammar of the two languages are needed.

Today ÍTM is in contact with other sign languages, e.g., STS, American Sign Language (ASL), Polish Sign Language (PJM, Polski Język Migowy) and the Baltic sign languages due to immigration to Iceland and Deaf Icelanders going abroad and learning other sign languages. No research has been conducted on the influence of this language contact on ÍTM.

Icelandic has undoubtedly had an effect on ÍTM. Icelandic is, and has always been, ÍTM's surrounding language. The influence may perhaps be traced to the use of the manual alphabet in teaching, the ban on the use of ÍTM in the 20th century and the mixing of the two languages under the flag of Total Communication. The effect of Icelandic is evident in loan translations and the use of prepositions and conjunctions. A recent discovery of verb second constructions in young signers' matrix questions implies recent influence on the syntax (see Brynjólfsdóttir et al. 2012; Brynjólfsdóttir and Thorvaldsdóttir 2014; Brynjólfsdóttir, Jónsson, and Sverrisdóttir forthcoming).

4 Political and social context

4.1 Organizations

The Icelandic Association of the Deaf (Félag heyrnarlausra) was established on the 11th of February 1960. It is the headquarters for the fight for Deaf rights in Iceland but also serves as a venue for social gatherings (Deaf Club). The Association is a member of the European Union of the Deaf (EUD) and the World Federation of the Deaf (WFD). *The Communication Centre for the Deaf and Hard of Hearing* (Samskiptamiðstöð heyrnarlausra og heyrnarskertra) was established by law on the 31st of December 1990 (Act on the Communication Centre for the Deaf and Hard of Hearing no. 129/1990). The Act's objective is to promote equal rights of Deaf people by supporting services to them in ÍTM. Other identified tasks are researching ÍTM, teaching ÍTM and being the centre for sign language interpreting and other services relating to ÍTM communication. The Communication Centre is a government institution. Both organizations are situated in the capital.

4.2 Attitudes to sign language

In Stefánsdóttir's (2005) study on the signing society in Iceland all the 33 Deaf individuals who participated in her research had experienced the ban on ÍTM directly or indirectly and had certainly been exposed to the opinion that the use of ÍTM could have a negative effect on language acquisition and development. The lack of respect for ÍTM, in the opinion of the participants, had a negative effect on Deaf people's self-image and self-respect. In their opinion, the hearing majority often considers ÍTM to be a method or a tool for teaching Icelandic. Attitudes towards signed languages or language ideologies have had dramatic and devastating consequences for Deaf people's lives. The hearing teachers' conceptualizations about ÍTM and Deaf people have been reflected in the teaching methods used at each time. Drawing on Irvine and Gal's (2000) discussion of language ideologies with the semiotic processes of iconization and erasure it is possible to investigate the dramatic consequences attitudes have had on the lives of Deaf people.

Iconization is a process that involves "the attribution of cause and immediate necessity to a connection (between linguistic and social groups) that may only be historical, contingent, or conventional" (Irvine and Gal 2000: 37). These linguistic features are then made to be and are subsequently interpreted as being iconic of the identities of the speakers. In a paper on Deaf education, Brandur Jónsson, the principal of the Deaf School in Iceland, said that the most serious consequence of deafness was not to be able to acquire a language (Jónsson 1967). The reason given was that language is what distinguishes a human from an animal. At that time ÍTM was not accepted as a language and subsequently Deaf people were not thought of as reflective human beings, as Jónsson in his paper further explains how the hearing impaired child cannot express its needs or thoughts (Jónsson 1967: 126–127). This stance taken by school authorities (and the complete erasure of ÍTM) at that time led to devastating consequences for the lives of Deaf people that manifested in violence, sexual abuse, exclusion from education and the opportunities life has to offer (Committee Report According to Act no. 26/2007 2009). Further, the ideological practises in the educational system that see ÍTM as an aid, used to support understanding in spoken Icelandic, attribute to the Deaf the identities of the disabled, but not that of full members of a cultural community (Stefánsdóttir 2005).

The attitudes that ÍTM is for the Deaf who cannot speak Icelandic is common and that it is inconsequential for those whose goal is assimilation to the hearing society. Even within the educational system ÍTM does not command the respect the law should grant it. The school system does not rate ÍTM as being on a par with Icelandic as ÍTM teachers are not required to have special education in order to teach the language and there are no formal minimum ÍTM requirements for elementary school or pre-school teachers who teach Deaf children.

From 2006–2009 the Communication Centre for the Deaf and Hard of Hearing conducted research on the language development of children who were hard of

hearing, Deaf or had Deaf parents. The results showed that 35 of 43 participants knew some ÍTM but only two individuals achieved language ability as "active bilinguals." Neither of them was hard of hearing or had a cochlear implant. The results of the research as a whole indicate that there is a considerable deficiency in the linguistic skills in ÍTM of children who have been exposed to ÍTM and Icelandic, a finding that perhaps reflects the general language ideologies towards ÍTM.

It should be noted, however, that the Icelandic public generally has a positive attitude toward ÍTM and there is a good deal of interest in ÍTM courses.

4.3 Other social and geographical varieties

There is no geographical variation in ÍTM and no gender variation has been attested for ÍTM (see e.g., Thorgrímsdóttir 2010). The only variable known to be relevant for ÍTM is age. A few studies on the grammar of ÍTM reveal significant generational variation.

Both Sigurbjörnsdóttir's (2011) study on lexical variation and Sverrisdóttir and Thorvaldsdóttir's (2015) study on colour terms in ÍTM reveal a generational variation in the lexicon. ÍTM has a set of old signs for colour terms and also new signs that differ both phonologically and morphologically from the old signs. There are also quite a few other old signs in the language that only old or middle-aged signers use today.

Thorvaldsdóttir's (2011) study reveals a generational variation in the use of agreement verbs as younger signers are more likely to use agreement verbs than older signers. This shows both morphological and syntactic variation as the use of agreement verbs affects both sign formation and word order.

Brynjólfsdóttir's (2012) study reveals syntactic generational variation in constituent questions as verb second constructions appear in younger signers' matrix questions.

Brynjólfsdóttir and Thorvaldsdóttir's (2014) study on conjunctions in ÍTM reveals a generational variation in the use of co-ordinating conjunctions as younger signers tend to use single signs instead of finger loci or body movements.

4.4 The sign language in its political context

Since 1960, one of the main struggles of the Icelandic Association of the Deaf has been to obtain recognition of ÍTM as part of a valid and respected Deaf way of life by ensuring Deaf people's participation in society as Deaf individuals.

According to the Administrative Procedures Act (no. 37/1993) "an authority shall provide those who apply to it with the necessary assistance and guidance in cases that fall within its competence" (Article 7). This article has been interpreted as the Administration's obligation to communicate with Deaf people through sign

language interpretation. The right to sign language interpretation is mentioned in the Patient's Rights Act (no. 74/1997) and the Act on Criminal Procedure (no. 88/2008) states that when giving a statement, a person who does not understand Icelandic sufficiently should be provided with a court interpreter. In a request from the Ministry of the Interior it is stated that Deaf people have the right to a sign language interpretation when dealing with a district commissioner (Ministry of the Interior 2013). Iceland's Supreme Court pronounced a judgment in 1999 stating that the last televized election debate, on the night before election, should be interpreted into ÍTM (Case no. 151/1999). The president's annual New Year's Day speech is broadcast live and interpreted into ÍTM afterwards.

Both the Compulsory School Act (no. 91/2008) and the Preschool Act (no. 90/2008) state the rights of Deaf parents to interpretation in communication with the schools. These provisions are the consequence of a legal proceeding started by the Icelandic Association of the Deaf against the city of Reykjavík (Case no. E-4873/2005). Deaf students in upper secondary school and at the University of Iceland have the right to a sign language interpretation (The Upper Secondary School Act 2008; University of Iceland no. 497/2002).

In the Icelandic National Curriculum Guide for Compulsory Schools (1999, 2013) ÍTM is acknowledged as a first language of students from the age of six. ÍTM is not mentioned, however, in the Icelandic National Curriculum Guide for Pre-Schools (2003, 2011).

The Act on the Communication Centre for the Deaf and Hard of Hearing obligates the Centre to carry out research on ÍTM (no. 129/1990) and ten years later, after collaboration between the Communication Centre and the University of Iceland, Sign Language Linguistics and Interpretation became a subject at the University.

On June 7th 2011 the Icelandic Parliament passed a law on the status of Icelandic and ÍTM. Icelandic was awarded the status of Iceland's official language and ÍTM the first language of those who have to rely on it for expression and communication, and of their children (Act on the status of the Icelandic Language and Icelandic Sign Language no. 61/2011). In the revised Icelandic National Curriculum Guide for Compulsory Schools (2013:96) it is pointed out that according to Act no. 61/2011 Deaf and hard of hearing children have the right to obtain knowledge and skills in two languages, ÍTM and Icelandic, as both languages are of equal status although they play different roles in the pupils' lives. Furthermore, it is stated that it is important that pupils with a mother tongue other than Icelandic maintain and improve their competence in that language, although the goal of the Compulsory School Act (no. 91/2008) is for these pupils to be bilingual.

As mentioned in Section 3.1, the Committee for Icelandic Sign Language published an inference on the status of ÍTM two years after Act no. 61/2011 was passed by the Icelandic Parliament. The committee members state their concern for the implementation of the law in the educational system as many children with hear-

ing impairment are in mainstreaming schools where they get no ÍTM teaching. Also the committee members state their concern for the viability of the language in the inclusive school as the school cannot offer a sign language environment for the children which is fundamental for language development (Inference of the Committee for Icelandic Sign Language on its status, June 7th 2013).

Deaf people's access to information in ÍTM, not through interpretation, is very limited. Following Act no. 61/2011 the Government Offices of Iceland approved a language policy stating that fundamental information about the Ministries should be accessible in ÍTM and the Government Offices should seek to make news, information and prospectuses accessible in ÍTM if needed (Government Offices of Iceland's Language Policy 2012). Today only a few Ministries have information in ÍTM on their websites.

Rev. Miyako Thórðarson's ordination as the first priest for the Deaf in Iceland took place in 1981. Most of her ceremonies were in ÍTM and she spoke fluent ÍTM with her parish. She retired after over three decades of service and her successor has started to learn ÍTM.

The *Icelandic National Broadcasting Service* has broadcast 6–8 minute news bulletins in ÍTM daily since 1981 and since 2009 the children's show *Tinna táknmálsálfur* (Tinna the Signing Elf), has been broadcast occasionally during children's hour. The show is in ÍTM with an Icelandic voice-over. According to the Media Act (no. 38/2011) "media service providers that transmit audiovisual content shall, as far as possible, seek to have their services accessible by persons with impaired sight and hearing and those who have developmental imbalances. Measures to ensure such access include sign language, subtitling and verbal descriptions" (Article 30). ÍTM has not been made more visible in the media after the law was passed.

5 The structure of signs

5.1 Distinctive features of signs

In ÍTM, as in other sign languages, sign parameters are handshape, orientation, location, movement and non-manuals. The properties of these parameters in ÍTM are unknown. Research at the Communication Centre in 2007–2015 has revealed 75 different handshapes in ÍTM (Thorvaldsdóttir 2015). On the Communication Centre's SignWiki page, signs are classified by 35 different handshapes (SignWiki 2012).[3] Ivanova's (2008) proposal for a new ÍTM dictionary includes identification

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3 SignWiki (2012) is an open source software that allows open and active participation of the Deaf community. The Icelandic SignWiki page has an ÍTM database and diverse information and specialized knowledge of ÍTM. SignWiki further creates an opportunity to deliver on-line sign language courses for computers, smart phones and tablets.

of five different places of articulation (location) and on the SignWiki page, signs are classified by seven different places of articulation (SignWiki 2012).

An ongoing phonology study of ÍTM parameters is meant to reveal the number of handshape, location and movement phonemes in ÍTM contrasted with minimal pairs. ÍTM has minimal pairs for all the parameters, see examples in (1):

(1) (a) handshape   FATHER   GRANDFATHER
      (b) orientation   DO   TEACH
      (c) movement   FUN   SICK
      (d) location   MOTHER   RED
      (e) non-manuals   SISTER   BROTHER

The minimal pair in (1a) can be seen in Figures 1 and 2.[4]

Fig. 1: FATHER.

Fig. 2: GRANDFATHER.

6 Associated sign systems

6.1 Hand alphabet[4]

As said in Section 2, the ÍTM manual alphabet has changed over time. The oldest preserved data on the ÍTM manual alphabet is from 1857 (Sigurðsson 1857). Nine new characters have been added to the contemporary ÍTM manual alphabet and the formation of six has changed. See the modern ÍTM manual alphabet in Figure 3:

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4 We would like to thank Tómas Á. Evertsson and Uldis Ozols for photography, modelling and picture processing.
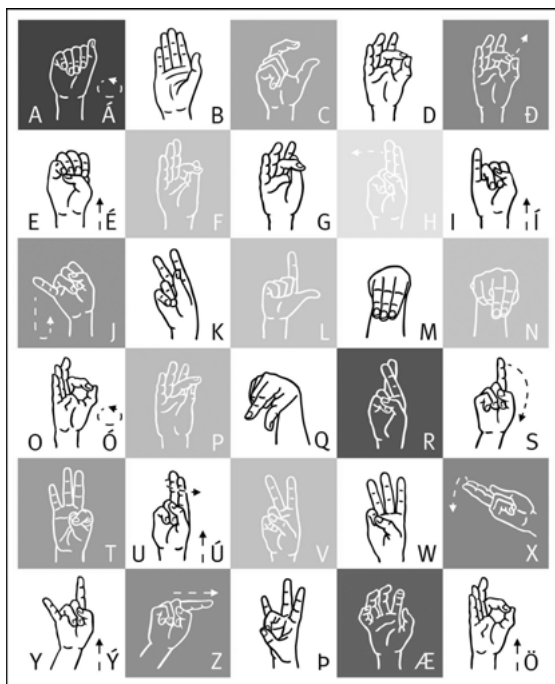
Fig. 3: ÍTM manual alphabet.

7 Basic morphology and lexicon

7.1 Personal pronouns

There is a clear distinction between first and non-first person in ÍTM. A first person personal pronoun in ÍTM is a point to the chest of the signer and a non-first person personal pronoun is a point to a referent in the signing space, see Figures 4 and 5. The distinction lies in the orientation of the hand and the fact that a first person pronoun can be used in direct quotation for the quoted speaker who is not the actual speaker. Non-first person pronouns, however, always refer to the referent pointed to. There seems to be no reason to assume that second and third persons are grammatically distinct in ÍTM. Eye gaze does not distinguish second and third persons in ÍTM (Thorvaldsdóttir 2007). Agreement verbs in ÍTM are directed at the body for first person argument and to the signing space for non-first person arguments. For the plural form of personal pronouns in ÍTM an arc movement is added to the index pointing and numeral incorporation can also be used for two and three referents.

Fig. 4: First person singular personal pronoun.　**Fig. 5:** Non-first person singular personal pronoun.

7.2 Agreement verbs

Twenty-five verbs in ÍTM have been identified as agreement verbs (Thorvaldsdóttir 2011; see also Thorvaldsdóttir, Jónsson, and Sverrisdóttir, forthcoming). The vast majority of agreement verbs in ÍTM are double agreement verbs that display agreement with both subject and object (see Figures 6 and 7). There are two verbs in ÍTM that show agreement only with the object, INFORM and IGNORE (at least for some signers). Presumably, these verbs cannot show agreement with the subject because the initial place of articulation is the forehead and it cannot be altered. ÍTM has only two backwards verbs, FETCH and TAKE, see Figures 8 and 9. Like other sign languages, ÍTM has no verb that shows only subject agreement (see e.g., Meir et al. 2007).

　　The agreement features in ÍTM are expressed in three ways which are familiar from other sign languages; orientation of the hands, motion of the hands or both (see Thorvaldsdóttir 2011; Ratmann and Mathur 2008 for a more detailed description). Expressing agreement by motion alone is the least common way of express-

Fig. 6: $_1$VISIT$_3$. 'I visit him/her'.　**Fig. 7:** $_3$VISIT$_1$. 'He/she visits me'.

ing agreement in ÍTM, as in other sign languages such as DGS and ASL (see Rathmann and Mathur 2008).

The verbs VISIT and FETCH express agreement with both the orientation of the hands and the movement, but unlike regular agreement verbs like VISIT, the initial place of articulation in backwards verbs, like FETCH, is at the objects locus (see Figures 6–9).

Fig. 8: $_3$FETCH$_1$. 'I fetch him/her'.

Fig. 9: $_1$FETCH$_3$. 'He/she fetches me'.

8 Basic syntax

8.1 Word order

The basic word order in ÍTM is SVO but some signers also accept the order SOV in simple sentences with plain verbs. The word order in sentences with agreement verbs is more flexible than in sentences with plain verbs. As shown in (2), the agreement verb HELP allows not only the basic SVO order, but also the orders SOV and OSV. By contrast, as shown in (3), the plain verb HATE allows only the basic order SVO.

(2) (a) MARÍA$_{3a}$ $_{3a}$HELP$_{3b}$ JÓN$_{3b}$ SVO
    (b) MARÍA$_{3a}$ JÓN$_{3b}$ $_{3a}$HELP$_{3b}$ SOV
    (c) JÓN$_{3b}$ MARÍA$_{3a}$ $_{3a}$HELP$_{3b}$ OSV
         'María helps Jón.'

(3) (a) MARÍA$_a$ HATE JÓN$_b$ SVO
    (b) *MARÍA$_a$ JÓN$_b$ HATE[5]   SOV

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5 SOV order is possible for some signers when it is absolutely clear which argument must be the agent, e.g., in a sentence like MAN CAKE EAT (Thorvaldsdóttir 2011).

(c) *JÓN_b MARÍA_a HATE[6]   OSV
   'María hates Jón.'

Since the orientation and/or the direction of the movement of agreement verbs distinguishes between arguments, word order is more flexible with agreement verbs than plain verbs, although the subject must precede the verb with both classes. It seems that the SOV order is the most common with agreement verbs in ÍTM whereas the OSV order is the least frequent (Thorvaldsdóttir 2011; see also Brynjólfsdóttir et al. 2012).

9 Examples of words and sentences

9.1 Example words

Fig. 10: CULTURE.

Fig. 11: RED.

Fig. 12: LANGUAGE.

Fig. 13: DEAF.

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6 This example is acceptable if the object is topicalized, in which case it is accompanied by non-manuals indicating topicalization.

9.2 Example sentences

Fig. 14: MOTHER LIVE APARTMENT INDEX. '(My) Mother lives in an apartment'.

Fig. 15: CAT BE BROWN. 'The cat is brown'.

10 History of research

The history of research on ÍTM and its language community is very short. Research on ÍTM started when the Communication Centre for the Deaf and Hard of Hearing was established in 1990. At first, the research conducted there was only for practical purposes, e.g., to produce learning materials and assessment tools for Deaf children's language competence and to collect, evaluate and select signs for dictionary purposes.

In recent years theoretical grammar research on ÍTM has been growing. In 2011, the Centre for Sign Language Research was established, a centre that brings together scholars at the Communication Centre and the Institute of Linguistics at the University of Iceland.

An overview of the grammar of ÍTM was published in 2012 (Brynjólfsdóttir et al. 2012) but to date the most important studies of the grammar of ÍTM are various M.A. theses (see Sverrisdóttir (2000) on signing simultaneous events in children's and adult's narratives; Aldersson (2007) for a lexical comparison of ÍTM and DTS; Thorvaldsdóttir (2007)[7] on the use of space in ÍTM; Ivanova (2008) for a proposal for a new ÍTM dictionary; Thorvaldsdóttir (2011) on plain verbs and agreement verbs in ÍTM; Brynjólfsdóttir (2012) on wh-questions in ÍTM; Guðmundsdóttir Beck (2013) on descriptive words in ÍTM) and papers related to those (see Aldersson and McEntee-Atalianis (2007); Thorvaldsdóttir (2008). See also Sverrisdóttir (2005a), (2005b); Brynjólfsdóttir and Thorvaldsdóttir (2014).

Other research on ÍTM has not been published yet but presented at conferences and seminars. A few papers on the grammar of ÍTM are forthcoming or in press (see Sverrisdóttir and Thorvaldsdóttir (2015); Thorvaldsdóttir, Jónsson, and Sverrisdóttir, (forthcoming); Brynjólfsdóttir, Jónsson and Sverrisdóttir, (forthcoming). The main result of this body of work is that the grammar of ÍTM is very similar to the grammar of other better studied sign languages.

The first study of the language community and the attitudes towards ÍTM was Stefánsdóttir's (2005) M.A. thesis. Stefánsdóttir has also studied language ideologies and different discourses on being Deaf or deaf in relation to power and resistance (see Stefánsdóttir 2014a, 2014b). Sverrisdóttir (2007, 2010) has also discussed language attitudes and the status of ÍTM.

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Joke Schuit
17 Inuit Sign Language

1 Basic facts about the language

Language name: Inuit Sign Language, Inuit Uukturausingit in Inuktitut, abbreviated to IUR.

Location: Throughout different communities in the territory of Nunavut, Canada.

Varieties: Research has been done in three communities: Baker Lake, Rankin Inlet and Taloyoak, among which lexical differences are found.

Number of signers: Less than 40 deaf native signers.

2 Origin and history

Little is known about the history of IUR. One early account describes deaf Inuit girls signing to one another (Mallet 1930), but to what extent this was a sign language is unclear. It is assumed that signs were used during the hunt when the Inuit people were still living a nomadic life, and that these signs evolved into a sign language when deaf children were being born. The incidence of deafness among the Inuit of Nunavut is estimated to be 0.6%. Deafness may be hereditary, but other causes include illness or accidents.

3 Bilingualism and language contact

3.1 Education

No formal education exists. From the 1950s, deaf Inuit children were sent to boarding schools in the English speaking parts of Canada, where American Sign Language (ASL) or Manually Coded English (MCE) alongside English were used. From the 1990s, deaf children were educated in their own communities aided by an ASL interpreter (see the section on endangerment for more information).

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3.2 Influence from dominant languages

IUR is in contact with at least three different languages: American Sign Language (ASL) or a form of Manually Coded English (MCE), Inuktitut – the spoken language of the Inuit – and spoken English. Some lexical signs are borrowed from ASL, and through loan translations, words are borrowed from Inuktitut and English, as well as some mouth patterns.

Most lexical signs borrowed from ASL are recognised as such by Inuit signers, indicating that the ASL signs have not yet been fully integrated into IUR. Some lexical borrowings seem to be motivated by the fact that no lexical sign for a concept existed in IUR. An example is the IUR sign HOME (Figure 1a). It is interesting to note that the IUR sign does not contain the movement from ear/cheek to chin that is characteristic of the ASL sign[1]. It seems likely that the loss of movement is a result of the influence of IUR phonology, as only few IUR signs have a movement as well as two contact locations on the face. Other examples of borrowing are the signs BOY (Figure 1b) and GIRL. Also the sign WATER, illustrated in Figure 1c, is borrowed from ASL, but this borrowed sign is used alongside the native IUR sign WATER. Signers suggested that the ASL sign WATER has been borrowed because it is more easily understood by tourists who come to Nunavut, but this motivation appears rather dubious. Still, it indicates that some deaf signers apparently assume that ASL signs are widely known among hearing Canadians.

a) HOME   b) BOY (begin and end of sign)   c) WATER

Fig. 1: IUR signs borrowed from ASL.

The ASL numbers SIX to NINE and the hand alphabet are also borrowed, but are used in a limited way. Numbers, for instance, are mainly used to refer to years in dates, e.g., 1967; for counting and enumerating the IUR numbers are used. IUR itself has no manual alphabet, probably as there was never a need to spell Inuktitut words (remember that there is no formal education in IUR). Most signers know the ASL manual alphabet, but still, the ASL alphabet is not productively used to spell out words, the main reason being that most of the monolingual deaf IUR inform-

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1 I thank Terry Janzen (University of Manitoba) for pointing out to me that in ASL conversation, HOME may also lose its movement.

ants are illiterate. Still, manual letters are used to refer to certain people and to certain place names. For some of the place names, however, it can be argued that they are borrowings from ASL. For instance, the ASL sign Winnipeg is signed with an ASL W-handshape (index, middle and ring fingers extended) performing a turning motion at the wrist. In IUR, the W-handshape without the movement stands for Winnipeg. It is likely that this modified form is a borrowing from ASL adapted to IUR. Some local place names, however, do not have an ASL sign, and for those, too, the first letter of the place name is used by IUR signers: for example, B for Baker Lake and R for Rankin Inlet. Note that the bilingual signer PU and other deaf Inuit ASL signers (PU's siblings for instance) use letter combinations (B-L and R-I) instead. Given that the names for these communities are non-native, it is possible that the signs referring to them are also non-native, that is, borrowed from ASL fingerspelling

IUR borrowed terms from both Inuktitut and English through loan translations. These are signs in which the meaning of a word is translated in a sign. An example from Inuktitut is the sign for Nunavut's capital Iqaluit. The place name means '(place of) many fishes', and the sign Iqaluit is the same as the sign fish. An example based on English is the literal translation for the Back River, which combines the sign back (that refers to a person's back) and river.

From these spoken languages, IUR also borrowed mouthings. These are mouth patterns derived from spoken language (Boyes Braem and Sutton-Spence 2001). These are also adapted to fit IUR, as no voice is used, and in some cases the mouth pattern is adapted to follow the manual part of the sign. An example from Inuktitut is the sign far-away which takes the mouthing of '*patua*', also meaning 'far away'. An example from English is '*airport*' with the sign airplane, to distinguish between the plane and the airport.

4 Political and social context

4.1 State of the language

IUR is used by less than 40 people as their first language. Some of these people use more and more ASL signs in their language nowadays. Furthermore, most of these deaf adults who use IUR as their main means of communication mainly use the language with hearing signers, who are second language users. Only on rare occasions is IUR used between two deaf native signers. And as no deaf children acquire IUR as their native language, the status of the language is highly endangered.

Education is a major factor in the endangerment. Many deaf Inuit, now aged 30 to 50, went to schools for the deaf in southern Canada, where a form of American Sign Language (ASL) or Manual Coded English (MCE) was used. When they

returned to their communities, they had difficulties communicating as they did not know Inuktitut. Often, their parents and older relatives were monolingual in Inuktitut. The deaf Inuit knew only how to fingerspell English words, which was not understood by their parents. Some signing was used to communicate basic needs, but most of the communication the deaf Inuit had was with their English speaking siblings, as they were able to understand the fingerspelled words.

Nowadays, deaf children go to school in their own community and are taught in an integrated setting together with hearing children. In schools where English is used, a qualified ASL interpreter assists the deaf child in their learning. In schools where Inuktitut is the language of instruction, the child is aided by an ASL support worker, usually a local person trained in ASL. The interpreters or support workers also teach ASL to the peers of the deaf child, and offer after-school classes in ASL for other community members. IUR therefore has no native deaf child speakers anymore, and only a few hearing child speakers.

4.2 Language maintenance efforts

In the Nunavut Hansard of September 16, 2008, the minister of Culture, Language, Elders and Youth (CLEY) is reported to say:

> "[T]he *Canadian Charter of Rights and Freedoms* provides a high standard to accommodate the use of sign languages in government services. Through policies, programs and services we can promote the use and culturally appropriate development of Inuit Sign Language in Nunavut. The Department of Culture, Language, Elders and Youth also recognizes the uniqueness and importance of Inuit Sign Language." (emphasis in original)

The Department of CLEY funded a project to develop materials for teaching and training of IUR, and is organising support services for deaf and hearing-impaired individuals (Nunavut Hansard, 2008). Unfortunately, the endangered status of IUR is not given any attention by the Nunavut Legislative Assembly.

4.3 Attitudes to sign language

In general, the Inuit regard deafness as a fact that cannot be changed. Sign language is an accepted means of communication for the deaf, and they can use it with many people in their communities. Deaf people and sign language appear not to be stigmatised, and deaf people are surrounded by a network of family and friends who are able to sign.

4.4 Other sign languages in use in the country

IUR is used in Canada. Other sign languages of Canada are American Sign Language (ASL) and Quebec Sign Language (LSQ). For more information on these languages and Deaf Canadians, see Carbin and Smith (1996). Furthermore, the *Canadian Association for the Deaf* recognises deaf people among First Nations in Canada, and "strongly supports their fight for recognition, acceptance, services, and opportunities, not only within their own communities but within the larger Canadian society as well" (website CAD.ca).

5 The structure of signs

5.1 Distinctive features of signs

A small study regarding the structure of signs has been conducted, and from this it was concluded that IUR has at least 33 identified phonetic handshapes, of which a few are shown in Figure 2 (see Schuit (2013) for the full overview). This was particularly interesting, as one might expect fewer handshapes in a sign language that is used in the extreme cold of the Arctic. Wearing mitts outside however, has not influenced the number of handshapes extensively, although it has influenced the use of IUR: conversations outside tend to be very short in winter, and are continued in the warmth of buildings where mitts are taken off.

A few signs are articulated with articulators other than the hands, for example the sign LIE (as in 'to tell a lie') which includes an opening of the mouth and a wiggling of the tongue, without any manual part. Another example is the sign NUDGE, which is signed with the elbow.

Fig. 2: A selection of handshapes found in IUR.

6 Associated sign systems

No associated sign system exists, as IUR is not used in educational settings. The ASL alphabet is used in certain instances, as has been described in the section on Bilingualism and language contact.

7 Basic morphology and lexicon

7.1 Classifiers

Just like many other sign languages, IUR employs both handling and entity classifiers. It also makes use of Size and Shape Specifiers, but these are not considered classifiers. Handling classifiers are indicated with HC, and entity classifier with EC. The different forms that were extracted from the data are listed in below.

Handling classifiers occur with transitive verbs and mark the direct object. Five different handshapes were identified in the IUR data. These can occur with verbs such as CARRY, GIVE, HOLD, PUT, PICK, and TURN. The letters are loosely based on the ASL manual alphabet. For a more detailed description, please see Schuit (2013). The S-classifier and its allomorphs are used to classify the handling of long and thin objects. For example, a dead swan would be carried by its neck – a long and thin object. The baby-O-classifier is used with objects that are small and thin, as for example a needle. The C-hand is used to classify the handling of objects that are round or cylindrical. The hooked-hand-classifier is always two-handed, and usually refers to the handling of large and/or heavy objects, like boxes or carvings. The handshape is somewhat lax, and the fingers may be spread a little. The H-classifier is used for small and round objects, like berries, or small and non-flat objects, like pieces of ice.

Entity classifiers typically occur on verbs expressing motion (such as MOVE, FALL) and/or location (e.g., BE-LOCATED), thereby expressing agreement with the subject argument. In fact, some of the entity classifiers can combine with both static and movement roots, and these roots in turn may combine with different entity classifiers. Ten different entity classifiers are identified. They will be described according to their closest counterparts in the ASL alphabet.

As in many other sign languages, the B-hand classifier is used to denote wide and flat objects. When the palm is oriented downward, it may refer to objects that have a relatively flat, horizontal surface, such as e.g., vehicles. When the B-classifier is used with the palm sideward, it denotes vertical surfaces and certain animals, for instance musk ox or caribou. The 5-classifier is used to refer to animals moving, be it on land or in the sky. The orientation of the classifier differs accordingly. When the fingers point forward, and the palm downward, the classifier refers to

animals moving on land. When the classifier is two-handed, it refers to many animals moving. When the fingers point upward, often with an extended arm, this 5-classifier refers to a flock of flying birds. This classifier differs in the spreading of the fingers from the lax B-hand classifier, which may be used to refer to the movement of a single bird. In many sign languages, the V-classifier, with the fingertips pointing downward, is used to denote two-legged beings. This is also the case in IUR. However, in contrast to many other sign languages, two-legged beings such as people, may no be represented as entities by the 1-classifier in IUR. Rather, this classifier only denotes non-human long thin entities, like sticks, chisels, or the drill of an ice auger, a use that has also been described for other sign languages. The U-classifier can also be used for long and thin objects, but it is not clear whether the two handshapes (1 and U) constitute allomorphs or are used in different contexts, as the use of the U-classifier was observed only once in the data. The choice for either classifier might have to do with affectedness, or external control. In a story regarding the dropping of a chisel, the signer tells how he will try to recover the sunken chisel with a magnet. When talking about the chisel, the signer uses the 1-classifier. Subsequently, when talking about the magnet that they will lower on a rope, he uses the U-classifier. Then, referring to the chisel again, he uses the 1-classifier. From this single example, it might be tempting to deduce that the 1-classifier is used for long, thin entities that move by themselves, and that the U-classifier is used for long, thin entities that are controlled by an agent. However, as this is the only occurrence of the U-handshape used as an entity classifier, this conclusion is tentative. For now, the two classifiers are analysed as allomorphs.

The A-classifier denotes seal. It is possible that the classifier lexicalised in the sign SEAL, but it may also be that the handshape of SEAL formed the basis of the classifier. In any case, the classifier can be used to indicate the moving of the animal. The C-classifier is used to denote tall, thin, pole-like objects, like street lights and lamps. Furthermore, a specific classifier for igloos exists, which is a loose 5-handshape. Also a baby-C-classifier is observed to denote two-legged, non-animate beings such as trestles, and an E-classifier has been observed that refers to the feet of a caribou. These last two classifiers have been observed on few occasions, so it remains somewhat unclear what their actual status is in IUR.

The above discussion reveals that some classifiers are rather specific, and can only refer to one specific referent. The 5-classifier refers to moving animals of different kinds, but when the fingers point upward and the arm is extended, the classifier can only refer to a flock of birds. The V-classifier with the fingers pointing down is restricted to referring to two-legged beings. Since both these classifiers can only refer to these particular referents, the referent does not need to be overtly expressed in the sentence, as can be seen in (1) for the 5-classifier and in (2) for the V-classifier. However, this does not mean that it is not possible to specify the referent, as can be seen in (3), where referent BIRD is introduced prior to the use of the 5-classifier.

(1) GRAB LOAD-GUN HOLD:HC$_{as}$. MOVE$_1$:EC$_5$ SHOOT++$_{up}$ $_{up}$FALL++:EC$_{b2}$.
'I'll grab and load my gun, then hold it. The birds will fly to me and I'll shoot them, and they'll fall down.'

(2) HAMMER SASS$_{pole}$ POLE TWO-POLES ROPES-ON-TWO-SIDES. TURN:HC$_c$
SWING:EC$_v$ TURN:HC$_c$ SWING:EC$_v$
'They put up a horizontal bar, and people swung around it.'

(3) MONTH+++ THREE-1 WARM, BIRD MOVE$_{here}$:EC$_5$
'In three months, when it's warmer, the birds will be flying here.'

The other classifiers are more generic, and usually require mentioning of a referent in the context, since they can refer to different types of entities, both animate and inanimate. As has also been observed for other sign languages (*inter alia* Zwitserlood 2003; Schembri 2003), two classifiers may be combined simultaneously to form one meaningful construction. In this case, each hand takes a different classifier and thus adds a specific meaning to the complex construction. In (4), for instance, two B-classifiers are used in an entity classifier predicate, in which the left hand refers to an inanimate entity, the sea ice, while the right hand refers to an animate entity, a walrus baby. This two-handed construction is the final sign in (4); it is glossed as MOVE:EC$_{b1}$-ON-TOP-OF-EC$_{b1}$ A still of the initial and near-final position of this sign is given in Figure 3. Note that the sign SWIM+HOLD:HC$_b$ is a simultaneous compound, in which the signer imitates holding something while swimming: the left hand signs HOLD:HC$_b$, the right hand signs SWIM.

(4) WALRUS WHISKERS BIG. BABY WALRUS BABY HOLD. WALRUS
SWIM+HOLD:HC$_b$

lowered-head	lowered-head-moves-up

SWIM+HOLD:HC$_b$. WALRUS FEMALE BABY $_{head}$MOVE$_{forward}$:EC$_{b1}$ ICE SASS$_{surface}$
MOVE:EC$_{b1}$-ON-TOP-OF-EC$_{b1}$
'A walrus has whiskers, and is big. She is swimming while holding her baby, also diving under. The female walrus pushes her baby with her head up the ice.'

Fig. 3: Still of initial and near-final position of the classifier predicate MOVE:EC$_{b1}$-ON-TOP-OF-EC$_{b1}$.

7.2 Noun morphology

With respect to nouns, it is interesting to note the possibilities for plural marking. Based on Pfau and Steinbach (2005), a number of categories have been identified and each type may be attributed a specific manner of plural marking. Each type will be explained, as well as the plural strategy identified for IUR.

Body-anchored signs are signs that are located on or near the body. This type generally receives zero plural marking. That is, the plural is the same as the singular, and context would indicate plurality. One exception is found in IUR, namely CHAR. Char is a type of fish, and the sign is illustrated in Figure 4. This sign allows for reduplication (or repetition).

Fig. 4: IUR sign CHAR (begin and end locations).

The second type consists of signs with a complex movement that are articulated in neutral signing space. A complex movement may be circular, alternating, repeated, or a combination of either of these. In Figure 5, two signs are pictured with a complex movement. Plural forms of this type also receive zero plural marking in IUR. Obviously, complex movement features always block reduplication, independent of place of articulation.

a) CAR (movement alternates)   b) SIBLING (upper finger taps the other finger repeatedly)

Fig. 5: IUR signs with a complex movement: alternating (5a) and repeated (5b).

Third, signs with a simple movement in neutral signing space can be divided into two groups: those that are located on the midsagittal plane of the signing

space (two-handed signs), and those that are signed on the lateral side of the signing space (one-handed signs). Two-handed signs can further be divided into balanced and unbalanced signs. Balanced signs are signs in which both hands have the same handshape, movement and location. Unbalanced signs are those in which one hand acts as the place of articulation, while the other is clearly dominant. In IUR, balanced signs also take zero plural marking (i.e. the plural is identical to the singular), while unbalanced signs allow for simple reduplication (i.e. the movement is repeated).

Finally, one-handed signs allow for reduplication in IUR, although a number of these signs is specified for a specific plural marking strategy: the addition of the non-dominant hand. This strategy has not been described for many other sign languages, but it is likely that more research will show more of this.

7.3 Verb morphology

The three-way distinction of plain, agreement, and locative verbs, which has been described for many sign languages, is also attested in IUR. As plain verbs show hardly any morphosyntactic changes, the focus here will be on agreement and locative verbs, which follow similar agreement patterns. As far as the phonological realisation of agreement is concerned, these verbs in IUR follow the patterns described for other sign languages: either the locus, the movement, or the orientation changes.

For all verbs, specification and localisation of the referents is optional. Localisation by means of an index does not occur very often. Interestingly, in cases where referents were located in signing space, this often reflected how the signer experienced the original event described. When introducing two persons, for instance, a signer would rarely locate the first person on his/her right, and the second person on his/her left, in contrast to what has been described for other sign languages. In most IUR cases, both persons would be located in signing space rather close to one another, making it more difficult to distinguish who did what. The fact that the interviews were recorded by only one camera, so that the signer was only visible from one angle, further complicated the distinction.

In the following, a distinction is made between intransitive verbs that agree with their subject and transitive verbs that agree with their object. In the data, no transitive verbs have been found that agree with their subject, apart from a few semantically light verbs. In the final part of this section, locative verbs will be discussed.

Subject agreement was found only on four intransitive predicates in the data: BE-LOUSY, DIE, ICE-FISH, and USE-ICE-AUGER. These verb signs can be produced at different locations in the signing space, thereby agreeing with (the location of) the subject, as illustrated by (5a), where the verb USE-ICE-AUGER is articulated twice at different locations (pictured in Figure 6). (5b) is an example with ICE-FISH, which

₁USE-ICE-AUGER

INDEX₃

₃USE-ICE-AUGER

INDEX₃

Fig. 6: Video stills of sentence (1a), showing the inflected forms of USE-ICE-AUGER.

shows that agreement is optional. Note that the first occurrence ₁ICE-FISH agrees with the first person subject, while the second occurrence does not agree with the plural subject INDEX.PL. ₁ICE-FISH is articulated close to the signer's body, while the second instance of the verb is articulated in neutral signing space.

(5) (a) ₁USE-ICE-AUGER INDEX₃ ₃USE-ICE-AUGER INDEX₃
       'I used an ice auger, and he used an ice auger, too.'

<div style="text-align:center">grumpy</div>

(b) ₁ICE-FISH HAVE-A-BITE PULL-IN. INDEX.PL ICE-FISH++. PRO₁ PALMS-UP
NEG-1
'I was ice fishing, had a bite and pulled in. They were ice fishing, looking
grumpy. I don't know why (they didn't catch anything).'

Phonological specification for location on or near the body does not always block
agreement. Some verbs can show agreement despite the fact that their citation form
is not articulated in neutral space. In IUR this is true for the verb BE-LOUSY, the
citation form of which is specified for a location in front of the nose. Still, this
intransitive sign can agree with its subject, as illustrated in (6). The first occurrence
of BE-LOUSY is uninflected, and is signed at the nose. The following instances are
displaced towards the different locations in the signing space, thereby agreeing
with different subjects. The verb forms BE-LOUSY and ₃ₐBE-LOUSY are illustrated in
Figure 7 to illustrate this difference.

BE-LOUSY (uninflected)   ₃ₐBE-LOUSY (inflected)

Fig. 7: Video stills of the uninflected and inflected forms of BE-LOUSY in (6).

(6) INDEX_pl BE-LOUSY. ₃ₐBE-LOUSY ₃ᵦBE-LOUSY. PRO₁ VERY-GOOD PALMS-UP
(talking about fishing) 'They are lousy at it. He₃ₐ and he₃ᵦ are lousy at it. I'm
very good, what can I say.'

Transitive verbs in many sign languages may agree with both subject and object,
although subject agreement has been described as being more marked (Meier 1987;
Padden 1988; Meir et al. 2007). This is confirmed by the IUR data, as transitive
verbs mainly agree with only their direct object, and ditransitive verbs with their
indirect object. In example (7), the verb SEE agrees with a third person object
(CHAR), which precedes the verb but is not localised in signing space.

(7) CHAR SEE₃ PALMS-UP ICE-FISH NEG-1
'I didn't see any char. Ice fishing didn't result in anything.'

Just like agreement with intransitive verbs, agreement with transitive verbs is op-
tional in IUR, as can be seen in (8), where the sign HATE occurs first in citation

form (palm orientation forward, away from the signer), followed immediately by a change in orientation of the hand, thus agreeing with the first person object. Note that the sign glossed as AUX is analysed as an auxiliary verb.

(8) $_3$AUX$_1$ HATE HATE$_1$ PALMS-UP
'He tells me he hates me, what can I do?'

IUR also has verbs that agree with locative arguments. These may be locations in the community, but also in the surrounding environment. Examples are BRING, CUT, DRILL, GO, and PLANE-FLY. Note that some of these verbs occurred in inflected forms in other data files, and were therefore classed as locative verbs, but were taken out of the quantification analysis that follows.

In IUR, it is also possible to localise referents in signing space, but most often actual locations are used. In example (9), INDEX-LOC$_{C-B}$ is directed to the actual location of Cambridge Bay (abbreviated to C-B). In many sign languages, a locative index may be directed to the actual location of the referent, but most often the signing space is used to arbitrarily localise referents. This arbitrary use of localisation hardly ever occurs in IUR. Even when the referent is not mentioned, the locative index is not directed towards an arbitrary location, but rather towards the location at which the original event took place, or at which the signer experienced the event.

(9) HERE CAMBRIDGE-BAY INDEX-LOC$_{C-B}$ PICTURE $_{C-B}$PLANE-FLY$_{here}$, PALMS-UP
'(My sister) in Cambridge Bay took a picture and sent it to me (by plane), but I don't know what happened.'

It is also possible to only mention the referent location, but not localise it, as can be seen in (10). Here WINNIPEG is not localised by a locative index, but the verb nonetheless agrees with the location of Winnipeg ('Wpg').

(10) WINNIPEG PRO$_1$ DOCTOR PLANE-FLY-WITH-STOPS$_{Wpg}$ WAIT$_{Wpg}$ TWO THREE MONTH++
'I went on the medical plane to Winnipeg and stayed there for three months.'

In some cases, the location is mentioned before or after the verb, as can be seen in (10). In other instances, the location is implicit, as for instance in (11). In this example, the verb PLANE-FLY-WITH-STOPS starts its movement at a location in the direction of Winnipeg, and the end location of PLANE-FLY-WITH-STOPS is the location of HERE. Actual locations that are referred to may be close-by (e.g., the house of a relative), but are often outside of the community. Winnipeg for instance, is almost 1500 kilometres south of Rankin Inlet, where sentence (11) was signed.

(11) PRO$_1$ NEXT-DAY NEXT-DAY FEMALE PERSON $_{Wpg}$PLANE-FLY-WITH-STOPS$_{here}$ HERE
'In two days, my daughter comes here with the plane that stops on the way.'

All locative verbs that denote motion may in principle agree with two locations, but in the data, this is not always observed, as some of the above examples illustrate. A corpus study indicated that 42 % of locative verbs agree with one location, and only 8 % agree with two locations. More than half of the tokens thus do not agree with a location at all, as can be seen in (12) in which two locations are mentioned. The first location is established through mentioning the referent (RANKIN), and the second location is established by using a locative index (INDEX-LOC$_a$). However, the locative verb PLANE-FLY does not agree with either location.

(12) PRO$_1$ PLANE-FLY INDEX-LOC$_a$ RANKIN PLANE-FLY HAPPY HERE
 'I went by plane from there to Rankin Inlet, and was happy to be here again.'

Just like agreement verbs, locative verbs thus do not always agree with their arguments. Also, referents may be omitted, a pattern also observed for agreement verbs. Locative verbs often agree with an actual location, or a non-arbitrary location in signing space. In contrast, agreement with an arbitrary (established) location is rare.

7.4 Personal names

Some name signs are in use. These are arbitrary or descriptive name signs, or loan translations. With arbitrary name signs, it is most often the fingerspelled first letter of the person's written name, with a mouthing of the name. The hand alphabet used is that of ASL. An example of a descriptive name sign is the sign GUITAR to refer to person who is famous in the community of Rankin Inlet for playing the guitar. An example of a loan translated name sign is the sign for HARE to mean a person named Ukaliq, which means 'hare' in Inuktitut.

8 Basic syntax

No systematic research on the syntax of IUR has been done.

9 Examples of words and sentences

Each sign is illustrated by a picture, and by an illustrative sentence following the Figure.

Fig. 8: INUK (human-being; Inuk is the singular form of Inuit).

(13) QALLUNAAQ INUK TALK GO KAYAKING
'A white man asks an Inuk to go kayaking.'
NB: *Qallunaaq* is Inuktitut for 'white man'.

Fig. 9: WEEK (begin and end location).

(14) PRO$_1$ THINK ONE 2 TWO-2 WEEK WEEK PRO$_1$ ICE-FISH GO$_a$ INDEX-LOC$_b$
'I think in one or two weeks, I will go ice fishing there$_a$, or there$_b$.'

Fig. 10: CARIBOU.

(15) CARIBOU EAT. FISH EAT, CARIBOU EAT GOOD
'I eat caribou. I eat fish and I eat caribou, it's nice.'

Fig. 11: SEAL.

Fig. 12: The A-classifier used in the predicate MOVE-UP:EC$_a$.

(16) INDEX SEAL SMALL-HOLE. SEAL MOVE-UP:EC$_{as}$
  'A seal has a small hole. The seal moves up through the hole.'

Fig. 13: HAPPY (begin and end locations).

(17) $_a$WALK$_{shop}$ INDEX-LOC$_{shop}$ PAY WRITE. ZERO INDEX-LOC$_{shop}$, PRO$_1$ HAPPY PRO$_1$
  'I walked to the shop, and paid by writing (a cheque). Now (my charge) is
  zero there, I'm happy about that.'

Fig. 14: FEMALE.

(18) BABY FEMALE INUK CARRY-IN-AMAUTI
  'A female Inuk carries a baby in her *amauti*.'
  NB: An *amauti* is a parka with a large hood, and the hood includes a pouch
  in which the baby is carried.

Fig. 15: NEXT-DAY. The hand moves to the right in a little arc-movement

(19) TODAY WHITE-OUT, NEXT-DAY WHITE-OUT NEXT-DAY WHITE-OUT. PALMS-UP
  'Today, there is a white out, and the next two days as well. Nothing I can do
  about it.'

10 History of research

MacDougall (2000; 2001) conducted a pilot survey to obtain an estimate of the
number and characteristics of deaf persons in Nunavut, and what sign languages
were used throughout the territory.

The Canadian Deafness Research and Training Institute received money for the
Inuit Sign Language Project to promote and develop IUR. A small booklet contain-
ing a few signs was developed as a result of this project, as well as some CD-ROMs.

The present author received an 'Individual Graduate Studentship' from the *En-*
dangered Languages Documentation Program to be able to continue the project enti-
tled 'Typological aspects of Inuit Sign Language.' The project was based at the

Universiteit van Amsterdam, The Netherlands, and ended with a PhD thesis in 2013. Papers that appeared can be found in the bibliography below. Data is deposited in the Endangered Languages Archive (ELAR) where it is accessible for the community and researchers.

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Lorraine Leeson, John I. Saeed and Carmel Grehan

18 Irish Sign Language (ISL)

1 Basic facts about the language

Language name: Irish Sign Language (ISL)

Alternative names: Has been referred to by one author (Griffey 1994) as Irislan. This is not a name used for ISL by the Deaf community in Ireland.

Location: Republic of Ireland, Northern Ireland. Some use in England (mainly Liverpool and London) and in Scotland by Irish Deaf emigrants (London) and by British Catholic Deaf people educated in schools that were originally run by the Dominican order of Catholic nuns. Historically, ISL was also used in some Catholic Schools for the Deaf in parts of Australia and South Africa, which has impacted on some local varieties of Auslan (Adam 2014) and South African Sign Language (Leeson and Saeed 2012).

Fig. 1: URL: http://en.wikipedia.org/wiki/Ireland#mediaviewer/File:Map_of_Ireland_in_Europe.svg

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Varieties: While some have suggested a Northern Irish variety of Irish Sign Language and British Sign Language (Gilchrist, personal communication), as yet, we have no empirical comparative analysis that demonstrates the extent of such differences. There are also (now reduced) gendered generational varieties of Irish Sign Language which developed because of the tradition of educating boys and girls separately (Leeson and Saeed 2012; LeMaster and Dwyer 1990; Leeson and Grehan 2004; Grehan 2008).

Number of signers: Some 5,500 deaf people use Irish Sign Language on the island of Ireland (Matthews 1996). It is estimated that there are up to 10 hearing signers for each Deaf signer in Ireland, giving a potential total of more than 60,000 ISL users (hearing and Deaf) on the island of Ireland. No figures exist for the number of ISL users in other countries that we are aware of.

National organizations: Irish Deaf Society (IDS), Irish Deaf Youth Association (IDYA), Irish Deaf Women's Group (IDWG), Deaf Sports Ireland (DSI), DeafHear.ie, IrishDeafKids.com

2 Origin and history

Irish Sign Language (ISL) is the sign language used in the Republic of Ireland, and in parts of Northern Ireland. Until the 1970s, Irish Sign Language was simply referred to as 'sign' by Deaf people, and the language was seriously suppressed in educational contexts. Where signing was used in formal domains, it was typically signed English, and the form of language (though it wasn't recognized as 'language' on par with spoken languages until the early 1990s) was referred to as 'Irislan' by the Dominican nun who was responsible for implementing a strict oralist approach to education (Griffey 1994).

Irish Sign Language is a language that emerged in the context of language contact over many hundreds of years. To contextualize this, we provide little historical context about the colonization of Ireland and what that has meant for the languages of Ireland, spoken and signed.

From the time of the Norman invasions in 1171, there have been British influences in Ireland. With the "Plantation" of Ireland by settlers under James I in the mid 1600s, Ireland became a colony of Britain and remained so until the 1920s. Given this, it is unsurprising that British Sign Language has played a part in shaping ISL. French Sign Language (LSF) has also played a significant role.

In all instances, a combination of educational policy, the delivery of education by religious groups, attitudes to religion, the language(s) used by religious educators, and segregation of deaf children on the basis of gender, and later, also on the basis of degree of hearing loss/oral language skill for educational purposes combined to impact on language use in the Irish Deaf community.

The first school for the deaf in Ireland was the Claremont Institute, established in 1816 by Dr. Charles Orpen (Pollard 2006). Orpen was the most prominent figure in the establishment of the National Institution for the Education of the Deaf in Ireland, and between 1816 and 1849, nine institutes for the education of deaf children were established in Ireland, though two of these closed down after short periods of time (McDonnell 1979).[1] These included four institutions in Ulster, a school in Cork, a preparatory day school for the Claremont Institute in Dublin, the Claremont Institute (Dublin) and the Catholic Institution for the Education of the Deaf and Dumb. With the establishment of the schools came *de facto* deaf communities, and from this point on, we find data discussing the use of sign language by deaf people. We discuss the development of ISL further in subsequent paragraphs.

3 Bilingualism and language contact

The Irish institutions did not typically teach their students speech, and the Claremont school was no exception in this matter (Leeson and Saeed 2012). It was not until 1887 that the Claremont Institute reported changing from a manual to an oral system of instruction. As Woll and Sutton-Spence (2007) note, the original headmaster of Claremont was educated at Thomas Braidwood's school in Edinburgh, which was established in the 1780s. Given this, he must have known BSL, and we know that up until the 20th Century, graduates of the Claremont school used the two handed BSL alphabet. For some 30 years in the 19th Century, the Claremont Institute was the main school in Dublin, and even though most of the children registered with the school were Catholic, the school taught a Protestant doctrine (Woll and Sutton-Spence 2007).

In 1822, a small Catholic school was established in Cork (St. Mary's of the Isle), and as time went on, the Roman Catholic church believed that a response to the (as they saw it) proselytizing of deaf children was needed. Fr. Thomas McNamara, a Vincentian priest, had visited Caen in Normandy, France, and seen how deaf children were educated at the Le Bon Saveur school. He returned to Ireland believing that a similar institution was required at home. McNamara was also aware of the existence of the Claremont Institute and believed that "wholesale proselytism" was being carried out there (McDonnell 1979: 13). At this point, all institutions offering education to deaf children in Ireland, with the exception of St. Mary's of

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1 Matthews (1996) lists 14 educational services, but this includes the various locations that Orpen operated at (Smithfield Penitentiary in 1816, Brunswick Street in 1817 and then Claremont in Glasnevin in 1819). He also lists St. Joseph's School (Prospect Avenue, Glasnevin) separately from St. Joseph's School for Deaf Boys, Cabra, as well as St. Mary's School for Deaf Girls, Cabra, while McDonnell (1979) combines these under the heading of the Catholic Institute for the Deaf.

the Isle, were Protestant. However, arrangements for the establishment of a Catholic Institution were not confirmed until the mid 1840s, with provisional accommodation provided for a small group of girls with the Dominican sisters in Cabra, Dublin in 1846. In preparation for this, two Dominican nuns, Sr. M. Vincent Martin OP, and Sr. Magdalen O'Farrell, OP, traveled with two Deaf girls, Agnes Beedan and Mary Ann Dougherty, aged eight and nine respectively, to Caen to study teaching methods that utilized sign language (Coogan 2003; Crean 1997; Matthews 1996; McDonnell 1979).

Leeson and Saeed (2012) raise the question of why the Dominicans went to Caen rather than to the UK. It is reported that the nuns made initial inquiries with the Braidwoods in the UK regarding the possibility of their studying the Braidwood system, but cost was a factor. It may also have been the case that given the religious backdrop to this story, they wished to avoid a Protestant connection (but this is speculative), and ultimately, they went to the Catholic Le Bon Saveur school. Here, a form of signed French was used in teaching, though it is fair to speculate that amongst themselves, the children used some form of French Sign Language (LSF).

The Dominican sisters adapted the French methodical signing system to one suited to teaching English to those attending St. Mary's School for Deaf Girls. What we should bear in mind is that the two deaf girls may have already been in contact with other deaf children before they were brought to France. Even if they were not, we know that there were Irish deaf people educated in the Protestant schools from 1816 onwards, and by this point in time, there would have been many graduates of the system and the probability is that alumni communicated using the language they had acquired/developed at school, which Leeson and Saeed (2012) call 'Old ISL' for convenience. They note that this will have been influenced by BSL varieties used in the Protestant schools and whatever variants that uneducated deaf people may have used at the time. Given this, we do not assume that there was a *'tabula rasa'* context in existence in terms of language used by Irish Deaf people before the establishment of the Catholic Schools, and we assume that the form of 'Modern ISL' that arose as a result of the French connection built on and integrated with 'Old ISL' (Leeson and Saeed 2012).

We should also bear in mind that as the nuns attempted to modify the form of signed French that they learned to map onto the grammar of English so that they could teach through a form of signed English, there is also an English language influence on the forms of signs, which is noticeable in terms of the extent of initialization in ISL which remains to this day. Despite this, some LSF signs were borrowed directly. For example one of the contemporary signs for FRIDAY is articulated with a 'V' handshape at the chin, maintaining the connection to the French 'Vendredi' (Matthews 1996). Yet another issue is that the two Irish deaf girls would have developed a means of communication between themselves, which may have been predicated on idiosyncratic "home sign" systems, but which were also proba-

bly influenced by the LSF they encountered when engaging with their deaf peers in Caen. All of this serves to illustrate that the path to contemporary ISL was not an uncomplicated one.

When St. Joseph's School for Deaf Boys was established in 1856, the Christian Brothers used the same signing system used by the Dominicans, though alterations were made to the form of many signs. It has been suggested that the Christian Brothers at St. Joseph's School drew on published references to American Sign Language in their preparations for teaching Deaf boys and folk belief has it that the Christian Brothers wished to make the signs they learned from the Dominican sisters less feminine and more masculine so as to be appropriate to the teaching of young boys (Crean 1997; Leeson and Grehan 2004; Leeson and Saeed 2012). Such deliberate modification of the signing systems, coupled with the relative isolation of the girls from the boys, provided a context for the development of a significant gendered generational variant of Irish Sign Language (LeMaster 1990).

An overview of the influences on ISL in the 19th Century can be seen in Table 1.

What is important to note, perhaps, is that while Irish is the first language of the Republic (English is the second language, but is more widely used), Irish is not taught in schools for the deaf, and deaf and hard of hearing students in mainstream settings can seek dispensation from learning the language on the basis of their "language disability" (Leeson 2005a, 2007). The problem is that Irish fluency is a pre-requisite for training as a primary school teacher in Ireland. As a result of the fact that no Irish deaf person has access to the Irish language curriculum at school, there are currently no Irish-trained Deaf primary school teachers in Ireland. Instead, a small number of Irish Deaf people have trained as primary teachers abroad.

4 Methods used in deaf education in Ireland

Despite the shift towards oral education in the late 19th Century, the Irish schools maintained a steadfast 'manual' approach until the mid 20th century. For example, the Claremont Institute changed from a manual system to an oral system of instruction in 1887 but the Catholic schools for the Deaf (St. Mary's and St. Joseph's), which were the largest schools in the country, maintained a 'manual' approach until the mid 1900s. McDonnell (1979) suggests that the reasons for the late shift to oralism in Ireland resulted from a combination of factors including the scarcity of trained teachers, the large numbers of pupils and the lack of the financial resources required to implement speech training.

St. Mary's School for Deaf Girls introduced oralism in 1947, following from Sr. Nicholas' time studying in Manchester University under Sir Alexander and Lady Irene Ewing, well established proponents of oral education. In 1951, following a number of visits to oral schools in Caen (France), Brussels and Ghent (Belgium),

and a visit to St. Michielsgestel School (Netherlands), Sr. Nicholas introduced a policy of highly segregated education for deaf and hard of hearing students at St. Mary's. She was influenced by the approach used at St. Michielsgestel school, where Van Uden developed the 'maternal reflective method' of oralism (Knoors 1999)[2]. As a result, Sr. Griffey introduced segregation of 'oral failures' from 'oral successes' in the 1960s in St. Mary's.

The outcomes of a strict oralist regime have been well documented (Crean 1997; Griffey 1994). However, it is important to note that oral instruction itself, i.e. the inclusion of some speech training rather than a rigidly enforced oralist approach with no place for sign language, was not seen as a problem by the Deaf community in Ireland in the 1940s. This remains true today (Leeson 2007). The major problem was that the implementation of a strictly enforced oralist policy went hand in hand with the rigid suppression of sign language use, which in turn made it virtually impossible for many students to access the curriculum, since they could not understand what their teachers were saying. Students report being forced to sit on their hands, confess signing as a sin, and give up sign language for Lent (Grehan 2008; Leeson and Grehan 2004; McDonnell and Saunders 1993). All of this resulted in ISL being forced underground.

The physical segregation of students who signed from those who spoke led to the establishment of a hierarchy within the schools that suggested that those who spoke were more intelligent than those who signed. This was reinforced by the fact that for many years, only those who were considered 'oral successes' could sit state examinations. The segregation of girls from boys for educational purposes in Catholic schools remains widespread in Ireland today, but particularly in the period between 1856 (when St. Joseph's was established) and the 1950s (when oralism had its heyday in the Irish Catholic schools), led to the development of a highly gendered-generational lexicon (LeMaster 1990; LeMaster and O'Dwyer 1991).

Each group of students in the 'deaf and dumb', 'partial deaf (oral)' and 'profoundly deaf (oral)' sections formed 'communication islands' (Grehan 2008) and given their relative segregation from each other and the stigma associated with communicating across what we might call the oral-sign divide, cohort specific variation flourished, but shifted across generations of signers. The process of inventing signs continued and the meanings of these signs are difficult to translate into equivalent single English words. An example is "SHH", which is illustrated in Example 1:

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2 It is not clear from Griffey's writings exactly when strict segregation was implemented in St. Mary's School for Deaf Girls, but we know from Knoors that Van Uden implemented a strict segregation policy in the 1960s, so Sr. Nicholas Griffey seems to have been a forerunner in implementing this approach.

(1)

SHH carries the meaning, "you're wrong/have given me the wrong thing" and this is a women's sign that originates in St. Mary's which has changed form over time. The first image shows the variant used by older Deaf women (aged 60+). It shows a two-handed sign, where hands move contra-laterally across the signer's chest. The second shows that used by women in their 50s, and shows a shift in the form of the sign from a two-handed sign to a one-handed variant. The movement parameter remains as for the earlier generation. The third image is used by women in their 40s. Here we see a change in handshape, and the extent of movement across the chest has reduced significantly. Finally, the fourth image shows the variant used by women under 40. Here, the movement parameter has altered again, with younger signers simply making contact with the centre of the chest when articulating this sign. Hence, we see a process of articulatory redundancy built into shift in the form of this sign over time. SHH is just one of the many gendered signs that Leeson and Grehan (2004) report on, but we emphasize that the full extent of gender variation in the contemporary Irish Deaf community has yet to be fully documented.

This philosophy of strict segregation in the schools for the deaf was ratified by the 1972 Advisory Committee on the "Education of Children who are Handicapped by Impaired Hearing" (Department of Education 1972). This group fundamentally saw sign language as something of a last resort for deaf children, most of whom the authors of the report saw as having 'additional handicaps' and who "are not capable of making adequate progress when taught by oral methods alone" (Department of Education 1972: 69–70). With the implementation of a strong oralist policy, parents – both hearing and deaf – were advised that they should not sign to their

deaf children, and deaf siblings were told they could not sign to each other. This created several generations of Irish Deaf people who could not effectively communicate with their parents, and whose literacy skills were highly problematic (James, O'Neill and Smyth 1992). For insights into some Irish Deaf people's views of these experiences, see "Angry Silences" (IDS/RTE) and "Experiencing Deafhood (SIGNALL II Leonardo da Vinci Project, Interesource Group (Ireland) Limited) at http://vimeo.com/10638529 (last accessed 27 April 2014).

By the early 1990s, the Irish Deaf Society was calling for ISL/English bilingualism. Since then, we have seen a growing awareness of the linguistic status of sign languages. This, coupled with a societal shift that engages in dialogue with minority communities and takes on board the recommendations that emerge from such direct experience, has led to greater acceptance of the fact that many Deaf and hard of hearing people identify with the Deaf community and thus use Irish Sign Language as their preferred language.

The early twenty-first century has shown that the use of a sign language as the language of instruction, as employed in the early days of deaf education, leads to educational success for deaf people. From most of the deaf and hard of hearing people who forwarded submissions to the government's Advisory Committee from 2001-4 (reported on in Leeson 2007), the overriding message is that Irish Sign Language is the key to accessing information and ISL must be the language of instruction in schools for the deaf in order to facilitate age-appropriate learning. In 2010, the Education Task Force comprising representation from the Catholic Institute for Deaf People, the Irish Deaf Society, DeafHear.ie and the Centre for Deaf Studies, Trinity College, launched a policy that, among other things, acknowledges the place of ISL in deaf education (The Catholic Institute for Deaf People et al. 2009). This is something that parents and organizations of and for the deaf who were involved in widespread consultation supported (Leeson 2007, 2010). Indeed, following from a study on empirically evidenced best practice approaches to deaf education (Marschark and Spencer 2009), the National Council for Special Education (2011) published advice to the Irish Department of Education and Science that made explicit reference to the need to ensure access to Irish Sign Language for deaf children. Such perspectives mirror international demand for recognition of sign languages in education at the very highest levels, including, most recently, the UN Convention on the Rights of Persons with a Disability (United Nations 2006), which Ireland signed in March 2007 (but has yet to ratify, though this is on the political agenda) as well as the Brussels declaration (Wheatley and Pabsch 2010).

5 Political and social context

ISL is a language that has proven robust, surviving targeted attempts in educational circles to suppress use over many decades. However, the future transmission

paths for ISL are threatened somewhat as a result of mainstreaming educational policies. Some 80–85 % of deaf children in Ireland are now mainstreamed (Marschark and Spencer 2009; The Catholic Institute for Deaf People et al. 2009), and one of the outcomes of this is potential social isolation of deaf children vis-à-vis input from adult ISL role-models, and via access to fluent signers of their own age. Given the relatively small size of the population (with approximately 100 deaf children born every year in the Republic of Ireland), the reality is the safeguarding of access to ISL in this context will be a significant challenge for the Irish Deaf community and concerned policy makers in the coming decades. Another consequence that mainstreaming may have is on the fragmentation of Irish Sign Language. That is, while ISL does exhibit variation, in the current context, this is not a significant "problem". However, with increased isolation of potential ISL users, and lack of interaction in a centralized community, the potential for seriously increased levels of variation (idiosyncratic, localized, school-level) will probably impact on the cohesion of the Irish Deaf community moving forward. This fragmentation in the transmission of language and cultural pathways will also provide a significant challenge with respect to the teaching and learning of ISL in the future, and particularly to the training of interpreters.

Moves to maintain ISL have included documentation of the language via the establishment of a digital corpus, the "Signs of Ireland" corpus. This initially included data from 40 Irish Deaf people from across 5 cities in Ireland. Since then, other data has been added to the digital repository, including data from a number of EU projects. This data will be lodged with the Max Planck Institute's Language Archive to ensure that data is safely maintained. Further measures have been taken to document the "hidden histories" of Irish Deaf people (Hidden Histories Project, Grundtvig, 2010–12), the experiences of Deaf people in medical settings (Medisigns 2010–12), and their experiences in mainstream education and mental health settings (SIGNALL 3, 2009–11) (see www.deafstudies.eu).

In addition, the Irish Deaf Society is committed to securing official recognition of Irish Sign Language (Wheatley and Pabsch 2010). However, the reality is that there is no official language act that makes reference to Irish Sign Language (Leeson 2004; Wheatley and Pabsch 2010). While *de facto* recognition occurs in some settings – most notably the legal system (Department of Justice 2013) – Irish Deaf people do not have an automatic right to interpreters in education or employment as is the case in many other EU states, although the 2010 European Directive on the right to interpretation and translation in criminal proceedings has obliged governments in Europe to consider the need for providing sign language interpreting and to draft national legislation to safeguard such rights (European Parliament and the Council of the European Union 2010). In Ireland, these have manifested in law via two Statutory Instruments introduced by the Minister for Justice and Equality in 2013 (2013a, 2013b), and work is currently underway on a European Commission funded project that looks at deaf peoples' access to legal settings, with a particular focus on police settings (Justisigns Project, 2014–16, www.Justisigns.com).

While interpreter training is a recent phenomena, with the first interpreters trained in 1992 (Leeson and Lynch 2009), much has been done to increase the availability of interpreters with the establishment of the Centre for Deaf Studies at Trinity College in 2001. In the Centre's first ten years of operation, some 60 students graduated as ISL/English interpreters, contributing significantly to the current pool of over 100 trained interpreters in Ireland. Since 2009, a 4 year Bachelor in Deaf Studies programme has been in place, bringing Ireland in line with leaders in the field for undergraduate, university level training of interpreters, such as Finland and the Netherlands, and ensuring that the ratio of deaf sign language users: interpreters is on par with that of the United Kingdom.

6 ISL as a language of influence

While ISL is considered a minority language today (though it doesn't have formal standing as such in the Republic of Ireland), it is interesting to point out that ISL has been a language of influence in other countries (Leeson and Saeed 2012). This influence results from the fact that Irish religious missionaries engaged in the education of Deaf children, which was delivered (in the early days) via sign language.

7 ISL in Australia

The first Catholic school for deaf children in Australia was called Rosary School, Waratah. It was established in 1875 by Irish nuns. They brought Irish signs to Australia and what Robert Adam refers to as Australian Irish Sign Language was used in Australian Catholic schools until the 1950s (Robert Adam, personal communication, 2010). Johnston (1989) reports that in Australia, two finger spelling systems are in use – both the two-handed alphabet that has its basis in BSL, which is most commonly used, and the one-handed ISL alphabet. He notes that Australian Deaf people who were educated in Catholic schools were taught this form, but that through mixing with other deaf people most also learn the two-handed variety too. He also notes that this effectively means that from the earliest days of signing in Australia, there has been a 'Catholic' variety which is based in ISL and a 'Protestant' variety, based in BSL. What is interesting is that there seems to be a diglossic context in operation with respect to the use of ISL variants: while those who use an ISL influenced variant can typically also use the BSL-based variant, those who use the BSL variant do not use the ISL variant. What we do not know is the extent to which ISL has permeated the Auslan lexicon and syntax, and as a result, how much of the Australian ISL variant has become grammaticalized within contemporary Auslan (Leeson and Saeed 2012).

8 ISL in South Africa

A rather different story is that of ISL in South Africa. Aarons and Reynolds (2003) note that in South Africa, the history of sign language use is deeply entwined with apartheid schooling policies and complex language policies. They also point out that speech was considered as more prestigious than signing by the authorities, with the result that schools for white deaf children insisted on oral education while those for other races allowed some form of sign language, in most cases a mixture of speech and some signs. In 1863, the Vicar Apostolic of the Cape of Good Hope, Dr. Grimley, invited the Irish Dominican sisters to work in South Africa. Dr. Grimley had previous associations with the education of the deaf in Dublin, which led to this invitation being issued. Sr Dympna Kinsella, the superior of the group of six nuns who travelled from Cabra to the Cape of Good Hope, began to teach some deaf children on her arrival in a purely voluntary capacity. However, due to other commitments, she realized that a dedicated teacher of the deaf was needed to develop and run a school for the deaf locally. She requested that St. Mary's School in Cabra send out an experienced teacher, and as a result, Miss Bridget Lynne moved to the Cape to become the first principal of the school for the deaf. What is particularly interesting here is that Bridget Lynne was deaf. She was a past pupil of St. Mary's School for the Deaf in Cabra, and had trained to teach there. She travelled to the Cape of Good Hope in 1873 and ran the school until 1886 or 1887 (Personal communication, Sr. Margaret Wall, Archivist, Region House, Cape Town, 2010).

As Leeson and Saeed (2012) point out, what is clear is that the presence of Bridget Lynne, an adult Deaf woman in a position of influence, and a sign language user, would have been hugely influential on the cohorts of children she taught. What we don't know is how much signed English was used and what, if any place, ISL had in formal educational instruction. We also have no idea to what extent the form of language used in teaching at the Dominican school was influenced by local sign languages (if at all).

They also point out that it is not clear what happened after the introduction of oralism in the 1920s: was a South African variant of ISL maintained or did some other variant develop in its place, based on home signing developed by the children? It is suggested that while the principle of oral education was introduced circa 1925, this approach was not strictly implemented until the 1960s, (Sr. Margaret Wall, Personal Communication, 2010), allowing a century of sign language use in education to be embedded, with an ISL-influenced substrate at its heart (Leeson and Saeed 2012). What we can say is that even today, some signs from this region are identifiable as 'different' from other dialects of South African Sign Language (SASL), and there are a number of handshapes that seem to come from ISL. These include the handshakes for *i, e, h, p, q, s* and *g* (Meryl Glaser, personal communication, 2010).

9 ISL in the UK

We have seen that while Ireland was a colony of Britain, ISL developed independently of BSL. The usage of BSL or ISL related to whether one was educated in a Protestant school such as the Claremont Institute or a Catholic school such as St. Mary's or St. Joseph's. The link between creed and language was exported, as we have seen above, to Australia and South Africa, with the Irish Dominican sisters. ISL was also brought to the UK, for example, with Irish religious orders teaching at St. Vincent's School for the Deaf in Glasgow, Scotland. This was also the case in Northern Ireland, where Catholic children were traditionally educated in the Dublin schools for the deaf, acquiring ISL as their working sign language, while Protestant deaf children were historically taught through BSL. Even today, British Catholics' signing is heavily influenced by Irish Sign Language because Irish religious orders have delivered Catholic education in the UK and many chaplains to the Catholic Deaf community have been Irish (Sutton-Spence and Woll 1999; Woll and Sutton-Spence 2007). Woll and Sutton-Spence go on to note that the form of signing used by Catholics in the UK draws heavily on initialized signs which are based on the Irish manual alphabet. Beyond the religious connection, ISL also serves as a donor language for some BSL dialects, including London, Glasgow and Liverpool dialects. Sutton-Spence and Woll (1999) report that this is because these communities include large Roman Catholic communities who have strong links to Ireland. It is also interesting to note that the founder of the British Deaf and Dumb Association (now British Deaf Association) was an Irish Deaf man, Francis Maginn.

Of course language contact does not necessarily operate in one direction: contemporary ISL is also influenced by BSL but it is important to point out that while some BSL signs may be recent borrowings from BSL, others may reflect the original BSL substrate from the 1800s with some elderly Irish Deaf people using the two-handed manual alphabet, while the sign for GUINNESS (beer) is articulated with two BSL G-handshapes, a sign not found in BSL (Woll and Sutton-Spence 2007). Further, ISL signers have access to BSL through contacts with the Deaf community in Northern Ireland and through access to the British media, which provides a wide range of programming in BSL (Leeson 2005c; Sutton-Spence and Woll 1999; Woll and Sutton-Spence 2007).

10 The structure of ISL signs

While ISL makes use of the one handed alphabet, lexical signs can be either one handed or two handed. For example, the signs for DEAF and HEARING are both one handed signs, as are the signs for UNDERSTAND, POLICE, and DRINK. However, signs for MOTHER, FATHER, OLD, YOUNG, LOVE, JUMP and FISH are two

handed. We should also note that in certain conditions, two-handed signs can become one handed and one handed signs can become two-handed. For example, in informal situations, if a signer is using their non-dominant hand to hold something (for example), the non-dominant hand is omitted (though in some conditions, another point of contact may be substituted, such as the non-dominant arm or the leg of a signer). Another possibility is that over time, what was a two-handed sign has become a one-handed sign. SISTER is an example. It is articulated with the dominant hand making contact with the ipsilateral shoulder. For older signers (or for emphasis), this sign may be articulated as a two-handed sign.

Another important factor in the creation of lexical items is the role of non-manual features (NMFs). Sutton-Spence (2007) points out that while we often think of sign languages as being manual in nature, important linguistic information is also produced through non-manual channels, including the mouth. Research on sign languages has revealed the contribution to meaning of non-manual markers such as facial expressions, head movements, bodily posture, and mouthing including several recent studies on ISL (Fitzgerald 2014, Mohr 2011, 2014). In ISL, NMFs play a range of grammatical and discourse roles, for example, with respect to how topic-comment structures are marked, the ways in which the clustering of certain non-manual features can mark the difference between statements and questions, the marking of Wh-questions versus yes-no (or polar) questions, the role played by NMFs in differentiating between volition and non-volition on the part of the signer, and in the marking of adverbials. They also play a role at phonological level. An example of this is the minimal pair APPLE/PROSTITUTE. APPLE is articulated with an 'A' handshape, with contact at the ipsilateral cheek, and the sign has a circular movement. The mouthing that co-occurs with this sign is "apple". PROSTITUTE is made up of the same manual components, but (for some (typically older) signers), there is no mouthing and instead, the signer's tongue is extended into the hollow of the ipsilateral cheek, and is visible to the interlocutor. Younger signers tend to mouth 'prostitute'.

This brings us to the role of mouthing in ISL. Mohr Militzer (2011) conducted an analysis of the gendered use of mouthing in ISL using the *Signs of Ireland* digital corpus and substantiated that considerable differences arise in terms of how men and women use mouthing, and that age plays a significant role in the occurrence of mouthing. Her work substantiates earlier claims of differences associated with introduction of oral education in Ireland and how this impacts on use of mouthing and mouth gestures by ISL users. Mohr Milzner found that Irish Deaf women aged 55 years and above use mouthing much less frequently than younger female signers. Younger female signers make much less use of mouth gestures than their older female counterparts. She suggests that this is a result of the educational experience of the Irish Deaf community: younger signers were educated in the heyday of oralism and were subjected to spoken English than the older generation which explains the differences in mouth actions. Leeson and Saeed (2012) add an additional

set of considerations: while oralism was introduced and implemented with determination in St. Mary's School for Deaf Girls from the 1940s, the limited availability of hearing aids and other systems to support auditory input was quite limited. Today, due to the increased availability of more powerful technologies (for some, including the Cochlear Implant, for example), there is scope for increased potential contact between the spoken use of English and that of ISL. This would go some way towards accounting for the fact that younger Deaf women make greater use of mouthings than older Deaf women, but it still doesn't account for the fact that male signers of all ages make less use of mouthing than Deaf women.

For the male signers, we must also remember that oral education was introduced some ten years later in St. Joseph's School for Deaf Boys (1958) (Matthews 1996), and as we have seen, significant lexical differences between male and female variants of ISL have been documented (LeMaster 1990). Mohr Militzer (2011) found that older male signers (aged 55 years and above) articulated some 53 % of lexical signs with no mouth action at all. This contrasts with female signers of the same age where 89 % of all lexical signs co-occur with a mouthing or a mouth action. Women aged 18–35 used mouthings in 75 % of the lexical items while only 52 % of lexical items articulated by men in this age group co-occurred with mouthings. In the 40–55 year age group, 60 % of lexical items articulated by women co-occurred with mouthings while only 39 % of lexical items produced by men co-occurred with a mouthing. For those aged 55 years and above, 45 % of lexical items produced by women co-occurred with mouthings and only 12 % of those produced by men used mouthings.

Thus, we can see that in ISL, the structure of signs is dependent on handshape, location, orientation, movement, and, for at younger signers, mouthed components seem to play a significant phonological role.

11 Basic morphology and lexicon

The lexicon of Irish Sign Language is influenced by many sources as illustrated in Table 1. These include lexical borrowings from British Sign Language and French Sign Language as well as influences from English (via mouthed, initialized, fingerspelled and Cued Speech elements). Further there are gestural components that impact on the lexicon: for example, gestures relating to the handling of objects may be considered a substrate for some now lexicalized signs (e.g., BALL, TAPS ('faucets')).

Like other sign languages, Irish Sign Language exhibits free and bound morphemes. For example, there are morphemes that function as words in their own right like HOUSE, GIRL, SISTER, HAVE etc. Other signs are made up of both free and bound morphemes. Morphemes can combine to extend the range of meanings associated with a word (e.g., to mark for plural versus singular, active versus

Tab. 1: Influences on the Irish Sign Language Lexicon (after Leeson and Saeed 2012).

Productive Lexicon	Gestural Substrate	Established Lexicon

Size and Shape Specifiers:
– Whole Entity Handshapes
– Handle Entity Handshapes
– Extension Handshapes
	Influences and feeds into both the productive and established lexicon	Arbitrary Signs
		– English Influenced Signs
		  – Lexical Borrowings
		  – Cued Speech Influences (f)
		  – Fingersigns
		  – Mouthings
		  – Initialized Signs (English)
		– Borrowed Signs
		  – LSF
		  – BSL
		  – ASL
		– Iconic Signs
		  – Gesturally Based Established Signs
		  – Mouth Gestures
		  – Metonymic Signs
		  – Metaphoric Signs

passive, to change tense marking, to alter aspectual marking, etc.) and ISL is no different.

As we have seen in Table 1, the extension of the lexicon of ISL is driven by a number of processes. One of these is compound formation. Brennan (1992: 121) notes that "A compound is a word that consists of 2 free morphemes which can themselves function as separate words within the language. The meaning of the resulting form may not be directly predictable from the component parts" Generally speaking, we can identify 3 types of compound signs in ISL: sequential compounds, simultaneous compounds, and loan translations. We can summarize the rules that govern such compound formation in ISL in general terms as follows:

– Sequential compounds are made up of two free morphemes (max. 3), and the meaning of the compound differs from that of the donor morphemes;
– There is a reduction in the movement duration of the first sign;
– There is additional focus given to the second sign;
– Assimilation of handshapes occurs between articulation of the first and second sign;
– Typically, the first sign is articulated at a higher point in signing space than the second sign;
– Where part of the compound includes a two-handed sign: the first sign is typically 1 handed, and the second sign is two handed.

Given the role of simultaneity in sign languages, it is no surprise that a process of simultaneous compounding has been posited. This occurs when two separate signs

are combined and produced simultaneously. Each morpheme is articulated on a separate hand at the same time. For example, in ISL we use the compound sign TELEPHONE-TYPE to mean "minicom". However, as many of the signs that have traditionally been considered as simultaneous compounds are created using classifier handshapes (bound morphemes), it seems that they do not fall within the definitional criteria for compounding. These signs do contribute to the extensive productive lexicon of ISL however, and some have become lexicalized (e.g., PARACHUTE-JUMP). Leeson and Saeed (2012) suggest that these items are perhaps best considered as further examples of lexicon rather than compounds.

Another area that morphology plays a significant role is in what is called the 'classifier' system. The term "classifier" is often used in relation to a set of handshapes (sometimes with movement components) that provide information about motion, location, handling and the visual-geometric description of elements in a sign language. This kind of verbal construction has been identified in more than thirty sign languages (Schembri 2003). These predicates can be categorized according to morphosyntactic criteria and we can outline the range of so-called "classifiers" that have been identified for ISL, following the classification applied by McDonnell (1996) who identifies four subcategories of classifier predicates in ISL: 1. Whole-entity, 2. Extension-CL stems, 3. Handle-entity-CL stems, and 4. Body-CL Stems.

Finally, we should note that morphology can also be marked non-manually: the range of non-manual features described for several other sign languages ('mm', 'ee', 'th', 'cs', etc.) are found in Irish Sign Language too (see O'Baoill and Matthews 2000 for more detailed discussion).

12 Basic syntax

Basic word order in ISL is greatly determined by the semantics of the utterance described and by the verb class utilized in describing an event, and a detailed discussion of this is beyond the scope of this chapter. However, we can briefly comment on basic word order in ISL by referring to a macro-role analysis (Foley and Van Valin 1984) of word order in ISL (Leeson 2001) which looked at elicited and non-elicited data. Leeson reports that in locative utterances, ISL signers tend to introduce a semantic theme (i.e. the entity involved in a state or a change of state), and in such contexts, the least animate entity is most likely to be introduced first, with the more animate entity is introduced second. She also reported that simultaneous constructions are preferred in locative constructions much more so than for reversible or non-reversible transitive utterances. In contrast, in non-reversible sentences like "the boy watches television", the underlying pattern of Actor Verb Undergoer holds. Leeson (2001) reports infrequent use of themes in these

sentences. She also reports that while signers could have made use of simultaneous constructions in these instances, they did not. For reversible sentences like "the boy hugged grandmother", Leeson found a typical structure of Actor Verb Undergoer. She noted that in such utterances, native signers seem to prefer to use simultaneous constructions more frequently than non-native signers. Further discussion of word order in ISL can be found in Leeson and Saeed (2012a, 2012b), Leeson and Saeed (2007) and Johnston et al. (2007).

Turning to consider negation, Leeson and Saeed (2012) report that sentences in ISL may be negated in three ways: by inserting a negative word, such as NOT, NEVER, NOTHING, or by the simultaneous use of a non-manual headshake throughout the clause. Signers can also utilize both manual and non-manual negation markers in the one utterance.

Other issues in word order include the position of adjectives in the sentence. Leeson and Saeed (2012) report that in ISL, the general tendency is for adjectives to precede nouns. They note that while there are occasions where the noun comes before the adjective, where one would anticipate that the adjective would function as a topic, there is no evidence of non-manual marking for topic on TREE-IN-BRAN-CHES in (2). This suggests that in ISL, signers have the option of producing adjectives pre or post nominally, but that the typical case is for adjectives to come before the noun. Indeed, they report that only adjectives quantifying size (BIG and SMALL) were found in post nominal position in the data they reviewed from the Signs of Ireland corpus.

(2)

(SEE TREE) IN-BRANCHES H.O.L.E. BIG
The boy saw a tree, and in the branches of the tree there was a big hole.
Fergus D. (Dublin) Frog Story

When quantifiers and numerals are used as determiners in ISL, the noun is not normally pluralized, for example ALL BOY 'all (the) boys', or, as in (c) above, TWO MAN (the two men). Like some spoken languages such as Japanese or Russian, ISL does not routinely employ articles, such as English *a* and *the,* although some signers do use a lexical sign THE as in Example 3 (Leeson and Saeed 2012).

(3)

IN THE KITCHEN
Peter (18) Personal Stories (Dublin)

In terms of pronominal referential devices, Leeson and Saeed (ibid.) note that ISL signers make use of INDEX, as reported for many other sign languages. However, they note that in ISL, there are also lexical forms for HE, SHE, THEY and WE which are also used by some signers, though these are used much less frequently than the INDEX form.

A more complete discussion of syntax in ISL can be found in Leeson and Saeed (2012), while a discussion of word order across sign languages can be found in Leeson and Saeed (2012).

13 History of research

The first attempt at documenting aspects of the lexicon of ISL formed part of a language planning exercise. A committee was established to attempt to minimize the high level of lexical variation that existed amongst male and female signers. They did this by creating a glossary of "unified" signs, many of which were initialized. It is important to note that the objective was primarily to make it easier for hearing people to learn sign language: the aim was not, in the first instance, to seek to encourage Deaf people to use the unified forms, but that seems to have been a by-product as many Deaf people report that they attended sign language classes after the publication of the 1979 "Dictionary of Irish Sign Language" in order to learn what is still sometimes referred to as "the new signs" (National Association for the Deaf 1979).

An extensive body of research on gender variation in ISL was undertaken by Barbara LeMaster (LeMaster 1990; LeMaster 1999–2000; LeMaster 2002; LeMaster and O'Dwyer 1991). She identified the extensive gendered-generational lexical variation that exists in the language, though she suggested that it may have been eradicated as a result of the 1979 dictionary creation process. Further work on gen-

dered variation in ISL demonstrated that while the extent of lexical variation has reduced, younger signers continue to evidence gendered variants (Leeson and Grehan 2004). Work on exploring attitudes to gendered signing has also begun, for example in Grehan (2008).

Description of the grammar of ISL began with Patrick McDonnell's doctoral thesis on verb categories in ISL (McDonnell 1996). In the same year, initial work on description of the marking of time was completed (Leeson 1996), and in 1997, the first volume describing ISL for beginners was published by the Irish Deaf Society in partnership with the state broadcaster, RTE (Leeson 1997).

In 2000, a European Commission funded project led to the publication of a volume on the structure of ISL (O'Baoill and Matthews 2000). This followed publication of a volume that outlined the characteristics of the Irish Deaf Community (Matthews 1996).

Building on McDonnell's doctoral work, work on verb valence (Leeson 2001), simultaneity (Leeson and Saeed 2007; Saeed and Leeson 2004), and analysis of ISL from a cognitive linguistic perspective has flourished (Leeson and Saeed 2005, 2007, 2012).

A number of masters level dissertations have been undertaken on aspects of applied linguistics such as the sociolinguistics of the Irish Deaf Community (Burns 1995), bilingualism (Saunders 1997), language processing (Nolan 2000), testing (Sadlier 2007; Dunne 2009), acquisition (Byrne-Dunne 2005) and attitudes to the female variant of ISL (Grehan 2008). Current postgraduate work has focused on mouthing in ISL (for example see Militzer 2009, Mohr-Militzer 2011, Mohr 2014; Fitzgerald 2014), metonymy and nominals, and description of the phonology of ISL (for example, see Thorvaldsdottir 2010; Matthews 2013).

Most of the descriptive work that has been carried out since 2005 has made use of the Signs of Ireland corpus, a digital corpus that includes 40 signers from across the Republic annotated in ELAN. The corpus is used for teaching and learning purposes as well as for research purposes. There is also a growing body of published work on sign language interpreting in Ireland (for example, see Leeson 2003, 2005b, 2005c, 2008, 2007, 2012; Leeson and Foley-Cave 2007; Leeson and Lynch 2009; Sadlier 2009; Sheridan 2009; Leeson et al. 2014; Rozanes 2014). A growing body of research on aspects of deaf education, and social policy is also emerging (Conama 2010; Mathews 2011, 2012; O'Connell 2013)

From 2008–2011, the Centre for Deaf Studies at Trinity College Dublin and the Institute for Technology Blanchardstown secured Irish government Strategic Innovation Funding (SIF) which entailed a research strand. See www.deafstudies.eu for further details and an overview of research publications from SIF and data on a range of European Commission funded projects that the Centre has been engaged in.

Finally, there is a growing interest in machine translation with ISL as the target language, for example, work currently underway at Dublin City University's Centre for Next Generation Localisation (www.cngl.ie).

Acknowledgements

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Carlo Geraci
19 Italian Sign Language

1 Basic facts about the language

Language name: *Lingua dei Segni Italiana* ('Italian sign language'). The acronim is LIS ('Lingua italiana dei segni').

Alternative names: In common (spoken Italian) discourses, the name *Lingua italiana dei segni* is still used, but in the Deaf community and in the academic world only *Lingua dei segni italiana* is used. Other terms sometimes used in the national media are: *lingua dei gesti* (lit. language of the gestures) and *lingua dei sordi/sordomuti* (lit. language of deaf/deafmute).

Location: Italy and Ticino (a region in south of Switzerland).

Fig. 1: Map of Italy.

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Varieties: A standard or prestige variety has not been formally established yet. The variety of LIS used in Trieste is known to be quite different from other varieties. Variation connected to Deaf residential schools is also reported. Variation is mainly documented at the lexical level. Research on language variation has started on other domains of the grammar. When no otherwise specified, the variety described here is the one signed in the Northern part of Italy, although the properties we describe are also attested in other regions of the Country.

Number of signers: The estimate is that there are about 70,000 people who have become deaf before learning any language or are born deaf, and therefore potential LIS signers. Of these, the estimate is that about the 60 % had access to LIS as their first language.

Organizations: The most important Deaf association is Ente Nazionale Sordi (formerly Ente Nazionale Sordomuti), established since 1932. Other organizations at the more local level are also present.

2 Origin and history

Lingua dei Segni Italiana (LIS, 'Italian sign language') is the name of the language (the acronym LIS, derives from Lingua Italiana dei Segni). This name can be traced back to the Eighties, when the first book on Italian sign language edited by Virgina Volterra started circulating both in the Deaf and hearing communities (the original title of the book 'La lingua italiana dei segni' has changed into 'La lingua dei Segni Italiana' in the 2004 second edition). Before then, there was no name to identify the sign language used by the Italian Deaf community and the acronym rapidly spread both in the Deaf and hearing community, because it was easy to fingerspell (✋🤟✌️) and pronounce. Currently, the fingerspelling of the acronym has become part of the lexicon of the language and is subject to a high degree of allophonic alternation. Here are some of the variants most commonly found (all variants of the fully fingerspelled form involve some modification of the second letter):

- ✋🤟✌️ Full fingerspelling of the acronym LIS;
- ✋🤟✌️ The second handshape has assimilated some features from the initial one;
- 🤟✌️ The second handshape is incorporated in both the first and last ones;
- ✋✌️ The second handshape is totally absent.

In common (spoken Italian) discourses, the name *Lingua italiana dei segni* is still used, but in the Deaf community and in the academic world only *Lingua dei segni italiana* is used. Other terms sometimes used in the national media are: *lingua dei gesti* (lit. language of the gestures) and *lingua dei sordi/sordomuti* (lit. language of

deaf/deaf and dumb). The term *sordomuto* ('deaf and dumb') is still used although it has been change into *sordo* ('deaf') by law in 2006 (law number 95/2006).

LIS is used in Italy and in Ticino, a region in the south of Switzerland, in which the hearing community speaks Italian. LIS signers are aware of the fact that signs can be quite different in different parts of the country. Some cases of variations are acknowledged as lexical variants typical of one region; some others can be traced back to specific residential schools (in this case, even within a single city there could be more than one variant for a sign coming from different institutes). A good number of these lexical variants are reported in one of the most important LIS dictionaries (Radutzky 1992; but see www.dizlis.it for an on-line dictionary). For example, the sign for shoes in (1a) is one of those regularly used across the country; the sign in (1b) illustrates a case of regional variation (the sign is used in the city of Turin), while the sign in (1c) is used by the signers of the school 'Giulio Tarra' in Milano. This school was particularly famous for its strict oralist education. Emiliano Mereghetti (p.c.) pointed out to me that it is likely that the sign SHOES in (1c) originated as the result of speech therapy sessions held at the school. In particular, speech therapists used that gesture to teach deaf children how to pronounce the Italian consonant cluster [s + k]. Since the example used during the trial session was the word 'shoe' (scarpa – /skarpa/), that gesture soon became the sign for 'shoes' among the signers of that school.

(1)   (a)

SHOES.

(b)

SHOES (in Turin).

(c)

SHOES (Tarra Institute in Milan).

A large-scale corpus of the different varieties of LIS has been collected as part of a National research project (PRIN) on sociolinguistic variation in Italian sign language (PRIN 2007, "Dimensions of variation in Italian Sign Languages" principal investigator Caterina Donati, University of Roma La Sapienza). The book 'Grammatica, lessico e dimensioni di variazione nella LIS' edited by Anna Cardinaletti, Carlo

Cecchetto and Caterina Donati summarizes the results of the preliminary investigations on various aspects of the grammar, confirming the presence of considerable variation in all directions including lexicon, phonology and syntax. Published research in English, which is based on the LIS corpus, includes studies on the position of eyebrows (Conte et al. 2010), variation in the lexicon (Geraci et al. 2011), duplication of wh-signs (Branchini et al. 2013), position of wh-signs (Geraci et al. 2015), position of nominal modifier in the nominal phrase (Mantovan and Geraci 2013).

Since the language was not used in official situations until recently and it is not officially recognized by the government, none of the local varieties has assumed a privileged status in the community and therefore none of them is considered as the standard variety of LIS. However, the only variety of LIS that is reported to be significantly different from the others is the one signed in the city of Trieste (Corazza and Volterra, 2004a). This is probably due to the fact that historically the city of Trieste and the area surrounding the city were part of the Austrian-Hungarian empire until 1920 (after World War I), and therefore the variety of LIS signed in Trieste shows influence from Austrian Sign Language.

Very little is known about the history of LIS and more generally of deaf people (for an interesting overview, see Porcari Li Destri and Volterra eds. 1995). Although most of the documentation concerned the legal status of deaf people and their education, some sporadic references to their 'gesture system' can be found since the Roman Empire (Radutzky 1995). Of course, it is impossible to establish any connection between those communication systems and LIS. The same can be said basically for most of the references to the gesture systems used by deaf people up to the 18th Century. For sure, the 'signes méthodiques' invented by the French Abbé Charles-Michel de l'Épée played an influential role in the use of the gesture systems for education purposes in Italy. In 1784, Tommaso Silvestri, an educator of deaf children, imported the French method in Italy and started using it. Probably this is the reason why it is often reported that LIS has some similarities with French sign language. After Silvestri, several Deaf and hearing educators used and implemented that methodology. In particular, it is important to mention Giacomo Carbonieri (1814–1879), a Deaf educator, who seemed to have in mind the potential of signed languages when he wrote in 1858 that 'the language of the gestures …', different from that '… of certain educators who pretend to translate word by word the spoken language …', is '… natural to the deaf-mute' (Folchi and Mereghetti 1995; but see also Pigliacampo 2000). After the Congress of Milan (1880), the use of sign language as a tool for deaf education was abandoned. However, Deaf people did not drop their language and continued to use it outside classrooms. During the 20th Century, strict oralist methodologies were used in residential schools, although LIS is present in the memories about schooldays of many Deaf people; together with the punishments they received when they were discovered using it.

3 Bilingualism and language contact

While standard screening tests allow early diagnosis of hearing problems in newborns from their first weeks of life, there is no standard protocol to follow once a diagnosis of deafness is certified. Counseling services are rare and most of the time direct parents to a strict oralist education (which often means cochlear implantat). Sign languages are not even mentioned and when they are, it is to explicitly discourage their use (Russo Cardona and Volterra 2007). Bilingual or bimodal education is always relegated at the level of experimental projects and sign language is something to resort to as the last option, when all 'medical' treatments are proven useless (with all the known consequences for the cognitive development of the deaf children). Considering that 90 % of deaf children are born into hearing families (Russo Cardona and Volterra 2007) with little or no knowledge of deafness and the existence of a Deaf world, it is easy to conclude that the standard education for deaf children rarely includes the use of sign language in Italy.

Considering that the Italian legislation encourages children with disabilities to be integrated in mainstream schools (that are specifically endowed with 'adequate' technical instruments and personnel) and that deafness is quite infrequent in the population, it is likely for the deaf child be the only deaf individual in her/his school.

These children may learn some sort of sign language and discover the Deaf culture in their adolescence, when they meet other signing deaf people. Nonetheless, Trovato (2009), in a large-scale survey conducted in the schools of Milan (one of the most populated areas of the country) reports that the probability of a senior teacher to have taught a deaf child in her/his career is of 1/3. One of the interesting results of that survey is that 72 % of the interviewed teachers have a positive attitude toward LIS. Furthermore, 62 % of the teachers think that counseling provided on spot when needed is more useful than other initiatives and crucially, the need for experts is felt more urgent in the field of psychology of education (60 %), than in the field of language acquisition (49 %) or medicine (29 %).

Given this general picture of deaf education, however, there are some important exceptions that deserve consideration. These are experimental programs, in which bilingual/bimodal education is active. In 1977 a law (number 517/1977) established that all children with disabilities had right to attend mainstream schools, provided that the appropriate support was given to the children, in order to reach a real integration. Special schools were not banned, but as a matter of fact, parents preferred to send their children to mainstream schools because it was generally believed that special schools were inferior. While the law had positive consequences for many disabled children, the consequences for deaf children did not satisfy the expectations. This was partly due to the fact that at that time it was not clear how to manage the linguistic problems of deaf children, in particular the issue of mastering spoken Italian.

About ten years later, the first experimental program started at the Istituto Statale dei Sordi in Rome (www.istitutosordiroma.it). This school was the first Deaf institute opened in Italy and its existence can be traced back to the 18th Century, when Tommaso Silvestri started the school in a private house. After the 1977 law on the education of disabled people, the number of deaf children substantially decreased. In 1989 however, when a group of researchers from the CNR started collaborating with the school, the first experimental bilingual/bimodal class was open in the elementary school, and Deaf educators were involved for the first time after the Congress of Milan. Soon after, the program was extended to the kindergarten and the school also opened to hearing children (Maragna 2004 and Russo and Volterra 2007).

A second bilingual experimental program started in 1994 at the Scuola per l'Infanzia Statale, in Cossato, a village near the city of Biella in Piemonte. This experience is particularly revealing of the Italian situation of deaf children education. The program started without any specific background on LIS or Deaf culture, when the parents of three deaf children enroll them to the school (Terrugi 2003). The program was strongly supported by the group of speech therapists who realized that standard protocols for deaf education were not satisfactory. The program (from kindergarten to middle school) now includes at various levels, Deaf educators, interpreters, communication assistants and several teachers (who learned LIS), and it is mainly financed by local public institutions and by the foundation 'Fondazione Cassa di Risparmio di Biella'.

Another bilingual program started in 2006 at the Istituto comprensivo Santini, in Noventa Padovana, a village near the city of Padova in Veneto. The project is sponsored by a private foundation, 'Fondazione Valmarana', with the collaboration of the local branch of the ENS and several local public institutions. Interesingly, in this case, the school was formerly a Deaf institute for female held by Suore Canossiane di San Alvise (De Paoli 2008) and became a mainstream school after the institute closed in the Eighties. The program (from kindergarten to primary school) involves a Deaf educator, LIS interpreters and communication assistants, while the teachers are starting learn LIS. Finally, the most recent experience, entirely sponsored by local public institutions has started in 2008 in Milan and is coordinated directly by the local branch of the ENS. Bilingual/bimodal programs are still at an experimental level in Italy and are generally managed and funded at local levels by different institutions. Although this situation partly undermines long-term projects and initiatives, bilingual/bimodal projects are becoming more and more popular especially within the Deaf community. Parents of deaf children often move long distance in order for their children to attend these schools. However, deaf children of immigrants pose a new challenge for deaf education. Most of them do not receive 'clinical assistance' and tend to be left at the margins of the standard medical treatments (with basically no access to cochlear implants or hearing aids). For them, sign language can be the only resource to be part of the society.

One last marginal, although intriguing aspect of deaf education is represented by the case of logogenia (www.logogenia.it). Logogenia is a methodology developed by Bruna Radelli to test and improve the mechanisms of spoken language acquisition in deaf children without formal instruction. In a nutshell, the idea is to provide the deaf child with the basic syntactic inputs in written form. Prosody aside, this is the only form totally deaf people have accessed to without the risk of loosing information.

4 Political and social context

Eugeni (2008) estimates that there are about 70,000 people who have become deaf before learning any language or are born deaf, and therefore potential LIS signers. Of these, he estimates that about the 60 % had access to LIS as their first language.

It is widely known that supranational institutions and organizations, like the United Nations and the European Commission, encouraged National governments to recognize the National sign languages as the languages of their Deaf communities. Nonetheless, Italy has not recognized LIS, yet. Various proposals are waiting to be discussed by the Parliament. However, LIS is quite viable and visible across the Country. Several editions of the National TV news are interpreted every day (this happens both in the public and private broadcasting corporations) and messages in LIS are commonly used to inform Deaf people about major events (like for National and regional elections and National referendums). Furthermore, signers may have an interpreter when asked to be present in Court for trials. Interpreters are provided by some universities to Deaf signers (although the number of hours actually covered may depend on the available funding and not many universities offer this service). As for lower levels of education, deaf children that do not take part to special programs do not have automatic access to interpreters during their school hours, but only have access to a communication assistant and a special teacher (who may not know LIS).

At present, it is not easy to foresee if LIS is an endangered language. On the one hand, several facts would point to claim that LIS *is* endangered: almost all residential and special schools are closed; cochlear implants are extremely popular (especially among deaf children with hearing parents); only a small number of deaf children have access to LIS as their first (or native) language. On the other hand, although the reduced number of native signers constantly undermines the stability of the language itself, there are indicators that LIS can be preserved: the daily presence of interpreters on the television is a strong message also for people who do not know what a sign language is; the language courses provided by several associations are in constant growth; Deaf people can have access to higher level of education (although the number of Deaf people that get a university degree is incredibly small, and that of Ph.D. students is even smaller); there are Deaf educa-

tors; the results of research carried out by the academic world shows that an early access to the sign language is of great benefit for deaf individuals.

The most important Deaf association is Ente Nazionale Sordi (formerly Ente Nazionale Sordomuti), established since 1932, after the unification of the two main associations of the time, the Federazione Italiana delle Associazioni per i Sordomuti (FIAS, active since 1920) and the Unione Sordomuti Italiani (USI, active since 1924). Historically, the FIAS originated from the Associazione Gerolamo Cardano, founded in Milano in 1874, while the USI originated from the Associazione Benefica Cattolica Sordoparlanti, founded in Milano in 1895 (Luè 2003). ENS is a non-profit association hierarchically organized and widespread across the Country. The base of the association is in Rome, while there are 21 regional branches and 150 local clubs (www.ens.it). The members of the association can vote and be elected to the governance roles of each level of the association. The role of ENS in the Italian Deaf society is enormous. It is not a simple centre of aggregation for Deaf people. For most of them, it represents an important part of their social life. ENS organizes and supports cultural activities for young and older members. The local branches organize sign language courses, while advanced courses for interpreters are provided in the most important cities. ENS also coordinates sport activities for Deaf people and it helps Deaf people in finding jobs.

5 The structure of signs

Although a systematic investigation of the phonemic inventory of LIS is still to be accomplished, a good introduction to the phonology of LIS can be found in Volterra (2004). The traditional approach based on the formational parameters (handshape, place of articulation, orientation and movement) is used to identify (classes) of phonemes and minimal pairs. However, a formal approach to some aspects of the phonology of LIS within the Prosodic Model framework (Brentari 1998) can be found in Geraci (2009a).

Corazza and Volterra (2004b) identify 27 handshapes that are productively used to create minimal pairs in LIS, plus a group of handshapes that are used exclusively as classifier handshapes and a group of handshapes used as alphabet letters (mainly for inizialized signs). A total of forty-two handshapes (including some allophones) are described.

A pair based on two contrastive handshapes is given in (2). The two signs only differ in the position of the thumb, closed in the sign for 'change' and extended in the sign for 'bicycle'.

(2) (a)

CHANGE

(b)

BICYCLE

As for places of articulation, Verdirosi (2004) identifies fifteen different locations where signs can be produced. These can be divided into three main categories: neutral space, main body and face parts. In addition to these locations, the non-dominant hand can be used as a possible place of articulation also in LIS, with seven possible hand-shape specifications ('B' 'A' 'S' 'C' 'O' '1' '5'). A minimal pair based on the parameter of place of articulation is given in (3). The sign KNOW is articulated close to the forehead, while the sign SPEAK is articulated close to the mouth.

(3) (a)

KNOW

(b)

SPEAK

Radutzky and Santarelli (2004) identify nineteen possible orientations for LIS divided in three major categories: palm orientation, position of the hand(s) with respect to the body and position of the hands in two handed-signs. A minimal pair based on the parameter of orientation is given in (4). The two signs only differ in the palm orientation, toward the signer in the sign for 'error/mistake' and toward neutral space in the sign for 'fog'.

(4) (a)

ERROR/MISTAKE

(b)
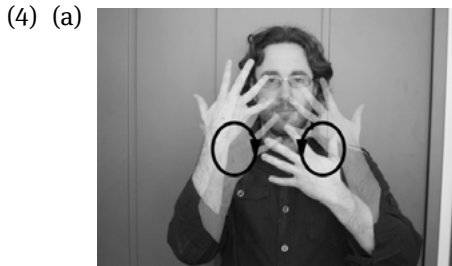
FOG

Finally, Radutzky and Santarelli (2004) identify thirty-eight movements divided in four different categories (Friedman 1977): direction, manner, contact and interaction.

A minimal pair contrasting two movements is given in (5). The two signs differ in the manner of movement: a straight repeated path movement in the sign for 'work' and a repeated circular movement in the sign for 'pharmacy'.

(5) (a)

WORK

(b)

PHARMACY

To conclude the presentation of the most relevant phonological features of LIS signs, Franchi (2004) indicates facial expression as an independent component from which minimal pairs can be created. The debate whether to include non-manual expressions as a fifth parameter is still open in the literature on sign language phonology and minimal pairs like those in (6) can be taken as evidence that some lexical facial expressions do have phonemic status.

(6) (a)

NEGATION (roughly equivalent to 'not-yet')

(b)

READY

(c)

(d)

TO-SURPRISE

TO-WAKE-UP

5.1 Phonological phenomena

The sign description just sketched can be used to capture various phonological phenomena. Two cases of assimilation and the case of movement epenthesis are discussed here. The first case of assimilation concerns the name of the language itself, LIS, has been introduced at the beginning of this chapter, and it is repeated here in (7).

(7) Assimilation: the case of LIS
    (a)   Citation form
    (b)   Progressive assimilation of thumb extension
    (c)   Regressive and progressive assimilation of the pinkie finger

The citation form of the sign for 'LIS' consists in the fingerspelling of the three letters 'L', 'I', 'S', as shown in (7a). However, the other variants display clear cases of assimilation. Progressive assimilation of thumb extension is found in the second handshape of the variant in (7b). Even more interesting is the variant in (7c), which displays both progressive and regressive assimilation (probably followed by deletion of the second handshape). The extension of the pinky finger is assimilated both by the initial handshape (regressive assimilation) and by the final one (progressive assimilation). Arguably, after the assimilation process is completed, the second handshape is deleted and the surface form is made up by the first and last handshapes (which also maintain the path movement typical of the alphabet letter S).[1] Many other cases of (partial and total) assimilation involving other formational parameters are also attested in LIS. One of particular interest is illustrated in (8).

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1 Of course, this is only one possible phonological explanation of the process. Alternatively, the second handshape could have merged onto the first one, instantiating coalescence, and then perseveration of pinky finger extension could have spread onto the last handshape.

(8) Assimilation: the case of the non-dominant hand

(a)

JUDGE DECIDE GATHER YARD IX-LOC

(b)

JUDGE DECIDE YARD GATHER IX-LOC
'The judge decided to gather in that yard.'

The sign undergoing assimilation is the final pointing, which is realized as a standard one-handed sign in (8a), and as a 'marked' two-handed sign in (8b). Differently from other cases of handshape assimilation, here we observe assimilation from two different sources. First, there is some sort of assimilation from the sign immediately preceding the pointing, activating the use of the non-dominant hand also for the pointing sign. Second, the non-dominant hand assimilates the 'G' handshape (H) from the dominant hand, probably as the result of a more general constraint on the articulation of two-handed signs.

Another interesting phonological phenomenon documented in LIS is movement epenthesis. Based on previous work by on ASL by Brentari (Brentari 1998), Geraci (2009a) analyzes the presence vs. absence of repeated path movements in some citation forms and compounds as cases of movement epenthesis. In a nutshell, the basic phonological assumption is that all signs must contain at least one movement in their surface form in order to be well-formed lexical items of LIS. Most of the signs have a movement in their underlying and surface phonological representations, but a small number do not. For those signs that do not have a movement in the underlying representation, epenthesis of a repeated path movement provides the phonemic material required to satisfy the well-formedness constraint. The epenthetic movement does not surface in compound forms since the

other stem of the compound satisfies the constraint for the compound as a whole. The process is illustrated by the example of HEAD, and the compound form HEAD^POUND ('smart') in (9).

(9) Movement epenthesis in LIS

   (a)   (b)

                    HEAD   HEAD^POUND 'smart'

The sign HEAD does not have a movement in its underlying representation and thus would not surface as a well-formed sign. In order to repair this situation, an epenthetic repeated path movement is inserted and the citation form results as in (9). However, when the sign HEAD is used as a first stem in a compound, like in the example in (9), the resulting sign does not need the epenthetic movement. This is so, because the second stem (POUND) already has a movement in its underlying form, making epenthesis unnecessary. Indeed, the compound as a whole already has at least one movement (that of the second stem). Pairs like HEAD and HEAD^POUND minimally contrast with pairs like WORK and WORK^DONE ('worked') where the same repeated movement does not reduce, showing that reduction of the first stem is not the phonological consequence of compounding.

6 Associated sign systems

The phonological system of LIS described in the previous paragraph does not include two important aspects of the phonology of LIS, namely the relation between the hand system and the mouth system, and the role of the manual alphabet in the lexicon. These two domains of LIS are probably undergoing a radical change and deserve special attention in future studies. In both cases, it is likely that the changes started few decades ago and that they are affected by language internal mechanisms and, more importantly, by social factors (e.g., age, LIS awareness).

Mouthing is quite frequent in LIS, as in many other sign languages (see for instance German sign language). Several reasons can be provided for this: First, as already mentioned in the previous paragraphs, oralism (although not always associated to cochlear implantation) is still the most frequent leading idea in educational programs for deaf children in Italy. Second, speech therapy is mostly fo-

cused in the recovery of the correct pronunciations. Third, written and spoken Italian shows a high degree of isomorphism (the orthography of written Italian is quite transparent), making it easier for Italian deaf people to memorize the vocal forms, as compared with other spoken languages, like English. Fourth, some (especially older) signers show a non-perfect acquisition of LIS and use mixed forms of Signed Italian (which include the use of the voice while signing).

Some forms of mouthing are now productively used as non-manual components to mark lexical items. Generally, these are non-obstruent sounds (fricatives and vowels) belonging to the first syllable of the corresponding Italian word. In other cases, the mouthing is so massive that it can even replace some manual sign, resulting in complex cases of LIS-Italian code blending (see Donati and Branchini 2013 for cases of code blending in hearing children of Deaf adults). One example is given in (10), where the sign for 'go' is co-articulated with the Italian word 'Roma'.

(10) IX-1 GO   (LIS signs)
           Roma (spoken Italian mouthing)
      'I go to Rome.'

However, this last use of mouthing (and the consequent blended utterances) during conversations among Deaf signers is decreasing especially among the younger generation of signers. Mouthing is more and more limited to lexical non-manual markers, like those described in Franchi (2004). The reasons of this change are not clear, and need careful sociologic and sociolinguistic study. However, it is likely that the increased Deaf awareness and the more solid and positive attitude toward LIS in the recent decades play an important role.

Parallel to this change toward a clearer distinction between LIS and spoken Italian is the situation of the use of the manual alphabet. The origins of the Italian manual alphabet (11) can be traced back to the beginning of 19th Century. Pendola (1867) reports that its inventor was the clergyman Ottavio Assarotti, one of the most important educators of the time. The use of the manual alphabet is documented in several education programs at least until the Congress of Milano (1880).

Since then, the Italian manual alphabet survived in the Italian Deaf community and old signers occasionally use it (Radutzky 2004). However, the Italian manual alphabet is rarely used to introduce new words in the LIS lexicon via fingerspelling. Indeed, Italian signers (especially old ones) prefer to either vocalize the word in spoken Italian (relying entirely on lip-reading) or combining vocalizations and initializations (Radutzky 2004 and Geraci 2009a). For example, they may use the handshape of the initial letter of a word that does not have a correspondent sign in LIS and then pronounce that word.

(11)

The Italian manual alphabet (courtesy of ISSR: http://www.istc.cnr.it/mostralis/ pannello07.htm).
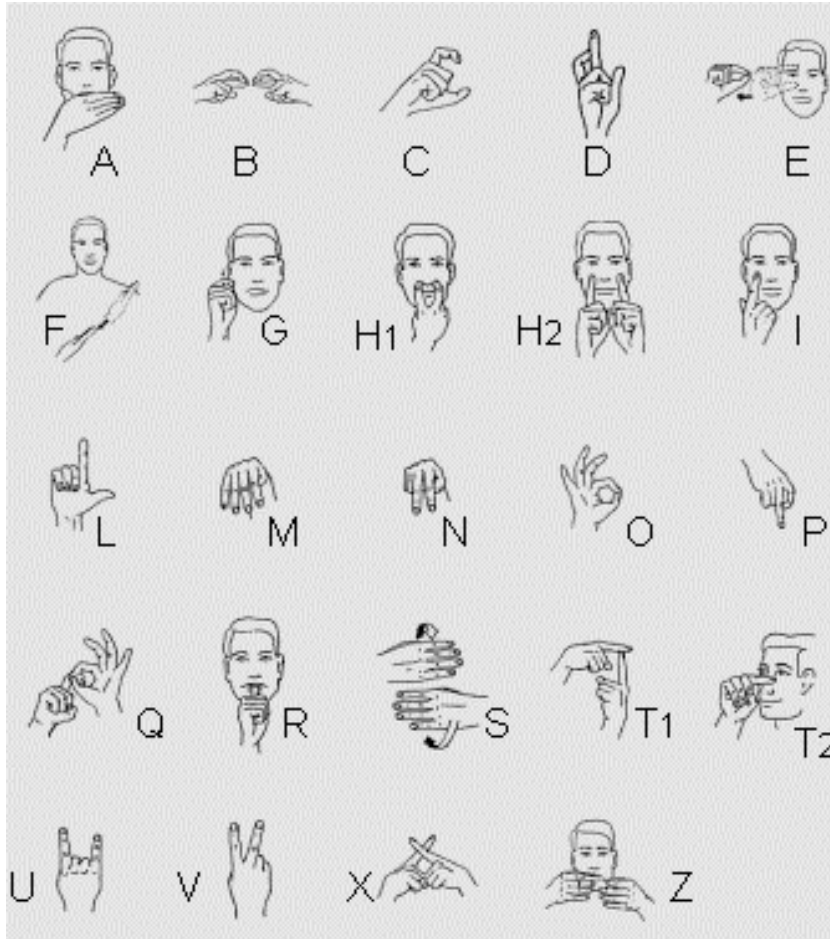
Interestingly, the use of the old manual alphabet went beyond the Deaf community and currently it is used (as a game) among young hearing children who learn it at school. The international manual alphabet (12) started being used from the Seventies among young signers and nowadays it is frequently used especially to borrow technical terms, and more generally words from spoken languages (including Italian). Most of the older signers, however, still prefer to use the alternative strategies already mentioned. Like in the case of mouthing, also the use of the manual alphabet can be seen in light of a more conscious role of the sign language and its potentials for communication purposes among younger signers.

(12)

The International manual alphabet (courtesy of ISSR: http://www.istc.cnr.it/mostralis/ pannello07.htm).

To conclude, while it seems that the use of the mouth is reducing within the limit of non-manual markers (or to that of lexical formational parameter), the manual alphabet is constantly increasing its role and is widening its domains of use.

7 Basic morphology and lexicon

The morphological system of LIS largely relies on simultaneous affixation, especially in the domain of verbal inflection morphology, where the modulation of movement realizes most of the inflectional paradigm. Furthermore, the properties of movement are also crucial to identify the morphological class for some signs. Indeed, Pizzuto (2004) reports that movement features can identify the verbal/ nominal alternations. Two important contrasts are: long single-path vs. short repeated movements (13), and absence vs. presence of a directional movement (14).

(13) (a)

OPEN (a door)

(b)

DOOR

(14) (a)

CIGARETTE PAPER

(b)

PICK 'a cigarette paper'

7.1 Verb morphology

Pizzuto (1986, 2004) divides the category of LIS verbs in three main classes according to two parameters: place of articulation and type of movement. The first class includes those verbs articulated on some body parts, and with a local non-directional movement. An example is the sign KNOW, shown in (15).

(15)

KNOW

A second class includes those verbs (mainly) articulated in neutral space with a directional movement, as shown by the sign for GO in (16).

(16)
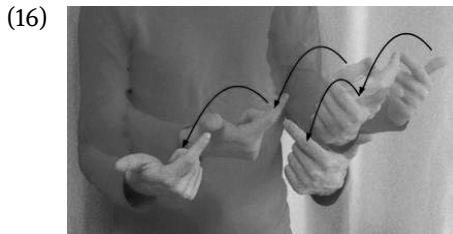
DONATE

The third class includes the verbs articulated in neutral space but with no directional movement, as shown by the sign for BREAK in (17).

(17)

BREAK

These three classes show distinct morphological patterns with respect to spatial agreement. The first class does not exhibit spatial agreement (18a) because of phonological restrictions (they are articulated at specific body location and usually cannot be detached). Verbs from the second class mark for both subject and object agreement (18b) on verb trajectory. The starting and end points of the verb trajectory correspond to subject and (indirect) object agreement, respectively (identical subscript indicates that the sign or part of the sign is articulated in the same part of the signing space). Verbs from the third class tend to have object agreement only (18c).

(18) (a) IX-3 IX-1 KNOW DONE   (I class)
          'He knows me.'

      (b) GIANNI$_A$ MARIA$_B$ BOOK $_A$DONATE$_B$ (II class)
          'Gianni will donate a book to Maria.'

      (c) GIANNI   BOOK$_B$ TEAR$_B$ (III class)
          'Gianni tore the book.'

However, verb inflection does not need to be marked by spatial agreement. Indeed other strategies can be used, alternatively or conjointly with spatial agreement. One of these is the use of body posture marking subject agreement on the verb, as indicated by the extension of the line above glosses in the example in (19).

<u>body leaning GIANNI</u>

(19) GIANNI IX-3 MARIA BOOK _ADONATE_B
'Gianni will go to Rome.'

7.2 Noun Morphology

The distinction between signs articulated in the neutral space and signs articulate on some body location is also valid in the nominal category (Pizzuto and Corazza 1996, Pizzuto 2004). Only signs articulated in the neutral space allow reduplicative morphology to mark plurality (among these signs, however, one further restriction applies, namely the movement must be non-trilled), as shown in (20). Signs articulated on the body may mark plurality either with the modifier MANY or with a specific classifier, as shown in (21).

(20) (a)

CITY

(b)

CITY-PL

(21) (a)

CHERRY

(b)

MANY

(c)
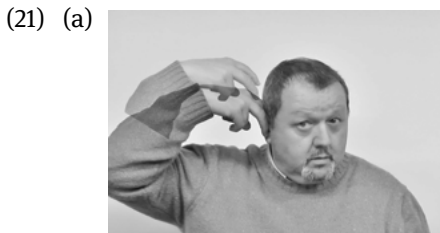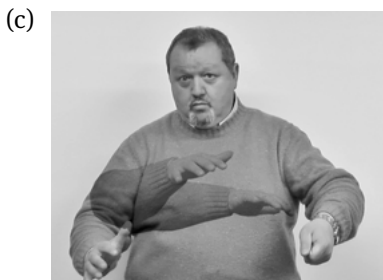
HEAP

However, plural information is not obligatorily marked in the nominal system, especially when it is easily recoverable from the context.

7.3 Personal pronouns

Pointing is the general strategy used to identify referents already mentioned in the discourse or positioned in the signing space. However, LIS also has a quite sophisticated system to identify plural referents. Like pointing, the system distinguishes between 1st, 2nd and 3rd person by means of the spatial location, and it further distinguishes numerosity by incorporating numerals (from 2 to 5) in the handshape of the pronoun. Thus, the dual form 'the-two-of-us' results from the combination of the number 'two' and the locations for 1st person. The signs illustrated in (22) single out a first plural ('we') entity made by two people.

(22) (a) (b)

TWO-OF-US (handshape L)   TWO-OF-US (handshape V)

Dual pronouns can be constructed quite easily following this mechanism. For instance a 'you and he/she' dual pronoun is the results of the combination of the number 'two' and the locations for 2nd and 3rd person together. When non-first person uses are considered, however, only the V handshape is possible, as illustrated in (23).

(23)

TWO-OF-YOU

In the same vein, it is even possible to construct pronouns referring to three individuals (or groups of individuals): a 1st, a 2nd and a 3rd person. This can be done

with a '3' handshape and a combination of 1ˢᵗ, 2ⁿᵈ and 3ʳᵈ person locations, as in (24).

(24)

THREE-OF-US

As for possession, two signs are generally used to mark possessive in LIS. One has a G handshape (25a), while the other has a B handshape (25b).

(25) (a)

POSSESSIVE-G

(b)

POSSESSIVE-B

Finally, LIS has a pronominal element glossed as PE, as in (26), that can be used for various purposes: it can mark an NP as focused, it can be used as a (co-)relative marker (Cecchetto et al. 2006 gloss it as PROREL, while Branchini and Donati 2009 first used the gloss PE), and it can be used also as a resumptive pronoun in clausal complement constructions (Geraci, Cecchetto and Zucchi 2008a). Its basic phonological realization is quite similar to that of the POSSESSIVE-G sign.

(26)

PE

7.4 Classifiers

Mazzoni (2008) provides a comprehensive discussion of the classifier system. Starting from previous works by Pizzuto (1986), Pizzuto, Giuranna and Gambino (1990) and Corazza (1990), she elaborates an in-depth analysis of the phono-morphological properties of classifier handshapes and further extends the analysis to some interesting syntactic properties of classifier predicates, showing that LIS classifiers seem to behave quite similarly to ASL's classifiers. Following Engberg-Pedersen's (1993) and Benedicto and Brentari's (2004) proposals, Mazzoni (2008) describes the phonological and morphological properties of LIS classifiers, dividing them in four groups (whole entity classifiers, handling classifiers, extension-and-surface classifiers and limb/bodypart classifiers). Examples from each group are given in (27). The complete inventory of classifier handshapes consists of 15 basic handshapes (and a relatively big number of allophones).

(27) LIS classifiers

(a)

Whole entity classifiers

(b)

Handling classifiers

(c)

Extension-and-surface classifiers

(d)
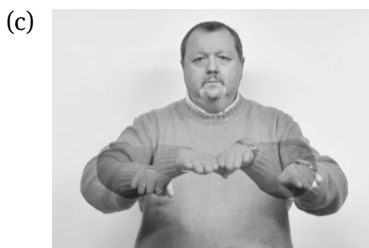
Limb/BodyPart classifiers

Cecchetto and Zucchi (2006) propose a formal analysis of the semantic properties of classifier predicates in LIS (and potentially for other sign languages as well). In a nutshell, the handshape is analyzed as a pronominal element, while the movement (i.e. the predicate) is taken to be a demonstration of the movement actually realized by the referent of the classifier handshape.

Finally, further phonetic-phonological properties of the movement component in classifier predicates are discussed in Geraci (2009b).

7.5 Morphological phenomena

Cases of reduplication in LIS have already been discussed in the domain of nominal morphology. A case of reduplication in the verbal system is presented in Section 8.2 where the comparative correlative construction is illustrated. Essentially the same process may apply to whole entity classifiers. However, two other interesting morphological phenomena that deserve mentioning are compounds and incorporated forms.

Compounds can be created by merging two lexical signs (28), a lexical sign and a classifier (29), or two classifiers (30).

(28) (a)　　　　　　　　　(b)　　　　　　　　　(c)

MOTHER　　　　　FATHER　　　　　MOTHER^PARENTS
　　　　　　　　　　　　　　　　　　　　　　'parents'

(29)

HEAD^HEAD-CL 'head at goal'

(30)

COFFEE^COIN-CL 'dispenser'
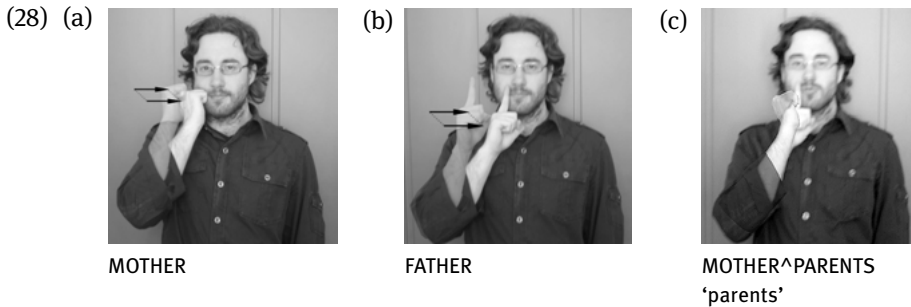
Furthermore, for some stems, the mechanism of compounding is quite productive and open to new lexical formations, as illustrated in (31) and (32) (see Geraci 2009a for some phonological restrictions on compound formations).

(31) (a)

HEAD

(b)

POUND

(c)

HEAD^POUND 'smart'

(32)
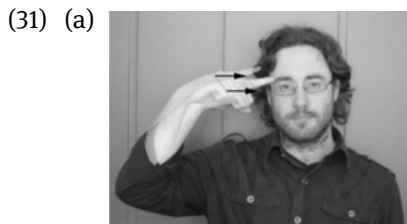
HEAD^FUCK 'asshole'

Another interesting phenomenon is incorporation. Incorporation can also be found between two lexical signs (33), between a lexical sign and a classifier (34) and between two classifiers (35).

(33) (a)

PREVIOUS

(b)

SATURDAY

(c)

PREVIOUS-SATURDAY

(34) (a)

APPLE-CL

(b)

EAT

(c)

EAT-AN-APPLE

(35) (a)

CIGARETTE PAPER

(b)

PICK

(c)

PICK (a cigarette paper)

Interestingly, incorporation can be found also with functional signs, as shown by the case of the incorporation of negation in the modal of possibility in (36).

(36) (a)

CAN

(b)

NOT

(c)
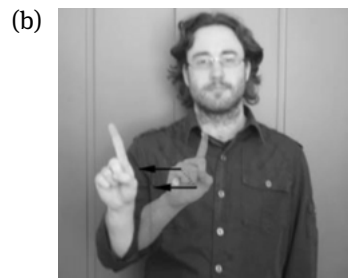
CANNOT

7.6 Proper names

Once member of a local Deaf Community, every Deaf signer has her/his own sign name; some signer may have more than one. Generally, sign names are attributed once the signer is part of a community and this used to happen in residential schools for deaf students. Nowadays Deaf schools are still the first place where sign names are assigned to Deaf people. These can be either based on some physical characteristics of the individual or on her/his 'hearing name'. For instance, the name in (37a) refers to the bear of a signer (even though he has not bear anymore); while the name in (37b) refers to the halo of saints because the first part of the signer's last name is 'san' ('saint').

(37) (a)

(b)

EMILIANO MEREGHETTI

MIRKO SANTORO

Interestingly, names can be used as patronymic and be inherited by sons and daughters. This is shown in (38), where the proper name is combined with the sign for BORN producing the patronymic 'Geraci's daughter/son'.

(38)

GERACI^BORN 'Geraci's daughter/son'

8 Basic syntax

Word order in simple declarative sentences seems to be quite flexible in LIS (see Laudanna and Volterra 1991 for a preliminary study, Cecchetto, Geraci and Zucchi 2006 for a more complete description of the syntax of LIS and Branchini and Geraci 2011 for a recent corpus study). However, native signers clearly have a preference for a subject-object-verb (SOV) word order (39). Other orders are possible, provided that the proper non-manual marking is present (roughly, eyebrow raising). In particular, SVO is quite frequent (39), and OSV is widely attested as well (39).

(39) (a) GIANNI COFFEE ORDER

$$\overline{\rule{0pt}{1.2em}\qquad\qquad\overset{\text{re}}{\qquad\qquad}}$$

(b) GIANNI ORDER COFFEE

$$\overline{\rule{0pt}{1.2em}\qquad\overset{\text{re}}{\qquad\quad}}$$

(c) COFFEE GIANNI ORDER
  'Gianni ordered a coffee.'

Functional elements operating at the clausal level appear in post-verbal position. For instance, modals, the aspectual marker DONE and the negative markers all appear post-verbally, as shown in (40). (A headshake negative non-manual marker co-occurs with the negative sign in (40c), as indicated by the line above the gloss).

(40) (a) GIANNI METER 80 JUMP CAN
  'Gianni can jump 1.80 meters.'

(b) GIANNI HOUSE BUY DONE
  'Gianni bought a house.'

neg
(c) GIANNI CONTRACT SIGN $\overline{\text{NOT}}$
  'Gianni didn't sign the contract.'

The same position occupied by negative markers can also be filled by negative words like NOTHING and NOBODY (Geraci, 2006), as illustrated in (41):

neg
(41) (a) GIANNI SIGN $\overline{\text{NOTHING}}$
  'Gianni didn't sign anything.'

neg
(b) CONTRACT SIGN $\overline{\text{NOBODY}}$
  'Nobody signed the contract.'

An interesting property that LIS shares with many other sign languages, including (varieties of) American Sign Language and Indo-Pakistani Sign Language, is the position of wh-signs in content questions (for a detailed discussion of wh-questions in these sign languages see Cecchetto, Geraci and Zucchi 2009, Cecchetto 2012 and Geraci and Cecchetto in press). Wh-signs are naturally found in the right periphery of the sentence in LIS, as illustrated by the examples in (42). (Furrowed eyebrows non-manual marking co-occur with the wh-sign and may optionally spread over wider domain, as indicated by the dotted lines).

(42) (a) GIANNI BUY WHAT
‘What did Gianni buy?’

(b) HOUSE BUY WHO
‘Who bought a house?’

Crucially, an order restriction is found when negative words and wh-signs are used in the same clause: the negative word must follow the wh-sign, as shown by the contrast in (43). This strict sign order relation shows that wh-signs occupy a higher position in the structure of the clause than negative words, independently from their argument function.

(43) (a) SIGN NOTHING WHO
‘Who signed nothing?’

(b) SIGN NOBODY WHAT
‘What did nobody sign?’

(c) * SIGN WHO NOTHING

(d) * SIGN WHAT NOBODY

If we add these facts up, LIS can be considered a head-final language. The verb follows the object and the functional heads that host the aspectual marker (DONE), modals and negation all follow the main verb. As for the postverbal position of negative quantifiers and wh-signs in LIS, Cecchetto et al. (2009) and Geraci and Cecchetto (2013) extensively argue that these are generated by genuine rightward movement.

8.1 Sentential complements

While the distribution of NP complements is relatively flexible, producing SOV, OSV and SVO word orders, the distribution of sentential complements is more con-

strained in LIS. Geraci et al. (2008a) report that two main strategies are used with sentential complements: either the sentential complement precedes the main subject and verb complex, as in (44), or the sentential complement follows the main verb, as illustrated by (45). Crucially, the canonical object position between the main subject and the main verb, which is found with NP-type complements, is unavailable with sentential complements, as shown by the ungrammaticality in (46).

<div align="center">————————————————— re</div>

(44) (a) [PIERO BIKE FALL] GIANNI TELL
      'Gianni said that Piero fell from the bike.'

<div align="center">————————————————— re</div>

  (b) [PIERO CAR STEAL] MARIA PE TELL
      'Maria said that Piero stole a car.'

(45) (a) GIANNI SURE [YESTERDAY MARIA LEAVE]
      'Gianni is sure that Maria left yesterday.'

  (b) ? GIANNI TELL [PIERO BIKE FALL] IX$_{GIANNI}$ TELL
      'Gianni said that Piero fell from the bike.'

  (c) GIANNI TELL WHAT [PIERO CAR STEAL]
      'Gianni said that Piero stole a car.'

(46) (a) *GIANNI [PIERO BIKE FALL] TELL

  (b) *GIANNI [YESTERDAY MARIA LEAVE] SURE

More recently, Geraci and Aristodemo (2013) showed that center embedding of sentential complements is possible when additional agreement morphology is marked either by the use of the signing space or by additional body leaning, as shown in (47).

(47) (a) GIANNI$_a$ [PIERO BEAN EAT] $_a$WARN
      'Gianni warned (someone) that Piero ate beans.'

     body lean   body lean
  (b) GIANNI [PIERO ARRIVE LATE] SAY
      'Gianni said that Piero arrived late.'

The additional spatial morphology instantiated in (47a) consists in detaching the body anchored verb WARN and relocating in the position in the signing space where the matrix subject GIANNI is located.

    Following Cecchetto et al. (2006), Geraci et al. (2008a) attributes the unacceptability of examples like (46) to the combined effect of structural conditions and

processing factors. Specifically, center embedded structures are hard to parse even in spoken languages (see for instance Miller and Chomsky 1963). What is peculiar about LIS is that, while spoken languages tend to avoid multiple levels of center embedding, LIS seems to avoid center embedded structures entirely, unless additional morphology is overtly marked. The reason why center embedded in LIS is particularly costly in terms of processing is attributed to the fact that short-term memory for LIS signs is reduced (Geraci, Gozzi, Papagno and Cecchetto 2008b). In order to cope with short-term memory limitations, the grammar of LIS either adopt various strategies: dislocation, as in (44) and (45a,b); wh-clefting, as in (45c); or employing additional agreement morphology, as in (47).

Along with fully sentential complements, the typology of sentential complementation also allow for infinitival sentences to be used as sentential objects. This is the case of control structures, i.e. when the subject of an infinitival clause must be anaphorically dependent on a specific argument of the matrix clause, be it the subject, as in the case of (48a) or the object as in (48b):

(48) (a) John began to cry.
    (b) John forced Mary to eat pizza.

Crucially, sentential complements in control structures may sit in the canonical object position between the main subject and the main verb, as shown in (49). The same possibility is also found with other kinds of complement taking predicates, when used in control structures, as shown in (50). The canonical object position is also available when the controller is an argument different from the main subject, as in the case of object control predicates like 'FORCE' in (51).

(49) MASON GARAGE BUILD BEGIN DONE
    'The mason began to build the garage.'

(50) (a) GIANNI CONTRACT SIGN FORGET
       'Gianni forgot to sign the contract.'

    (b) GIANNI COW MILK TRY
       'Gianni tried to milk the cow.'

(51) COOK MARIA MEAT EAT FORCE
    'The cook forced Maria to eat meat.'

8.2 Relativization strategies

Although LIS does not seem to have a direct structural equivalent of English-type relative clauses, LIS signers adopt an interesting strategy of relativization, involving the special pronoun PE (see Section 7.3). The construction involves two juxtaposed clausal-like entities, where the first is analyzed as subordinate to the second,

as in correlative constructions (Cecchetto et al. 2006, but see Branchini and Donati 2009 for a different analysis). An optional eyebrow raising non-manual marking (indicated by a dotted lines) marks the first clause, while the second does not have specific non-manual components. However, raised eyebrows is obligatory with the pronominal element PE, as illustrated in (52):

(52) (a) [BOY CALL PE] LEAVE DONE
          ‾ ‾ ‾ ‾ ‾ ‾ ‾ re
          'A boy that called left.'

    (b) [MARIA BOY KISS PE] LEAVE DONE
          'Maria kissed a boy that left.'

    (c) [BOY MARIA KISS PE] LEAVE
          'A boy that Maria kissed left.'

    (d) [GIANNI BOY HIT PE] MARIA KISS
          'Maria kissed a boy that Gianni hit.'

Within the domain of correlative clauses, Geraci (2007) analyze the properties of the comparative correlative construction ('the more you run, the more you sweat'), which can be realized in two ways in LIS, as illustrated in (53).

(53) a. GIANNI RUN-reduplication SWEAT-reduplication
     b. GIANNI RUN-reduplication SWEAT MORE
        'The more Gianni runs, the more he sweats.'

The construction is analyzed as a bi-clausal structure in which the first clause is subordinate to the second, much like the PE-constructions (see Geraci 2007 for a detailed description of the properties of the two variants).

8.3 If-clauses

Standard if-clauses are produced with a specific non-manual marking (roughly raised eyebrows, but see Franchi 2004) that spreads over the if-clause only (54). A manual sign, equivalent to the English functional word 'if' is optional, as shown in (54) (data from Barattieri 2006):

(54) (a) RAIN UMBRELLA TAKE
          ‾‾‾‾‾‾‾‾‾‾‾ re

$$\overline{\qquad\qquad\text{re}\qquad\qquad}$$

(b) IF RAIN UMBRELLA TAKE
   'If it rains, I will take an umbrella.'

Barattieri (2006) reported that LIS signers consistently produce the antecedent-consequent order and only some informants sporadically admit the reverse order, as in (19).

(55) # UMBRELLA TAKE IF RAIN
   'I will take the umbrella, if it rains.'

The diacritic # indicates that the sentence is grammatical, but only for some signers. However, on closer examination, it emerges that the order consequent antecedent, although rare (16 cases out of 154 sentences, Barattieri 2006), is found only when the manual sign for IF (or one of its variants) is present; no cases where the antecedent follows its consequent are marked by NMM only.

9 History of research

The interest of the academic world on LIS can be traced back to the late 1970s, when a group of scholars at the Consiglio Nazionale delle Ricerche (CNR) in Rome started investigating the processes of language acquisition and language mastering in deaf children (Caselli, Maragna and Volterra 2006). The first contact was with a group of phoniatrists from Bologna directed by Massimo Facchini, who was looking for education programs for deaf children alternative to standard oralist methods. An important input to this line of research was the publication of the volume *Signs of language* edited by Edward Klima and Ursula Bellugi. Soon after, Elena Pizzuto and Elena Radutzky joined Virginia Volterra in what is now known as the 'Rome group'. The first relevant publication, *I segni come parole* (Volterra 1981), was an anthology of papers summarizing the most recent studies on other sign languages. In the same years, the group started its collaboration with the ENS, the most important national Deaf association and Deaf researchers began to be an active part of the research group. In particular, Serena Corazza was the first Deaf person collaborating with the Rome group; and after her, Emanuela Cameracanna, Anna Folchi, Paola Pinna, Paolo Rossini and Benedetto Santarelli have been part of that group. However, the most important date for linguistic research on LIS is 1987, when the first description of LIS was published, under the title of *La lingua italiana dei segni* (edited by Virginia Volterra). In that book, a first inventory was presented of the phonological parameters (at that time they were called cheremes), of the main morphological processes of the nominal and verbal systems and some preliminary facts about the syntax of LIS. As already mentioned, the title of the book changed into

La lingua dei segni italiana in the second edition (published in 2004). The second important publication coming out from the Rome group was in 1996, when the book *Linguaggio e Sordità* (edited by Maria Cristina Caselli, Simonetta Maragna and Virginia Volterra) was published. While the 1987 book was mainly focused on the linguistic properties of LIS, *Linguaggio e Sordità* dealt with language acquisition processes, presenting a parallel between the processes of language acquisition in the spoken and signed modalities. The second edition of the book (published in 2006) includes the most recent findings in the field of Italian sign language acquisition and a detailed bibliography of the most recent words (up to that time). Furthermore, the websites of CNR and that of the Istituto dei sordi di Roma are constantly updated with the most recent news (see on-line references).

In the late 1990s Sandro Zucchi started a second line of research on LIS more focused on formal aspects of the language at the University of Salerno with the invaluable collaboration of two Deaf students, Pino Amorini and Giammarco Eletto. When Zucchi moved to the University of Milano a few years later, he continued to work on formal aspects of LIS with Carlo Cecchetto, from the University of Milano-Bicocca and gave life to the so-called 'Milan group', with several Deaf people collaborating (Graziella Anselmo, Anna Folchi, Emiliano Mereghetti, Chiara di Monte, Mirko Pasquotto and Mirko Santoro). Furthermore, in collaboration with Alessandra Checchetto of Lega del Filo d'Oro (the national association of Deaf-Blind people), the Milan group started a research project on the tactile variety of LIS, the sign language used by Deaf-Blind people. Since 2011, there has been a research position in sign language linguistics at Ca' Foscari University of Venice, and currently Chiara Branchini leads the research group.

Parallel to the academic interest on linguistic properties of LIS, how deaf children acquire it and how education programs can be implemented to include LIS, courses of sign language were offered by the main universities of the Country. Among these, the most important is the program offered by the faculty of Foreign Languages at the Ca' Foscari University of Venice, where students can choose LIS as 'one of the 38 foreign' languages in their BA program (LIS is the second most popular language, after English).

However, research and teaching of LIS is not an exclusive matter of academic institutions. Indeed, several associations provide courses on LIS, finance scholarships for Deaf and hearing students interested in Deaf language and culture. In particular, ENS organizes national and local conferences on various topics concerning linguistic and social consequences of the use of LIS as a communication tool (but see the web page http://www.look.it/link/sordita.htm for a complete list of the associations of deaf people). Of particular relevance were the three National conferences on LIS held in Trieste (1995), Genova (1998) and Verona (2007) and the publication of the proceedings: Caselli and Corazza (1997) for the first conference, Bagnara, Chiappini, Conte and Ott (2000) for the second and the two volumes by Bagnara, Corazza, Fontana and Zuccalà (2008) and Bagnara, Fontana, Tommasuolo and Zuccalà (2009) for the last one.

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CNR website – http://www.istc.cnr.it/mostralis/index1.htm
Istituto sordi – http://www.istitutosordiroma.it/old/default.htm
Links association – http://www.look.it/link/sordita.htm
National Deaf association – www.ens.it
New manual alphabet – www.ens.it
Old manual alphabet – http://www.cilis.it/cilis/index.php
On-line dictionary – www.dizlis.it

Keren Cumberbatch
20 Jamaican Sign Language

1 Basic facts about the language

Language name: Jamaican Sign Language (JSL)

Location: Jamaica
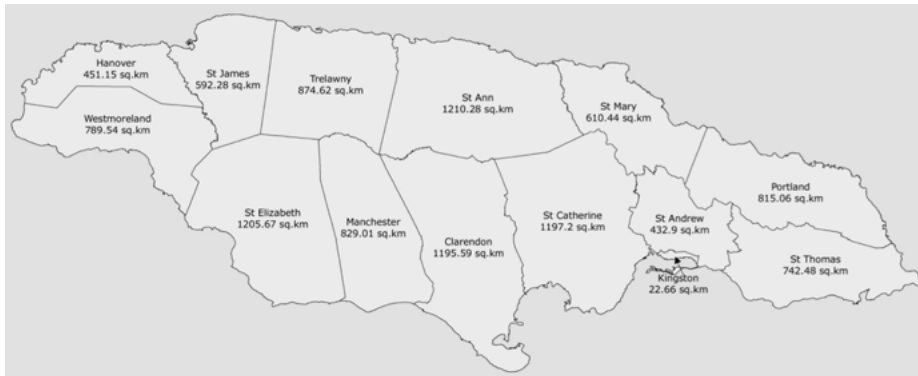
Fig. 1: Map adapted from Jamaica Information Service.

Varieties: There are a few lexical differences between parishes in Jamaica but these do not hinder communication. This chapter focuses on the variety used in Kingston, the capital city of Jamaica.

Number of signers: The 2011 National Census listed 74,857 deaf persons. The majority of these would be JSL users. There are no figures on the number of JSL users.

2 Origin and history

Traditionally, Jamaican Sign Language has been viewed by its users as a dialect of American Sign Language (ASL). This is because American missionaries from various Christian denominations started the first schools for the deaf in Jamaica. In

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the 1960s, Signed English based on ASL was the language of instruction[1] after oralism was no longer employed as a teaching method. ASL was used in informal interactions. However, there is no longer a strong missionary presence in Jamaica and without regular input from ASL, JSL is beginning to evolve as a language in its own right. This can also be observed in other Anglophone Caribbean territories where American missionaries and the American Red Cross established the first schools and churches for the deaf. Today, the sign languages used in the Anglophone Caribbean are mutually intelligible but are each evolving separately with distinct lexical and syntactic variation.

3 Bilingualism and language contact

3.1 Education

Schools for the deaf stopped using oralism in the 1960s. Signed English became the medium of instruction. In the last decade, there has been a shift in pedagogy that acknowledges JSL as the native language of the Jamaican deaf and therefore, the best language of instruction.

3.2 Standardisation

There have been discussions on standardising JSL. This has not been done because inter-parish variations in JSL are still being documented. In addition, there is a concern due to the relatively rapid changing nature in sign languages; a standard variety may quickly find itself obsolete.

3.3 Influence from dominant languages (signed and spoken)

JSL is a minority language in Jamaica, with English and Patwa, Jamaican Creole being the majority languages. Influence from these two spoken languages, English and Patwa, can be seen in JSL mouthings: HAVE from English and NUFF from Patwa, translated as *plenty* in English.

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1 Some do not view Signed English as a language because it is a constructed communication system developed for pedagogy. Such persons prefer the term *medium of instruction*. In my view, this makes Signed English an artificial language created using elements of natural languages, namely, a natural sign language and English.

4 Political and social context

4.1 Organisations

The education and social services needs of the Jamaican Deaf community are met by Jamaica Association for the Deaf, the only national organisation for the Deaf. Several Deaf clubs exist in the urban areas. These clubs have outings and monthly meetings. Social media in the form of Facebook is used to foster solidarity within the Deaf community. There is a very active Facebook group on which people exchange casual greetings and heated debates on topical issues.

4.2 State of the language

Jamaican Sign Language is the national albeit not officially recognised language of the Jamaican Deaf community. It is used in every language domain and is still transmitted from one generation to the next. JSL is not in danger of becoming extinct at any point in the near future.

4.3 Language maintenance efforts

The Jamaican Deaf community is encouraging the use of JSL in academic and governmental domains. The Jamaica Association for the Deaf offers JSL classes at various levels to the public. The Jamaican Language Unit at The University of the West Indies is lobbying the government for official recognition of JSL and language rights for the Deaf. The University offers a degree in sign language interpreting as well as sign language courses.

4.4 Usage of the sign language in context

There has been a push to extend the use of JSL to the academic domain and this is bearing fruit. Up to the last decade, JSL was reserved for social interactions with Signed English being used in the classroom. Nowadays, JSL is in the classroom at all levels of education. It is now safe to say that JSL is now largely accepted for use in all aspects of daily life.

4.5 Attitudes to sign language

Most Jamaican deaf are very proud of their language. There are a few however who do not see the need for JSL and prefer other means of communication that employ a form of English like Signed English and note writing.

4.6 Men's and women's varieties

No extensive research has been done on the extent of variation between men's and women's varieties of JSL but there seems to be a small amount of lexical and syntactic variation. For example, the sign MENSTRUATION has a sign that is known to all, but female signers use other signs to describe the menstrual cycle they are experiencing. The average male signer is aware these signs exist but does not know what these signs are. In terms of syntactic variation, a study of possession marking in JSL[2] showed that women mark possession by juxtaposing the possessor and the possessee. Men use that strategy in addition to one in the form exemplified in (1).

(1) BOOK FOR JOHN
    'John's book.'

4.7 The sign language in its political context

Official recognition of JSL as the language of the deaf in Jamaica was tabled in parliament under a Charter of Rights for citizens but was not approved. A Disability Act is about to be legislated but this act does not include language rights for the deaf or official recognition of JSL or KS. Although this Act paves the way for access to information and interpreting services, such benefits have not yet been realised at the individual level. Interpreting has been provided for the Deaf community at key governmental events such as the inauguration of a Prime Minister and parliamentary sessions.

4.8 Other sign languages in use in the country

ASL is used by Deaf North Americans visiting Jamaica as well as the missionaries stationed in Jamaica. ASL and JSL are mutually intelligible. Konchri Sain is the other natural sign language in use in Jamaica. However, it is a minority sign language and its use is generally restricted to a parish in southern Jamaica. Some deaf people choose to use Signed English, which is an artificial sign language that uses JSL vocabulary and English morphological and syntactic structures.

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2 I conducted this study as a part of the sign language typology project led by Prof. Ulrike Zeshan.

5 The structure of signs

5.1 Distinctive features of signs

5.1.1 Handshape

JSL has fifty-six (56) handshapes for sign production. These include:

Fig. 2: Flat hand.   **Fig. 3:** Open 8 hand.   **Fig. 4:** Minor hand.

5.1.2 Place of articulation

Signs are articulated on or near the body. Signs near the body can be produced in all directions as far as the arm span allows. Rarely, signs are produced as far as the feet and on or near the back.

5.1.3 Orientation

All parameters for absolute orientation have been observed in JSL. The palm can face in one of the following six directions – up, down, left, right, facing the signer or away from the signer. Many signs involve a change in orientation.

5.1.4 Movement

Movement along the contours of line, arc and circle exist in KS. Some signs are produced along more than contour.

5.2 Assimilation

At times, a sign adopts features of other signs in its environment. It may adopt one or more of the distinctive features described in Section 5.1. An example is

(2) IX.1.SG KNOW
   'I know.'

Handshape and location assimilation was seen in this sign in the form of IX.1.SG that was produced. IX.1.SG adopted the Bent hand AND contralateral location of KNOW in place of its 1 hand and central location.

6 Associated sign systems

6.1 Hand alphabet

JSL uses the ASL manual alphabet for fingerspelling words in spoken languages. The handshapes in the manual alphabet have a one-to-one correspondence to letters in the English alphabet.

6.2 Tactile communication system

Deaf members of the Jamaican Deaf community have been reaching out to deaf-blind Jamaicans. A tactile communication system has been developed. Like other tactile communication systems in use with deaf-blind persons, this system is based on producing JSL signs in the palm of the hand of the addressee. When deaf-blind persons attend Deaf gatherings, some Deaf persons serve as interpreters to include them in the proceedings.

7 Basic morphology and lexicon

7.1 Classifiers

To date, thirty semantic categories have been identified for JSL classifiers. These include: human individual, human group, sticky object, rough object, square object, aeroplane, vehicles, perimeter, volume, and hold different objects or person. When a signer uses a JSL classifier for the first time within the discourse, it occurs periphrastically with the noun to which they refer. Any further use of that classifier occurs without the noun.

7.2 Reduplication

Reduplication is seen in the pluralisation of some nouns. An example is HOUSE for which total reduplication is used. The entire sign HOUSE is repeated thrice.

Reduplication is also used to mark emphatic modification and aspect. For emphasis, total reduplication is employed. Both total and partial reduplication are used for aspect marking. Iterative aspect marking employs partial reduplication. For instance, if a person is signing a series of slaps, not all of the slaps would be fully produced. Part of the sign would be repeated several times.

7.3 Compounds

Compounding is present in JSL. There are exocentric compounds like THINK-MARRY meaning *believe* in English and endocentric compounds such as SALT-FISH referring to salted cod fish are common.

7.4 Personal pronouns

The number categories of JSL pronouns are singular, dual, trial, quadral and plural. These categories refer to units of one, two, three, four and more than four, respectively and are indicated via numeral incorporation. Table 1 shows the personal pronouns that exist in JSL.

In JSL, direction of the indexing hand, eye gaze and raising of the chin distinguish second and third person pronouns. The indexing hand is pointed towards the referent or its locus enabling the addressee to know if he or a third party is the referent. In the second person, eye gaze is normally fixed while in the third person, eye gaze shifts briefly to the referent then back to the addressee. Oftentimes, a slight raising of the chin accompanies the third person, particularly if the referent is in the same room but more than two feet away.

JSL pronouns do not indicate gender. In addition, these pronouns do not change form to show whether they are subject or object pronouns. Non-singular pronouns are produced with arc movements of the hand. The arc covers the spatial loci of all the referents. The following example shows two pronouns in different persons and number categories.

Tab. 1: JSL Personal Pronouns.

PERSON	NUMBER CATEGORY				
	SINGULAR	DUAL	TRIAL	QUADRAL	PLURAL
FIRST	IX.1.SG	IX.1.DL.EXCL	IX.1.TRIAL.EXCL	IX.1.QUAD.EXCL	IX.1.PL.EXCL
		IX.1.DL.INCL	IX.1.DL.INCL	IX.1.QUAD.INCL	IX.1.PL.INCL
SECOND	IX.2.SG	IX.2.DL	IX.2.TRIAL	IX.2.QUAD	IX.2.PL
THIRD	IX.3.SG	IX.3.DL	IX.3.TRIAL	IX.3.QUAD	IX.3.PL

(3) IX.3.PL CALL IX.1.SG fs[3]: J-U-N-I-O-R
'They call me Junior.'

In (3), the first pronoun, IX.3.PL, is a third person plural pronoun that refers to the signer's relatives and the second pronoun, IX.1.SG, is first person singular and refers to the signer himself. IX.1.SG is shown in Figure 5.

Non-singular first person pronouns with inclusive/exclusive distinctions have been found in many languages (Cysoux 2005; Payne 1997: 45). The use of a distinction between exclusive and inclusive reduces the ambiguity of whom the speaker is referring to. An exclusive first person non-singular pronoun is one that refers to the signer and another person(s) not present at the time of the discourse. In Example (4), the signer refers to three persons, himself and two others not present in the discourse, by using an exclusive first person trial pronoun.

(4) IX.1.TRIAL.EXCL TEACH IX.2.PL
'The three of us teach you.'

The signer in (4) moved a 3 hand in a circular motion from himself to another person who was present and then to a spatial locus established earlier to refer to the third person who was not present at the time. He did not extend his arm in the direction of the students to include them. This showed that the signer was only referring to himself and two others who were not discourse participants. The signer was not referring to the addressee. Thus, the pronoun was exclusive.

Inclusive pronouns refer to the signer and addressee(s). The inclusive first person dual pronoun in Example 5 is articulated by moving the 2 hand between the signer and the addressee who is to the left. This showed that the signer was referring to himself and the other person participating in the discourse.

Fig. 5: IX.1.SG – JSL first person singular pronoun.

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3 *fs* represents fingerspelling.

(5) WHAT SAY IX.1.DL.INCL WRITE
'The two of us write what is said.'

The fingertips of the nondominant hand are used as referents for lists such as when one is doing a weekly schedule and assigning tasks to each day or preparing a roster and designating persons for each chore. It is also used when giving a list of several items. The list can be larger than five items by pointing to loci below the hand and can become pronominal. This anaphoric use of the nondominant hand has been called ordinal tip loci (Liddell 1990) and fingertip loci (Pinsonneault and Lelièvre 1994). For example, when a teacher was outlining classroom responsibilities for the week to her students. She raised her left hand (her nondominant hand) so that it was in line with the shoulder palm facing left, and using her right (dominant) hand, signed a student's name sign then pointed to her pinky finger. She repeated this four times, each time identifying a student then associating them with the tip of the adjacent finger. After she signed different activities, like getting the students into a queue before recess, pointing to the finger related to the student to whom the task was designated.

Whether the list is started on the thumb, index or the pinky finger seems to be of no significance. In addition, each finger on the hand need not be used. The pointing is similar to that in the discourse signing space. The same 1 hand used for other pronominals is used and just as the loci in signing space is associated with a nominal for the duration of a conversation, the signer connects the ordinal tip loci with its antecedent and maintains that connection when the loci is referred to the second time. An example follows where a signer was discussing varieties of JSL that exist in different towns across Jamaica. In (6), the signer points to a fingertip, represented by CONN, then signs a nominal. Thereafter, in the conversation, she pointed to the corresponding fingertip when discussing the referent. The pictures in Figure 6 show the number of entities being established and the fingertip loci. Later in the conversation, when referring to these towns, the signer pointed to the fingertip that represented them. She did not sign the names of the towns again.

(6) FOUR.CONN FIRST.CONN ST. ELIZABETH SECOND.CONN+++ PORTLAND
THIRD.CONN MANDEVILLE FOURTH.CONN+ BROWN'S TOWN FOUR
'Four are St. Elizabeth, Portland, Mandeville and Brown's Town.'

Fig. 6: Fingertip Pronouns in JSL.

7.5 Noun morphology

Nouns can be inflected through numeral incorporation to show quantity. The hand-shape of the nominal sign is changed to the handshape of the numeral. Figure 7 shows the numeral THREE being incorporated into the noun YESTERDAY to mean *three days ago*. The 3 hand replaces the Y hand of YESTERDAY.
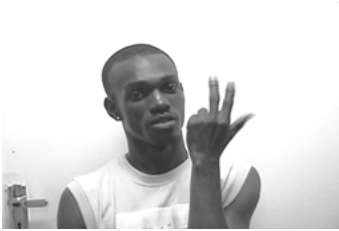
Fig. 7: THREE & YESTERDAY.

For pluralisation, JSL nouns employ reduplication or periphrastic means, viz. the use of classifiers, third person non-singular pronouns or quantifiers. For example,

(7) LOOK HOUSE IX.3.PL fs: B-E-V-E-R-L-Y-H-I-L-L-S IX.LOC.DIST
     'Look at the houses in Beverly Hills.'

In Example (7), a signer was telling his friend to look upwards at an affluent neighbourhood in the capital of Jamaica. The plural marker for HOUSE in (7) was the third person plural pronoun.

JSL kinship terms change location to indicate natural gender. COUSIN signed at the temple as COUSIN.MASC means male cousin. At the chin, COUSIN.FEM means female cousin and at the ear, COUSIN.NEUT signifies both male and female cousins. Figure 8 illustrates this. The only non-kinship nominal identified as displaying this type of derivational morphology is the sign translated into English as Prime Minister.

Fig. 8: The derived forms of COUSIN in JSL.

7.6 Verb morphology

Some verbs in JSL are not inflected to show the relationships between participants in the events depicted by the verbs. Examples of this kind of verb are WONDER, USE and WAKE.

(8) IX.1.SG WONDER POSS.2.SG PARENT.FEM-PARENT.MASC USE SPEECH RIGHT
'I was wondering, your parents use speech, right?'

(9) Ø PARENT.FEM WAKE IX.3.SG
'His mother woke him up.'

None of the verbs in (8) or (9) – WONDER, USE and WAKE – changed their form to give semantic information about other linguistic items in the sentences. In sign linguistics, verbs that do not mark agreement are referred to as plain verbs (Sandler and Lillo-Martin 2006; Valli and Lucas 2000; Sutton-Spence and Woll 1999).

Verbs in JSL that mark agreement through direction are directional verbs (Valli and Lucas 2000). The direction in which the sign for the verb moves gives information about the thematic roles of agent, patient and recipient. Directional verbs begin at the location of the agent (subject) within the signing space and end at the patient or recipient (object). The starting point is the subject agreement marker and the finishing point is the object agreement marker. The movement from one point to the other is the verb stem. For example,

(10) IX.2.SG GIVE.AGT$_2$.RCPT$_1$ IX.1.SG
'You give me.'

$$\overline{\qquad\qquad\text{eyebrows: raised}\qquad}$$
(11) IX.2.SG HELP.AGT$_2$.RCPT$_1$ Ø NEED BUS MONEY
'Will you help me? I need bus money.'

In (10), the initial location of the sign GIVE is the locus point within the signing space used by the signer to refer to IX.2.SG, the addressee who is also the agent (AGT). GIVE then moves toward the signer, where the locus point for IX.1.SG, the recipient (RCPT), is located. In (11), HELP starts at the same locus where IX.2.SG, the addressee is signed. The signer then moves HELP toward her torso. In (10) and (11), the verb began at the locus associated with the referent who is the agent and ends at the locus referring to the patient. This indicates that the locus is the agreement marker.

Palm orientation indicates agreement marking for some JSL verbs. For this group of verbs, the dorsum of the hand always faces the locus associated with the subject while the palm always faces the locus associated with the object. TELL_NO is an example of a palm orientation verb in JSL.

(12) PARENT.FEM TELL_NO. AGT$_3$.RCPT$_1$
     'Mom told me no.'

Later in this conversation, TELL_NO was used again but with a different subject and object.

(13) IX.3.SG PARENT.FEM TELL_NO.AGT$_3$.RCPT$_3$
     'Her mother said no.'

In these examples, the verb had different inflections. When the signer was the object of the verb in TELL_NO, the palm of the hand was facing the signer. The dorsum of the hand is facing the locus for the third person pronoun, which refers to the subject.

All reciprocal verbs in JSL are palm orientation verbs. Each hand articulates the sign, palms facing each other showing that the object of one is the object of the other. The dorsum of each hand faces the locus of each of the two subjects. An example follows.

(14) d hand: IX.1.DL RESPECT
     nd hand: RESPECT
     'We respect each other.'

In (14), the sign produced with the dominant hand is from the perspective of the signer and the one made with the nondominant hand, is from the perspective of the addressee.

The location of an event is sometimes encoded in the verb. The form of the verbs indicate where the action they denote occurs. PAIN changes location according to the body part where the pain is being felt. PAIN is signed near to the part of the body where the ache is being experienced.

(15) IX.1.SG SICK PAIN.THROAT COUGH PAIN.THROAT
     'I am sick. My throat hurts. I am coughing. My throat hurts.'

(16) PAIN.HEAD ALL_DAY
     'I had a headache all day.'

Some JSL verbs simultaneously use more than one of the previously described means to mark agreement. (17) is an example of a sentence containing ASK, one of the verbs that use both direction and palm orientation to show agreement.

(17) IX.1.SG PUZZLE ASK HOW ONE DEAF PERSON DO_NOT REMEMBER
     ns: P-left shoulder
     'I am puzzled so I am asking you how it is that not one Deaf person remembers P.'

When signing ASK, the signer began the sign near his torso then moved it toward the addressee. This showed that he was the agent/subject and the addressee, the patient/object. Additionally, the dorsum of the hand faced the signer while the palm faced the addressee.

7.7 Personal names

Name signs are given to members of the Deaf community as a rite of passage. Once you have been accepted into the Deaf community through your deaf status or through your involvement as a hearing Deaf, members of the community will decide on a name sign for you. Names usually consist of a handshape that signifies the forename initial. The location and movement reflect a distinctive physical or personality characteristic of the person. The orientation is incidental in that whichever orientation facilitates the production of the other features is used. Children are sometimes given names that are linked to those of their parents, for example, the same location and movement as that of the Deaf parent but with the handshape that corresponds to the initial of the first name of the child.

8 Basic syntax

8.1 Word order and Expression of grammatical relations

JSL has a nominative/accusative system. Using the framework presented in Payne (1997), three semantico-syntactic roles have been used to clearly describe grammatical relations within a clause. These roles are S, A and P. S refers to the subject of an intransitive verb. A refers to the most agent-like argument of a transitive verb. P refers to the most patient-like argument of a transitive verb. A simple clause in JSL can be described as having a constituent order of SV in single argument simple clauses and AVP in multiple argument clauses. Further, the constituents, S, A and P, can be nominal or pronominal, expressed or implied. There is a constraint that where there is a human agent and human patient of a verb that transforms its object, A and P must be expressed.

Examples to illustrate possible grammatical relations and constituent orders in JSL.

(18) IX.1.SG DRUNK
       'I am drunk.'

This is a single argument clause with a pronominal S. The constituent order in this clause is SV.

(19) ALREADY PARENT.FEM-PARENT.MASC PAY HOUSE IX.3.SG
     'His parents already paid for the house.'

This is a two-argument clause with a nominal A occurring before V. There is no P in this clause.

(20) Ø CLEAN ALL HOUSE
     'I cleaned the entire house.'

This clause has an implied A and expreseed nominal P with an AVP constituent order.

(21) MALE POLICE MURDER FEMALE-FINE
     'The policeman murdered the woman.'

This two-argument clause has a human A and a human P. Both arguments are expressed. The constituent order in this clause is AVP.

8.2 Mood

The imperative mood is the only mood marked in JSL. The verb is inflected by increased signing space, fixed eye gaze in the direction of the addressee and an increase or decrease of the rate of signing. The change in the rate of signing is idiolectal.

9 Interesting or unusual features of the language

9.1 Doubling of the Noun Phrase and Verb Phrase in JSL Clauses

Like other sign languages, Jamaican Sign Language has doubling at the level of the noun phrase and verb phrase, for example FIVE CHILD FIVE and EAT CAKE EAT, respectively. However, JSL also has doubling at the level of the clause. (22) and (23) are examples.

(22) IX.1.SG AGAINST DIRTY KITCHEN IX.1.SG AGAINST
     'I am against dirty kitchens.'

(23) IX.1.SG ACCEPT WHAT TEACHER TELL IX.1.SG ACCEPT
     'I accepted what the teacher told me.'

Sandler and Lillo-Martin (2006), Petronio (1993) and Quadros (1999) have discussed copied sentence elements. None of the theoretical frameworks of these works can account for the doubling of sentence elements larger than the noun phrase. Petronio (1993: 135) outlines five syntactic properties of double constructions in ASL. JSL violates property (ii) which states that the doubled construction is X^0 not XP meaning that "only a single sign, a head, can occur in the doubling construction [and] full phrases ... are not allowed" (Sandler and Lillo-Martin 2006: 418). JSL violates this by allowing doubling at the clausal level.

In (22) and (23), two signs were doubled and based on the aforementioned frameworks, each of these signs are actually XPs. IX.1.SG is a NP in each sentence. AGAINST and ACCEPT are VPs. Two XPs are doubled. This goes against Petronio (1993) which says that not even one XP can be doubled. Quadros (1999) explores doubling in Brazilian Sign Language (LSB). LSB allows a sentence with more than one clause, excluding relative clauses, to double an element from each clause. This still does not account for JSL allowing two elements from one clause to be doubled. The rhythm of (23) made it clear that the second occurrence of IX.1.SG was as the subject of the clause IX.1.SG ACCEPT and not as the object of TELL.

It can be argued that in JSL the clause or noun phrase is being repeated at the underlying level with ellipsis of elements of the clause or of the noun phrase at the surface level. Only the elements that the signer wishes to mark pragmatically are realised at the surface level. The signer is motivated to place focus on an element in response to earlier discourse as or to make an assertion. In (22), the signer was asserting his stance on kitchen cleanliness. The NP and VP slots in the clause were doubled at the surface.

Eyebrow raising was found spread across the entire constituent. Sentence-final sentential complements in Lingua Italiana dei Segni (LIS) also carry this nonmanual marking, which seems to be a type of topicalisation (Geraci, Cecchetto and Zucchi 2008). If the doubled constituent is taken as a means of establishing the 'known' in the discourse then perhaps this is topicalisation (Margolin 2011). The signer wishes to ensure that this doubled constituent becomes shared knowledge among the discourse participants. Sentence-final topicalisation was taken as a possible explanation for this clause doubling construction in JSL.

Geraci, Cecchetto and Zucchi (2008) posit that sentential complements can sometimes be cases of focalisation. The doubled element always appears in sentence-final position to the right of the main clause. Geraci, Cecchetto and Zucchi (2008) pointed to focalisation among other motivations for LIS sentential complements with this distribution. The doubled JSL sentence constituent was examined for evidence of focalisation. This look at focalisation was supported by Lillo-Martin and Mueller (2008) who noted that in the literature, doubling constructions have been linked to focus. Examples of focus constructions in ASL and Língua de Sinais Brasileira (LSB) all contain phrase heads not entire phrases as is the case with JSL.

Occurrences of the phenomenon were found in formal and informal settings and ranged across a variety of topics. Discourse could not therefore account for this

phenomenon. The society in which the language is located may hold the answer. It is now well-accepted in linguistics that languages co-existing within an environment will influence each other. In this case, JSL is located in a multilingual environment where English and Patwa (Jamaican Creole) are the two dominant languages. For most hearing Jamaicans, Patwa is their mother tongue. Though Patwa does not have official language status, it is used in all domains of society. The doubling construction found in JSL while not productive in Patwa is possible within its grammar. Nonetheless, this type of doubling is common in other Anglophone Caribbean Creoles like Trinidad and Tobago Creole and Guyanese Creole. An example from Trinidad and Tobago Creole is:

(24) *Mi e   nuo   wa   shii duin mi e   nuo.*
     I   NEG know what she doing I   NEG know[4]
     'I don't know what she is doing.'

This then leads to the hypothesis that it is the influence of the Creole language in its environment that accounts for the presence of these doubling constructions in JSL.

Robertson (2010) suggested that speaking a Creole language is borne out of a Creole experience that transcends the boundaries of language. Conceivably, this explains why JSL a sign language with users who have hearing loss and are not born into a world where they hear Patwa spoken around them can have Creole features in its grammar. JSL users have been born into an experience. This experience allows the nature of their language to take on characteristics from not just Jamaican but other Creoles as well.

10 History of research

Keren Cumberbatch completed the first linguistic description of JSL in 2012. This grammar was the first PhD thesis on a Caribbean sign language. She is now investigating the genetic relationship between JSL and ASL. Now that more is known about the structure of JSL, several projects are underway to develop educational resources for JSL learning and for literacy studies in schools for the deaf. These projects are being carried out by the researchers at The University of the West Indies and by the Jamaica Association for the Deaf.

Other work in JSL has been in sociolinguistics. SIL completed a sociolinguistic survey of the Jamaican Deaf community in 2011. The Jamaica Association for the Deaf piloted a project in which adult Deaf were placed in classrooms alongside

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4 This Creole example is written using the Cassidy-Le Page writing system for Creoles.

teachers as Deaf Culture Facilitators. They function as language and culture models for the Deaf students and as teaching assistants. Their presence has led to a marked improvement in the academic performance of the deaf students who now meet or surpass the national average in national primary level exit examinations.

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21 Kenyan Sign Language

1 Basic facts about the language

Language name: Kenyan Sign Language

Alternative names: KSL; Lugha ya Ishara ya Kenya (Swahili); LIK (Swahili)

Location: Kenya

Varieties: Possible varieties in Nairobi, Central Province, Western Kenya

Number of signers: Sources vary. Ethnologue reports 340,000 KSL signers (2009), the Kenyan National Deaf Association estimates 600,000 signers, and the Kenya National Survey for Persons with Disabilities estimates the Kenyan deaf population to be around 195,000 people (NCSPD 2008) – although this survey is considered to be too low (Shackleton 2009).

2 Origin and history

The origin and development of KSL is connected to the rise of deaf education in Kenya. Okoth and Akach (1997) profile the development of KSL in the early 1960s and suggest that KSL formed into a single national language from what may have been independent inception at two schools. Through interviews and historical reconstruction, they find that the first known classes for deaf students were held in 1958 at Aga Khan institutions[1] in Nairobi and Mombasa, but that the "most influential centres in the growth of Kenyan Sign Language" came from the two oldest schools in the country, St Martin's Primary School for the Deaf at Mumias and St Mary's Primary School for the Deaf at Nyang'oma (1997: 136) (see Figure 1). These schools were founded within a year of each other, around 1962. Ten more deaf

[1] Agha Khan is a non-governmental organisation that sponsors healthcare and social welfare programs in developing countries with Muslim populations.

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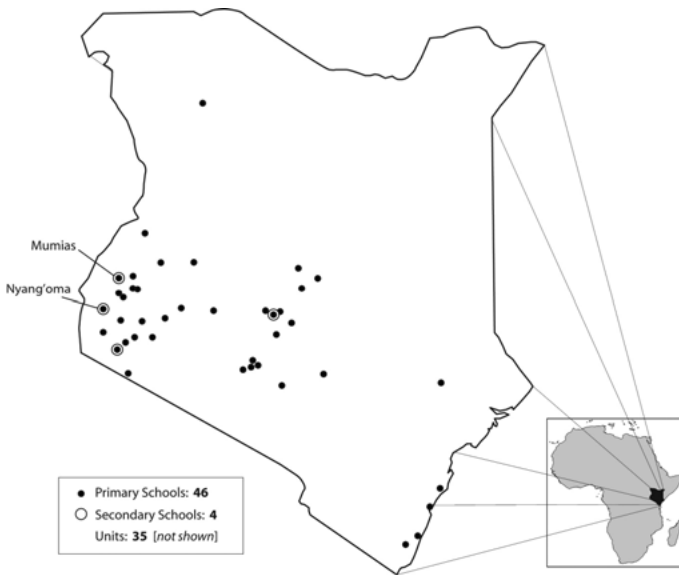
Fig. 1: Kenyan schools for the deaf based on a 2007 U.S. Peace Corps survey.

schools opened in the following decade.[2] As new schools opened, students who learned to use signs from Mumias and Nyang'oma moved to these new schools that were closer to home, bringing the signs with them and teaching their peers in those locations. Although schools in this era were strongly oralist and tended to punish students for using gestures/signs, deaf Kenyans who attended oralist schools say that they nonetheless communicated with their hands whenever and wherever they could.

Deaf schools also held provincial and national sports competitions where children and young people came together, socialising and mixing signs from their school variants, thus enriching Kenyan Sign Language. Okomo and Akach write: "(t)he best information we have suggests that KSL started to emerge after 1970, when the first graduates of already-established schools came into the job market. Eventually, it was the places where they met in search of jobs (in the urban centers) where deaf associations started to spring up" (Okombo and Akach 1997: 140).

Okombo and Akach use the term "emerge" to refer to the spread of the language, not its inception. They believe the growth and development of the language accelerated during the 1980s, fuelled by a new sense of autonomy and pride in the deaf community. During this period, the Kenyan National Association for the Deaf (KNAD) was created, with assistance from the Swedish Deaf Project in Kenya. These organisations encouraged the use of KSL as the indigenous language of the deaf

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2 Kiambu, Nyeri, Meru, Nakuru, Nandi, Murang'a, and Nairobi; followed by Kwale, Kilifi, and Kitui.

community. Also during this period, more schools continued to open: eight in the 1970s and six more in the 1980s. In 2007, a survey found a total of 46 primary schools for deaf children, 4 secondary schools, and 35 units within mainstream schools (U.S. Peace Corps 2007) (Figure 1). Enrolment in these schools ranges from dozens to hundreds of students.

Today, KSL is mutually intelligible all across Kenya. It is widely known that there is lexical variation associated with different schools and perhaps with overall regions as well, though the types and degrees of regional variance have not been thoroughly researched. Regional variation has contributed to the lexicon by introducing terms specific to an area (different agricultural products, cultural practices, geographic features, etc.) into the shared KSL lexicon. Kenyans as well as visitors to the country have observed that the biggest variation seems to be between the Nairobi variant and the rest of Kenya. Yet at the same time, new signs and phrases – especially related to urban lifestyles and technology – are being spread to rural areas by deaf adults who travel to and from Nairobi. This is one way that the language continues to change and grow.

3 Bilingualism and Language Contact

3.1 Contact with ASL and BSL

Okomo and Akach's account implies that foreign sign systems were not influential on Kenyan Sign Language at the start. They acknowledge the efforts of some educators in Kenya to adopt American Sign Language and Signed English, but they do not detail these efforts or describe how much adoption had occurred by the time of their article in 1997. However, it is easy to observe that KSL contains some lexical items from ASL, Signed English, and BSL signs, and that the same signs are used or known all across Kenya. How did this happen?

The full picture of how sign systems of foreign descent (e.g., ASL, BSL, International Signs[3] and possibly others) came into Kenya is not perfectly established, but two educational policy decisions probably played a role. A deaf Kenyan named Michael Ndurumo, who was trained in the United States, convinced the Kenyan Institute of Education to adopt the American version of Signed English (which contains both ASL signs and signs based specifically on English lexical items and morphology), as the language of instruction in Kenya's deaf schools in 1983 (Akach 1990). This effort was opposed by the deaf community, as was a subsequent effort

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3 One way that International Sign (IS) could have been introduced is through development workers from Nordic countries, who preferred to use IS instead of their national sign languages (p.c. Michael Morgan). However, there is no indication that IS had an influence on KSL.

by the Kenyan Institute of Special Education (KISE) to introduce a controversial dictionary called Kenya School Signs for educators. The dictionary included a large number of signs that many viewed as not representing KSL in use.

The KISE dictionary project was first spearheaded in 1987 by a Kenyan, Emily C. Yego, and a Dane, Ingelissa Rotenborg-Jensen, at the Kenyan Institute of Special Education, with input from the deaf community. Ndurumo joined the project, but did not follow the recommendations laid out by Yego and Rothenborg-Jensen and instead incorporated Signed English into the dictionary. In 1988, this dictionary was adopted by all state-run schools under the Kenya Institute of Education (KIE), which remains a sore point for many deaf Kenyans to this day.

It is not known to what extent this dictionary was the primary source of influence of ASL in Kenya, or whether on-going contact with missionaries and volunteers, or the sporadic adoption of Signed English and/or ASL by some schools and educators have also been influential (Hochgesang 2007).

Linguistic evidence confirms the influence of ASL and Signed English by means of lexical borrowing, but shows that it has also been limited. In an unpublished manuscript comparing the relatedness of signs in KSL and ASL, Roberts (2009) used a video dictionary (Mjitoleaji Productions 2004) of around 1,000 KSL signs that was created as a joint project between the Kenya Sign Language Research Project at the University of Nairobi and U.S. Peace Corps volunteers in 2004. This dictionary was developed for learning basic conversational KSL and therefore includes signs essential for communication in Kenya, including different parts of speech (nouns, verbs, prepositions, conjunctions, modifiers, etc.), relevant place names, and several sample sentences.

Using six different types of word lists to compare KSL and ASL, Roberts found that an average of 55 % of KSL signs are very different from ASL, sharing at most one phonological parameter (out of four total parameters: handshape, movement, location, and orientation); 25 % of signs are similar, sharing 2 or 3 parameters; and 20 % are identical in all parameters. When compared with other lexico-statistical analyses of sign language lexicons, this level of similarity is considered to be less than a dialect, and in the low range of sign languages that could be considered part of the same family (Parkhurst and Parkhurst 2003; Hendricks 2008). Roberts thus concludes that KSL cannot properly be considered a creole of ASL because it does not fit the pattern of borrowing most of the lexicon from a dominant language. These conclusions must be treated with some caution because many linguists do not consider lexico-statistical methods to be especially valid measures of historical relatedness between languages (Crowley and Bowern 2010). However, sign linguists continue to use these comparative measures for lack of other means of determining relatedness (Hendricks 2008; Hurlbut 2008, 2009).

To this body of evidence concerning the relationship between KSL and ASL, the current authors, would add a number of *faux amis* ('false friends') between the two languages. These are pairs of lexical items from different languages with the

same articulation, but different meanings and, in this case, no historical relation. *Faux amis* between KSL and ASL include several common words in both languages, such as (in order of KSL and ASL): PEOPLE and CLOTHING; FRIEND and REST; MEETING and MORE; SIGN and ANYWAY/WHATEVER; DEAD and FULL; SUFFER and TAKE-IT-EASY; A-LOT and ENOUGH; and many more. It therefore comes as no surprise that signers report these languages are mutually unintelligible.

In addition, preliminary work on the linguistic structure of KSL (see following sections) suggests that the influence of ASL may not extend to the level of morphology and syntax. The classifier system, word order, and negative constructions in KSL appear to be distinct from ASL, although more thorough comparative work is needed to confirm this.

As a former British colony, some contact with BSL would not be surprising; however, there is no documented historical relation between the languages and no schools currently use BSL. An informal, ongoing search by the authors finds that only a small number of signs show any relationship. For example, the sign PROBLEM is the same in both languages and a few place names use BSL fingerspelling (e.g., the names for KAREN and MIGORI).

Several other foreign sign languages have been used in Kenya by missionaries, including Belgian Sign Language and Korean Sign Language (Ethnologue 2009); however, there is no indication that they have had an impact on either the lexicon or the grammatical structure of KSL.

Altogether, the evidence thus far suggests that KSL is an indigenous language that has borrowed a portion of its lexicon from foreign sign systems, including ASL, Signed English, and BSL. At present, it is not known how the contact with foreign sign languages may be evolving; that is, whether it is has stabilised, is increasing, or is happening at different rates in different settings (e.g., schools, regions, or social groups).

3.2 Contact with neighbouring sign languages

The sign languages of bordering Uganda and Tanzania are reported to be mutually unintelligible with KSL; however, there is speculation that KSL may share some linguistic properties with these neighbouring languages – especially Ugandan Sign Language. One explanation for the Ugandan case is that until recently, there were no secondary schools for deaf children in Uganda so they travelled to Kenya for secondary and vocational education (Lule and Wallin 2010).

KSL has also been exported to Somalia in two ways. First, KSL was brought to a deaf school in Boroma, Somaliland by a deaf man who had been educated at Wajir in northeastern Kenya (Woodford 2006). Second, there are a large number of Somali refugees in Kenya, some of whom have attended deaf schools in Kenya and then returned to Somalia.

There is anecdotal evidence that KSL may have been exported to Rwanda, Burundi, and the Democratic Republic of the Congo by deaf people educated in Kenya, but these claims remain to be tested. In fact, the history and extent of contact and borrowings throughout East Africa in general is a compelling subject for future research.

3.3 Contact with other systems: manual alphabet & numbering

The manual alphabet currently used in Kenya is derived from the ASL fingerspelling alphabet. Differences from the standard ASL manual alphabet are in the letters T, which has two variants[4] (Figure 2) and S, which can be articulated with an s-shaped movement (akin to the z-shaped movement of the ASL fingerspelled letter Z). Also, it is customary to indicate a separation between fingerspelled words (e.g., between a first and second/last name) with a kind of punctuation: a flat hand, fingers outward, changes palm orientation with a single ulnar rotation as if sweeping the previous word aside.

a.   b.
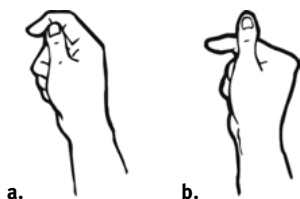
Fig. 2: Two variants of the T handshape in Kenyan Sign Language (images courtesy of Gladys Tang).

Evidence that the British manual alphabet was used early on in Kenya comes from cases of older deaf people, now in their sixties, who can fingerspell using the British manual alphabet (Stephen Gachuhi, p.c.). Prior to the use of fingerspelling, deaf people allegedly wrote words on the back of their arm using a fingernail to scrape letters into their skin (Dominic Maiwa, p.c.). In fact, this method of writing on the skin is still used today in some deaf-hearing contact.

Fingerspelling is used sparingly in the Kenyan deaf community. Personal and place names are nearly always given descriptive signs instead of fingerspelled. Use of both fingerspelling and Signed English is more common among educated deaf

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4 Figure 2b resembles the T in some European sign languages. It is assumed that the ASL letter was avoided because this thumb-through-the-fingers handshape is associated with female genitalia; and in fact this handshape is used productively as a classifier in several KSL signs, such as CLITORIS, FEMALE-CIRCUMCISION, and one variant of LESBIAN.

Fig. 3: Handshape for *four* in Kenyan Sign Language.

Kenyans (i.e. those who have attended secondary school or college), and may function as a sociolinguistic marker of status.

The number system in KSL originates from the way people count on their hands in the hearing community. For example, the handshape used for the number *four* (Figure 3) in KSL is also a common handshape for *four* in certain ethnic groups of Kenya and northern Tanzania (Zaslavsky 1973). The number *five* is made with a fist handshape on the dominant hand. Numbers from 6–9 are then produced by touching 1, 2, 3, or 4 fingers on the dominant hand (for six, seven, eight, and nine, respectively) to the closed fist of the non-dominant hand. The number ten is made by bringing two fists together, palms facing each other. This counting system appears to derive specifically from the Luo tribe in western Kenya (Zaslavsky 1973), notably where the first deaf schools were established. Because different ethnic/regional groups have different methods of counting, deaf Kenyans will also adopt the local counting systems in contact situations with hearing people (U.S. Peace Corps 2004), but will use the KSL counting system with other deaf people.

3.4 Contact with spoken languages

The official languages of Kenya are Swahili and English; however, one of the other 40+ mother tongue languages is usually spoken in the home and local community. Thus, deaf Kenyans can be in contact with many different spoken languages in a single community. Two of the most common ways that contact with spoken languages manifests in sign languages are in mouthing and fingerspelling (Cormier et al. 2008).

For the most part, simultaneous mouthing of spoken language words while signing in KSL is optional, and the amount of this "mouthing" varies depending on the individual and the circumstance. However, because of the emphasis on English in schools, most deaf Kenyans can and do mouth English words while signing. In general, English is used and taught to a much greater extent in deaf schools than Swahili, mother tongues are taught in hearing schools (in the lower grades), but not deaf schools.

Mweri (2009) investigated language contact via mouthing between KSL and Swahili. He reports that compared with English, Swahili literacy is extremely low

in the deaf community, which he attributes to the lack of time dedicated to it in the classroom. Despite this, there are several obligatory Swahili mouthings that co-occur with KSL signs, shown in (1). These are not only used in deaf-hearing communication, but in deaf-deaf contact as well.

(1) Obligatory Swahili mouthings in KSL with English translation (Mweri 2009)
    (a) *mzungu*   person of European descent
    (b) *jogoo*   cockerel/rooster
    (c) *basi*   that's all
    (d) *bado*   not yet
    (e) *safari*   journey/travels
    (f) *mia*   hundred
    (g) *hapa hapa*   right here
    (h) *poa*   fine
    (i) *wewe!*   hey you; literally "you!"

Mweri also reports that contact with Swahili through fingerspelling is particularly infrequent in KSL, which is again attributed to low literacy in Swahili.

To summarise, KSL is a language actively in contact with many other languages and communication systems. Borrowing of lexical items from foreign sign languages has contributed to the lexicon, contact with Signed English, English, and Swahili in schools shapes some lexical choices, and daily contact with hearing people engenders the use of shared manual counting and mouthing of the spoken language.

4 Political and social context

4.1 Status and recognition of KSL

KSL is not recognised as an official language of Kenya, but the country has recently taken a large step forward by granting a measure of official status to KSL in the new constitution voted into law on 4th August 2010. The new constitution states that "the State shall promote the development and use of indigenous languages, Kenyan Sign Language, Braille and other communication formats and technologies accessible to persons with disabilities" (Standard Media 2010). Although other constitutions in Africa (e.g., South Africa, Uganda) provide recognition for "sign language" in general, Kenya is the only African country that specifies the sign language of the country by name (Dr. Okoth Okombo, p.c.). In addition, KSL is now recognised as an official language of Parliament, along with English and Swahili. Finally, the constitution mandates that 5 % of elected and appointed positions be filled by persons with disabilities. These laws promise to advance to the status of

deaf Kenyans, though it remains to be seen how thoroughly they will be implemented.

4.2 KSL and deaf teachers in the classroom

KSL is often not the sole form of communication in the classroom in Kenya's forty-plus boarding schools for deaf children. Instead, there is a variety of communication systems blended with KSL. These include Total Communication,[5] Signed English, and simultaneous (often reduced) signing and speech in English, Swahili, or the local language. Teachers in deaf schools have a range of attitudes about KSL. At one extreme are enthusiastic supporters who are sensitive to the deaf community and try to use KSL in the classroom. At the other end are those who support oralism or who believe KSL to be inferior to American Sign Language. However, in this last case, teachers commonly confuse ASL with Signed English. It is common to find teachers with very different views about KSL teaching in the same school.

In 2007, KSL became one of the languages of examination in school exams, a change that has been progressively rolled out in primary and secondary schools over several years.[6] This policy has led to some controversy in the deaf community since the exams rely on English glosses rather than pictures, videos, or live signing of KSL. That is, these new assessments are measurements of both KSL and English, contrary to the explicit purpose, which is to test KSL skills. In general, however, this is seen as a step forward, and the policy is supported by KNAD as an incremental move toward more KSL-centred teaching.

Outside of the classroom, KSL is preferred for day-to-day communication in many schools, even for some teachers and school administrators who insist on Signed English in the classroom.

In the early days of deaf education, the teaching staff rarely included a deaf person. Initially, this was an outcome of the poor education at these schools, which prevented deaf graduates from achieving the sufficient literacy in English and Swahili that would allow them to gain entry into teachers colleges or universities. However, a programme in the 1990s (coordinated by KNAD and Global Deaf Connection, an American non-profit organisation) saw deaf individuals trained and employed as primary school teachers. Recently, this program was briefly reinstated at Machakos Teachers College. Currently, the Kenyan Federation of Deaf Teachers (see

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5 Total Communication is a method of teaching deaf students that incorporates gesture, mouthing, pantomime, and the use of visual aids in addition to sign language. It was developed in the U.S. and is currently used in special education training in Kenya. Teachers in Kenya have been known to confuse TC with Signed English.

6 Students in deaf schools were first allowed to take the KCPE (Kenya Certificate of Primary Education; given at the end of class eight) in 1985. The first test was administered at Kuja Primary School for the Deaf in south Nyanza Province.

Section 4.3) advocates increasing the number of deaf teachers not only in order to employ members of the community, but also to serve as language models, social role models, and conduits for rich, in-depth teaching in the students' natural language.

Today, about half of the deaf schools in Kenya have at least one deaf teacher (Peace Corps 2007), although many are not paid as much as hearing teachers. This wage disparity is the consequence of dual routes to becoming employed as a teacher in Kenya: 1) through the government's national Teacher Service Commission (TSC) or 2) by direct application to the school's local Board of Governors. Wages agreed to by the board are often minimal with no extra allowance, whereas the TSC pays a more generous wage that increases regularly, with extra allowances and job security. However, TSC employment is problematic because there is a long waiting list to enter the TSC workforce and the jobs are difficult to obtain. Thus, most deaf teachers are employed through a Board of Governors.

4.3 Sign language organisations

The first known organisation for deaf people in Kenya was the Kenya Society for Deaf Children (KSDC), registered as a charitable organisation in 1958 (Okombo et al. 2009). KSDC continues to operate in Nairobi, with deaf Kenyans on staff.

The Kenya National Association of the Deaf (KNAD) was formed in 1986 and officially registered with the Kenyan Government in 1987. As the representative national association, KNAD is a full member with voting rights at the World Federation of the Deaf. Its membership consists of provincial associations with members drawn from the local deaf community. After a lull in activity for over a decade, KNAD has been more active since around 2008, advocating for deaf rights and specific policies of interest to the deaf Kenyans.

Two decades ago, KNAD recognised the need to support the acquisition and use of KSL for deaf people, teachers, interpreters, health workers, etc. They collaborated with the University of Nairobi to form the Kenyan Sign Language Research Project (KSLRP) in 1991, and it is still housed at the university to this day. KSLRP has produced dictionaries and teaching materials, in addition to training the first generations of interpreters in Kenya and teaching KSL to countless individuals who work with the deaf community (Okombo et al. 2009). Among their trainees are U.S. Peace Corps volunteers, who have taught in Kenyan deaf schools since 1995. The KSLRP training for these volunteers was intended to establish good KSL role models for deaf students and prevent ASL from becoming more common in deaf schools.

In 2003, a group of deaf teachers founded the Kenya Federation of Deaf Teachers (KFDT), and it was officially registered in 2006 with a central office in Kisumu. KFDT has dozens of members who teach in all eight provinces of Kenya, though they are more strongly represented in the west where most deaf schools are locat-

ed. Their goal is to work as a national interest group to advocate for the rights of deaf children, deaf teachers, and quality education (www.freewebs.com/kenya deafteachers/Index.htm). Advocacy for the use, teaching, and research of KSL is an inherent part of their goals.

The Kenyan Sign Language Interpreters Association (KSLIA) is a national, non-governmental society established in September 2000. Interpreters are not readily available in Kenya, and those that are available are often not well qualified due to the lack of a professional certification process. Occasional workshops and training events have been held – especially by foreign aid agencies – over the years, but a sustainable local organisation to oversee certification remains an important near-term goal.

To summarise, the political and socio-economic situation for deaf people in Kenya is deeply tied to the education system. First, attending school is a prerequisite for later success (e.g., acquiring fluency in one's first language, becoming socialised, and gaining literacy). Second, one of the few career tracks available to skilled deaf adults is as a teacher in a deaf school. In order to increase the options for deaf Kenyans, expansion into other areas is necessary. The development of professional sign interpreter services, legal rights to access and representation, and access to higher education are some of the stepping-stones to this future.

5 The structure of signs

In this section, we describe the phonological structure of Kenyan Sign Language. As with most known signed languages, signs in KSL are characterised by features in the four major phonological parameters: handshape, location, movement, and palm orientation (Morgan and Mayberry 2010). Evidence that primes/units in each of these parameters are part of the linguistic system can be found in minimal pairs; that is, signs that contrast by only one phonological unit.

Despite its relative youth, KSL has many minimal and near-minimal pairs, as documented in a forthcoming thesis (Morgan in preparation). The following pairs illustrate phonological contrasts in each parameter. In Figure 4, the fist and F handshapes are contrastive in HARVEST and PUMPKIN LEAF. In Figure 5, the chest and throat locations are contrastive in the signs for FEAR/AFRAID and COMPLAIN. In Figure 6, simultaneous and alternating movement is contrastive in the signs for BLOUSE and BEHAVIOUR. And in Figure 7, MATATU and MANDAZI[7] differ minimally by the orientation of the palm; i.e. whether it is facing downward or upward.

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7 A MATATU is a mini-bus used as public transportation; MANDAZI is a fried bread snack.

Fig. 4a: Handshape difference: fist handshape in HARVEST, ...

Fig. 4b: ... F handshape in PUMPKIN-LEAF.

Fig. 5a: Location difference: chest location in FEAR/AFRAID, ...

Fig. 5b: ... throat location in COMPLAIN.

Fig. 6a: Movement difference: a. simultaneous movement in BLOUSE, …

Fig. 6b: … alternating movement in BEHAVIOUR.

Fig. 7a: Palm orientation difference: a. palm down in MATATU 'mini-bus' …

Fig. 7b: … palm up in MANDAZI 'fried bread'[7].

An inventory of phonetic KSL handshapes was catalogued using the KSL video dictionary described in Section 3.1 (Mjitoleaji Productions 2004). Morgan and Mayberry (2010) show that KSL contains as many as 52 phonetic handshapes (depicted using the Hamburg Notation System) and present their relative frequency in a data

Tab. 1: Frequency of KSL handshapes, based on dominant handshape in 875 KSL signs (Morgan and Mayberry 2010).

#	HS	Freq	#	HS	Freq	#	HS	Freq
1		0.224	19		0.014	37	2 3 4 5	0.002
2		0.167	20		0.013	38	3	0.002
3		0.061	21		0.011	39	2 \ 5	0.002
4		0.054	22	2	0.010	40		0.002
5		0.040	23	5	0.010	41		0.001
6		0.034	24		0.008	42		0.001
7		0.033	25		0.007	43	5	0.001
8		0.031	26		0.006	44		0.001
9		0.027	27		0.006	45	2 5	0.001
10		0.027	28		0.006	46		0.001
11		0.024	29		0.005	47	2 3	0.001
12		0.022	30		0.005	48	1 2 3 4	0.001
13		0.019	31	5	0.003	49		0.001
14		0.019	32		0.003	50	2	0.001
15		0.017	33	5	0.003	51	2 \ 3	0.000
16		0.017	34		0.003	52	3	0.000
17		0.016	35		0.003			
18	1	0.015	36		0.002			

set of 875 KSL signs (Table 1). Frequency is calculated based on the shape of the dominant hand in 875 KSL signs and excluded initialised signs. Two handshapes (i.e. 51, 52) appear only on the non-dominant hand and are therefore listed with a frequency of 0.000. Consistent with quantitative analyses of other sign languages (Rozelle 2003), the most frequent handshapes in KSL are B (22 % of signs), 1 (17 %) and open/5 (6 %).

The number of handshapes that are phonemic primes is lower than the phonetic handshapes, but a full analysis of phonemic handshapes has not been undertaken. However, there is evidence that handshapes A and S are allophones of the same fist phoneme because thumb placement is predictable based on which part of the hand makes contact with the body (i.e., the thumb will be placed to avoid contact, as in the KSL signs MANY, TWELVE, or SODA-POP). Other evidence for allophony is that the s-shaped movement of the fingerspelled letter S (see Section 3.3) appears to be required to distinguish it from the letter A; i.e. the position of the thumb is not sufficient to distinguish these shapes for signers.

The types of movement and syllable structure of KSL have not yet been systematically described, although the language appears to adhere to the same syllabic

Tab. 2.: Distribution of sign types in KSL (Morgan and Mayberry 2009).

Sign Type	Description	Count	Percentage
Type 0	One-handed sign; articulated in space, no body contact	148	15.45 %
Type X	One-handed sign; articulated with body contact	221	23.07 %
Type 1	Two-handed sign; matched for handshape and movement (synchronous or alternating)	310	32.36 %
Type 2	Two-handed sign; matched for handshape; dominant hand active & non-dominant hand passive	65	6.78 %
Type 3	Two-handed sign; unmatched for handshape; dominant hand active & non-dominant hand passive	80	8.35 %
Type 4	Two-handed sign; unmatched for handshape, but matched for movement	2	0.21 %
Type C	Compound sign (multi-morphemic)	131	13.67 %
N/A	Monomorphemic disyllabic sign (MOVIE)	1	0.10 %
	Total Signs	**958**	

constraints as other sign languages. That is, monomorphemic lexical signs are restricted to no more than two sequential movements and tend to have no more than two simultaneous movements within a syllable (Brentari 1998; Wilbur 2010). Phonological reductions are also observed in KSL compounds signs, such as STAMP^BOOK 'newspaper'; however, the details regarding these reductions again await further research.

Another way to understand how the sublexical features of signs are used is to examine the distribution of ways that the two manual articulators are recruited across the lexicon. Following Battison's sign types (1978), Kenyan Sign Language is shown to use both of its manual articulators in a somewhat similar distribution as other sign languages (see Rozelle 2003). Table 2 shows the proportion of different types of signs within KSL, based on hand arrangement (one or two hands), body contact (in one-handed signs), and whether the two hands are matched for movement and handshape (Morgan and Mayberry 2009).

6 Basic morphology and lexicon

Although the morphological structure of KSL has yet to be analysed in detail, we briefly describe here some features of the classifier system, compounding, reduplication, and semantic body locations in Kenyan Sign Language.

Following the three categories of classifiers summarised by Schembri (2000), the classifier system in KSL appears to contain several *handling* and *SASS* (size and shape specifier) classifiers in the lexicon as shown in (2), but a somewhat limited *whole entity* classifier system. SASS classifiers can be found in compounds: a "tiny"

handshape for small grains (similar to the T variant in Figure 2a, but with index and thumb tips touching); a size and handling classifier for things that fit in a hand (a 'claw' handshape); a two-handed classifier that traces the outline of a ball/melon shaped item (a curved B handshape); and a flat B hand for representing surfaces.

(2) Examples of Size and Shape Classifiers in the KSL Compounds

	SASS Classifier	Example	Compound formation
(a)	TINY	'rice'	WHITE^TINY
(b)	HANDFUL	'charcoal'	BLACK^HANDFUL
(c)	GLOBE	'pumpkin'	GLOBE^CHOP
(d)	SURFACE	'ocean'	WATER^UNEVEN SURFACE

Based on observed and anecdotal evidence, it seems that KSL does not employ a strongly conventionalised and productive system of whole-entity classifiers for people, animals, cars, bicycles, boats, etc. A flat hand can be recruited to represent vehicles (U.S. Peace Corps 2004: 22), and a 1/G or a V handshape can represent a person, but constructions using these handshapes appear to be used infrequently and idiosyncratically both across and within signers. A systematic study of KSL classifiers is called for.

Compounding is a very productive way of creating new lexical items, such as the multi-morphemic signs in (2) and 'newspaper', mentioned above. As shown in Table 2, 13.7 % of signs in a KSL dictionary were compounds. Other examples of compound signs are THINK^CHEAP 'ignorant', HOT^SICK 'fever', PRIVATE^BEAT-WITH-STICK 'confidential', and the occasional triple compound, such as one variant for the toponym 'Lake Victoria' from KISUMU^WATER^SURFACE.

Like other sign languages, KSL has an agentive marker, PERSON (two facing B handshapes move down torso), which appears following a noun or verb; e.g., POLITICS^PERSON 'politician', FARM^PERSON 'farmer'. Other morphological markers include the sign FINISH as a perfective marker and several signs that function as intensifiers. Note that all of these markers appear in post-head position.

Reduplication is occasionally used to create new words in KSL. Some examples are OPPORTUNITY, which is formed from the sign for WAY articulated twice; COMMUNITY from the sign for GROUP reduplicated; and CITY from TOWN reduplicated. Reduplication certainly has more functions in KSL grammar, but these have not been fully explored.

Certain body locations are active in the lexical semantics of KSL. These include the chin and cheek for words associated with males (MAN, BOY, FATHER, SON, HIM) and the breast for female words (WOMAN/MOTHER, GIRL, FEMALE-VIRGIN, DAUGHTER, HER). Like other sign languages, emotional states are articulated in specific body domains; for example, over the heart, at the nose, or on the forehead. Expressions of desire may also be articulated at the throat, such as WANT, LIKE, DON'T-

LIKE, PRECIOUS, SWEET. And some lexical items related to past knowledge are articulated over the dominant shoulder, such as CULTURE, EXPERIENCE, and KNOW.

7 Basic syntax

The limited literature addressing syntactic structure in KSL appears in materials for teaching KSL (U.S. Peace Corps 2004), for training KSL teachers (Warnke, et al. 2007), and in the preface of a KSL dictionary (Akach 1991). Interrogatives and negative constructions are also briefly mentioned in Zeshan (2004a, 2004b). However, many aspects of the syntactic structure of KSL have yet to be investigated.

All sources state that word order in KSL is flexible. The most common types are SOV, SVO, and OSV, with SOV being the preferred order (Akach 1991; Warnke et al. 2007). Recent work confirms this SOV preference, finding it to be even stronger than previously suggested (Morgan 2014). Also, topic-comment sentences are very common, as in (4), where the object is fronted and marked by facial grammar indicating topicalisation (i.e. eyebrow raise). However, OSV sentences without a topicalised marker on the object may also be grammatical in KSL.

(3) Examples of SOV sentences
- (a) PRO-*me* BROTHER TWO HAVE
  I have two brothers.
  (Warnke et al. 2007)

- (b) GIRL SUGARCANE BUY
  The girl buys sugarcane.
  (authors)

(4) Example of Topic-Comment sentence

$\overline{\qquad}^{\,t}$

SISTER PRO-*he* HAVE
He has (one or more) sister(s).
(Warnke et al. 2007)

Wh-questions are formed with the wh-word at the end of the sentence, as in the examples in (5).

(5) Examples of wh-questions

$\overline{\qquad}^{\,wh\text{-}q}$

- (a) PRO-*she* WHO?
  Who is she?

$$\overline{}\text{wh-q}$$

(b) MAN EAT WHAT?
What is the man eating?

$$\overline{}\text{wh-q}$$

(c) TEACHER CHILDREN HAVE HOW-MANY?
How many children does the teacher have?
(Warnke et al. 2007)

While the syntactic structure of wh-questions is consistent across KSL variants, the wh-signs themselves vary somewhat across Kenya,[8] which is consistent with variability in question words cross-linguistically (Zeshan 2004: 22). For instance, pupils at Kibarani School for the Deaf reportedly use MEAN(ING) for *why*, TIME for *when*, and WHO for any other question word (*who, where, what*) (Peace Corps 2004: 63).

Yes/no questions are indicated by raised eyebrows and a slight head nod forward, with scope over the entire clause, as in (6). The sign order is not different from a declarative sentence.

(6) Example of a yes/no question (Warnke et al. 2007)

$$\overline{}\text{q}$$

PRO-he STORE GO?
Did he go to the store?

Modifiers (quantifiers, adjectives, adverbs) typically follow their respective nouns and verbs; e.g., LAMP THREE 'three lamps'; SOCKS BLACK 'black socks'; WALK CAREFULLY 'walk carefully'.

Negative constructions in KSL appear to be very similar to those in Ugandan Sign Language (USL) as described in Zeshan (2004). That is, KSL and USL both have one basic clause negator, the sign NOTHING, which consistently appears clause-finally. This sign has the same phonological structure in both languages. Also similar to USL is this sign's use as a negative existential and negative quantifier (Zeshan 2004: 27–28).

(7) Examples of negative constructions
(a) Basic clause negation
I GO MARKET NOTHING
I didn't go to the market.

---

8 This is in addition to signs for foods and days of the week, which also vary somewhat between schools and regions in Kenya.

(b) Negative existential
SOUP THERE NOTHING
There isn't any soup.

(c) Negative Quantifier
BOOKS YOU FIVE. ME NOTHING.
You have five books. I don't have any.
(authors)

There is another negator appearing in both USL and KSL, which is glossed as ZERO or NONE. While this negator has the same phonological form in both languages, it is not yet known if it used in the same way in both sign languages. In addition, KSL, USL and also Tanzanian Sign Language have a negative completive, NOT-YET, which is signed in the same way in all three languages: a fist with a raised thumb pointing upward (palm facing contralateral) wiggles back and forth (ulnar rotations). As mentioned in (1), it is also used with an obligatory Swahili mouthing of the word *bado*.

Finally, there is one negative modal in KSL, IMPOSSIBLE. While the clause negator NOTHING can be produced without obligatory facial features or head movement, the negative modal IMPOSSIBLE appears to occur with an obligatory headshake and downturned corners of the mouth.

In conclusion, KSL is a relatively young sign language, shared by deaf signers throughout Kenya. The language has borrowed lexical items from foreign sign systems, especially ASL and/or Signed English, but it otherwise appears to be a distinct, indigenous language of East Africa. A long, continuous history of deaf education over the past 50 years has provided basic education to deaf people in Kenya and resulted in a relatively robust deaf community, but improvement in interpretation services and access to higher education are prerequisites for further advancements. The linguistic structures of KSL have been lightly sketched here, but a complete picture of the language and its relationship to other sign languages of the world remain to be explored and described.

8 Examples of words and sentences

Fig. 8: Kenya (dominant T handshape [see Fig. 2a] rotates once at ulnae).

Fig. 9: deaf (dominant flat/B handshape covers dominant ear).

Fig. 10: sign (two flat/open handshapes move past each other, brushing fingers).
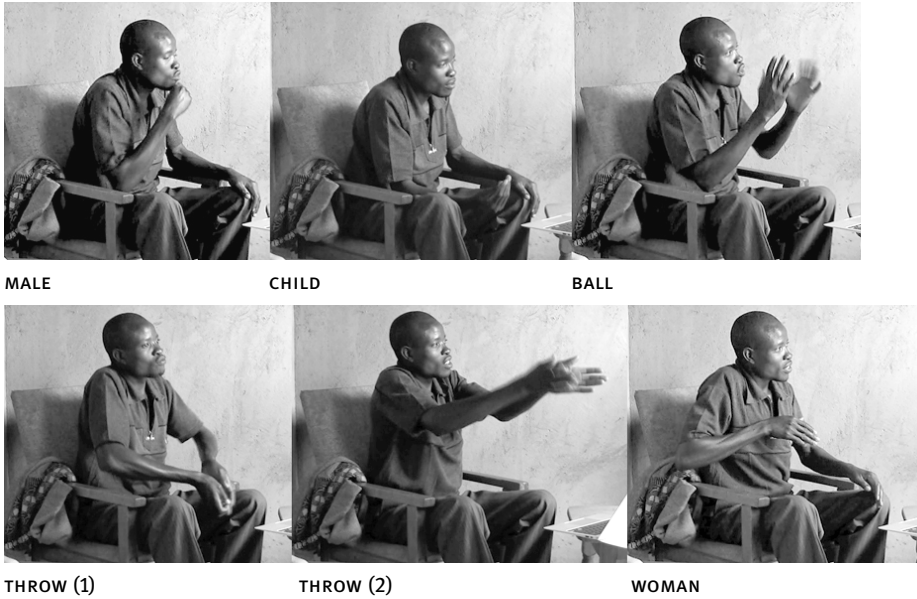
Fig. 11: 'A boy throws a ball to a woman' (boy = MALE^CHILD).
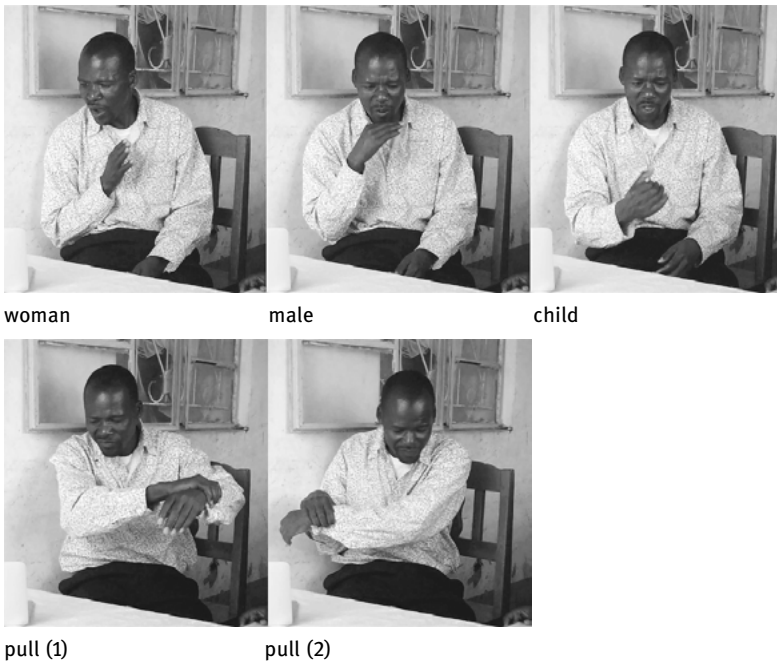
Fig. 12: 'A woman pulls a boy by the arm' (boy = MALE^CHILD).

9 History of research

We have attempted to integrate the record of research on Kenyan Sign Language into the sections above. However, some current KSL research has not yet been mentioned. A collaborative project between KNAD and linguists in Japan funded by the Nippon Foundation has resulted in the training of a number of deaf Kenyans in sign linguistics and the collection of signs and language samples from different regions of the country. This project is ongoing, and it is not known when a public record of the findings will be made available. Other KSL-related work that may not reach a wide public audience but should be mentioned includes a U.S. Peace Corps project on KSL sign variation and on-going translation work by SIL.

Note, too, that only the most comprehensive KSL dictionaries have been included in this chapter and listed in the bibliography, though other guides to KSL signs or smaller dictionaries have been created over the years. If we have otherwise overlooked any relevant research in this chapter, it is an accidental oversight and we extend our apologies to those scholars.

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Keren Cumberbatch
22 Konchri Sain

1 Basic facts about the language

Language name: Konchri Sain (KS)

Alternative names: Formerly spelt Country Sign[1]

Location: Mainly in the parish of St. Elizabeth, Jamaica.
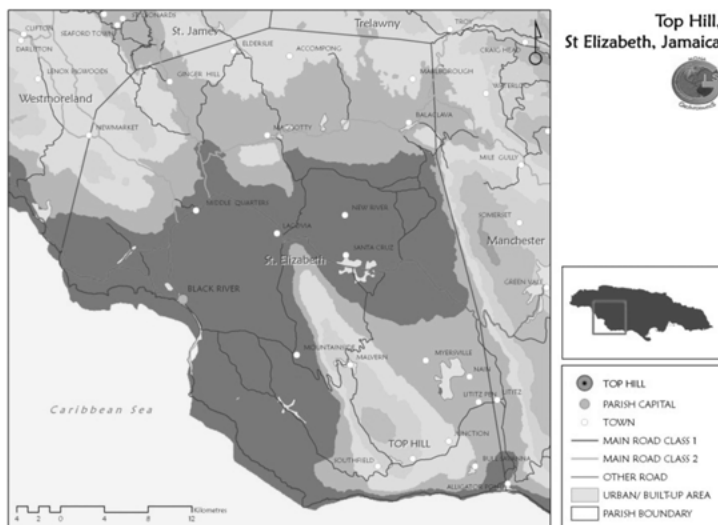
Fig. 1: Map showing the location of Top Hill (Map courtesy of the Jamaican Language Unit).

Varieties: There are no known varieties.

Number of signers: 50 based on a language survey[2]

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1 See Section 11 for an explanation of the change.
2 This survey was a part of a study funded by the EuroBABEL EUROCORES programme.

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2 Origin and History

Konchri Sain originated in Top Hill, a farming village in St. Elizabeth. Hereditary deafness is common in this village. Konchri Sain was developed and used by both the deaf and the hearing as a language within the community. It is the true indigenous sign language of Jamaica.

3 Bilingualism and language contact

3.1 Education

ASL and Signed English are the languages of instruction[3] at Maranatha School for the Deaf. Konchri Sain is not used in any way in the schools. Students at a nearby residential school were exposed to Konchri Sain in the dormitory because a housefather there was from Top Hill. He used a few KS signs in dialogue with them.

3.2 Standardisation

Standardisation of KS is not an issue at present as only one variety is known to exist.

3.3 Influence from dominant languages (signed and spoken)

Any influence of other languages on KS is not yet known. It is highly likely that the morphosyntactic structure of Patwa (Jamaican Creole) has significantly influenced the morphosyntax of KS since Patwa is the native language of the hearing persons in the Top Hill community.

4 Political and social context

4.1 Organisations

While there is no formal group, the tight-knit community built a church and a community centre. Weekly informal gatherings are held in the Community Centre after the Sunday church service.

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3 Some do not view Signed English as a language because it is a constructed communication system developed for pedagogy. Such persons prefer the term *medium of instruction*. In my view, this

4.2 State of the language

Approximately forty years ago, a deaf farmer from Top Hill, who heard of schools for the deaf in Kingston travelled there and approached the missionaries to ask for a school to be established in Top Hill. Consequently, Mennonite missionaries opened a school in Top Hill in which American Sign Language (ASL) was the main language of instruction. They strongly discouraged the use of Konchri Sain by students and their parents. This led Konchri Sain to its currently highly endangered status. Migration of many Top Hill residents to urban areas also contributed to the loss of Konchri Sain. Research on Konchri Sain language status and grammar began in 2006.[4] Revitalisation efforts were a part of the studies and they have continued through KS users. It is hoped that language death has been stalled.

4.3 Language maintenance efforts

There is some effort on the part of older KS users to now teach KS to their grandchildren. This was inspired by KS being the subject of research. The elderly KS users realised that KS has value as a language. Some of the youth have begun to move from passive competence to active competence in KS. This was another result of research on KS. It is hoped that this reawakening of the language will cause it to move from being nearly extinct to shifting with the young adults using KS and then to vigorous with their teaching it to their own children and its use becoming widespread in the community once more as the language attitudes change.

4.4 Usage of the sign language in context

Top Hill is a farming village. Thus, KS is used in an agricultural setting and in the domains associated with the home and socialising. All the monolingual KS users are elderly so they use KS in every aspect of their lives. The younger deaf persons use mainly JSL and only use KS when interacting with their grandparents. Some youth reported that their parents sign to them in KS on occasion but they respond in JSL.

4.5 Attitudes to sign language

When the Maranatha School for the Deaf was opened, the educators saw no value in bilingualism and so decided that the cost of education was the loss of Konchri

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makes Signed English an artificial language created using elements of natural languages, namely, a natural sign language and English.

4 This research was funded by the EuroBABEL EUROCORES programme.

Sain. They forbade its use among the pupils and parents were told that their children would not progress if they used KS. This laid the foundation for the development of negative attitudes towards KS and the significant decline in usage, as it was no longer transmitted to younger generations. This unfavourable attitude was shared with and adopted by JSL users. Efforts by the researchers to change the dominant negative language attitudes of Konchri Sain users are resulting in a gradual revitalisation.

4.6 Men's and women's varieties

None of the work done on the language thus far has indicated variation between the KS signs used by men and those used by women.

4.7 The sign language in its political context

A Disability Act is soon to be legislated but this act does not include language rights for the deaf or official recognition of JSL or KS. Official status has not been granted to KS in any other part of the Constitution. It does not have high prestige among the Jamaican deaf. It is seen as a primitive form of communication. This negative language attitude is beginning to change as KS users become aware that KS is a heritage language (Cumberbatch n. d.). Nonetheless, KS usage seems to be limited to Top Hill. The wider Deaf community has not yet changed its language attitudes towards KS. A few deaf persons from the Top Hill community act as KS/JSL interpreters when interaction between JSL and KS users are needed. Similarly, hearing relatives of KS users interpret between KS and English. These persons are untrained and so function in the interpreter role of helper.

4.8 Other sign languages in use in the country

Because of the mutual intelligibility between ASL and Jamaican Sign Language (JSL), JSL is now the predominant sign language used alongside the minority indigenous sign language, Konchri Sain in Top Hill. Jamaican Sign Language is the main other natural sign language used in Jamaica. ASL is used by Deaf North Americans visiting Jamaica as well as the missionaries stationed in Jamaica. Some deaf people choose to use Signed English, which is an artificial sign language that uses JSL vocabulary and English morphological and syntactic structures.

5 The structure of signs

5.1 Distinctive features of signs

5.1.1 Handshape

Twenty-five handshapes have been found in KS; three of which are not used in the surrounding natural sign languages, JSL and ASL. One of these KS handshapes is shown in Figure 2.[5]

Fig. 2: A KS handshape.

5.1.2 Place of articulation

Signs are produced on or near the body. Signs near the body can be produced in all directions as far as the arm span allows.

5.1.3 Orientation

All parameters for absolute orientation exist in KS. The palm can face in one of the following six directions – up, down, left, right, facing the signer or away from the signer. Many signs involve a change in orientation.

5.1.4 Movement

Movement along the contours of line, arc and circle exist in KS. Some signs are produced along more than contour.

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5 All photographs in this chapter were used from Cumberbatch (n. d.) with permission.

5.1.5 Nonmanual signals

Signs may have nonmanual signals such as mouthings that accompany the manual components. KS has a number of signs which are produced solely with nonmanuals. An example is RABBIT. The lips and lower jaw are the two main articulators used in this iconic sign that mimics the mouth movement of a rabbit. The sequential movements are depicted in Figure 3.

Fig. 3: RABBIT.

6 Associated sign systems

6.1 Hand alphabet

Konchri Sain has no manual alphabet.

7 Basic morphology and lexicon

7.1 Classifiers

Classifiers have been identified in KS but a comprehensive listing of them is yet to be done. KS classifiers provide information on perimeter, volume, texture, gradient and movement among other things. Figure 4 shows a size classifier denoting an entity with small dimensions.

Fig. 4: Size classifier.

7.2 Reduplication

Total reduplication of a sign is a strategy for marking several morphosyntactic behaviours in KS. Total reduplication is exemplified when a personal pronoun is signed twice to mark emphasis. Reduplication is also employed when counting. For instance, each clap of the hand represents an additional multiple of ten. A third example is to show that the event denoted by a verb is ongoing, that is continuous or progressive aspect.

7.3 Compounds

Endocentric compounds have been identified in KS. (1) is an example.

(1) TEN-EIGHT
     'eighteen'

It is quite possible that as KS data is further analysed, exocentric compounds will be found.

7.4 Personal pronouns

KS pronouns have singular, dual, trial, quadral and plural number. First, second and third person pronouns in KS are not marked for natural or grammatical gender. Pronouns are signed manually or nonmanually. Manual pronouns are produced by pointing to a locus signifying the referent. Numeral incorporation indicates the number of the pronoun. For a nonmanual pronoun, the signer pouts the lip and/ or fixes his/her eye gaze towards the locus assigned to a referent.

7.5 Noun morphology

No nominal inflection has been seen in KS. Quantity, definiteness and possession are all marked using periphrastic means. KS users employ numerals, nonmanuals and classifiers to show quantity. An example of a nonmanual articulation to indicate amount would be puffing of the cheeks to show a large amount. Third person pronouns occurring adjacent to the noun mark definiteness. For possession, the nominal possessor and possessee are adjacent to each other. A personal pronoun is also used as possessor. There is no marking for grammatical gender, or case. Classifiers not noun classes are used.

7.6 Verb morphology

Many KS verbs can be inflected to show agreement with their subjects and objects. The inflection can take the form of a change in the movement of the verb sign and/ or a change in the palm orientation. For tense, temporal expressions and context identify when an event occurred in relation to the time of the utterance. As mentioned earlier, reduplication can indicate the continuous aspect. Analytical means like the use of STILL juxtaposed to the verb can also mark the continuous aspect. Negation is shown by a negation suffix produced by moving the hand forward or by the periphrastic use of NOTHING.

7.7 Personal names

The lack of KS names has been an indicator of language endangerment. Persons introduced themselves using JSL names. Most JSL names include the initial of the forename of the signer. KS names are normally sign strings symbolising distinguishing characteristics, for example, a name sign that denotes the hunchback posture of the KS user using a shape classifier. When asked about their KS name signs, persons reported that JSL name signs replaced KS name signs. However, they were observed using the KS name signs when interacting with monolingual KS signers.

8 Basic syntax

8.1 Word order

KS word order appears to be flexible. The extent of topicalisation is being investigated.

8.2 Expression of grammatical relations

Verb inflection marks thematic roles such as agent, patient and recipient. For instance, where movement is the inflection, the verb starts at the locus assigned to the agent and ends at the locus assigned to the patient or recipient. Grammatical relations in KS are still being explored.

8.3 Mood

In KS, realis mood has been observed as marked by nonmanual signals. A head tilt to the right was used to indicate that the signers were uncertain about what they were signing. Other expressions of mood in KS are yet to be identified.

9 Interesting or unusual features of the language

9.1 Temporal expressions

The influence of culture on the concepts a language expresses is demonstrated by the time in KS. Different points in a day, like morning and night, are expressed with signs showing the position of the sun. The days of the week are signs which indicate the main activity of the village for that day. For example in Figure 5, the KS sign KILL produced by moving the index finger across the throat to mimic slashing, translates into *Friday* in English. This is because animals are butchered on Fridays. The largest unit of time seems to be a week, indicated by the number of Bible days (Sundays, translated as BOOK in KS) that have passed.

Fig. 5: KILL.

Fig. 6: BOOK.

9.2 Colour Terminology in KS

KS has a colour expression system that is unique in that its set of lexical colour terms is the largest found in village sign languages. KS has signs for the colours black, white, red, yellow and blue. In addition to the signs for these colours, other KS signs with iconic links to the colours are used to represent them, for example, KILL may be used to convey the colour red. The link here is that a killing results in the shedding of blood, which is red in colour.

10 Examples of words and sentences

Here are some examples of Konchri Sain phrases and sentences.

(2)

BROWN   FOOT   BROWN

BIRD   YELLOW
'The yellow bird has brown feet.'

The BROWN signed in (2) is one of three signs signifying the colour BROWN. This one is made by rubbing the back of the hand and is iconic because it is related to the skin tone of the people in the community.

(3)

DEAF
'deaf'

(4)

FEMALE   PUNISH   IX.1.SG   DONKEY
'The woman punished my donkey.'

The sign FEMALE is used to represent all female animates including woman and mother. PUNISH has a downward movement. DONKEY has an obligatory nonmanual signal of pursed lips. Donkeys play key roles in the farming practices of this rural agricultural village.

The phrases in (5) and (6) exemplify kinship in KS. In KS kinship terms, distinctions are based on kinship distance and sex. Patrilineage, matrilineage, generationality or relative age do not matter. Thus, cousins, aunts and uncles are all grouped together and differentiated by sex.

(5)

MALE   IX.1.SG   MALE

NEXT   SAME
'my male cousin' OR 'my uncle'

(6)

IX.1.SG   FEMALE   NEXT

SAME
'my female cousin' OR 'my aunt'

11 History of research

The first publications on Konchri Sain (Dolman 1985, 1986) labelled this language as Country Sign as this is what is called by the community. However, what was unknown to Dolman was that this was a Patwa phrase not an English phrase. Patwa *konchri* means 'rural' in English. This sign language is indeed a rural sign language geographically linked to a particular village. Using 'Country Sign', led researchers and others to believe that this was the language of the territory rather than that of a rural village. In 2012, after six years as the primary researcher on Konchri Sain, Keren Cumberbatch began to use Patwa orthography for the language name instead of English orthography to distinguish Konchri Sain as a rural heritage sign language that is not the language of the Jamaican Deaf community.

Keren Cumberbatch has led research efforts at the University of the West Indies as a part of larger studies led by Prof. Ulrike Zeshan through the Max Planck Institute for Psycholinguistics in Nijmegen, The Netherlands and the International Institute for Sign Languages and Deaf Studies in Preston, UK. These language endangerment and typology studies covered:

– Evaluation of the extent of language death of Konchri Sain
– Language documentation
– Investigation of possession, numerals, colour and kinship
– Sociolinguistics

Out of these studies, Keren Cumberbatch has undertaken other projects which include a description of the grammar of Konchri Sain and a multilingual dictionary that includes Konchri Sain. A graduate student at The University of the West Indies will be investigating Konchri Sain morphosyntax as his research topic.

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Zana Jaza
23 Kurdish Sign Language

1 Basic facts about the language

Language name: The deaf community uses the term *Sign Language* or *Sign Language of the deaf*.

Alternative names: *Kurdish Sign Language*, abbreviated to *ZHK*.

Location: The Kurdistan region of northern Iraq.

Varieties: It is believed in the deaf community that ZHK has three dialects.

Number of signers: There is not any reliable source that indicates the number of the signers; estimates vary from 1,000 to 10,000 signers.

2 Origin and history

Kurdish Sign Language is the language of the deaf community in the Kurdistan region of northern Iraq. This includes the cities *Slemani*, *Hawler* and *Duhok*,[1] where educational institutions for deaf children, called *Hiwa*, are found.

In informal contexts it is usual to hear Kurdish speakers call the language *zmani işaret* 'Sign Language', where the word *işaret* 'sign' is an Arabic loanword, *hêma* in Kurdish. In formal contexts the Kurdish word *amaje* is used instead of *işaret*, and thus the language is called *zmani amaje* in those contexts. The Arabic *ishara* can also be used to mean 'gesture' and 'allusion', and the Kurdish *amaje* is a translation of these senses of the word. Thus, the translation of *zmani amaje* will be 'Gesture Language' or 'Allusion Language'.

In my opinion, using those terms in the informal and formal contexts is problematic, because it reflects the common misunderstanding that sign language consists of simple gestures and is universal. Therefore, instead of *işaret* and *amaje* I use the word *Hêma* 'sign'. I use the term *Zmani Hêmay Kurdi* 'Kurdish Sign Lan-

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1 The names of the cities Slemani and Hawler are also written as *As Sulaimaniya* and *Erbil* and other spellings of the names exist on Internet pages, and in other sources. The names that are used in this paper are the ones that are used by the Kurds themselves.

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guage' (henceforth ZHK), since the signers are Kurds and the deaf community belongs to the Kurdish population historically and culturally.

It is believed in the Hiwa institutions that ZHK has distinct dialects in all three of the above mentioned cities, but since sign language in the Kurdistan region has never been investigated before by linguists, it is not clear to what extent the signing is similar within and among the three different cities. However there is certainly a degree of regional variation in the sign language, because of the existence of at least one local deaf community in each city in the region. The local communities have contact with each other through education in the Hiwa institutions and sometimes through athletic and cultural events. The variation in the language is noticed in lexical differences according to the deaf signers themselves and also according to a published sign dictionary, which is used in teaching contexts. This paper focuses on the variety used in the 'Hiwa institution for hearing impaired children' in the city of Slemani.

Official population data in Iraq is not generally available, and the Kurdistan region is no exception. Estimates of the total population in the Kurdistan region are about five million, but there is not any reliable source of information that indicates the number of the signers of ZHK. In the sign dictionary (Halim and Russel 2002: 5) the estimate is about 10,000 deaf people in the whole region, and in a register at the *Directorate of the Handicapped Affairs* in the city of Slemani, 1,050 persons are registered as deaf. However neither source gives a clear idea of the number of signers: both include people with various degrees of hearing impairment, and it is not clear how many of them master ZHK or whether their signing is in fact ZHK or rather a form of home sign. The institutions in the three cities have together had approximately 1,000 pupils over the last 30 years, and this number might be the closest estimate to the real number of signers.

As has been described for many other sign languages the emergence of ZHK seems to be related to the establishment of the educational institutions for deaf children in Kurdistan. The Hiwa institution in Slemani was established in 1982, and since its establishment it has had 348 pupils. The institution was founded by an administrative section under the *Ministry of Social Affairs* of the former Iraqi regime. It was considered as an institution for rehabilitation of hearing impaired children, but it also accepted children with other types of physical and mental impairments. This changed in the 1990s, with the intake being limited to children with hearing impairment.

The period from the establishment of the Hiwa institution until 2003 was a very hard period for both teaching staff and pupils, and was filled with instability and problems. This was not just because of the difficulties the two groups faced in understanding each other, but also because of the successive wars in which Iraq was involved, and consequences of those wars. Indeed Iraq has never experienced total peace and stability since its establishment as a state following the First World War. There are many reasons for this state of affairs, including the socio-cultural

diversity of its population (Iraq was a part of the Ottoman empire before the war), and more importantly the fact that its borders and unification into one administrative and political unit were not decided by the various ethnicities that had lived in the region for many centuries, but rather by the victors of the war (Tripp 2000: 30–76; Holden 2012: 53–88). The result has been continuous fights for power and control between the successive authorities and the population on the one hand, and among its various ethnicities on the other hand.

In the 1980s Iraq was under the control of Saddam Hussein's regime. The country was in a fierce war with Iran. The Kurdish population in the north was also in constant opposition to the central government in Baghdad, which was reflected in fights within and around the Kurdish cities between Kurdish partisans and the governmental military forces. The Iraqi regime conducted many operations of expulsion against the Kurdish population, and also led genocide campaigns known as *Al-Anfal Campaigns*, which was a series of military actions against Kurdish civilians (Black 1993). The regime also used chemical weapons in exterminating the Kurds many different places. The best known chemical attack was in the town of *Halabja*, where approximately 5,000 civilians were killed in a single day (Human Rights Watch/Middle East 1995). The conflict was also reflected in the attitudes of the public institutions towards the Kurds and their language and culture, which were generally neglected compared to the official Arabic language and the dominant Arabic culture. Under these conditions the whole system of education was generally filled with fear and violence. This was also the case in the Hiwa institution, which received education programmes from similar institutions in Baghdad, but the teachers were Kurds from Slemani, and did not have previous experience or training in sign language or deaf education. They had to learn signing in their daily contact with the deaf children, and they also had to develop their own teaching methods.

Approximately two years after the Iraq-Iran war finished in 1988, Iraq invaded Kuwait and another war started in 1991 against a coalition of international forces that aimed at forcing Iraqi troops out of Kuwait. The Kurds in the north and the Shia Arabs in the south also started uprisings in 1991, and the Iraqi regime retaliated, resulting in mass exodus of the Kurds towards Iran and Turkey. In response to this movement of people, the international coalition established a no-fly zone in the north and in the south in order to protect the Kurds and Shia Arabs from airstrikes by Saddam Hussein's regime. This paved the way for self-governance of the Kurds in 1992 (Yildiz 2004: 34–50). The United Nations' security council imposed financial and trade sanctions on Iraq. In this period until the war in 2003 many international non-governmental organisations (NGOs) were active in the Kurdistan region. The aims of the NGOs were to deliver aid to the Kurdish population as well as to the rest of Iraq. The Kurdistan region was separated from the rest of Iraq, and all financial supplies from Baghdad were stopped. As a result, many international NGOs had a particular focus on development in Kurdistan.

The 1990s were a very difficult period for the Kurdish population, because the infrastructure was ruined due to the successive wars. There was also a huge lack of food and healthcare services. However coming out from the control of the dictatorship paved the way for different social groups with various political and cultural interests to enjoy a degree of freedom. Unlike earlier, people were able to gather in public and express their opinions without been oppressed. Deaf people also made use of this opportunity and began to shape their own community. In this period many local organisations were established with the support of international NGOs, and thus a deaf organisation was established for the first time ever in Slemani. Local organisations also began to support the emergent deaf community within wider programmes of supporting marginalised groups in the society. Those circumstances made it possible for deaf individuals to meet each other in more liberal atmospheres outside the school, which had been closed for a long time as a consequence of the war. (More on deaf organisations is presented in the following sections.) Thus, apparently the establishment of the deaf institution and the emergence of the deaf community contributed to the development of ZHK.

Very little is known about the deaf people and their language before the establishment of the Hiwa institutions in Kurdistan. Before the 1980s deaf individuals in the city of Slemani were generally known to be talented and most of them had jobs and were married, but there is no indication that they had much contact with one another or formed larger interacting groups. They were signers, but it is not clear whether their signing was a form of home sign, or a developed linguistic system of greater complexity. Hendriks (2008: 25–26) suggests the possibility of mutual influence between sign languages in the Arab world and Turkey. This suggestion is based on historical information about signing at the court of the Ottoman sultans in the sixteenth and seventeenth centuries (Miles 2000). Similarly, there is a possibility that deaf people in Kurdistan have had contact with the signing at the court of the Ottoman sultans. However there is no evidence for this supposition, and the city of Slemani was founded later in the eighteenth century, which weakens this possibility.

According to the teaching staff in the Hiwa institution teaching deaf children in Iraq has a long history. The institution in Slemani received the contents of the teaching from Baghdad in the 1980s. However it is not certain that ZHK is related to other sign languages in Baghdad or elsewhere in Iraq, because of the discontinuity of contact since 1991. In spite of a degree of similarity in lexical items, it seems that Kurdish sign language is a different language. It has developed without direct contact to the educational institutions and sign language in the rest of Iraq. However, this needs to be investigated further before anything certain can be stated. Further investigation into relations to other sign languages is however problematic, because sign language in other parts of Iraq has not received much attention from linguists. To my knowledge, apart from the lexical comparison that is reported by Hendriks (2008: 27–38), no other research has been done on any sign language in

Iraq. Thus, it is difficult to make an immediate comparison, especially if the comparison stretches beyond lexical items. It is believed within the deaf community in Slemani that the signing of deaf individuals who have been educated in the capital, Baghdad, is quite different. A teacher in the Hiwa institution in Slemani tells that she was called to interpret during a court trial for a Kurdish deaf person who lived in Baghdad in the 1980s. The interpretation failed, since the person used the sign language he had learnt in Baghdad, which was quite different. Even though this is not strong evidence for or against relations between these sign languages, such examples contribute to the general belief within the Kurdish deaf community that ZHK is not the same language as the sign language in Baghdad.

3 Bilingualism and language contact

3.1 Education

Education in the Kurdistan region starts with the mandatory Basic Education that includes nine grades. The grades are normally completed in nine educational years, and terminate with the National Examination. After the Basic Education there are different options to choose among: Two or three years industrial or business education, or to continue at a three years preparatory level before going on to higher education. Children start school normally at the age of six, but it is also possible to start in a kindergarten class at the age of four or five.

Deaf children in Slemani have the opportunity to attend a kindergarten class at the Hiwa institution when they are four years old. It is an admission requirement that the child is only deaf or hearing impaired, and has no other physical or mental impairment. There are eight children at the moment in the kindergarten class, where a manually coded Kurdish is in use. The children are introduced to single signs while taking part in ordinary daily activities, and they are also trained in pronouncing the Kurdish words of some of the objects that are used in their activities. The pronunciation training is not relevant for the deaf children and is hardly succeeded for the hearing impaired children.

When the child reaches six years of age he or she attends the school, which is located at another side of the same building. At the present time the school has 94 pupils across all of the grades. The pupils are still not permitted to participate in the National Examination, which must be passed in order to successfully complete the ninth grade and with it the Basic Education. Passing the National Examination is the minimum requirement to continue education, or to be employed in the public sector. Thus, without official certification of passing the National Examination deaf pupils have no opportunity to have any kind of education or a qualified job later. An official certificate in Basic Education is a requirement for employment as a service employee in the public service sector, if the administrative and the economic

conditions in the region permit such employment. The certificate however does not allow access to continuing education, no education being provided to deaf graduates after the nine years Basic Education. This is in part due to the lack of knowledge of sign language and deaf education. The absence of legal rights to interpreter services also contributes to the fact that deaf people have no opportunity to attend the industrial, business or preparatory schools after the Basic Education.

Official educational requirements and the lack of knowledge about sign language force Hiwa institutions to follow the same curriculum that is applied in all other primary schools in the Kurdistan region. That is to say pupils have to learn to read and write Kurdish, Arabic and English and, if possible, to speak these languages. They are also taught the very basics of mathematics, natural sciences and subjects within humanities. It takes deaf pupils longer than hearing pupils to complete the curriculum; it often takes two educational years to accomplish certain grades in the Hiwa institutions rather than just one as in other schools.

The fundamental philosophy behind teaching deaf individuals is to "rehabilitate" them and integrate them into society. This implies teaching them as much pronunciation and speech as possible. The children are taught by hearing teachers who are often supported by deaf assistants in the classes. The deaf assistants are often former pupils in the same institution who had been employed after graduation. The same manually coded Kurdish that is used in the kindergarten class is also used in teaching in the school. This means that the teachers use spoken Kurdish in the teaching supported simultaneously with single signs following the spoken Kurdish word order. Usually the teachers use just one hand in signing, because it is easier to use the other hand for writing on the blackboard or holding a book. As far as possible, the teachers use signs from the sign dictionary. The dictionary was originally intended for use by deaf pupils and their families, as well as individuals who work with them. However, for unclear reasons it is now only used in the teaching context and is not available to the public.

3.2 Standardisation

Kurdish sign language has no standard form and no systematic effort has been made towards standardisation. However, making a sign dictionary was an attempt to influence the signing of the local deaf communities to become more similar through the use of the dictionary.

The idea of making a dictionary was originally suggested by an Egyptian aid worker named Subhi Halim, who was working with an international organisation called MEDS in the 1990s. He suggested that the Hiwa institutions make a sign dictionary in order to make it easier for the children to learn at school. The teaching staff in the institutions thought it was a good idea and accepted the suggestion, which soon became a joint project funded by UNICEF. A couple of years later the dictionary was published. The steering committee responsible for making the dic-

tionary consisted of both hearing and deaf representatives from all the three Hiwa institutions and also from the deaf organisations in Hawler, Slemani and Duhok.[2] First, they made lists of items that they thought would be useful in the teaching context. Then, they agreed upon which signs to choose to represent the items in the dictionary. In the Hiwa institutions, signs from the dictionary are called *the established signs*, which are to be used by the pupils.

The sign dictionary is actually only a list of signs, and does not include sentences and examples of use. It is written for children and contains approximately 2,400 single signs that are partly illustrated by drawings. *Path* and *internal movements*, and also changes in *handshapes* are explained in Kurdish under the drawings.

3.3 Influence from dominant languages

Kurdish sign language is not in direct contact with any other sign language. However, there is a possibility of indirect influence from some other sign languages through the sign dictionary, and media channels.

The steering committee that created the sign dictionary took advantage of some dictionaries of other sign languages, especially Sign Language of the Netherlands (NGT). Thus, one part of the numerals in the sign dictionary is entirely adopted from NGT. Likewise some other signs in the sign dictionary are borrowed from other European sign languages. Since teachers in the Hiwa institutions are very consistent in using signs from the dictionary in teaching, an extent of lexical similarity with some European sign languages is to be expected in ZHK.

Kurdish signers are interested in the sign language interpretation of the news that is provided by some of the Arabic satellite TV channels. Thus, the sign language that is used in those TV channels might have some influence on ZHK. According to several researchers (Abdel-Fattah 2005; Al-fityani 2007; Al-fityani and Padden 2010; Hendriks 2008) there have been attempts in the Middle East to develop one standard variety of Arabic sign languages. The sign language that is used in the Arabic satellite TV channels is supposed to be that standard variety of the Arabic Sign Languages. It is largely dependent on a list of signs compiled from different Arabic sign languages (Hendriks 2008: 26), and it is "[h]eavily influenced by LIU [Jordanian Sign Language]" (Al-Fityani and Padden 2010: 433). Thus, if there is any influence from the so-called standard variety of Arabic Sign Language on ZHK, then an indirect influence from LIU is to be expected. Especially as some

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2 The members of the steering committee were: Naznaz Ibrahim, Sozan Taha, Sayran Shekh Muhammad, Sirwan Bahri, Saman Sabah, Sangar Ali, Sherwan Ahmed, Gulzar Abdulla, Bahar Mahmud, Avesta Muhammad, Halala Habib, Falah Fatih, Rezan Yasin, Yusuf Rasul, Mari Zilda, Amira Yusuf, Dlbar Haji, Sidqi Kamil, Salim Suleiman and Hikmat Asaad.

of the teachers and the deaf assistants once participated in a training course in Jordan, and were in a direct contact with Jordanian signers. Actually this contact still exists, and Jordanian specialists in LIU and deaf education sometimes visit the Kurdistan region in order to supply the Hiwa institutions with knowledge about deaf education and to share experiences.

Furthermore ZHK is in direct contact with spoken Kurdish and also to some extent spoken Arabic, but it has so far not been possible to investigate any probable influence from these spoken languages.

4 Political and social context

4.1 Organisations

Two types of organisation are concerned with the deaf community in Kurdistan. The first type includes the public institution called *Directorate of the Handicapped Affairs*, which has one representation in each city. Those representations fall under the Ministry of Labour and Social Affairs in the Kurdistan Regional Government, and administer monthly financial support for handicapped people including deaf; they also have administrative responsibility for the three Hiwa educational institutions. However, they are not concerned with the teaching content in the institutions, since they follow the same curriculum that is followed in all the other schools for hearing children. Modifying and controlling the curriculum is the responsibility of the Ministry of Education, which consults the teaching staff in making minor modifications to the curriculum in the institutions.

The second type of organisation is the NGOs. There are several organisations in the three cities. The main deaf organisation in the region is called *Komeĺey Keřulaĺani Kurdıstan* 'Kurdistan Deaf-mute Organisation'. This organisation was active from its establishment in 1992 until 1996. Depending on assistance from international humanitarian organisations, it had different activities like supporting deaf individuals in developing skills through different training courses, and other activities regarding awareness about deafness, and the needs of the deaf community. It also offered monthly financial support to those deaf individuals who had had the opportunity to contact the organisation. Its activities stopped in 1996 due to internal conflicts arising from political instability in the region. The organisation still exists, and some of its members have tried to reactivate it again since 2002, but as yet it remains dormant. A rather similar organisation is *Rozh*, which is concerned with the affairs of handicapped people generally, including deaf. Rozh has undertaken similar activities to the Kurdistan Deaf-mute Organisation in the 1990s, but has experienced similar problems and a similar fate. Another organisation that is concerned with deaf children within a wider health programme is *Kurdistan Save*

the Children. This organisation has organised many cochlear implant and bone anchored hearing aid implant operations for children with hearing impairment.

Besides the local organisations international aid organisations such as MEDS and UNICEF also supported the Hiwa institutions in the 1990s. After the Iraq war in 2003 activities of two international organisations with the Hiwa institutions are significant. One of them is called *Stichting Soz Fond*, which has supported the Hiwa institutions financially in renovation of buildings and in supplying the institutions with furniture and teaching materials. The other organisation is *Kentalis* that has had a project with the Hiwa institutions in Slemani, Hawler and Duhok. This organisation worked with the Hiwa institutions and the Ministry of Labour and Social Affairs for three years. The project offered several training sessions especially focused on teaching and learning strategies in deaf education. This project had a positive impact on its beneficiaries, teachers in the Hiwa institutions. However, it did not continue partly due to difficulties in implementing the acquired skills and knowledge, and partly due to financing problems. An international Christian development organisation called *CBM International* has also held training courses in deaf education for teachers and assistants in Jordan and Kurdistan.

4.2 Usage of the sign language in context

Since it is a minority language that is not recognised and is not used in formal contexts, the use of ZHK is limited to the deaf community. Deaf individuals in Kurdistan, as in many other parts of the world, have more contact with each other than with the hearing society around them. Many members of the deaf population are friends that tend to meet each other frequently, work together, and spend free time together. Marriage between members of the deaf community is common and some of them have deaf children. The deaf families have much contact with each other. They visit each other at home, which allows them to use their sign language.

Some of the men in the deaf community are involved in manual labour, especially carpentry. There is a carpentry workshop in Slemani known as the deaf carpentry, where all the carpenters are deaf. The deaf carpenters work and run the workshop together, and they are happy to do so, even though they do not earn enough to support their families. There is also a tearoom where deaf men meet to socialise and update one another on what has been happening within the deaf community. Many deaf individuals are also interested in sports, which they practice regularly and the deaf community has a soccer team. Deaf women have fewer opportunities, but are still active and some of them have jobs in public institutions. There is one deaf woman in the city of Slemani who is a hairdresser and works with both hearing and deaf costumers. Apparently members of the deaf community are confident about using their sign language in public, which is the main means of communication in all their activities.

4.3 Attitudes to sign language

Sign language in the Kurdistan region is invisible to those who do not know any deaf persons, or are not in contact with the deaf community. This reflects the fact that deaf people form a marginalised group and their language has not received much attention and has not been the target of systematic research or discussion within the wider society. Even though they are not treated badly, the general conditions under which deaf individuals live do not provide them with many opportunities to participate actively in social life outside the deaf community.

The lack of research on sign languages in the universities in Kurdistan is symptomatic of the general neglect of these languages. This is partly because of the lack of knowledge about sign language linguistics, and partly because of the heavy focus that has been on maintaining or "protecting, serving and developing" spoken Kurdish as many Kurdish linguists call it. Many linguists in Kurdistan consider Kurdish as a threatened language because the former Iraqi regime had plans and made systematic efforts to change Kurdistan's demography through displacements of the Kurds and the process of *Arabisation* (Yildiz 2007: 64–66). Thus, linguistic research in Kurdistan focuses on spoken Kurdish, and no attention is paid to ZHK. The invisibility of sign language, and the lack of knowledge about it have led to the common belief that ZHK is a direct interpretation of spoken Kurdish. That is to say it consists of gestures that follow the grammar of spoken Kurdish, where grammar is understood as word order. This will of course be interpreted to the common misunderstanding in the hearing society that considers sign language as full of shortages and improper expressions, since manual signs cannot fully replace the spoken words of Kurdish and their inflections. This belief has changed in the teaching institutions, and the teaching staffs in the Hiwa institutions have some knowledge of sign linguistics, which apparently has been acquired through participation in various courses that have been arranged by international organisations, and in some cases through individual observations and experience with educating deaf children.

Many members of the deaf community are proud of their language, and complain about it being underestimated; they feel that they are not treated as full citizens. Members of the deaf community have recently demonstrated in the streets, demanding the right to hold a driving license – to date deaf are not permitted to hold a license. They also complain about sometimes being perceived as mentally handicapped, and they dislike the Kurdish word for 'deaf', which is *keř*. The word has acquired a pejorative connotation, therefore the deaf prefer the word *nabist* 'not hearing', which was suggested by a group of intellectuals a few years ago.

Thus, apparently the overall attitude towards members of the deaf community and towards ZHK is a sympathetic attitude. This is reflected in the teaching philosophy, treatment of issues related to the deaf population by media channels, and the official stance on deaf education and sign language research. Thus, deaf in Kurdistan are offered school, but not education, they are offered very limited financial

support, but not jobs and their language is considered as an imperfect interpretation of Kurdish.

4.4 Other social and geographical varieties

Due to the gender distribution of social roles and cultural restrictions in Kurdish society, women do not have the opportunity to attend men's gatherings in tearooms and sports clubs, and they tend to meet each other separately. This suggests the possible existence of distinct men's and women's varieties, but it has not been possible to investigate this so far. Furthermore there are members of the deaf population who did not have the opportunity to attend the Hiwa institutions; they use a different variety. These individuals are part of the deaf community, and have contact with the younger generation, who attended the institutions, and thus there is a possibility of mutual influence on the signing of these generations.

4.5 The sign language in its political context

The current Iraqi constitution, which dates from 2005, guarantees Iraqis the right to educate their children in their mother tongue or any other language in the government educational institutions in accordance with educational guidelines, or in any other language in private educational institutions. However neither Kurdish sign language nor any other sign language is mentioned in any legal document in Iraq or the Kurdistan region, and sign language has never been discussed in the legislative domain. Thus ZHK is not recognised, and deaf people have no rights to interpreter services. There are in fact no professionally qualified interpreters or interpreter services. The only interpreters are people who have learned ZHK through their contact with the deaf community. Those people might be teachers in the Hiwa institutions, who are often called to officially interpret in court trials or other situations in governmental organisations when an interpreter is needed. Interpreters can also be activists within the deaf organisations. The interpretation is usually not rewarded financially.

A few Kurdish TV channels have recently started transmitting news with sign language interpretation, but stopped again soon after following objections from the deaf community. Many of the deaf viewers found that the interpretation was not understandable. The Kurdish media channels lack knowledge of sign language, and have no experience with programmes that target the deaf community. Therefore they often employ individuals who do not master ZHK, and do not know much about needs and interests of the deaf community. Apart from these attempts and some short documentaries about deafness, there are no other TV programmes that target the deaf population or its interests in Kurdistan.

5 The structure of signs

Preliminary research into the structure of the sign in ZHK has been initiated by the author of this contribution, but this research is still in the beginning stages. It is not yet possible to say much about the phonetic or phonological structure of ZHK. However it is known that the structure of signs is similar to the structure of signs in other better known sign languages. In particular, the basic manual parameters of handshape, location and movement are relevant. It is not clear yet whether orientation of the hand and non-manual features are crucial parameters in determin-

Fig. 1: A preliminary list of the handshapes in ZHK.

ing minimally distinct signs. Non-manual features are also attested in ZHK, though they are not used extensively. Based on elicitation of a list of 275 isolated items the handshapes in Figure 1 have been identified.

Johnston and Schembri (2010 [2007]: 90) describe location as "the hand's actual point of contact on the body, or to the hand simply being significantly near some location on the body. When the sign has no contact with the body, or when it is not located near some part of the body, it is described as being articulated in *neutral space*". In the above mentioned preliminary study a range of locations are observed in ZHK. Those locations are contact points on or around the head, eye, nose, ear, mouth, neck, shoulders, chest, arm, wrist, hand, stomach, waist and thigh or in the neutral space in front of the signer.

The observed movements in the ZHK's sign are similar to those described in previous research about other sign languages. That is to say the signs in ZHK show both path and internal movements. *One-handed* as well as *two-handed* signs are also typical sign types in ZHK.

6 Associated sign systems

The ZHK sign dictionary contains two hand alphabets. One is based on the Arabic-Persian alphabet that is used in writing spoken Kurdish. The hand alphabet was supposed to associate production of speech sounds. That is to say putting one hand on various locations around the neck, the chest and the mouth to feel the vibration of the vocal cords and airstream of the produced speech sounds. For example, putting one hand in front of the mouth while producing the phoneme /p/ represents the Kurdish letter پ. This alphabet failed to be implemented and has never been used in practice. Instead the school has chosen to use a modified alphabet based on the Arabic fingerspelling alphabet (see Figure 1.3 in Hendriks 2008: 15).

The other hand alphabet in the sign dictionary is referred to as *English alphabet* and is very similar to the hand alphabet of NGT. The big similarity between the English alphabet in the sign dictionary and the hand alphabet of NGT suggests that the former is adopted from the latter. However the use of fingerspelling and hand alphabet is rather limited in ordinary interaction in ZHK.

7 Examples of words and sentences

(1)

MOTHER

(2)

FATHER

(3)

WHITE

(4)

BLACK

(5)
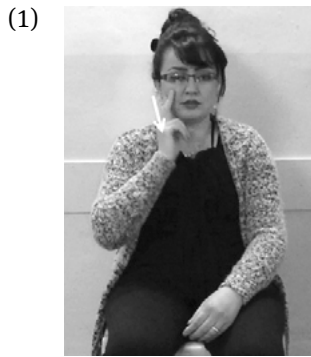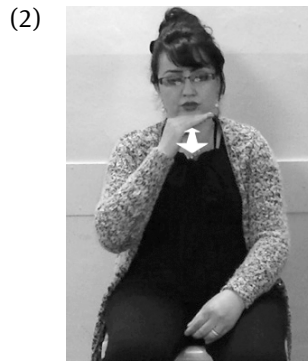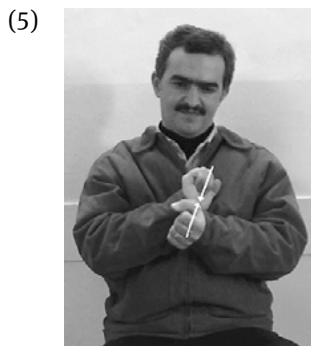
TUESDAY

Examples of sentences, from retellings of *The pear story*:

(6)

ONE   MAN   GOAT   HOLD

GOAL   PULL   PASS

'A man pulls a goat as he passes by.'

(7)

BOY   THREE   SEE   HE   WHAT

'Three boys see him, and ask what happened?'

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Roger T. Bell, Zubaidah Ibrahim, Ho Koon Wei and Lucy Lim
24 Malaysian Sign Language (BIM)[1]

1 Basic facts about the language

Language name: BIM (Bahasa Isyarat Malaysia)

Alternative name: MySL (Malaysian Sign Language)

Location: Peninsular Malaysia

Varieties: Bahasa Isyarat Malaysia (BIM) or Malaysian Sign Language (MySL), Manually Coded Malay or Kod Tangan Bahasa Melayu (KTBM)

Number of signers: 58,706 registered Deaf in 2013

Organizations: MFD (Malaysian Federation of the Deaf)

2 Origin and history

The first clear indication of the existence of some form of Malaysian sign language can be traced back to 1954 with the establishment of the first fully residential school for the Deaf in Penang (the Federation School for the Deaf: FSD). In 1987, the school expanded to encompass the primary level known as *Sekolah Kebangsaan Pendidikan Khas Persekutuan* (Federation Primary Special Education School) and secondary level, *Sekolah Menengah Pendidikan Khas Persekutuan* (Federation Secondary Special Education School).

Although oralism was officially used as a communication policy, the deaf students signed to each other outside the classroom so local signs may well have developed in this way. In 1970, Total Communication was introduced, and a basic sign language (with 500 signs from American Sign Language) was created. A signed Malay system, Manually Coded Malay Language (Kod Tangan Bahasa Ma-

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1 Bahasa Isyarat Malaysia.

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laysia or KTBM) was developed between 1980–1986 by hearing educators and linguists to help deaf students learn the Malay language (Bahasa Malaysia).

Deaf communities however continued to sign in their own way. As more Deaf schools were established in each state, more Deaf organizations were established and Deaf communities developed. Deaf events at national level were held in turn, such as *Sukan Kebangsaan Orang Pekak* (SKOP or National Sports of the Deaf) later known as *Sukan Orang Pekak Malaysia* (SOPMA), and meetings among Deaf leaders were also held. When MFD was established in 1998, Malaysian Sign Language (MySL) or Bahasa Isyarat Malaysia (BIM) came into being as the preferred language among the Deaf in Malaysia.

BIM derives from a combination of local signs (Penang; Kuala Lumpur), Shanghai Sign Language and American Sign Language (ASL) and now has its own grammar which is partially described by Ho (2000). At present, BIM classes are provided at most Deaf organizations mainly for the hearing who wish to communicate with deaf people.

3 Bilingualism and language contact

The setting up of the MFD in 1998 can be seen as a significant step for Deaf empowerment in Malaysia. For the first time, BIM gained institutional recognition as an autonomous and independent language and formal programmes were developed to facilitate communication between the deaf community and hearing people through education and training. Some of the milestones are:

2005 BIM/MySL Training Centre (MySL TC), established by MFD to train more sign language interpreters in Malay, English and sign language.

2007 BIM/MySL Seminar organized by the MySL TC. The seminar agreed on ten resolutions concerning sign language, the most important of which was that BIM should be accepted as the official language of the deaf community in Malaysia; and that the use of BIM should be expanded into education, employment, health, and in all other aspects of life.

2010 Training of Trainers (TOT) programme to train BIM instructors run by MFD.

In addition, there are programmes by MYF (Majudiri "Y" Foundation for the Deaf) and PMY (Pusat Majudiri "Y"), both of which are initiatives led by YMCA, Kuala Lumpur, seeking to meet the need of more BIM instructors for the increasing demands on sign language courses and interpreting services.

3.1 Education

In the 1950s, the Federation School for the Deaf in Penang began, under British influence, by adopting the oralist communication policy. Twenty years later, in

1977, this communication policy was changed when it had become clear that the approach used had failed to provide deaf children with the adequate communicative skills needed to succeed in their education.

A government initiative in 1978 introduced the concept of *Total Communication*, a multi-modal pedagogical method which draws on signs, finger spelling, lip-reading, facial expressions and body language. Later, Signed Malay i.e. Manually Coded Malay (KTBM), was introduced and from 1980 to 1986, four volumes of 5,000 recommended signs were published by the Ministry of Education and circulated to all Deaf schools and to deaf classes attached to hearing schools.

Although this breaking of the oralist monopoly was an advance, it was only partially satisfactory. What was achieved was certainly a move away from oralism towards an approach in which a signed language is used as language of instruction. However, the signed language adopted was Signed Malay rather than the natural language of Malaysia's deaf community i.e. BIM.

KTBM, rather than BIM, has been the main method of communication used in Deaf education for the past thirty years and is the only sign language recognized by the Malaysian Ministry of Education.

3.2 Standardization

The MFD, since 1998 has been instrumental in promoting, training, publishing and distributing educational resources in BIM. These activities have been supported by funding from the Malaysian government. In addition, from 2007 to 2011, a team consisting deaf and hearing linguists, and sign language interpreters has been working on a BIM dictionary, based on data gathered nation-wide on signs used by deaf Malaysians.

4 Political and social context

4.1 Organizations

At present, there are fourteen Deaf organizations representing the different states in Malaysia, four Deaf Clubs, and nine organizations run by hearing people for the Deaf in Malaysia.

The MFD acts as an umbrella organization for the state and regional associations, and the Malaysian Sports Federation of the Deaf (MSFD), renamed in 2010 as the Malaysian Sports Deaf Association (MSDeaf).

The following are the organizations under the MFD umbrella:

State/City Associations
- Society of the Deaf Johor (SDJO)
- *Persatuan Orang Pekak Kelantan* (POPK)
- Kuala Lumpur Society of the Deaf (KLSD)
- *Persatuan Orang Pekak Negeri Melaka* (POPNM)
- *Persatuan Orang Pekak Negeri Sembilan* (NESDA)
- Pahang Deaf Association (PADA)
- Perlis Deaf Association (PERDA)
- Penang Deaf Association (PDA)
- *Persatuan Kebajikan Pekak Terengganu* (PKPT)
- Sabah Society for the Deaf (SSD)

Self-Help Deaf organizations
- *Persatuan Orang Pekak Kedah* (KDA)
- *Persatuan Orang Pekak Perak* (PSD)
- *Persatuan Orang Cacat Pendengaran Selangor* (POCPS)
- *Persatuan Orang Pekak Terengganu* (POPT)
- *Persatuan Orang Pekak Miri* (MDA)
- *Persatuan Alumni Sekolah Pendidikan Khas Persekutuan* (FSD Alumni)

Deaf Clubs
- Penang YMCA Deaf Club
- Ipoh YMCA Deaf Club
- Kuala Lumpur Deaf Club
- Kota Kinabalu Deaf Club

Other Organizations for the Deaf (Hearing-led)
- Malaysian Association of Sign Language Interpreters (MyASLI)
- Society of Interpreters for the Deaf in Selangor and the Federal Territory (SID)
- National Society for the Deaf (NSD)
- The Society for the Deaf in Selangor and the Federal Territory
- *Persatuan Ibu Bapa Dan Penjaga Anak Anak Pekak* Kuala Lumpur (PESIBA)
- Sarawak Society for the Deaf (SSD)
- Tawau Society for the Deaf
- Majudiri Y Foundation for the Deaf (MYF)

More new organizations, such as the *Persatuan Belia Pekak* Kuala Lumpur, *Persatu-an Belia Pekak* Kuantan, *Persatuan Belia Pekak* Batu Pahat, and the *Persatuan Orang Islam Pekak Malaysia* have recently emerged.

Although the MFD, together with some Deaf organizations, have advocated the use of BIM, it is still not recognized or accepted as a language of instruction in Malaysia's education system. The education system for deaf children still promotes

the use of KTBM, which is the Malay language equivalent of Signing Exact English (SEE), in all schools and there are no sign language courses offered, even as electives, in any educational institution.

4.2 Language maintenance efforts

Only Deaf related NGOs provide sign language courses for those who wish to study and use it. The MFD has produced resource books on BIM for members of the public. Among them are:
1. *Bahasa Isyarat Jilid 1* (Sign Language Vol. 1) 2000
2. *Bahasa Isyarat Jilid 2* (Sign Language Vol. 2) 2003
3. *BIM Teknologi* (Technology terms in BIM) 2003
4. *BIM: Tempat Dalam dan Luar Negara* (Place names in BIM) 2002
5. *Mari Belajar BIM* (CD) (Let's Learn BIM) 2003
6. *BIM: Tempat Dalam dan Luar Negara Jilid 2* (Place names in BIM Vol. 2) 2007
7. *Buku Poket Bahasa Isyarat Malaysia* (BIM pocket book) 2009

In addition, the Pusat Majudiri Y for the Deaf, a YMCA Kuala Lumpur initiative, has produced the following books:
1. S.I.G.N: the Deaf way 1998
2. S.I.G.Ns for Children 2004
3. S.I.G.Ns for Sexuality 2004
4. Understanding Deaf Culture: Malaysian perspectives 2006
5. Malaysian Sign Language for Basic Learners 2010

4.3 Attitudes to sign language

Families with deaf children continue to struggle with the use of BIM to communicate with them. In most cases, there may only be one or two members of the family (usually the mother and one sibling) who would be proficient enough to communicate with the Deaf child. Those working in the field have noted that some families, on the advice of their speech therapist and/or audiologist, have even 'banned' the use of signs, arguing that if the Deaf child signs they would not be able to 'speak' well. This attitude has continued even to today and as a result, many families will only send their deaf child to a Deaf school when the child is seen to be unable to 'pick up' speech before starting their primary education. The effect of this would be a delay of up to six years of early intervention for the deaf child.

4.4 Acceptance of sign language in schools

The conservative belief that sign language is not a language but merely a form of communication with no structure is still deeply entrenched in the minds of educa-

tors and policy makers in Deaf education in Malaysia. As a result of this perception, BIM is not taught as a subject like English or Malay. Since deafness is equated with disability, teachers whose specialty is in learning disabilities tend to be given the job of teaching the Deaf and, inevitably, little emphasis is placed on the teachers' skills and proficiency. However, in 2010, *Bahasa Isyarat Komunikasi* (Communicative Sign Language) was introduced in schools and since 2011, it has been taught as a subject in Deaf primary schools.

4.5 Acceptance of sign language in Malaysian society

The national TV News on RTM 1 has been providing interpreting services for its daily news at 8pm since 1997 and produced two programmes for children in 1994 and 2008: *Let's Sign* and *Learning a letter a day with ABC*. Deaf people were involved in these programs except the latter, which had only a sign language interpreter signing the segment.

The national air carrier, Malaysian Airlines has also incorporated BIM into the in flight safety video signed by a deaf presenter.

A number of government ministries have allocated special counters or services for people with disabilities and at some hospitals "communication officers" are sent for sign language courses in order to communicate with deaf people.

However, the general society's perception of deaf people and the use of sign language, still continue to be very naïve. There is a common assumption that deaf people possess extremely limited abilities and skills, including the ability to read and write in Malay and/or in English.

4.6 Other social and geographical varieties

Malaysian sign language certainly does differ from one State to another. There seems to be a distinction between those States in which there are only a few deaf schools or a community with a small number of deaf adults and those where there are several Deaf schools and therefore a larger deaf community. In the former, the influence of KTBM is still strong but in the latter, BIM is gaining ground.

Kuala Lumpur appears to be a special case, since the signing used in the community in the capital is strongly influenced by American Sign Language (ASL). This may be due to several young Malaysians acquiring ASL as a result of studying abroad, especially at Gallaudet University.

4.7 Sign language in its political context

The Laws of Malaysia ACT 685 Persons with Disabilities ACT 2008 part IV (Chapter 1) Accessibility No 30 on Access to information, communication and technology (Akta OKU 2008) states:

> The Government and the private sector shall accept and facilitate the use of Malaysian Sign Language, Braille, augmentative and alternative communication and all other accessible means, modes and formats of communication of their choice by persons with disabilities in official transactions.

On first reading, it is very encouraging to see that the Act gives official recognition to "Malaysian Sign Language" but a second reading is far less encouraging. "Malaysian Sign Language" is not defined and it seems probable that what is actually being referred to is not BIM but KTBM.

In legal settings, such as court hearings involving the Deaf, a sign language interpreter must be made available. However, it is the responsibility of the deaf persons and/or their lawyers to hire a sign language interpreter (SLI), though the interpreter's status and qualifications is seldom questioned. If it is a case brought by the government, a teacher of the Deaf is usually called on to interpret using KTBM, as civil servants are often preferred as ad-hoc interpreters in court.

In other public settings, anyone can be an interpreter: for example, if a deaf person is involved in a car accident, a member of his/her family is allowed to interpret for them.

5 The structure of BIM signs

5.1 Basic structure

BIM signs are defined in terms of the following features:
1. Hand shapes
2. Place of articulation
3. Orientation
4. Movement
5. Non-manual signals

5.1.1 Hand shapes

Below are some examples of hand shapes used in BIM. Just as with spoken language, where not all the possible 160+ sounds of the International Phonetic Alphabet (IPA) are realized in the phonology of any particular language, no sign language makes use of all of the 142 possible phonetic hand shapes listed in the sign language equivalent of the IPA: SignPhon.

It is an indication of the complexity and sophistication of sign languages that, while the 160 IPA symbols represent an amalgam of three articulatory features – place and manner of articulation, and voicing – the SignPhon total given above

refers only to one articulatory feature: static hand shape. A comprehensive description and transcription of complete signs would need to also take into account three more parameters: place of articulation, orientation, and the dynamic aspect of movement.

Some examples of BIM hand shapes (see Figures 1a–1j):[2]

Fig. 1a: Handshape A.

Fig. 1b: Handshape A-var1.

Fig. 1c: Handshape B.

Fig. 1d: Handshape B-var2.
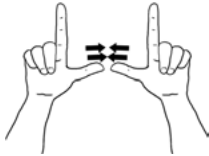
Fig. 1e: LICENCE (LESEN) – handshape: L.
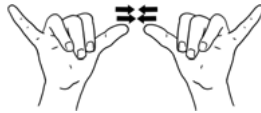
Fig. 1f: SIZE (SAIZ) – handshape: Y.

Fig. 1g: ADULT (DEWASA) – handshape: A.

Fig. 1h: TEEANAGER (REMAJA) – handshape: T.

Fig. 1i: ORIGINAL (ASLI) – handshape: O.

Fig. 1j: SURE (PASTI) – handshape: 1.

5.1.2 Place of articulation

All visible body parts are used for place of articulation: head (head, face, eye, nose, mouth, ears, cheeks, chin, forehead, neck, etc.), body (shoulder, chest, stomach, etc.), and hand (hand, arm, hand back, hand palm, finger, etc.). In addition, the free space in front of the signer constitutes a place of articulation (See Figures 2a–2f).

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2 All pictures are drawn by deaf artist Anne Laura Raymond.

Fig. 2a: ALONE (SENDIRIAN) – place of articulation: chest.

Fig. 2b: ALWAYS (SELALU) – place of articulation: free.

Fig. 2c: FORGET (LUPA) – place of articulation: forehead.

Fig. 2d: HOBBY (HOBI) – place of articulation: chest.

Fig. 2e: MILK (SUSU) – place of articulation: free.

Fig. 2f: ORANGE (OREN) – place of articulation: mouth.

5.1.3 Orientation

Since the palm can be rotated through 90° from the vertical and 180° horizontally, a wide range of palm orientations is available: upwards, downwards, sideward, outward, and inwards (See Figures 3a–3f).

Fig. 3a: KNOWLEDGE (PENGETAHUAN) – orientation: inward.

Fig. 3b: NONSENSE (KARUT) – orientation: sideward.

Fig. 3c: SEE (LIHAT) – orientation: inward.
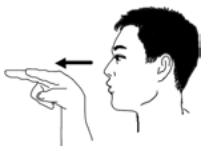
Fig. 3d: WATCH (TONTON) – orientation: outward.

Fig. 3e: MAD (MARAH) – orientation: inward.

Fig. 3f: SHOUT (JERIT) – orientation: outward.

5.1.4 Movement

Either one or both hands and all fingers are used for movements which may be straight, arcs, circles, repeated, waves, zigzags, bounces, etc. and all can, potentially, be repeated (See Figures 4a–4f).

Fig. 4a: SIGN-LANGUAGE (BAHASA-ISYARAT) – movement: circle.

Fig. 4b: ABANDON (TINGGALKAN) – movement: straight.

Fig. 4c: WORN-OUT (LETIH) – movement: straight, repeated.

Fig. 4d: STRANGE (ASING) – movement: arc, repeated.

Fig. 4e: PIG (BABI) – movement: straight.

Fig. 4f: HOT (PANAS) – movement: arc.

5.1.5 Non-manual signals

Non-manual signals include facial expressions (for examples raised eyebrow, wide-open eyes, open mouth, protruding tongue), and body movement (See Figures 5a–5b). However, only a small number of non-manual signals are used in BIM.

Fig. 5a: LAUGH (KETAWA) – non-manual signal: open mouth.

Fig. 5b: NOT-WANT (TAK-MAHU) – non-manual signal: pull mouth #.

5.2 Assimilation

Assimilation occurs in sign language just as it does in speech and for the same reason: the signer/speaker, communicating quickly, carries over features of one sign/phoneme into another.

For example, the English word *absurd*, spoken carefully, would be realized with a distinct /b/ and /s/. A faster production may result in [bz], where the voicing of the /b/ carries over into the /s/ resulting in [z] or, conversely, the voicelessness of the /s/ is anticipated in a devoicing of the /b/ leading to [ps].

One BIM example is the utterance I KNOW MISTAKE (i.e. in English, *I know I made a mistake*), where the three signs have the hand shapes 1, B, and 1 respectively (see Figures 6a–c) and assimilation can occur in which the hand shape 1 is used for all three signs (see Figures 7a–c).

Fig. 6a

Fig. 6b

Fig. 6c

Fig. 7a

Fig. 7b

Fig. 7c

6 Associated sign systems

6.1 Hand alphabet

The BIM hand alphabet (A–Z) is very similar to the ASL hand alphabet except for G and T.

G: index finger and thumb on same side but not at same height level (see Figures 8a–b).

T: thumb under index finger which is hooked, not between index and middle fingers (see Figures 8c–d).

Handshape G

Fig. 8a: BIM.

Fig. 8b: ASL.

Handshape T

Fig. 8c: BIM.

Fig. 8d: ASL.

Most deaf Malaysians do not use finger spelling very much, because they prefer to sign. The main reason is that due to the varied background of signers in Malaysia (Malay, Chinese or English educated) the spelling might not be readily understood by all. However, some may use it for a specific meaning, and for short words. For example, in a science class, some symbols, such as H_2O or O_2, will be finger spelled rather than signed as WATER or OXYGEN.

Concepts such as *big, large, huge*, etc. share a common BIM sign BIG but in an English class, the teacher may want to focus on a particular word in that lexical set and would, therefore, use finger spelling as well e.g., English: *the house is huge* and BIM: HOUSE BIG H-U-G-E.

6.2 Hand number signs

The BIM hand number system is similar to the ASL system, especially the numbers one to ten which are identical with a front orientation of the palm and all are signed from left to right for two digits or more.

11–19: all have the same movement as number ten i.e. a change of palm orientation from inward to outward.

20+: all are made up of any one of zero to nine + any one of zero to nine with a front orientation of the palm. e.g., Twenty = TWO + ZERO, Two hundred = TWO + ZERO + ZERO etc.

6.3 Mouthing

Deaf people in Malaysia sometimes sign and mouth simultaneously, especially when communicating with hearing interlocutors as do interpreters with a mixed audience or to emphasize a particular word in the discourse.

However, not all Deaf Malaysians mouth in English. Deaf Malaysians, regardless of their ethnicity, prefer to mouth in Malay because Malay is the national language which is taught in school.

7 Basic morphology and lexicon

7.1 Classifiers

Classifiers occur in the grammars of both spoken and signed languages but are certainly far more common in signed languages. The role of the classifier (see Allen 1988) in signed languages is to show where an object is moving, where it is located, and what its appearance is in terms of, for example, its size and shape.

BIM uses the classifier system to convey information about a subject or predicate, clarify a message and highlight a detail efficiently. For all classifiers, the signer must first sign or fingerspell the referent before a classifier can be used. The description below is divided into four categories:

1. Semantic
2. Size and shape
3. Handling
4. Body part.

7.1.1 Semantic classifiers

Semantic classifiers represent a particular group of nouns (for example person, animal, thing, building) and can indicate the location of the noun and its action. An example of a semantic classifier is CL-V upside down which indicates a person and the action of the person, i.e. walking.

7.1.2 Size and shape classifiers

Size and shape classifiers are used to describe certain physical characteristics such as size, shape, depth and texture of a noun as well as its location. For example CL-1 represents something that is round and thin like a pencil.

7.1.3 Handling classifiers

Handling classifiers are used to describe how the hands are used to handle someone or something. For example CL-C represents the action of holding a hand, picking up a glass, or a bottle.

7.1.4 Body part classifiers

Body part classifiers describe parts of the body and its action or what happens to the body part by using designated hand shapes and appropriate movements. For example CL-5-CURVE represents the eye ball.

7.2 Morphological Reduplication

A productive mechanism in BIM is the creation of new signs (with different meanings) by repeating movement of the original sign twice. For examples see Figures 9a–b:

CLEAN: when made with a single movement, the sign functions as an adjective but when the movement is smaller, quick and repeated twice, it functions as a verb.

HOUSE CLEAN-modified: when made with a single movement the signs indicate that the house is clean but when it is modified, they indicate that the house is being cleaned.

Fig. 9a: CLEAN (BERSIH).

Fig. 9b: CLEAN-modified (BERSIHKAN).

7.3 Compounds

Compound signs contain two or more signs, each of which may also have been modified before being combined into a single sign.

For example (see Figures 10–12), the sign ELDER-BROTHER is a compound consisting of two signs which have been combined into one: MALE + TALL.

The sign MALE usually has repeated movement but when it is combined with the sign TALL, it is reduced to a single movement before being combined with the sign TALL.

Fig. 10: MALE (LELAKI).

Fig. 11: TALL (TINGGI).

Fig. 12: ELDER-BROTHER (ABANG).

7.4 Personal pronouns

In general, for personal pronouns, the "1" hand shape is used to indicate the signer (1st person: I/ME), interlocutor (2nd person: YOU), and other (3rd person: HE/SHE/IT).

- For plural pronouns, a circle movement is added after the person.
- For a self-referential pronoun, hand shape A is used for indicating the person.
- For possessive pronouns, hand shape B (var 2) is used for indicating the person.

However, due to the influence from the Malay language and culture, there are some signs which are based on Malay words obtained from Kod Tangan Bahasa Malaysia (KTBM).

For example (see Figures 13–15), for the sign YOU, signers can use either hand shape 1 or A to indicate the interlocutor(s). Deaf Malays usually use hand shape A with the thumb to point at the interlocutor(s), because that is the polite way of pointing in Malay culture.

Fig. 13: I (SAYA).   **Fig. 14:** YOU (ANDA).   **Fig. 15:** HE/SHE (DIA).

7.5 Noun morphology

Noun signs are usually formed in an iconic manner i.e. mimicking the appearance of the object to which they refer or the way in which we relate to them.

For example (see Figures 16–17), in order to sign TABLE, the signer will move both hands in opposite directions horizontally and then move both hands down parallel to each other vertically or in BICYCLE, the signer will move both hands as though moving the legs up and down on the pedals.
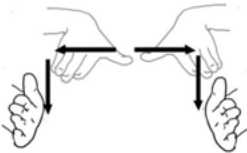
Fig. 16: TABLE (MEJA).   **Fig. 17:** BICYCLE (BASIKAL).

Reduplication can, sometimes, be used to convert verb signs into noun signs.

For example (see Figures 18a–b), the signs FOOD and EAT have the same hand shape, location, orientation and movement type, but the sign EAT is usually articulated only once, while FOOD is articulated twice.

Fig. 18a: FOOD (MAKANAN).

Fig. 18b: EAT (MAKAN).

7.6 Verb morphology

Verb signs are also usually formed in an iconic manner.

For example (see Figures 19a–b), the sign ASK-FOR is made with one open hand, palm orientation up like a child wanting something. The sign ARREST/ CATCH is made with similar action catching by hand.

Fig. 19a: ASK-FOR (MINTA).

Fig. 19b: ARREST/CATCH (TANGKAP).

Just as verbs can be converted into nouns by modifying movement, so too the reverse can take place: noun signs becoming verb signs. For example (see Figures 20a–b), the sign SCISSORS (a single movement), when made repeatedly and faster, becomes the action of cutting with scissors.

Fig. 20a: CUTTING-WITH-SCISSORS (POTONG).

Fig. 20b: SCISSORS (GUNTING).

7.7 Derivational morphology

Some noun signs are formed from verb signs by adding affixes such as "PERSON". For example (see Figures 21a–c), when the sign TEACH (verb) and sign PERSON (noun) are joined, they become one sign – TEACHER – in the same way as many English verbs can be converted to nouns by the addition of the affix {er}.

It is noticeable that linguistic change is taking place here and the language is modifying itself in the direction of greater efficiency. Over time, the sign TEACH has been shortened by removing the element of repeated movement and the sign PERSON has also been shortened by reducing the length of the movement, creating a new sign.

Fig. 21a: TEACH (AJAR).

Fig. 21b: PERSON (ORANG).

Fig. 21c: TEACHER (GURU).

Some adjective signs are formed from verb signs or body part signs by adding affixes such as "GOOD" or "BAD".

For example (see Figures 22–24), when the verb COME and the adjective BAD are joined, they become the single sign TOO-LATE.

Linguistic change is taking place here too, with a reduction in the length of movement in COME without any comparable change in BAD.

Fig. 22: COME (MARI).

Fig. 23: BAD (JAHAT).

Fig. 24: TOO-LATE (TERLAMBAT).

7.8 Naming: sign names

Before a person is assigned his/her unique sign name, he/she will be identified by his/her characteristics, his/her appearance, his/her hobby, his/her occupation or a combination of these. For example, Dr Mahathir Muhammad (a previous Prime Minister of Malaysia) is identified by the moving hand shape M down on the cheek, because he used to have long sideburns.

A place or thing is named by reference to some physical characteristic or aspect of its history or appearance connected to it. For example, the East Malaysian state of Sabah is identified by a moving hand shape S, like the sign FLY, because, from the peninsula, you have to fly there.

Usually a sign name given for a country denotes what is commonly thought to be typical of that country. For example, MALAYSIA is signed using both hands, with the B hand shape moving up and down near the sides of temple. This mimics a Malay man adjusting his *songkok* (traditional Malay headgear).

8 Basic syntax

8.1 Syntactic relations

What concerns us here is the mapping and the sequencing of the fundamental functional elements of the clause: S(ubject), V(erb), O(bject), (Complement) and, the optional and recursive element, A(djunct).

These can only be ordered in a limited number of sequences. Taking English as a convenient but not necessarily representative example, we can compare English with BIM sequences as shown in Table 1 below.

Tab. 1: Comparison of English and BIM sequences.

Seq (BIM)	BIM	Translation	Seq (English)
V	TIRED	\<Someone\> or \<the signer\> is tired.	SV
VO	EAT CAKE	\<Someone\> or \<the signer\> eats a cake.	SVO
OV	BOOK READ	\<Someone\> or \<the signer\> reads the book	SVO
SV	CAKE DELICIOUS	The cake is delicious.	SVC
SVO	FATHER EAT CAKE	Father eats a cake.	SVO
SOV	MOTHER PLATE WASH WASH	Mother washes plates.	SVO
OSV	BOOK YOUNGER-BROTHER GIVE-me	Younger brother gives me the book	SVOO

We may note three things here, a) the omission of the verb (when it is BE in the present tense) and of the definite article in many languages, including both Russian and BIM, b) the placing of the adjective after the noun, as in Malay and Romance languages such as French and c) sequences which, for spoken languages are possible but rare: OOSV e.g., *President Obama elected they* (they elected Obama President) and CSV *They tall are* (they are tall).
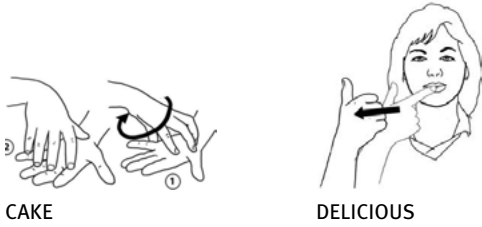
CAKE   DELICIOUS

Fig. 25: Translation: The cake is delicious.

Naturally, there are many more possible sequences. In speech, SOV and SVO account for 75 % of the world's spoken languages, and VOS or OVS are far from impossible (Dryer 2005: 330).

What we do not yet know is which are the unmarked (typical) orders and which the marked (unusual) orders for BIM.

9 Interesting or unusual features of the language

BIM has some interesting features detailed below:

(a) Vocabulary from Shanghai Signs

CANNOT (TAK-BOLEH)   GOOD (BAGUS)

(b) Vocabulary from KTBM

ACID (ASID)   ADOLESCENT (REMAJA)

(c) Signs local to Malaysia

RELATIVE (SAUDARA-MARA)   NURSE (JURURAWAT)

(d) Terms for things unique to Malaysia

DURIAN   SARONG

In addition, since Malaysia is a multicultural society, it is not unusual to find several signs for one meaning.

For example, the sign PRAY is realized by Deaf Muslims by holding both hands open and palm up, while Deaf Buddhists will shake closed hands, and Deaf Christians will close both hands and hold them steady. However, the difference in form causes no problem for mutual comprehension.

9.1 Examples of words and sentences

The following are examples of three sentences expressed in BIM.

(e) Vocabulary from Shanghai Signs
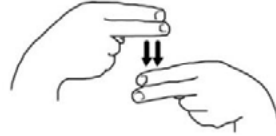
RIVER   LONG   NAME

REMEMBER   NOT   SORRY

Translation: "Sorry, I don't remember the name of the longest river."

(f) Vocabulary from Shanghai Signs

FRUIT   SMELL   STRONG

WHAT?   YES   DURIAN

Translation: "What is the strong smelling fruit?" "Yes, it is durian."

(g) Vocabulary from Shanghai Signs

| FATHER | MOTHER | FIGHT | USUAL |
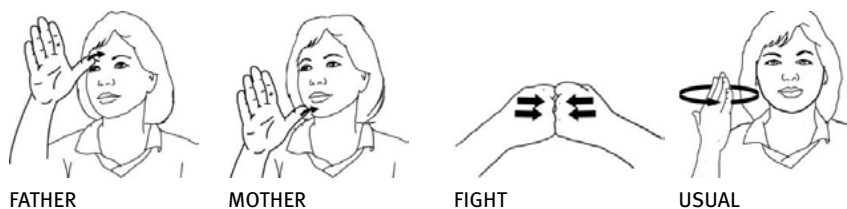
Translation: "Usually father and mother fight."

10 History of BIM research

The research project on BIM has been conducted in the Faculty of Languages and Linguistics, University of Malaya (UM) since the latter part of 2007. The aims of the project are: a) to establish the unique formal structures and functional conventions of BIM, on a par with sign language in other countries, and b) to create a BIM dictionary compatible with the *Asian Sign Language Dictionary* currently being produced in Cambodia, Hong Kong, the Philippines, and Vietnam.

The research work consists of data collection and data analysis involving interviews and exploratory fieldwork in the preliminary stage. Later, data were collected from Deaf Malaysians who are native BIM users, active members of the Deaf community, attended residential schools, started signing at an early age and are representative of different age levels and different regions in the country.

One research instrument used is the picture book *Frog, Where Are You?* (Mayer 1969). Respondents are asked to tell the story through the illustrations which allow each individual to sign the story in his/her own way. The resultant discourse contains valuable evidence for the analysis of their use.

The team includes three internationally qualified members: a Deaf linguist working on sign linguistics, a BIM/English SL interpreter, and an academic acting as Consultant in Linguistics. In addition, two of the team are working towards postgraduate qualifications on topics directly related to sign linguistics.

Funding was received from the University of Malaya and from the Ministry of Higher Education Fundamental Research Grant Scheme for the period 2007–2011 and, in 2012, the project was given a generous one-off grant by SP Setia (one of the leading property developers in Malaysia) to bring the project to a conclusion.

It is hoped that the project achieves its key objective: a BIM dictionary that will be a rich resource for members of the Deaf community, students of Deaf Studies, academics in BIM linguistics, teachers of BIM at school and university levels, trainers of BIM interpreters, and BIM researchers.[3]

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3 The dictionary (BIM–English–Malay Handshape Dictionary) has been completed and published by the Faculty of Languages and Linguistics in July 2014.

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Joan Cottle Poole Nash
25 Martha's Vineyard Sign Language

1 Basic facts about the language[1]

Language name: Martha's Vineyard Sign Language (MVSL)

Alternative names: The informants called it, "talking deaf and dumb." The word "dumb" was used in the sense of "not speaking".[2]

Location: Martha's Vineyard – an island off the coast of Massachusetts, USA, late 1600s to 1952.
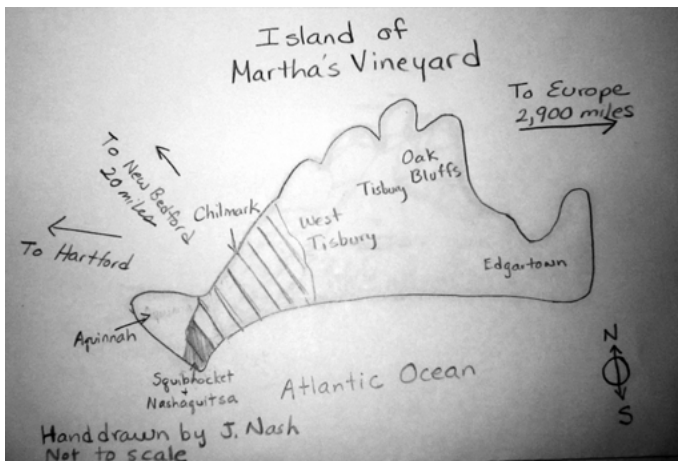
Fig. 1

Varieties: Lexical variation was found among informants of different ages and occupations. Thus the signs used for individual varieties of fish differed for those who caught the fish and those who cooked and ate the fish. (See signs for SWORD-FISH and SHARK, below.)

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1 As co-author of the chapter of American Sign Language in this volume, in those cases where MVSL and ASL share linguistic characteristics, rather than taking up valuable space, I refer readers to the ASL chapter for in-depth explanations.
2 With only one exception, all the deaf people were remembered as being, in the words of Emily Howland Poole, one of the informants, "very, very keen (smart)."

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Fig. 2: SHARK.

Fig. 3: SWORDFISH.

Fig. 4: SHARK.

Fig. 5: SWORDFISH.

Number of signers: None. (Though perhaps as many as several hundred at times in the past.)

2 Origin and history

Martha's Vineyard Sign Language (MVSL) was used by deaf and hearing people on the island possibly as early as the seventeenth century. The language fell out of use with the death of the last signing deaf resident of the town of Chilmark in 1952. The name "Martha's Vineyard Sign Language" was coined by the author of this chapter (Poole 1979).

2.1 History of deaf people on Martha's Vineyard

Currently known as a summer resort for the rich and famous, the island of Martha's Vineyard has become a focus for Deaf Culture because of the deaf population that flourished there from the seventeenth to early twentieth centuries. The deaf population was completely assimilated into the hearing community by virtue of the fact that both deaf and hearing people signed. Since most people had deaf family and neighbors, the islanders did not consider the bilingual/bimodal communication unique or significant. Very little was known about this community until Deaf Culture became a "hot topic" and a book about the deaf population was published (Groce 1985). The story of deaf people signing and being successful in America

before the establishment of the American School for the Deaf (traditionally believed to be the first source of sign language for deaf people in America), and the Utopian vision of a fully integrated community of people who signed regardless of hearing status, quickly attained founders' myth status.

The first mention of a deaf person on Martha's Vineyard was Jonathan Lambert,[3] who moved there from Cape Cod, Massachusetts in 1692. He had seven children, two of whom were deaf. Most of the people born deaf on the Vineyard in the next two centuries were descendants of other families with many deaf members: the Lamberts, the Mayhews, the Tiltons, and the Skiffes. By the 19th century, when the incidence of hereditary deafness in the United States of America was estimated to be one out of 5,278, on Martha's Vineyard the incidence was one out of 155; in the rural town of Chilmark (total population around 400), it was one out of 25, and in the Nashaquitsa/Squibnocket area of Chilmark, one out of four people was born deaf (Groce 1985).

Groce (1985) traced these families back to an isolated area in the English county of Kent called the Weald, where people married mostly within their own villages. Economic and religious issues led several groups to immigrate to the New World. After settling in various Cape Cod communities, many of them ended up on Martha's Vineyard, again in small isolated communities, where people married their neighbors, so that the recessive gene they carried for deafness was expressed with far greater frequency than in the wider world. Groce suggested that they brought a form of old British Sign Language (BSL) with them, which served as a core for the development of Martha's Vineyard Sign Language. One indication of the presence of deaf inhabitants in the Weald is in the famous diary of Samuel Pepys, which, according to Stone and Woll (2008: 478–479): "described an encounter with a deaf servant who signed to his master, George Downing, to tell him of the Great Fire of London in 1666." As reported in an excerpt from that diary (Groce 1985), "he made strange signs of the fire, and how the king was abroad, and many things they understood but I could not ..." Groce used this as a basis for the claim that "Old Kent Sign Language" may have had an influence on MVSL. Though Stone and Woll (2008) and Schembri et al. (2010) conclude that there is no evidence of a high incidence of deafness there, nor documentation of any deaf person emigrating to Massachusetts, and Groce's work is difficult to verify as she used pseudonyms for all but one of the people in her book, Harlan Lane (2011) prepared extensive genealogies and pedigrees – using the actual names – showing possible lines of transmission of a recessive gene which support Groce's hypothesis.

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3 Charles Banks (1966) History of Martha's Vineyard (Vol. 2, 53): http://www.archive.org/stream/historyofmarthas00bank#page/n0/mode/2up (accessed 10 March 2014). From the scanty evidence we have, it seems that Jonathan Lambert was literate (left a will, signed his name, owned books), but we will never know what signs he used or even if he was born deaf or became deaf after learning to read and write, perhaps.

The people of Martha's Vineyard, deaf and hearing, accepted deafness as a normal variation no more remarkable than eye color. Lane (2011) argues that, compared with transmission of deafness by dominant genes, recessive transmission of deafness leads to communities in which the deaf and hearing are more integrated, since there is mixing of deaf and hearing people of different generations within individual families. This genetic difference is correlated with a distinction between "assimilating" and "differentiating" societies, in Lane's terms.

Deaf people on Martha's Vineyard were literate and participated fully in the life of the community. From the time the American School for the Deaf (then called the Connecticut Asylum for the Education and Instruction of Deaf and Dumb Persons) was established in the early nineteenth century, all but one of the eligible deaf children attended.[4] As a result, they were among the best-educated people in the town. Both deaf and hearing worked together, fishing, farming, and hunting. In the days before telephones and radio communication, signing was used to communicate over distance by land and sea, sometimes through a spyglass. People had signed conversations at home, along the road, and by night they all gathered in the general store to play checkers and tell jokes and stories, for while the hearing people did speak, they always signed when deaf people were present. In church, deaf people testified their faith; in town meetings they contributed their views and made their arguments. A hearing person would voice for the deaf person in town meetings, though in church, the testimony was apparently not voiced. There is no record that any of the few professionals in the town knew sign, though one physician from a nearby town had two deaf grandfathers and two deaf uncles, so "could sign well enough to get by" Groce (1985: 63). Stories were told of visiting ministers bewildered by the signing of a hearing woman interpreting the service for her deaf husband. Hearing adults also used sign communication when no deaf people were present as a secret language when traveling off-island, or in situations where communication needed to be quiet, e.g., in hospital rooms or boring meetings. The schoolteachers reportedly did not know any sign. (It was supposed by our informants that young deaf children were educated at home.) However, the hearing children in the school frequently used sign to communicate "behind the teacher's back" in full view of the teacher "who thought they had the paralysis"! When Donald LeMar Poole was asked whether the schoolteacher had a name sign, he replied wryly, "Not that she ever knew."

The community flourished for over 200 years,[5] until the influx of summer people, college classmates, and others from "away" diluted the gene pool, and no

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4 The American School for the Deaf was the first permanent school for the deaf established in the USA. It was started by Thomas Hopkins Gallaudet, a hearing man who learned about education of the deaf at the school for the deaf in Paris, France, and by Laurent Clerc, an alumnus and teacher at the Paris school.

5 Deaf people were just as likely to marry hearing people on the island, whereas it is more common in larger communities for the deaf to marry other deaf people.

more deaf children were born in Chilmark. A golden age had ended, but no one noticed it had gone, because they hadn't known it was exceptional.

From reading popular accounts of life on the Vineyard at that time, one might get the impression that it was an ideal society where the deaf and hearing people lived in harmony, united by a common visual language. In fact, closer investigation shows that the society was typical of many small rural towns. There were grudges that lasted for generations, and whole groups of people who were assigned lower status. The difference in this case was that the inability to hear was not considered a deficit. Deaf people were able to participate fully in all aspects, both positive and negative, of the life of the town.[6]

2.2 History of sign language on Martha's Vineyard

Assuming that families with deaf members who used signs as well as the two-handed British alphabet were among those who moved from Kent, England, to Massachusetts and then to the island of Martha's Vineyard in the seventeenth century, some form of British sign language would have been used in those in small communities where villagers intermarried and had many deaf children. As the island population was isolated, their sign language drifted from early British Sign Language to its own dialect, which would include signs important in their new land, e.g., CRANBERRY, SCALLOP, SWORDFISH. When the school for the deaf was established in Hartford, Connecticut, most of the eligible children and young adults from the Vineyard attended. Their signs, along with the Old French Sign Language signs of Laurent Clerc, and those of other deaf people from the New England area (some of whom were related to the Vineyard deaf), led to the development of American Sign Language. The sign language on Martha's Vineyard was clearly influenced by ASL, but retained some of its unique signs, in part because all but one of the Chilmarkers who attended the American School for the Deaf (ASD) returned home and married locally. (Furthermore, only one off-island Deaf student moved from ASD to the island.)

2.3 Controversy about the relationship between MVSL and ASL

As claimed in Poole (1979), there is reason to think that MVSL is related to ASL, based on the similarity of vocabulary items and the fact that the Martha's Vineyard

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6 Originally I considered not including any explicit information about the deaf population, but after reviewing the vast amount of misinformation available on the Web and tracing it back to the original sources of misunderstanding, I decided to at least set prospective researchers on a well-supported trail. In particular, it is necessary to distinguish between actual historical people, those who are referred to both by their actual names and by pseudonyms, and fictional characters who have been taken to be real.

deaf were known to use sign language before the establishment of the American School for the Deaf (ASD). As Lane et al. (2011: 76) write:

> One of the scattered enclaves of Deaf people that were gathered and to some extent amalgamated by the schooling of their number at the American Asylum was the Deaf community of Martha's Vineyard; it was indeed the largest single source of pupils at the Asylum for several years.

> After the school opened, Groce reports, all but one of the Vineyard Deaf of school age attended. With so many Deaf Vineyarders enrolled, their Vineyard sign language must have had a profound influence on the developing ASL and ASL may well have affected the sign language on the Vineyard.

This is, of course, unverifiable. However, Lane et al. (2011) present convincing genealogical data to support the claim that there were large numbers of deaf people from the area, all interrelated and attending ASD while living in various parts of New England; he cites recessive deafness as that most likely to create deaf/hearing signing families throughout a community. It is his impression that there would be enough people who knew sign language for it to perpetuate.

Stedt and Moores (1990) object to the proposition that the sign language on Martha's Vineyard could have had any effect on the development of ASL at the American School for the Deaf. Their objection is that there were not enough pupils from Martha's Vineyard at the very start, or ever, to form a critical mass to influence the development of ASL. They write that it was not until the tenth report (1826) that three students from Chilmark entered the school (Sally and Mary Smith, and Lovey Mayhew, joined by her brother Alfred the next year), and that only 6 of the 619 pupils from 1817–1843 were from Martha's Vineyard.[7] However, it is well known that even when they are in the minority, native signing deaf children have a great linguistic influence on their peers.

2.4 Death of the language

As the Vineyard began its transition from subsistence farming and fishing to a popular seasonal resort, and the children in the town pursued higher education in neighboring towns and off-island, the pool of prospective marriage partners increased significantly. Apparently without anyone taking any notice, the number of deaf children born in Chilmark decreased from fourteen in the 1840s to one in the 1870s (Lane 2011). In 1950, Eva West Look, the last of the Chilmark hereditary deaf, died. Katie West, her sister-in-law, whom Eva had brought to the Vineyard, died in 1952. Though some hearing Chilmarkers continued to use the sign language among

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7 Also, see Lane's (2011) work on the migration of deaf families from the Vineyard to other parts of New England who attended ASD in its early years.

themselves, they did not use it with people in the town who became deaf, nor with deaf people from out of town. These deaf people, who relied on oral communication, were not assimilated and found themselves marginalized in a community that was once completely accessible.[8]

3 Bilingualism and language contact

3.1 Linguistic evidence for relatedness of other sign languages

The evidence suggests that MVSL was, in fact (controversies about origins notwithstanding), related to both BSL and ASL. This is apparent from the overlap in vocabulary. Of course, some of the correspondence could be due to a similar gestural heritage among the general population, or otherwise due to chance.

3.2 British Sign Language

In Poole (1979), two methods were used to determine the relationship between MVSL and BSL. The signs that had been collected were first compared with a British sign handbook, and then viewed and evaluated by a native signer of BSL. Of the 132 signs in the Royal National Institute of the Deaf handbook, only 34 were included in the MVSL corpus. Of these, 13 were identical: a correspondence of 38 %. A hearing native British signer who had viewed an edited tape and was asked to identify all the signs he could, identified 83 (40 %) of the 208 signs he was shown. He also noted that the two-handed British manual alphabet, known only by the eldest of our informants, used the "old forms" of the letters S and Z.

3.3 American Sign Language (and by extension, French Sign Language)

Forty-six (22 %) of the 208 signs collected in 1977 were recognized as ASL cognates by the members of the New England Sign Language Society (NESLS). The relationships between ASL and MVSL cognates tended to reflect Frishberg's observations regarding the historical changes that had generally occurred in ASL. In some cases, the kinds of changes she had described had affected the ASL sign but not the MVSL

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8 In the 1950s, a deaf child of the Wampanoag Tribe was born in the town of Aquinnah (then known as "Gay Head"), which borders Squibnocket. Though he attended the American School for the Deaf and was a fluent ASL signer, the people of the island did not sign with him, nor did the tribe use any form of Indian/Native American signs.

sign (which therefore remained closer to the original form), and in other cases, it was the MVSL sign that had undergone such changes.

Frishberg noted that one-handed signs below the neck tend to become two-handed; and that two-handed signs in contact with the face tend to become one-handed. The MVSL signs CAT, DEVIL, and COW were identical to the ASL signs except that they were executed with two hands.[9] The MVSL sign MAD was identical to the ASL sign except that it used only one hand.

Frishberg also noted that historically signs tend to become more fluid in their production by dropping parts of the signs, assimilating handshapes, reducing articulatory distances between parts of the sign, and reducing complexity of motion. Thus, although the modern ASL sign for BIRD retained only the first part of the older sign for BIRD (BEAK + WINGS), MVSL retained BEAK + WINGS as a general sign for birds or big birds, and used WINGS alone to signify small birds.

In yet other cases, both ASL and MVSL appear to have changed in different ways with respect to the same original sign. For example, the old ASL sign HOME was signed EAT + BED/SLEEP; modern ASL retains the EAT handshape with a modification in location; MVSL used the ASL sign BED for HOME as well as for BED/SLEEP (i.e., the sign for HOME retained only the second part of the original sign).

Thus, the two languages seem to have developed somewhat independently from a common historical source, at least with respect to a portion of the MVSL vocabulary. To the extent that these statistical correlations with ASL and BSL are indicators of relatedness, it appears that MVSL was more closely related to BSL (with 40 % overlap in vocabulary) than to ASL (with only 22 % of the MVSL signs investigated having ASL cognates).

4 Political and social context

Organizations

The deaf people did not consider themselves a separate group from the hearing people, though they did share experiences that many of the other Chilmarkers did not, in part as a result of attending boarding school off-island. When the second biennial meeting of the New England Gallaudet Association took place in Concord, N.H. in 1856, only four Mayhews and three Tiltons from Chilmark, Martha's Vineyard were in attendance (Lane, et al. 2011). As observed in Bahan and Poole Nash (1996: 20):

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9 In theatrical signing, ASL users will often choose to perform these signs with two hands even today.

Johnson (1994) reported, and our study of Martha's Vineyard confirms, that deaf people in assimilated communities appear to value their village more than they value being around other deaf people. This "village-first value" reflects a significant difference between deaf people in assimilating communities and deaf people in industrial societies, who tend to value being around Deaf people more than being with people of their birth communities.

5 Basic Morphology and Lexicon

5.1 Phonetic properties

The handshapes, locations, and movements of the MVSL signs were subsets of the corresponding ASL parameters. (See ASL chapter, this volume). The handshape data, transcribed in Stokoe notation, were analyzed in 1977. The MVSL examples contained the same basic set of handshapes that he had proposed for ASL.

Although there were some complex signs in the sample that was collected, overall there was a lower percentage of complex signs in the MVSL data set than in the full repertoire of ASL signs. However, this would be expected, at least to some degree, in a relatively small sample of basic signs, even in ASL. Similar results have been reported for small samples from other sign languages (e.g., Extended Oregon Mill Sign Language (Johnson 1978)). Thus, it is likely that there was, in fact, more phonological complexity in MVSL than is reflected in the sample that was collected.

The first MVSL sample included 11 handshapes: B/5, C/5, G, O, V, H, F, W, X, A, and open-8. The least-marked handshapes – G, O, B/5, A, and C/5 – account for 95 % of the signs in the sample. By comparison, 69 % of ASL signs use only basic handshapes (Johnson 1978). The marked handshapes – V, H, F, W, and open-8 – only occurred in the least-marked locations (neutral space and on the hands). The handshape X occurs in both neutral space and in contact with the head, the next least-marked location.[10]

The signs in the data set also tended to have relatively simple types of movement. Johnson (1978) organized the 18 types of movement identified by Stokoe in order of complexity. Over 50 % of MVSL signs are one-handed and fall into the two of his five categories that he deemed to be the least complex: simple movement and simple contact.

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10 The ASL data is computed from Stokoe, Casterline and Croneberg (1965). "Least marked" handshapes are those which are easiest to produce and occur in more contexts than "marked" handshapes, which are more complex and are limited in the types of signs in which they can occur.

5.2 Lexical signs and observations about phonology and morphology of MVSL

The signs elicited from the three initial informants differed in production. When the three informants had a sign for the same gloss, the signs were identical in 71 % of the cases. The rest varied by either handshape or movement, and in one case, by both handshape and movement.

As with other natural sign languages, MVSL has a restricted number of handshapes, movements, and locations that combine with each other in constrained ways. Body tilt, head tilt, facial expression, and orientation are other distinctive features in MVSL.

Minimal pairs include:
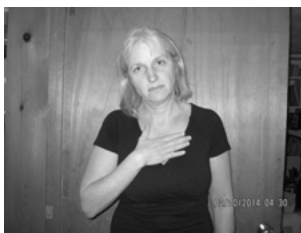
SICK/SORRY (presence vs. absence of body tilt)

SWORDFISH/SHARK (2-handed vs. 1-handed)

COW/DEVIL (different handshapes)

DEAF/DIE (presence vs. absence of head tilt)

KNOW/SEE (different locations)
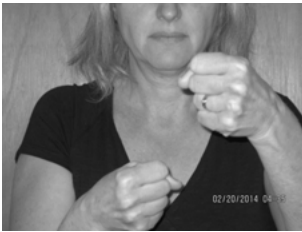
MILK/CODFISHING (different orientations)

SCALLOP/LOBSTER (different movements)

THUNDER/COLD (different facial expressions)

Battison's Symmetry Condition (1974) for ASL[11] also held in MVSL. The Dominance Condition appeared to impose slightly more stringent constraints than in ASL: in two-handed signs with different handshapes on the two hands, not only the non-dominant handshape but also the handshape of the active hand was restricted to the set of least-marked handshapes, and the passive hand was further restricted to the set B/5, A/S.

5.3 Classifiers

MVSL made productive use of classifier constructions. For example, the fin classifier made with the "X" handshape for SHARK and two-handed "X" for SWORDFISH, representing what one sees as the fish swims by, was used in a classifier predicate by Donald Poole to show a swordfish being struck by a harpoon, swimming away, going under, and reappearing on the surface. This contrasts with the "B" fin sign for SHARK, which is held upright as it moves in an outward path and also with the (B)FIN sign for "SUNFISH" which flops from side-to-side. These latter two were not used as classifiers. The sign used by non-fishermen for SWORDFISH represents the sword and is not used as a classifier.

5.4 Fingerspelling and loan signs

All of our informants knew the American Sign Language alphabet. The oldest informant also knew the two-handed British alphabet (using the "older forms" of S and Z, as discussed below).[12] Unwittingly, our informants demonstrated knowledge and use of loan signs. Though Mabel Look stated several times in her interview that she did not use fingerspelling with her mother and aunt, she fingerspelled fluently throughout the interview, and used two loan signs: #WEEK (W + K) and #WHEN (W + N)[13]. That the deaf people used loan signs was confirmed by our youngest informant, Eric Cottle, who was under the false impression that Katie West had not been educated,[14] as she (like other deaf people) did not include all of the letters when she fingerspelled. He said, "They didn't spell the whole word out: they couldn't spell, they didn't have a place to go to school, they just spelled two or three letters, but if you were following the conversation you could make it out." Presumably, what he had observed were loan signs.

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11 See the chapter in this volume on American Sign Language.

12 The video shows Emily H. Poole signing both alphabets, three times, occasionally substituting a letter from the two-handed alphabet into the one-handed alphabet and vice-versa.

13 For further description of loan signs, see ASL chapter, this volume.

14 According to Emily Poole, in fact, the deaf on the island "were very well informed. They read the newspaper and knew what was going on – very up-and-coming."

5.5 Numbers

The first ten numbers in MVSL were consistently signed by our informants just like the ASL numbers with the exception of the number "three". In ASL, THREE is signed with the thumb, index and middle fingers extended, and SIX is signed like the letter "W". In MVSL both THREE and SIX were signed with the W handshape and were distinguished by orientation: THREE was signed "W" with the palm facing the signer, and SIX was signed with "W" facing out. The numbers 1–5 were signed palm in and the numbers 6–10 were signed palm out. The signs for numbers above ten varied among the informants.

6 Basic syntax

The final section of this paper has examples of sentences that were captured on video. Unfortunately, the existing recordings contain too little evidence to allow one to say much about the syntax of MVSL. Sentence structure for the limited set of examples in the collection does not differ significantly from that of ASL, and the non-manual expressions of negation, yes-no questions, and wh-questions are essentially the same as in ASL. As Bahan and Poole Nash (1996: 16) wrote:

> From the way people talked about the sign language, and from the signed sentences that they produced, Martha's Vineyard signs appear to be very much like those of modern ASL. ... The hearing informants knew that the sign language followed different rules from the spoken language. Without knowing formal linguistic terms, they described the use of classifiers, spatial grammar, and differences in word order. They used points in space as pronouns and directional agreement when they inflected sign language verbs. They explained how facial expression was used grammatically in forming questions, adverbially in modifying statements, and to distinguish one sign from another (for example, the signs THUNDER and COLD were distinguished by facial expression).

7 History of research

7.1 Between 1977 and 1994

In 1977, at one of the meetings of the New England Sign Language Society (NESLS) that I attended regularly, Robbin Battison was leading a discussion about historical change in American Sign Language and the difficulty in finding any data. It occurred to me that I actually had access to an interesting source of relevant data, since I had grown up on Martha's Vineyard and in my childhood, my great-grandmother had taught me some signs. I knew that some of the signs I had learned were similar to corresponding signs of ASL, but some were different in interesting ways. I realized that the signing on Martha's Vineyard was worth a closer look.

7.2 Sources of the data

The original sign language data were recorded by the New England Sign Language Society[15] on Martha's Vineyard over a 3-day period in November of 1977. Three hearing informants were recorded at that time: Donald LeMar Poole (73 years), Emily Howland Poole (93 years), and Gale Huntington (74 years). These were, respectively, my grandfather, my great-grandmother, and my grandfather's best friend. This first data set included 208 signs.

Elicitation was complicated by arthritis and the limitations of memory. Since the last signing deaf person had died in 1952, none of those from whom data was elicited had any occasion to use their signs as a primary mode of communication.[16] Emily Poole, my great-grandmother, had used them to instruct me as a child, and some of the fishing signs were still in use when out on the water.

Though we were unable to determine the level of fluency our informants had once had, we know they were in close contact with deaf people, living and working with them in the community. Through questioning and probing, we were able to determine that they had more knowledge than they recognized (or admitted to). No one in this first set had been a fluent signer, but their spouses, housekeepers, and closest friends had been, and our informants were able to describe clearly the skills that separate those who are merely conversant in a language versus those who are highly skilled or even eloquent.

A second data set was collected on December 23, 1979 by Nora Groce from Mabel Look, a former Chilmark resident whose mother was deaf. Finally, in 1994, my sister and I collected a third set of data from Eric Cottle.[17] I had initially assumed that he would have been too young to know many signs, but as it turned out, he had spent a lot of time in the home of a friend with a deaf housekeeper, and he remembered more signs than anyone else. In all, there were over 400 signs in the entire collection (i.e., in the three data sets combined).

The five people from whom we collected signs each had a very different relationship with the deaf people of Chilmark and straddled several generations. Thus, Emily Howland Poole, who moved to town as the young bride of a (hearing) man who was very fluent in sign, remembered signs in the context of stories and social interactions with deaf people. As the oldest informant, she was the only one who

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15 Those participating with me in these sessions included: Ronnie Bring Wilbur, Judy Shephard-Kegl, Nancy Chinchor, Hartmut Teuber, and Janice Kagan-Teuber.

16 In my original paper on this topic, I wrote that they had had no occasion to use their signs in over fifty years. This was said repeatedly, but if one examines the stories, it is clear that these informants were signing with the last deaf Chilmarker right up to the end; so it had only been about 25 years since they had signed.

17 A portion of this interview with Eric Cottle is available on the website http://www.chilmark library.org/ The Deaf Community Archive was last accessed April 24 2015. It is not yet captioned, but full transcripts are available.

remembered the two-handed British alphabet[18] in addition to the American/French one-handed alphabet. Some of the deaf people were her contemporaries. Her son, Donald LeMar Poole, remembered many signs related to fishing and describing the actions of fish. His friend, E. Gale Huntington, had employed one of the deaf women, Eva Look, to babysit his young daughter, so had daily interactions with her. Mabel Look, whom the author has only seen on videotape, was the child of a hearing father and a deaf mother (Eva Look). As the daughter and niece of the last deaf members of the Chilmark community, she remembered an interesting blend of old ASL (e.g., STARS[19]), modern ASL, MVSL (e.g., HORSE, XMAS, names of towns), and some signs that could be BSL or LSF (French Sign Language). Interestingly, Eric Cottle, who mostly interacted with Katie West, a deaf Chilmarker brought back from the school for the deaf in Hartford by her friend Eva, used some ASL versions of signs for which Mabel used older ASL or MVSL forms, leading one to suppose that deaf Chilmarkers coming home may have reverted to (or favored) MVSL signs over ASL signs in some cases.[20]

7.3 Data collection

The tapes on which the signs were recorded were reel-to-reel videotape. The quality of the recording was extremely poor as a consequence of the rudimentary equipment and the lack of video-graphic skill of the researchers.

Elicited signs included those of the Swadesh 200 word list as well as other signs that came to mind. These signs were cross-checked among the informants, who were interviewed separately. In addition, the informants were asked to "tell a story" to our deaf interviewer.

The audiotapes were transcribed verbatim.[21] The videotapes were glossed, and the signs were transcribed in Stokoe notation.

A number of caveats apply to evaluation of the data. The data were elicited from hearing people who had not signed in many years. Only one of the informants self-reported as having been exceptionally fluent at signing. They all described the

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18 As the British fingerspelling is not known to have been used at the American School for the Deaf, I am assuming that the use of it in Chilmark was due to its use by deaf people who came from England and settled on the Vineyard. There is some evidence that women are more likely to retain the use of older forms of expression than men are – all I can say with certainty is that was true of my great-grandmother, in language, manner, and all other contexts.

19 This is a sign that was described by Supalla (2004).

20 I recently viewed the videos again, and thanks to the fact that information about BSL and LSF signs is more readily accessible, many more connections are apparent today than it was possible to verify in 1979.

21 Audio transcription was carried out by Nancy Chinchor, Nora Groce, and me. Some of these stories were reported (although without attribution of their source) in Groce (1985).

characteristics of native signers accurately and noted that they themselves did not possess many of these skills. The informants had varying degrees of arthritis in their hands. Consequently, it could be argued that the data would be best characterized as a "vocabulary" of approximately four hundred signs from five (hearing) informants. As previously reported, some signs in the sample are the same as signs in ASL, BSL, or LSF (French Sign Language), and may also be common gestures in the hearing culture (e.g., EAT, DRINK).

7.4 Access to data

All of the existing data collected on Martha's Vineyard Sign Language are now available at the Chilmark Free Public Library on the island of Martha's Vineyard, including digitized videos, complete transcripts of the interviews, and signs both glossed and in Stokoe notation. Much of the data is currently accessible via their website: http://www.chilmarklibrary.org/. Not all of the data referred to herein are visible on the video because of a number of factors, including poor video quality and a lost VHS tape.)

The information in the transcripts and other print sources in the collection[22] must be evaluated with caution, as there are a number of mistaken impressions recorded. (For example, Donald L. Poole states that the deaf people attended "Gallaudet in Philadelphia," for example rather than "Hartford." At the time of data collection, he knew about Gallaudet College in Washington, DC, but I have no idea where the Philadelphia reference came from.)

The best source of genealogical data will be through Lane et al. (2011) as Groce, in her book, uses pseudonyms for most of the deaf people in the nineteenth and twentieth century.

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22 The magazine and newspaper articles contain the usual number of errors and misattributions.

8 Signs and sentences

Examples of signs not obviously related to ASL or BSL, in addition to SWORDFISH and SHARK above, include:

(1)

CRANBERRY

(2)

CODFISH (variant)

(3)

HORSE

(4)
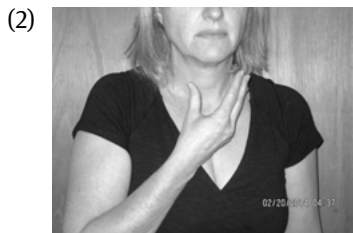
NEW-BEDFORD

(5)

OLD-MAID

(6)

TWINS

(7)

DIAMONDS

(8)

PLAYING

The following sentences are available for viewing through the Chilmark library website.

(9) I HEAR NO SHAKE-FIST-AT-GOD!
     'I can't hear, damn it.'

(10) MY HUSBAND TELL-ME TELL-YOU OVER BOAT+HOUSE CODFISH FOR YOU
     'My husband told me to tell you there's a codfish for you over in the boat-house.'

(11) DAY BEAUTIFUL
'It's a beautiful day.'

(12) MY WIFE ASLEEP
'My wife is asleep.'

(13) MY WIFE DEVIL
'My wife is a devil.'

(14) MY WIFE BEAUTIFUL
'My wife is beautiful.'

(15) MY WIFE BEAUTIFUL THAN MY DAUGHTER EMILY.
'My wife is more beautiful than my daughter, Emily.'

(16) GO NEW-BEDFORD
'Go to New Bedford.'

(17) YOU HEAR?
'Can you hear?'

(18) EVERYTHING DULL
'Everything was dull.'

(19) BOAT TWO
'Two boats'

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James Woodward, Suksiri Danthanavanich and Peoungpaka
Janyawong
26 Modern Thai Sign Language

1 Basic facts about the language

Language name: Modern Thai Sign Language. The name in the sign language appears in Figure 1.
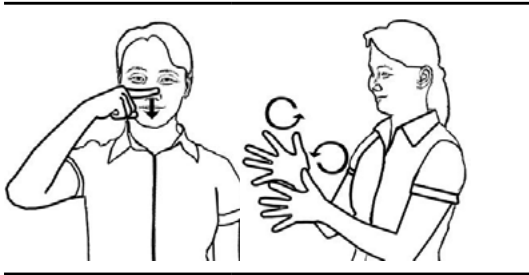
Fig. 1: Language name in Modern Thai Sign Language.

Alternative names: Thai Sign Language, TSL, ThSL, MTSL, MThSL

Location: Used throughout Thailand by signers under the age of 60 as shown in Figure 2.

Varieties: There are some lexical differences in regional parts of Thailand. The variety described in this paper is used in Bangkok, especially by Deaf adults at the National Association of the Deaf in Thailand; by Deaf adults at Ratchasuda College, Mahidol University at Salaya; and by Deaf adults in provinces surrounding Bangkok.

Number of signers: Since there has never been a census of deaf people in Thailand, the real number of signers is unknown. In 2005, Gordon (2005) estimated the number of users of MTSL to be 51,000 people. However, other estimates can also be

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Fig. 2: Map showing area for MTSL usage throughout Thailand with Thailand shown in the larger context of Southeast Asia.

made. The website at www.citypopulation.de/Thailand.html lists the population of Thailand at 67,041,000. Using United Nations estimates of 1 person out of every 1,000 person born profoundly deaf or becoming profoundly deaf at an early age, there would be an estimate of 67,041 deaf people living in Thailand. A current reasonable estimate of users of MTSL would be up to 67,000 users.

2 Origin and history

MTSL is a modern sign language that developed out-of contact of American Sign Language (ASL) with original sign languages in Thailand when the first school for deaf people was established in 1951.

Two studies (Woodward 1996, 2000) have used the Swadesh word list modified for sign language research to compare the basic core vocabulary in MTSL with the basic core vocabulary of other sign languages in Thailand and with basic core vocabulary of ASL. MTSL does not show a significant relationship to Original Bangkok Sign Language (OBSL) or to Original Chiangmai Sign Language (OCMSL). (The massive introduction of ASL vocabulary into the Thai deaf educational system severed the historical connection between OCMSL and Modern Thai Sign Language.) Modern Thai Sign Language shows strong influences (52% rate of similarity) from ASL. It should be noted that percentages of similarities in basic core vocabulary between French Sign Language and ASL is 62%.

3 Bilingualism and language contact

MTSL was not used for instruction in Thai schools for deaf people from 1951 to 1995. Of course, Thai Deaf people used MTSL outside of class during this time and still continue to do so. From 1951 to 1954, education tended to be oral. From 1954 to 1972 MTSL signs in the order of spoken Thai without voice and without the morphological characteristics of MTSL tended to be used in schools for deaf people in Thailand. From 1972 to 1997, simultaneous communication was used in most schools for deaf people in Thailand. In 1997, the first schools using MTSL in a bilingual context were established.

While there seems to be a growing interest in using MTSL in the education of deaf students in Thailand, there are still only a few programs able to do this because there are only a small number of trained and qualified Deaf teachers who are highly fluent in MTSL and are certified to teach in schools for deaf people. Ratchasuda College, Mahidol University at Salaya is steadily increasing the number of such teachers, and it may be the case that bilingual education utilizing MTSL may become the norm in the future.

4 Political and social context

4.1 Other sign languages in Thailand

In addition to MTSL, there are at least three other sign languages in Thailand: Ban Khor Sign Language, an indigenous sign language in the Northeastern part of Thailand, near the border with Laos; OBSL, an original sign language used in Bangkok before MTSL came into existence; and OCMSL, another original sign language used in Chiangmai in Northern Thailand before MTSL came into existence. The massive introduction of ASL vocabulary into the Thai deaf educational system severed the historical connection between MTSL and the original sign languages in Thailand (OBSL and OCMSL).

MTSL was recognized by the Thai government as the national language of Deaf people on August 17, 1999 (Ministry of Education 1999). No other sign languages in Thailand have received recognition from the Thai government. The government document states that Thai Deaf people should learn MTSL as their first language and learn Thai as a second language and authorizes the use of the two Thai Sign Language Dictionaries published by The National Association of the Deaf in Thailand (Danthanavanich 2008). Figure 3 shows the promulgation in Thai.

ประกาศกระทรวงศึกษาธิการ
เรื่อง การรับรองภาษามือไทยเป็นภาษาประจำชาติของคนหูหนวก

—————————

ด้วยกระทรวงศึกษาธิการได้ประกาศรับรองภาษามือไทยเป็นภาษาประจำชาติของคน
หูหนวก ทั้งนี้ให้ใช้หนังสือภาษามือดังต่อไปนี้

1. หนังสือปทานุกรมภาษามือไทย เล่ม 1 ของสมาคมคนหูหนวกแห่งประเทศไทย
2. หนังสือปทานุกรมภาษามือไทย ฉบับปรับปรุงและขยายเพิ่มเติม ของสมาคม
คนหูหนวกแห่งประเทศไทย
3. แบบสะกดนิ้วมืออักษรไทย ประดิษฐ์โดยคุณหญิงกมลา ไกรฤกษ์

ประกาศ ณ วันที่ 17 สิงหาคม พ.ศ. 2542
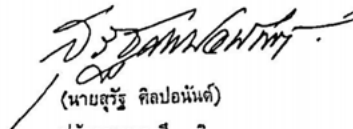
(นายสุรัฐ ศิลปอนันต์)
ปลัดกระทรวงศึกษาธิการ

Fig. 3: Promulgation for recognition of MTSL as a national language for Deaf people signed by the Permanent Secretary for Education on behalf of the Royal Thai Government on August 17, 1999.

4.2 Organizations

The National Association of the Deaf in Thailand (NADT) and its regional affiliates promote the use of MTSL. The meeting of its members is held annually. The e-mail address of NADT is nadtthai@hotmail.com.

5 The structure of signs

MTSL, like all sign languages, has a sub-lexical level of structure analogous to but not dependent on the phonological structure of spoken languages. Handshapes, orientations, locations, and movements, and non-manual expressions follow expected patterns found in other sign languages. A chart of handshapes that occur naturally (not dependent on fingerspelling) in MTSL appear in Figure 4.

Finger	closed	closed bent	open	extended	extended bent	rounded	rounded tapered	contact	contact tapered	inserted
0										
0										
(I)										
1 (M)										
1 (P)										
2 (I+M)										
2 (I+M) spread										
2 (I+M) crossed										
2 (I+P)										

Finger	closed	closed bent	open	extended	extended bent	rounded	rounded tapered	contact	contact tapered	inserted
3 (I + M + R)										
3 (I+M+R) spread										
3 (I+M+P)										
3 (M+R+P)										
4										
4 spread										

Fig. 4: Handshapes that occur naturally in MTSL.

The original fingerspelling chart for the Thai alphabet appears in Figure 5. Thai fingerspelling which is based strongly on American fingerspelling was first published in 1953. Later in year 1997, the Thai Fingerspelling Chart was republished by the National Association of the Deaf in Thailand (NADT) with some changes in drawing lines and their orders as seen in Figure 6.
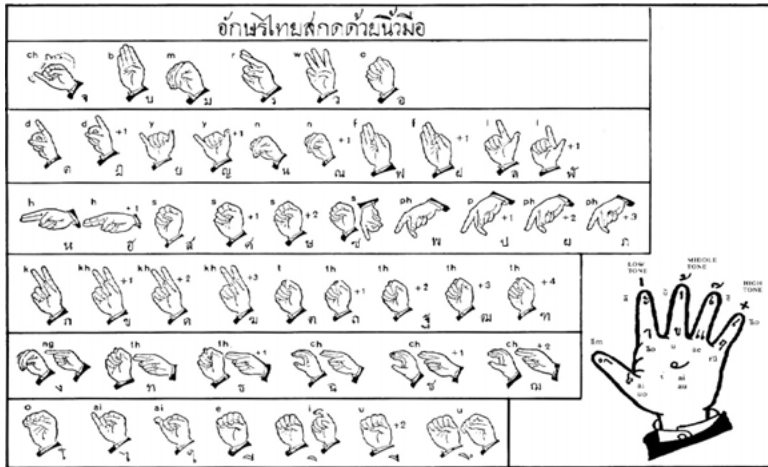
Fig. 5: Earliest form of fingerspelling in Modern Thai Sign Language.

Fig. 6: Later form of fingerspelling in MTSL used by The National Association of the Deaf in Thailand.

The sign variants observed for "China" in MTHASL offer interesting insights into phonological processes in MTSL. Figures 7 through 11 illustrate five phases of change in this sign.

China =   red   Chinese greeting
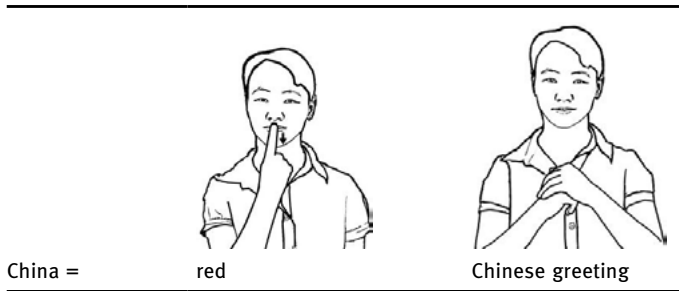
Fig. 7: "Phase 1" MTSL variant for China.

China =   red   Chinese greeting
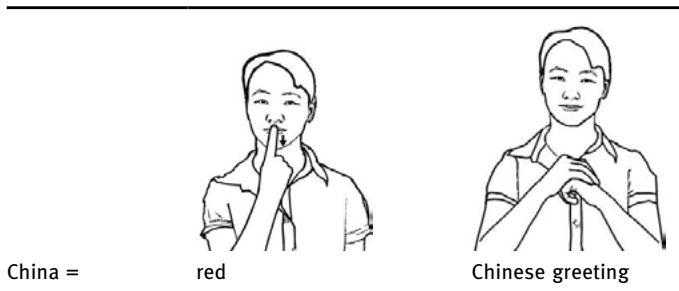
Fig. 8: "Phase 2" MTSL variant for China.

China =   red   Chinese greeting
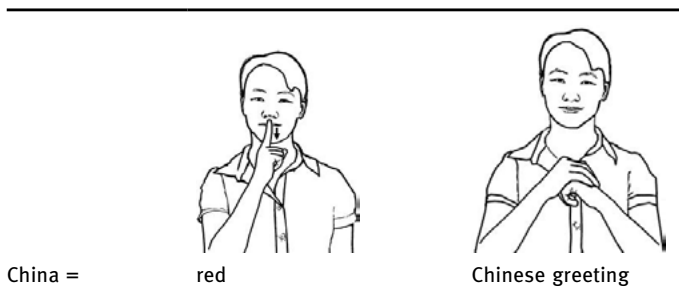
Fig. 9: "Phase 3" MTSL variant for China.

China =   China

Fig. 10: "Phase 4" MTSL variant for China.

China =   China

Fig. 11: "Phase 5" Variant for China.

As seen from the examples in Figures 7 through 11, MTSL exhibits all the common phonological processes and change found in the world's sign and spoken languages: coalescence, deletion, assimilation, compensatory lengthening as well as the less common processes of epenthesis, metathesis, and fusion. No examples of dissimilation have yet been noted.

"Phase 1" to "Phase "2"
Metathesis of handshapes in the second sign in the compound.

"Phase 2" to "Phase 3"
Regressive assimilation of orientation of handshape in the first sign conditioned by the orientation of the dominant handshape in the second sign of the compound.

"Phase 3" to "Phase 4"
Deletion of non-dominant hand.
Coalescence (two signs merge into one sign).
Epenthesis of short outward movement.

"Phase 4" to "Phase 5"
Deletion of outward movement.
Compensatory lengthening (repeated movement).
Fusion of "1" and "C" handshapes in second handshape.

6 Basic lexicon and morphology

It is interesting to note that the difference between "February" (month two) and "two months" (two month) is expressed by word order in spoken/written Thai but by separate the morphological process of reduplication in "two-months" in MTSL. This is shown in Figure 12.

February   two-months
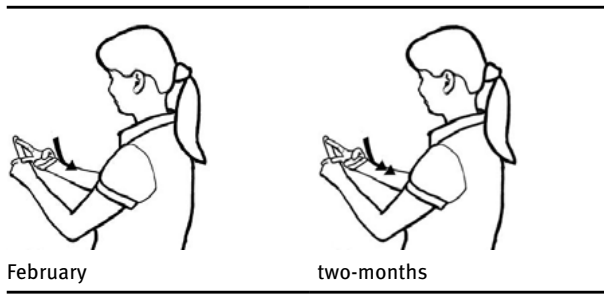
Fig. 12: MTSL signs for February and for two months.

A striking fact about the lexicon of MTSL is that there is a large set of verbs related to eating. Figure 13 lists some of these verbs related to eating.

Fig. 13: Some signs for people eating different kinds of food in MTSL.

In addition to signs for people eating, there are a number of signs related to animals eating. Figure 14 lists some of these signs.

| buffalo-eats-grass | cat-eats-fish | cat-eats-rat |
| chicken-eats-grain | pig-eats-peels | snake-eats-rat |
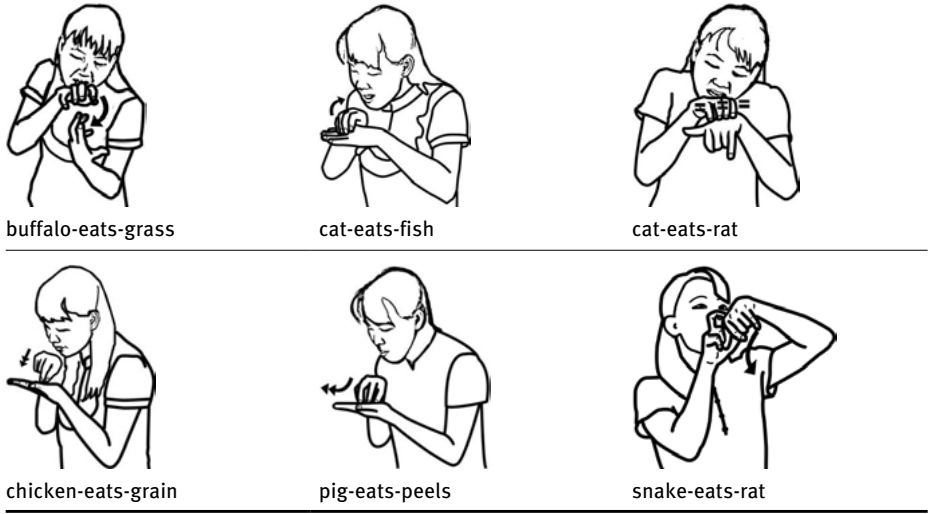
Fig. 14: Some signs for animals different objects in MTSL.

In terms of morphology, MTSL has directional verbs that indicate first person, second person, and third person. Some verbs like GIVE-A-GLASS do not change orientation or have minor changes in orientation. Other verbs like ASK radically change orientation. This is illustrated in Figure 15.

| I-gave-a-glass-to-you | you-give-a-glass-to-me | person-on-the-left-gives-a-glass-to-person-on-the-right |
| I-ask-you | you-ask-me | person-on-the-left-asks-person-on-the-right |
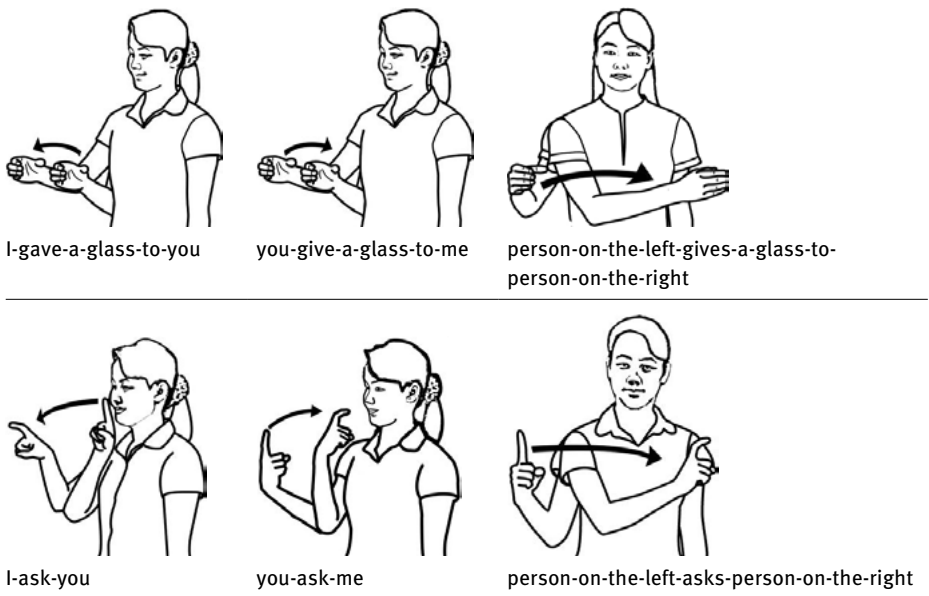
Fig. 15: Some examples of MTSL directional verbs.

MTSL has an extensive classifier system. This classifier system does not occur in OBSLor OCMSL. The development of this classifier system may be partially due to contact with ASL. However, the classifier system is very distinct from that used by ASL.

Semantic classifiers in MTSL that are different from those in ASL include, but are not limited to those shown in Figure 16. Combined classifiers in one sign in MTSL can also express very complex meanings as shown in Figure 17.

CL-person-goes   CL-bird-goes   CL-animal-goes

CL-two-wheeled-vehicle-goes   CL-four-wheeled-vehicle-goes
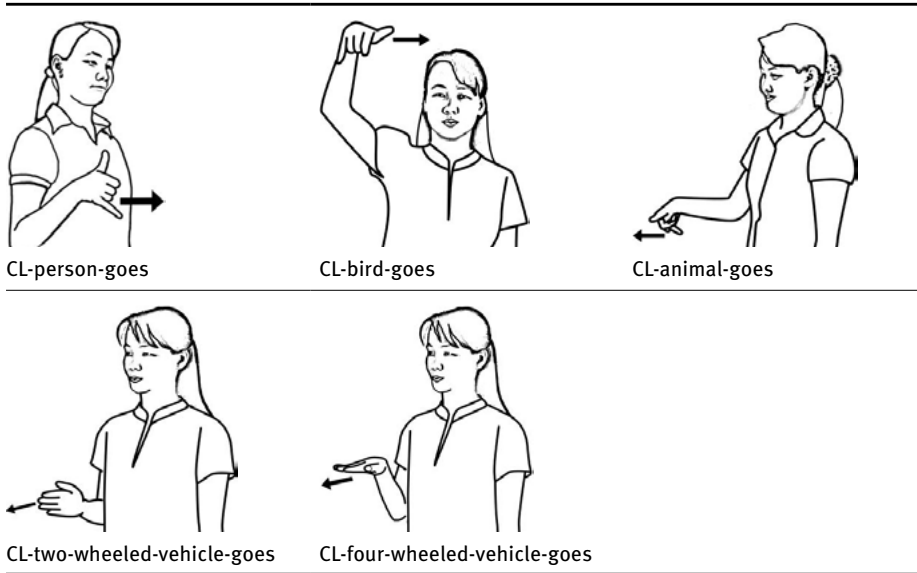
Fig. 16: Some examples of semantic classifiers in MTSL.

Person-climbs-a-tree   Bird-flies-to-and-lands-in-a-tree
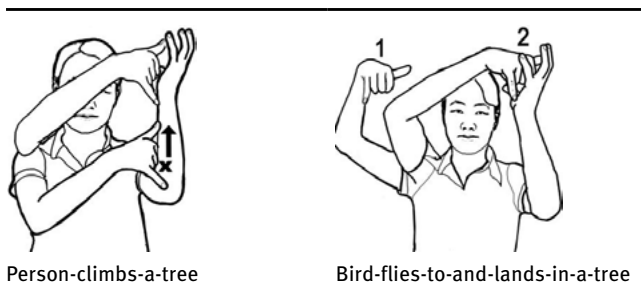
Fig. 17: Some examples of combined classifiers in MTSL.

7 Basic syntax

In MTSL phrases, modifiers (with the exception of adjectives) always occur after the head. Thus, in verb phrases, auxiliaries occur after the verb head (EAT + LIKE), negatives occur after the verb head (EAT + NOT), and long verb phrases follow the pattern: Verb + Auxiliary + Negative (EAT + LIKE + NOT). In noun phrases, adjectives normally follow nouns (APPLE + GREEN), numerals follow nouns (APPLE + TWO), and long noun phrases in MTSL follow the pattern: Noun + Adjective + Numeral (APPLE + GREEN + TWO). Some adjectives tend to precede the noun as in "THAI SIGN-LANGUAGE". More research is needed into this variation in word order.

7.1 Word Order in Simple Statements and in Simple Yes/No Questions

In MTSL, if the object is a single noun or pronoun (and not a noun phrase), the normal word order in simple statements is Subject + Object + Verb as shown in Example 1a and 1b. If the object is a noun phrase and the verb does not have an incorporated object, there are two equally possible word orders in simple statements. Example 2a illustrates one of these possible words orders: Subject + Object (Head&Modifiers) + Verb. Example 2b illustrates the second possible word order: Subject + Object (Head) + Verb + Object(Modifiers). However, if the object is a noun phrase and the verb has an incorporated object, there is only one possible word order for simple statements: Subject + Object (Head) + Verb + Object(Modifiers) as shown in Example 3.

(1) (a)

| Subject [N] | Object [N] | Predicate [V] |

Best English Translation: "The teacher eats/ate apples."

(b)

| Subject
[N] | Object
[N] | Predicate
[V] |

Best English Translation: "The teacher likes the apples."

(2) (a)

| Subject
[PRO] | Object (Head
[N | Modifiers)
AJ] | Predicate
[V] |

Best English Translation: "The teacher likes green apples."

(b)

| Subject
[PRO] | Object (Head)
[N] | Predicate
[V] | Object (Modifiers)
[AJ] |

Best English Translation: "The teacher likes green apples."

(3)

Subject	Object (Head)	Predicate	Object (Modifiers)
[PRO]	[N]	[V]	[NUM]

Best English Translation: "The teacher ate two apples."

7.2 Word Order in Simple Content Questions

In MTSL, content question words like "who", "what", "where" always occur at end of a sentence. If the subject is a content word or phrase, the normal word order in is OVS as shown in Examples 4a and 4b. If the object is a single content word, the normal order is Subject + Verb + Object as shown in Example 5. If a the object of a content question is a noun phrase, the content question has the word order Subject + Object (Head) + Verb + Object (Modifier-QW) as shown in Example 6.

(4) (a)

Object	Predicate	Subject
[N]	[V]	[QW]

Best English Translation: "Who likes apples?"

(b)

Object	Predicate	Subject	
[N]	[V]	[N	QW]

Best English Translation: "How many teachers like apples?"

(5)

Subject	Predicate	Object
[N]	[V]	[QW]

Best English Translation: "What does the teacher like?"

(6)

Subject	Object (Head)	Predicate	Object (Modifier)
[N]	[N]	[V]	[QW]

Best English Translation: "How many apples did the teacher like?"

OSV word order occurs when the object is a classifier that occurs in neutral space and the verb directly makes contact with the object from the location of the subject. Example 7 shows OSV word order under the constraints listed above.

(7)

Object	Subject	Predicate
[N]	[N]	[V]

Best English Translation: "The cat caught the snake in its mouth."

8 History of Research

Formal intensive linguistic research on MTSL began in 1979 when Charles Reilly and Lloyd Anderson started working with a group of Deaf adults collecting lexical, morphological and phonological information on MTSL. The publication of Thai Sign Language Dictionary: Book one (1986) is the result of this study.

In general, the subsequent study of MTSL has proceeded in a very individualistic manner, without much of a co-ordination among many of the researchers. The most comprehensive study of MTSL grammar is Danthanavanich (2008).

Collins-Ahlgren (1990) studied the function of MTSL handshape morphemes, including classifiers, in the spatial-locative predicates in Thai Sign Language (MTSL).

Woodward (1996) studied historical-comparative relationships between MTSL and OBSL, between MTSL and OCMSL, and between MTSL and ASL.

Lumtien (1997) in the first M.A. thesis on MTSL studied MTSL structure of the Deaf students in the schools for the Deaf. Her study revealed that the word order of MTSL used among Deaf student is different from spoken Thai.

There are several other studies on various aspects of MTSL grammar including negation (Pradapwattanangune 1998), and yes-no questions (Wudthayagorn 1998). However, these studies used students at the Sethsatian school which promotes the use of simultaneous communication.

Word order in simple sentences was examined by Woodward (1997) and in complex sentences by Danthanvanich (2004). And contrastive analyses of various aspects of MTSL and spoken Thai have been conducted by Niwatapant and Tumtavitikul (2005) and Niwatapant (2006).

Danthanavanich (2008) in the first Ph.D. dissertation on MTSL has completed the most comprehensive study on the grammar in MTSL.

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Irene Greftegreff, Tone-Britt Handberg and Odd-Inge Schröder

27 Norwegian Sign Language

1 Basic facts about Norwegian Sign Language

Language name: Norwegian Sign Language and the abbreviation NSL are used in English language texts. NSL signers use the sign which we have glossed as SIGN-LANGUAGE (Figure 1).

SIGN-LANGUAGE is a relatively recent compound of SIGN and LANGUAGE. The online Norwegian Sign Language dictionary at http://tegnordbok.no contains a video clip showing this sign in the entry *tegnspråk* ("sign language"). SIGN-LAN-GUAGE will be discussed as an example of compounding, in the Section "Examples of words and sentences".

In written and spoken Norwegian *tegnspråk* covers both Norwegian Sign Language and signed languages in general. In linguistic texts the ambiguity is resolved by using the term *norsk tegnspråk* ("Norwegian Sign Language") when referring to Norwegian Sign Language specifically. Using sign language, or speaking in sign language, is *snakke med tegn* or *prate med tegn* ("to speak/talk with signs").[2]

Fig. 1: SIGN-LANGUAGE.
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1 All illustrations in this article are made by Irene Greftegreff from original video recordings and drawings which were courteously provided by Statped and Teater Manu.
2 In a few Government documents "å tegne", which is a homonym of the Norwegian verb meaning "to draw", has been used in the sense "to sign". This usage is not acceptable to Norwegian Sign Language users.

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The Norwegian language abbreviation NTS is used primarily in linguistic texts. This contrasts with the usage of B-S-L, spoken or fingerspelled, to refer to British Sign Language, and A-S-L for American Sign Language.

In the Section "Origin and history" we have occasionally used the translations "sign language" or "the Norwegian sign language" instead of "NSL", "Norwegian Sign Language" or "signed languages", rather than update or correct the terminology of the original 19th and early 20th century authors.

Location: Norwegian Sign Language is used within Norway.

Varieties: Norwegian Sign Language signers are well aware of sociolectal and dialectal variations among signers who have attended different residential schools. So far there is no research into this type of variation, but signers refer to examples as "Skådalen sign", "Holmestrand sign",[3] etc. The examples given by NSL signers include imitations of movements and intonation patterns as well as individual sign examples.

In the next section we will discuss the division between the school for the deaf in Trondheim and other schools that persisted well into the first part of the twentieth century. Along with geographical distance this division contributed to the development of two varieties of NTS which are associated with the cities of Oslo and Trondheim, rather than with particular schools for the deaf, i.e. *Trondheimstegn* ("Trondheim sign") and *Oslotegn* ("Oslo sign").[4]

At the time of writing Schröder (1993) could still discern dialectal differences between Oslotegn and Trondheimstegn in sign movements and handshapes. Schröder's informants reported that Trondheim signs were characterized by larger movements whereas Oslo signs tended to be smaller and to cluster around the facial region. Schröder (1993) identified a middle finger handshape as being more frequent of Trondheimstegn (Figure 2, left). Schröder also noted that most of the older signers in Oslo were still using a sign with a different handshape in their sign for "town", with all fingers spreading to fully extended (Figure 2, right).

The middle finger handshape first entered into Oslotegn occurred when the priests for the deaf agreed to use a new sign for "Jesus"[5] at some time prior to World War II. Our observation is that since 1993 the middle finger handshape TOWN sign has become the standard among younger signers in Oslo. Differences between Trondheimstegn and Oslotegn are still discernible to a certain extent among older signers, while younger signers seem to be less conscious of any differ-

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3 Skådalen is a residential school for the deaf which was located in Oslo. Nedre Gausen/Holmestrand was located in Holmestrand.

4 "Oslotegn" and "Trondheimstegn" are Norwegian translations of Norwegian Sign Language terms. The original terms were somewhat ambiguous between "signs used in Oslo/Trondheim" and "signed language as used in Trondheim/Oslo".

5 http://tegnordbok.no – *Jesus*.

Fig. 2: TOWN. Sign variants as described by Schröder (1993).[6]
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ences. We take this as an indication that the signing vocabularies have become less distinct.

Number of signers: There is no census of Norwegian Sign Language signers. Official estimates of the number of signers range from 4,000 or 5,000 to 16,500 (Bergh 2004, Språkmeldinga 2008). The lower of these estimates is for the number of Deaf signers, i.e. signers with Norwegian Sign Language as a first and/or primary language. The higher estimate includes all users.

2 Origin and history

Unlike other minority languages in Norway, Norwegian Sign Language is not associated with a particular ethnic group but is instead tied to the development of the Norwegian Deaf signing community. The schools for deaf children were the first social environments where gestures could develop into a full human language.

The first indication that a signed language existed in Norway is from 1815, when Andreas Christian Møller (1794–1874) started teaching four Deaf individuals in Trondheim with signed language as the medium of instruction. Møller had received his primary education from 1810 to 1815 at the school for the deaf in Copenhagen, which was established in 1807 (Skjølberg 1989). Møller returned to the school in Copenhagen to receive training as a teacher from 1817 to 1822, and in 1825 the first school for the deaf was established in Trondheim with A. C. Møller as head teacher (Skjølberg 1989). Perhaps as a consequence of Møller's connection with the Copenhagen school the vocabulary of NSL appears to be influenced by Danish Sign Language, or a predecessor of modern Danish Sign Language (Schröder 1993).

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6 http://tegnordbok.no – *by 1* (Trondheim) and *by 2* (Oslo).

Professor Peter Atke Castberg, M. D., (1779–1823) was the founder and headmaster of the school in Copenhagen. Castberg concluded his studies in the field of deaf education with a stay at the school for the deaf in Paris, where he received instruction from the principal, the Abbée Roch-Ambroise Sicard. Some influences from Old French Sign Language may thus also be present in NSL.

In 1847 Fredrik Glad Balchen (1815–1899) stayed six months at the school in Trondheim and spent three months in Germany in order to study the different teaching approaches. At that time the Trondheim school was offering classes based on two different teaching method; the original method *tegnmetoden* ("the sign method"), in which instruction was given through the written language, fingerspelling and signing, and the *talemetoden* ("the spoken language method"), the oral method in which lipreading and articulation training replaced fingerspelling and signing.

In 1848 Balchen established a private school for deaf and hard of hearing pupils in Oslo (the capital). His school was the first and largest of several private schools (including a new private school in Trondheim). At Balchen's school young pupils without requisite skills in Norwegian would receive instruction supplemented by signs to facilitate lipreading, but as they progressed their instruction would be given in Norwegian only (Schröder 2007). There was an exception to this for pupils who were 15 years or older at admission, who were assigned to a special sign language class (Sander 1998a).

At least on one occasion Balchen's stay in Germany has been used to explain certain similarities between NSL and German Sign Language. An article in the Norwegian Association of the Deaf's member magazine from 1944 states that:

> "Our system of signs is of German origin. The late headmaster Balchen concluded his education at the schools for the deaf in Germany, and he brought the signs that were used there back home. [We assume that] many Norwegians visiting Germany have been able to conclude that the signs have not with time deviated significantly from their origin. In the same manner deviations from the Danish sign language are not very great. … Norwegian and Swedish [signers] do not understand each other only through sign language; they have to use lipreading as well." (Tegn og tale 1944: 5).

This assertion leaves out the contribution of Møller, and the writer also appears unaware that Balchen spent a mere three months in Germany, where he only visited oral method schools.

On the whole there was little cooperation between the state-run school in Trondheim and the private schools in Oslo. Exchange of teachers or pupils did not occur until after 1900, when several teachers moved from Trondheim to Oslo (Sander 1998b). Up to that time the Oslo school produced and recruited its staff independently of the state-run Trondheim school. This probably contributed to the dialectal differences between Trondheim and the rest of the country.

In 1875 Sigvald Skavlan, principal of the school for the deaf in Trondheim, wrote a short history of the school which includes a chapter on sign language with

observations on *Lokalisation* ("localization"), i.e. the contrastive use of locations of signs in space which serve to distinguish referents/discourse entities. Skavlan emphasizes the importance of three considerations for signing a narrative: The description of the *stage* where the actions take place, the *localization* of the characters and the *story*. He concludes that "Enhver Synd mod Lokalisationen forvirrer det Hele" ("any violation of [the rules of] localization creates total confusion") (Skavlan 1875: 43). This indicates that NSL had developed spatial and visual devices which are typical of signed languages.

Skavlan's understanding of Norwegian Sign Language and his support for it is exceptional for his time. In 1881 *Abnormskoleloven* ("the law for the schools for the abnormal") mandated that all schools must use only one teaching method, either the *talemetoden* or the *tegnmetoden* (Schröder 2007). The transcripts of the debate in the Lower Chamber of the Norwegian Parliament (*Lagtinget*) from 1881 show that the Members of Parliament were aware that the state-run Trondheim school would be forced to abandon one of the two teaching methods which were used there. By 1890 the Trondheim school was fully oral, and the *talemetoden* had taken over the field of deaf education in Norway, only apart from a few special classes and institutions.

An article by Havstad (1892) indicates that several sociolectal and dialectal variants of NSL existed at this time. Lars Havstad was one of the founders of the Deaf Club in Oslo. He served as vice chairman 1878–1891, and subsequently as chairman until 1894. Havstad maintained close ties to the prominent politician Johan Sverdrup (who became Prime Minister in 1885), sometimes acting as Sverdrup's private secretary. Havstad was able to influence the drafting of *Abnormskoleloven*, including the parliamentary debate where Sverdrup came out strongly in favour of the oral teaching method and spoke against any combination of methods.

In the article, "How the Deaf Converse in Norway" (Havstad 1892), Lars Havstad seeks to describe and account for the differences between "the language of the deaf in Norway" and that of other countries, including the neighbouring countries of Denmark and Sweden. According to Havstad the Norwegian language of the deaf is characterized by extensive use of mouthing and lipreading, and close adherence to the spoken language syntax. Manual signs are used sparingly, mostly to facilitate lipreading. For an explanation Havstad points to the strong oralist tradition on Norwegian deaf education, and he also demonstrates that only about one in five among the graduates from the schools for the deaf had attended "the old institution" in Trondheim, while the majority had attended schools with predominantly or pure oralist teaching methods. Havstad regards the oral method and the compulsory education of the deaf as important improvements.

> The consequence of the improvements has been that speech is constantly gaining ground. The spoken word now can be said to be the real basis of the language of the average deaf. Signs are chiefly used as a means of facilitating lip-reading, and they have lost much of their elaborateness and completeness (Havstad 1892: 115).

Havstad writes that older signers reported to him that they used to differentiate the manual signs for "woman", "wife", "mother" and "maiden", but that they were now using only one manual sign for all of these concepts.[7] Havstad describes communication with a typical Trondheim signer as slow, because the Trondheim signer would fingerspell rapidly and use more "elaborate" signs, while his Oslo area conversation partners would use the manual alphabet only slowly and clumsily, and instead rely on mouthing and lipreading.

Havstad's account of the language of the deaf is to an extent self-contradictory, as it is evident that the language does in fact contain dialectal and sociolectal variants as regards the amount and role of mouthing, lipreading and voicing. The variants which were closest to spoken Norwegian appear to be used mainly among the so-called "intelligent deaf" in certain areas of Norway (or by those who would like to appear as such). Havstad (1892) can be read as a normative account of how deaf people ought to converse with each other in Norway.[8] In the conclusion to the article Havstad laments how the deaf are holding each other back:

> But there can be no doubt that the transition of the language of the deaf from signs to speech will be much retarded in places where there are large gatherings of the deaf using signs only. The small minority must speak as the large majority do. There lies, in a nutshell, the chief cause of the opposition on the part of the deaf to the oral method (Havstad 1892: 118).

Havstad's views did not go unopposed at the time. Three other Deaf men in Oslo, Carl Werner, Axel Fleischer and Ragnar Ziener, edited and published the magazine *Journal for Døve* ("Journal for the Deaf") at their own expense. During the years 1890–1894 the Journal published several contributions on signed languages. An anonymous writer, s.r., complained in 1892 that the Norwegian sign language was declining into abrupt movements, unlike the elegant Swedish sign language (Journal for Døve, 1891: 6). In contrast to Havstad the anonymous writer did not find this a cause for celebration. Ziener wrote in 1893 that sign language would never die as long as there were deaf people (Journal for Døve, 1892: 4 and 7). Carl Werner (1850–1904), a shopkeeper, translated several articles from German and English which argued that sign language is beautiful, and that signing must regain its place in the schools for the deaf. The articles in the Journal argued that the educational problems of deaf pupils were caused to excessive articulation training in the spoken language, to the detriment of instruction in the proper school subjects.

The conflict between these two views on NSL and teaching methods was to continue. Most Deaf people were now functionally bilingual, but their attitudes toward NSL varied. Some were proud of their storytelling skills, and were praised

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7 Cf. the sign WOMAN in Figure 9.
8 Lars Havstad and Halvard Aschehoug were the first Norwegian deaf students to complete the final examination of the upper secondary school, the *examen artium* in 1871. The examination qualified the student for admission to university studies. They were tutored by Balchen.

by other members of the Deaf community, while others took pride in their Norwegian language skills, i.e. lipreading, speaking and writing Norwegian well, and did not especially value their NSL skills. Deaf children could communicate freely in NSL only in dormitories and schoolyards, and not in the classrooms, and as adults they would normally use Norwegian with their hearing family members. A few deaf adults went so far as to use speaking and lipreading with minimal sign support even with their deaf children and spouses.

In the meantime some important developments took place. At the end of the nineteenth century deaf clubs were established in all major Norwegian cities, starting with the Deaf Club of Oslo in 1878. In the following century several of these local associations acquired their own buildings, sports cabins and other recreational facilities, even retirement homes. Members were able to join clubs within these associations, such as ladies clubs, youth clubs or sports clubs. Members could also participate in activities, such as bridge and chess, reading circles, etc.

In 1893 the Oslo Deaf club obtained Government funding to employ a local priest to the deaf in a part time position, and also to provide sign language instruction for the priest. In 1894 the Oslo club sold their club house and bought a church. In 1895 the priest's parish was extended to all of Norway and the priest became employed in a full time position in the Church of Norway, the Protestant Lutheran State Church of Norway (Aspen 1996).

The national organization of Deaf clubs (NDF) was established in 1918. Apart from organising Deaf clubs, the NDF cooperated with the priests to the deaf in the Church of Norway to establish more clubs across the country. Several clubs were thus established as Christian Deaf clubs (Norwegian: *kristelig døveforening*). A priest to the deaf in the Church of Norway might use some variety of signed language, or speech accompanied by sign, or any of the two according to occasion, but the congregation members were free to communicate in NSL amongst themselves. The Church and the Salvation Army's acceptance of signing/NSL contrasted with the situation in schools, where signing was banished from the classrooms, and only tolerated in dorms and schoolyards.

Gradually, with the ongoing secularization of Norwegian society during the twentieth century, Deaf clubs and congregations were separated, with only their memberships overlapping to a certain extent. During this time, schools, congregations, clubs, and the local and national Deaf organizations together constituted the social environment which nurtured NSL and established it as a language capable of serving the diverse needs of the Deaf, contributing to a growing sense of community. Deaf people had created for themselves the opportunity to use and develop NSL in various contexts.

The first General Assembly of the NDF in 1920 called upon the local Deaf Clubs to work towards a common Norwegian "beautiful sign language" (Sander 1993: 23–24). At the second GA in 1924 the Board was instructed to form a committee which would standardize signs from "the four parts of the country" (Sander 1993: 32), but

apparently nothing came of it. Instead, the third GA (1928) lauded the dictionary work of the Oslo Deaf Club, and encouraged the Club to continue. This local initiative stalled, eventually, but the work revived by the NDF Board in 1939, as a committee with two members were tasked to finish the work. The committee finally published a list of 1,629 standardized signs in the NDF magazine (Tegn og tale 1944: 5–9). There were no illustrations of individual signs, only of handshapes. The signs were transcribed with a system which was developed by Johannes Iørgensen for Danish Sign Language (Iørgensen 1926).

As we do not have visual records of signing from this period it is hard to tell what impact their work had on NSL, but the list of signs did not succeed in obliterating variation. Some signers also rejected the proposed signs, e.g., the sign for *ugle* ("owl"), because they had "never ever seen anybody use that sign" (Schröder, personal communication with relatives).

In 1946 the NDF committee was instructed to work on a dictionary with photographic illustrations of the signs. Their work did not result in a Norwegian Sign Language dictionary, as the NDF board decided to work for a gradual merging of the signed languages of the Nordic countries, in 1950. The projected Norwegian – and more or less Nordic – dictionary was never completed, however, and the committee was dissolved in 1968.

The most far reaching attempt to reform and standardize NSL occurred in the following decade, the 1970s. At this time the educational method in the schools for the deaf shifted towards a modern version of the "mixed method", the Total Communication philosophy, which included use of NSL, or rather sign supported Norwegian. After nearly a hundred years of disuse in schools there was a dire lack of signed terminology. The NDF, which, from its inception, had campaigned a return to signed language/sign based instruction, moved to fill the void. The new committee which was responsible for this work was selected by the NDF Board, and was known by the acronym TSU.[9] The TSU chairman, for as long as it existed, was Thorbjørn Johan Sander, the only remaining member from the previous committee.

When no suitable signs for a concept could be found in any dialect, the TSU either constructed new signs or imported signs from another signed language, e.g., as with the Danish Sign Language kinship signs for "mother", "father" and "grandfather/mother". Over time the TSU also developed a new vision, to create a new code which they called *Tegnspråknorsk*.[10] This code would have a one-to-one correspondence of the sign vocabulary with Norwegian vocabulary items, with spoken/mouthed words accompanying every sign, as well as an adherence to Norwegian syntax. To this aim the TSU also invented sign affixes to represent the Norwegian language genitive and past tense. Tegnspråknorsk was originally intended as a first

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9 *Tegnspråkutvalget*, "the sign language committee".

10 "Signed Norwegian", or literally, "Sign Language Norwegian".

language for deaf children and their family members, and as a medium of instruction in deaf schools. The development of Tegnspråknorsk was part of a contemporary trend in deaf education, and comparable to projects like Signing Exact English (SEE-II) and similar systems in the USA, and Tecknad Svenska in Sweden. So far there was nothing exceptional about Tegnspråknorsk.

At a distance of forty years it is hard to say exactly which part the NDF Board and TSU, or their individual members, played in the subsequent development of the Tegnspråknorsk utopia. In any case, around 1975, Tegnspråknorsk was increasingly touted as the new, proper and correct signed language for the future, to be used not only in schools or in hearing families with deaf children, but in the Deaf community as well. Proponents of the utopia believed, and opponents began to fear, that while older signers would go on using NSL, Deaf children would learn Tegnspråknorsk in school and from their parents (who would attend courses in the new signed language), so eventually this new standardized and proper language would prevail over "slang signs" and dialects.

This vision of the future was reflected by the usage among Deaf signers, "new signs" vs. "old signs" for Tegnspråknorsk vs. NSL. General statements like "I prefer to use old signs" or "new signs are better" were frequent at the time. Tegnspråknorsk was also used in the highlighted "gala performance" at the annual Deaf Festival of Culture (*Døves Kulturdager*). In 1977 the Oslo Deaf Club's theatre group performed "Romeo and Juliet" in Tegnspråknorsk, followed by another Tegnspråknorsk performance from the Bergen Club in 1978, and from the Telemark Club in 1980. Only the Trondheim Deaf Club resisted this trend, in 1979. By this time the tide was turning.

Supporters of Tegnspråknorsk had dominated the NDF General Assemblies for a long period (Peterson 1997), but following the 1980 General Assembly, the new Board appointed three new members who were sceptical of Tegnspråknorsk to the TSU. In 1983 the resulting internal conflict in the TSU became public in a debate in the NDF magazine, culminating when the chairman Sander accused another member of disloyalty to NDF's signed language policy. The NDF Board promptly terminated the debate in the magazine,[11] and the TSU was dissolved in 1984.

Following a Nordic conference on signed languages in Oslo in 1985, the NDF Board made a stand in favour of NSL. The Board now moved to establish a new committee, AKTA,[12] which was to work for recognition of NSL and the rights of NSL users. As part of this work, AKTA was to inform the general public and the sign language community about NSL varieties. To this effect, AKTA produced a video which demonstrated the differences between the artificial code Tegnspråknorsk and genuine NSL varieties. The NDF also established an Institute for Sign

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11 Sander was also the editor of the NDF magazine.

12 Aksjonsgruppen for tegnspråkarbeidet, roughly translatable as "the action committee for signed language issues".

Language Research in 1989.[13] The NDF also re-defined itself as "primarily an organization for sign language users, which works to improve the status of NSL in all areas of society".

3 Bilingualism and language contact

Starting in 1985 the NDF has actively campaigned for NSL as the proper medium of instruction for deaf children. The association's long-term persistent work has brought notable results. Since 1996 deaf children have an individual right by law to choose Norwegian Sign Language as their language of instruction.[14] The 1997 national curriculum established NSL as a major school subject on par with Norwegian in the education of Deaf children. The current version of the Education Act relating to Primary and Secondary Education (Opplæringslova 2009) states:[15]

> Pupils who have sign language as their first language or who based on an expert assessment need such instruction, have the right to primary and secondary instruction both in the use of sign language and through the medium of sign language. The content of the education and the amount of time allocated to are decided in regulations pursuant to Section 2–3 and 2–3 of this Act. ... (Section 2–6 Sign language Instruction in the primary and lower secondary school.).

> Young people who have the right to upper secondary education pursuant to section 3–1 and who have sign language as their first language or who, following an expert assessment, need such instruction, have the right to choose upper secondary education and training in and through the medium of sign language in a sign language environment as defined in the second paragraph or the right to use a sign language interpreter in ordinary upper secondary schools. (Section 3–9 Sign language instruction in the upper secondary school.)

There is a caveat, however. Although deaf children have the option of an education in and through Norwegian Sign Language, it is in fact their parents who are responsible to choose. The other option is to choose spoken (and written) Norwegian as their child's first language and language of instruction. In these cases, Norwegian can be the sole language, or it can to some degree be supplemented with NSL. The choice is expected to be made freely by the parents and is not to be influenced by consultants or teachers, who are mandated to inform, but not to instruct or advise. In other words, however deaf the child may be there is no guarantee that they will receive NSL instruction.

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13 Due to insufficient external financial support the Institute closed in 1991.
14 The 1996 law went into effect in the autumn term of 1997.
15 The quotes are from the official English translation of the Education Act.

The majority of Deaf pupils in primary and lower secondary school now mostly attend their local school and will hopefully have a teacher who is reasonably fluent in NSL. Each year the pupils also have the option to stay for a few weeks at a school for the deaf to socialize with other Deaf pupils and to improve their NSL skills.

Pupils who receive instruction according to Section 2–6 and Section 3–9 follow the compulsory national curricula as hearing students, and the additional subjects of Norwegian Sign Language, Norwegian for the deaf and severely hard-of-hearing, English for the deaf and severely hard-of-hearing, and Drama and rhythmics for the deaf and severely hard-of-hearing, which replaces Music.

In 1996 teachers in primary and lower secondary school who were to teach Deaf pupils according to the new Education Act, were offered a course in NSL which was provided by the University of Oslo. All expenses, including substitute teachers, were covered by the Government. Currently, a 60 ECTS part-time NSL course which teachers are eligible to attend is offered at the University College of Trondheim. This course is part of the regular studies program, and not subsidized by the Government.

In 1995–1996 The Ministry of Education also drew up plans for courses in bilingual teaching methods, but for reasons unknown these courses were not implemented. Although Deaf children have a right to education in their first language, and their teachers have received some education in NSL, the teachers have not been trained in how to teach according to a bilingual and bicultural philosophy. Although there have been brief courses and lectures on how to teach according to the bilingual approach there is a running debate on methods and teaching practices (Schröder and Vonen 2008).

Since 1996, parents of Deaf children who have chosen NSL as the child's first language, can participate in a study programme in NSL called *Se mitt språk* ("See My Language"). The programme consists of 40 one-week-long modules, which are given at intervals until the child is 16 years old. Parents may enter the programme as soon as the hearing status of their child has been assessed. Expenses are jointly covered by the Government and local municipalities (Liltved 2003, 2006). The objectives are that the parents will learn to communicate effortlessly and fluently with their children, gain an insight in and an understanding of their child's bilingualism, Deaf culture and Deaf history, as well as learn about the rights of the deaf or severely hard of hearing child and its family in the public welfare system and the school system. The number of participating parents has been increasing steadily from the beginning.

3.1 Upper secondary education

Since 1997 the Norwegian counties[16] have been responsible upper secondary level education of deaf students, and have established five *knutepunktskoler*, i.e. centralized schools. These schools provide teaching in NSL and/or NSL interpreters in mainstreamed classes. The actual form of education varies between schools. For example, Nydalen Videregående skole in Oslo uses NSL as the medium of instruction for most of subjects, while the other schools chiefly use interpreters in mainstreamed classes.

4 Political and social context

NSL is recognized as a Norwegian minority language in a white paper from the Ministry of Culture and Church Affairs (Språkmeldinga 2008). A new NSL advisor position in *Språkrådet* ("The Language Council of Norway") was established as a direct consequence of recommendations in the white paper. The advisor is responsible to cooperate with organizations and professionals in the field and to gather information about NSL. Informing about NSL in NSL is an important part of the job. The advisor is also a consultant to public institutions and to the general public, and provides information to NSL users about their linguistic rights.

The *NRK* ("The Norwegian Broadcasting Company") has provided daily news broadcasts in NSL by Deaf presenters since 1989. NRK also broadcasts other TV programs in NSL on a regular basis. The NRK Sign Language Channel broadcasts interpreted programs on NRKs main channel NRK1 every evening from 6.00 to 9.30 PM.

The Government provides free interpreting services and technical equipment. The governmental Interpreting Service covers the need for interpretation in deaf and hard of hearing people's everyday life, work and education.

4.1 Schools for the deaf

As indicated above most children attend a local school for the better part of the school year, combined with a stay of 4–12 weeks at a school for the deaf. The full time pupils have served as NSL models to the part time pupils. At the time of

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16 Norway is geographically divided into multiple counties (*fylke*, pl. *fylker*) with multiple municipalities (*kommune*, pl. *kommuner*) within each *fylke*. Since *fylke* is normally translated as "county" in dictionaries and school books, we have used the translation "counties" here. The first 10 years of schooling (approximately age 6–16, upper secondary education) are governed by the *kommune*, while the next 3 years are governed by the *fylke*.

writing (April 2014), the Norwegian government has reached a final decision to permanently close all state-run primary and lower secondary schools for the deaf, only except for the Trondheim school, which will now accept full time pupils from the whole country.

We are concerned about the consequences for the language rights according to Sections 2–6, especially for deaf children who live outside the major cities. There will be only one state-run school with a group of full time pupils who can act as NSL models to part-time pupils, and obviously this school cannot serve the whole country. In addition, the municipal schools in Oslo, Stavanger and Bergen which have deaf units have no legal responsibility to offer instruction to pupils from outside their municipalities, and at the time of writing they do not provide boarding.

4.2 Organizations of/for NSL users

Norges Døveforbund (NDF, "Norwegian Deaf Association"), founded in 1918, is the national association of Deaf people in Norway. NDF is a member of the WFD (World Federation of the Deaf), the EUD (European Union of the Deaf) and the DNR (Døves Nordiske Råd, "The Nordic Council of the Deaf"). The NDF defines itself as the organization of NSL users. Its working languages are Norwegian Sign Language and written Norwegian.

Two foundations established by NDF receive considerable financial support from the Government for their productions in NSL. The first, Teater Manu, is a professional NSL theatre in Oslo, established in 2001. All performances are made accessible to non-signers through voice-over by a professional actor. The second foundation, Døves Media, is a visual media production company that produces programs in NSL for the NRK, including drama series.

The *Døvekirken* ("Church of the Deaf") is the association of Deaf congregations within the Lutheran church *Den norske kirke* ("Church of Norway"), the Norwegian State Church until 2014. The Døvekirken has a policy of using NSL in all contexts.

The *Foreningen Norges Døvblinde* (FNDB, "Norwegian Association of the Deaf-Blind") was established in 1978. The *Landsforbundet for kombinert syns- og hørselshemmede/døvblinde* (LSHDB, "National Association for Combined Visual and Hearing Impairment/Deaf-Blind") was founded in 1997. The *Foreldreforeningen for døvblinde* (FFDB, "Association of Parents to Deaf-Blind") is an organization of parents of congenitally deaf-blind children.

A sub-committee of the Norwegian sports association, *Norges Døveidrettsutvalg* (NDI, "Norwegian Sports Organization for the Deaf")[17] is responsible for serving the Deaf population.

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17 Their translation.

Signo is an independent freehold diaconal foundation within the Church of Norway. Signo was established in 1898 by the first priest to the deaf in Norway and *Det norske lutherske Indremisjonsselskap* ("The Norwegian Lutheran Home Mission Society", current name *Normisjon*), an independent association within The Church of Norway. Signo provides social services in Norwegian Sign Language to deaf and deaf-blind individuals with special needs. Other forms of visual/tactile communication may be used, according to the needs and preferences of the person.

5 The structure of signs

Handshape and orientation are the only internal aspects of signs that have been investigated to date. Greftegreff (1990) is a preliminary investigation of NSL handshapes. She starts with the Hand-Tier Model proposed by Sandler (1989) for American Sign Language. Greftegreff (1990) accepts the basic division of handshape features into selected fingers and finger positions, as well as sequential constraints on finger positions which limit the range of possible hand internal movements. However, Greftegreff found that the actual features and constraints in the Hand-Tier Model cannot be directly applied to NSL, because there are degrees of flexion and extension of the fingers in NSL signs which cannot be accurately described with the fairly limited set of position features proposed in Sandler (1989).

The problematic cases which are discussed in Greftegreff (1990) relate to intermediate degrees of flexion vs. extension of the finger, illustrated by the handshapes of the signs in the entries *håndball*, *eple* 1 and *blyantspisser* 1 ("handball", i.e. the team sport handball, "apple" and "pencil sharpener") in the NSL online dictionary at http://tegnordbok.no. The feature set in Sandler (1989) allows a distinction between the closed opposition handshape, seen in the sign PENCIL-SHARPENER, and the open opposition handshapes, seen in the signs HANDBALL and APPLE. However, the handshapes for the signs HANDBALL and APPLE cannot be distinguished from each other, because their position feature sets are identical. An identical problem exists with handshapes with adducted fingers. Greftegreff (1990) finds that Sandler's feature set conflates the closed fist handshape with another handshape that has curved and adducted fingers. Examples can be seen in the entries *evig* ("eternal") and *bolle (skål)* ("small bowl") in the NSL dictionary. Greftegreff (1990) argues that the feature set consequently needs to be extended, and she tentatively suggests a feature [wide]. Exactly how this feature is to be defined in anatomical terms is left largely unanswered.[18]

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18 Greftegreff's dissertation (in progress) will propose a principled solution for this and other related problems.

Greftegreff (1990) adds that there is an iconic motivation in many of the signs which require a more elaborate set of position features, i.e. many of these signs clearly originate from the productive lexicon as they involve handshapes that refer to the shape and handling of objects. This iconic motivation may be the factor that prevents the handshapes from converging, an issue which is also raised in Brentari and Eccarius (2011).

Greftegreff (1991) focuses primarily on finger orientation, but also makes the claim that the values of the position features [bent] and [open] (Sandler 1989) are non-distinctive and conditioned by finger orientation. This claim is supported by data from Dutch Sign Language (van der Kooij 2002). In anatomical terms, there are no distinctive finger positions based on extension vs. flexion in the MCP joint when the PIP joint is extended.

Regarding orientation of the hand(s) in a sign, Greftegreff (1991) clearly contradicts the conventional definition of orientation as (effectively) the orientation of the palm, as originally proposed by Battison (1974). Greftegreff (1991) finds that the logical consequence is that orientation needs to be re-defined as the orientation the finger configuration and not that of the palm (cf. the definition of finger orientation as the orientation that would result if the fingers were straightened, other factors constant). Implicitly also, rotation needs to be defined with respect to the specified fingers, and not the palm orientation. This does of course make specification of orientation somewhat more complicated, due to the different positions and sequential positions which the fingers can assume. The rules for this are not specified in Greftegreff (1991), and further research is thus needed in order to arrive at a consistent account of finger orientation.

The manual alphabets and the number signs also contribute to the NTS inventory. Handshapes from the Norwegian manual alphabets (cf. Section "Associated sign systems") are found in initialized signs, where the handshape of the sign is based on the first letter of the word or name. This can sometimes result in a sign with a handshape which is not otherwise found in the regular or core inventory of signs, e.g., the crossed finger handshape R in the one handed alphabet. As fingerspelling is a low frequent phenomenon in NSL, handshapes in initial signs were omitted in the analysis of handshapes in Greftegreff (1991). Number signs also show irregularities and were excluded for similar reasons.

The influence from gesture tends to be almost imperceptible, except when it produces irregularities, as in the NSL sign SCOUT.[19] As far as we can tell SCOUT and a variant sign THREE[20] are the only signs in NSL where the fingers 2, 3 and 4 (index, middle and ring fingers) are the selected fingers.

According to Greftegreff (1991) there is only one handshape with selected finger 3 (middle finger), the handshape in the sign TOWN (Figure 2). The handshape with

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19 http://tegnordbok.no – *speider*.
20 The variant in question is used by some younger signers.

fully extended finger 3 was not found. Since then a "reverse" middle finger hand-shape, with fully extended finger 3 and other fingers flexed has become more fre-quent. It now appears to be productive among younger signers in the Oslo area, possibly also in other areas of Norway. Signs with this handshape can now be modified for location, number, intensity, etc. If this development continues, the assertion in Greftegreff (1991) that there is only one middle finger handshape in NTS must be revised.

6 Associated sign systems

6.1 Manual alphabets

Two different alphabets are in use, one one-handed and one two-handed ("Norsk enhåndsalfabet" 1996, "Norsk tohåndsalfabet" 1996). The one-handed alphabet de-scends from the alphabet illustrated in Bonet (1620), and probably came via the schools in Paris and Copenhagen.

The two-handed alphabet shows similarities to the British two-handed alpha-bet. The main difference is found in the representations of vowels. The two-handed alphabet has mostly been limited to the south-eastern part of Norway (around Oslo), its core users being former pupils of the schools Holmestrand and Skådalen. The two-handed alphabet appears to be on the decline as it is rarely observed among signers under the age of fifty-five, but a slightly different version of it con-tinues to be used by deaf-blind signers.

6.2 Manual codes

Several signed language varieties which show extensive borrowing from Norwe-gian spoken language vocabulary as well as Norwegian spoken language syntax are attested since the second half of the 19th century. The names given to these varieties have changed over time, e.g., "proper signing" (*ordentlig tegnspråk*), and later, "sign and speech" (*tegn og tale*).

Current terms for codes which aim to represent Norwegian through NSL signs and lipreading are NMT (*Norsk med tegnstøtte*, "Sign supported Norwegian") and TSS (*Tegn som støtte*, "Signs as support", i.e. for lipreading). These codes rely on actual NSL signs

Tegnspråknorsk (cf. the Section "Origin and history") contains a large number of signs which are construed. Tegnspråknorsk is no longer in use among members of the Deaf community, but Tegnspråknorsk is still used to some extent in individu-al programs for children and adults with intellectual disability and/or with delays in oral language development.

6.3 Adaptions for/by Saami users

The largest indigenous minority in Norway is the Sámi or Saami. Estimates of the number of speakers of Sámi languages vary between 10,000 and 20,000. The number of deaf Sámi individuals is quite small, with only a couple of Deaf signers per generation.

Sámi parents who choose NSL as first language for their child are able to attend NSL courses (cf. "Bilingualism and language contact"). Mouthings which are based on Norwegian loan words can be replaced by mouthings based on Sámi words, but signs for Sámi culture-specific concepts like *doudji* (Sámi handcraft), *lavvo* (Sámi tent), and Sámi kinship categories were not included in the NSL courses. So far, three productions of teaching materials showing signs with North Sámi word pictures (moutings) have been released on CD-ROM and DVD.

Around 1995 the teaching materials division of Statped started work on charts of the Norwegian one-handed and two-handed manual alphabets ("Norsk enhåndsalfabet" 1996, "Norsk tohåndsalfabet" 1996).[21] A Sámi version of the one-handed alphabet followed shortly. The Sámi fingerspelling alphabet consists of the Norwegian one-handed alphabet supplemented with additional signs for letters which are unique to Sámi (Figure 3). The new signs combine elements from the existing one-handed alphabet.
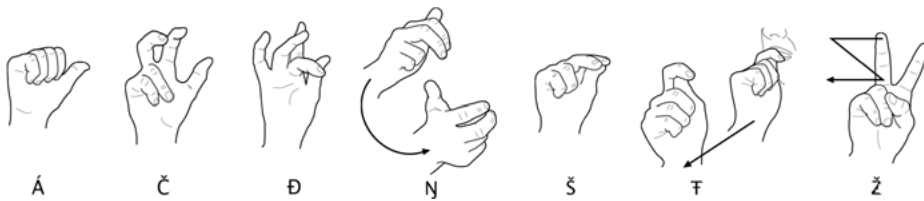
Fig. 3: Additional Sámi fingerspelled letters in the one-handed manual alphabet.
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7 Basic morphology and lexicon

As for morphology, NSL does not appear to be a trove of new finds when compared to other signed languages of Western Europe and the USA. An exception to this was the seminal work of Vogt-Svendsen (1981) on the oral component of signs (i.e. the mouth movements that accompany signs). In contemporary terminology

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21 Statped is the national service which provides special education services, mainly in a mainstreaming context.

mouthings are loans from spoken/written language, while mouth gestures originate from within the signed language. Vogt-Svendsen showed that mouth gestures can be an obligatory part of a sign, and that mouth gestures can act as adverbials. Schröder (1985) shows FOX and WOLF (Norwegian *rev* and *ulv*) are distinguished only by the mouthings /rev/ vs. /ulv/[22] Schröder argues that mouthings also need to be included in the phonological representation of NSL signs. The issue is somewhat complex, as there is some variation among signers in the choice of mouthings versus mouth gestures. An example is the two different entries for ARRANGERE ("initiate, organize") in the NSL dictionary, one with a mouthing and the other with a mouth gesture.[23]

There appears to be no such word classes as verbs and nouns, and consequently no noun genders, or definite vs. indefinite, or tense markings. Interrelated events can be ordered along "time lines" in signing space (Selvik 2006).

Signs which originate from within NSL are frequently based on iconicity, i.e. the form is motivated by some aspect of the referent (Sutton-Spence and Woll 1999). Motivation does not exclude arbitrariness and conventionality as originally defined by Saussure (1916). New signs can be created by modifying existing manual signs with a similar meaning, or by modifying the accompanying mouth movement of a sign (Schröder 2006; Vonen 2006).

Fingerspelled loan words are rare and quite short, as in The United Nations (F-N), The European Union (E-U) or The World Federation of the Deaf (W-F-D). These fingerspellings are accompanied by mouthings, e.g., /ef en/ with F-N. Fingerspelling is also used to introduce unfamiliar names or terms, e.g., in news broadcasts. As a rule, personal names are not fingerspelled. Exceptions are a few short names, like Ida. Initialized signs, where a handshape from the manual alphabet is included in the sign, are mostly limited to name signs, e.g., C at the chin for "Charlotte".

Translations from Norwegian compounds are frequent, e.g., SIGN-LANGUAGE (Figure 1).

Many name signs are nicknames which are based on some characteristic or event associated with the person. Some may be ironic, like the sign WINE[24] as the name sign for a person who hardly consumes any alcohol.

Name signs are transferred between persons, and extended to a name sign for all persons with a similar name. The NSL dictionary entry "Per"[25] contains a sign which was originally the name sign of Per Person, a Deaf Swedish teacher who worked the state-run school for the deaf in Trondheim. His name sign is almost identical to the sign SWEDISH.[26] (In SWEDISH all fingers of the dominant hand are

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22 http://www.tegnordbok.no – *rev* (fox) and *ulv* (wolf).

23 http://www.tegnordbok.no – *arrangere 1* (mouth gesture) and *arrangere 2* (mouthing /arrangere/).

24 http://www.tegnordbok.no – *vin*.

25 http://www.tegnordbok.no – *Per*.

26 http://www.tegnordbok.no – *svensk*.

active, or selected. By contrast only the thumb, index and middle are selected in PER, with finger 4 and 5 non-selected.) The sign PER is presently used by Trondheim signers and younger Oslo signers as a name sign for any person by the name.

A few name signs are translations of names which are regular words in Norwegian, e.g., Bjørn ("bear") and Stein ("stone"), i.e. BEAR and STONE.[27] They can also be used for any person by the name.

Perhaps unique to NSL is that name signs are not limited to first names, because surnames and "middle names" are regularly signed as well, e.g., Harald Berg Mevik (Schröder 2014).

Surname signs are regularly "inherited" in Deaf families, as for instance the name signs for Schröder, Handberg and Greftegreff.

8 Basic Syntax

NSL negation, interrogatives, topicalization and conditionals are marked by non-manual signals which occur simultaneously with one or more signs.

In her dissertation on NSL interrogatives Vogt-Svendsen (1990b) distinguishes between x-questions and yes/no questions, e.g., "What book did the man forget?" vs. "Did the man forget the book?" She found that X-type interrogatives have a different facial marking (knit eyebrows) than yes/no questions (raised eyebrows).

(1) [MAN FORGET BOOK] + gaze toward recipient + eyebrow raise
     "Did the man forget the book?"

(2) [WHO FORGET BOOK] + gaze toward recipient + knit eyebrows
     "Who forgot a/the book?"

In the examples above certain details as to localization have been omitted.

Apart from Vogt-Svendsen's work on non-manual signals very little research has been carried out on NSL syntax. Future research needs to pay particular attention to, and account for, among other things, word (sign) order in the context of topicalization, the use of virtual objects in space (Erlenkamp 2011), as well as complex verbal phrases (Bø 2012).

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27 http://www.tegnordbok.no – *bjørn* and *stein*.

9 Examples of words and sentences

9.1 Examples of words

SIGN-LANGUAGE (Figure 1) is a compound of SIGN and LANGUAGE, dating from around 1970. Prior to this time, NSL signers did not refer to signing as speaking a particular language, but to knowing or using signs, e.g., "he signs", or "he knows how to sign", and SIGN (Figure 4) was used to cover both senses, as well as the action, e.g., "he is/was signing".

The emergence and spread of the compound SIGN-LANGUAGE reflects a growing consciousness among signers that NSL is a full language rather than an assembly of conventionalized gestures to facilitate lipreading.

Originally, the first part of the compound (SIGN) was signed with an alternating circular movement of both hands. The movement of the non-dominant hand has been lost, and the movement of the dominant hand is also reduced in the first part of the compound, from a circular to a J-shaped movement.

Skavlan (1875) classified the signs for the days of the week at the Trondheim school as conventional, as opposed to several types of motivated signs (not his

Fig. 4: SIGN.
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Fig. 5: DEAF and HEARING.
© Statped, Department for Special Education Technology, www.statped.no

term), and he described each of weekday signs in a long footnote (Skavlan 1875: 35). Most of the signs are still easily recognizable from their description, except for TUESDAY and THURSDAY.

According to Skavlan's description, the 1875 sign TUESDAY was a manual homonym with COD, because "[the pupils] ate cod on Tuesdays". Skavlan's description is "fingerspelled T against the chin, i.e. the small fin on the lower jaw of the cod". From Skavlan's description elsewhere it appears that "fingerspelled T" may be several handshapes which involve contact between the side of the index finger and the thumb. If this is the case, the modern version of the sign COD (Figure 6) is probably similar or identical to the 1875 sign:
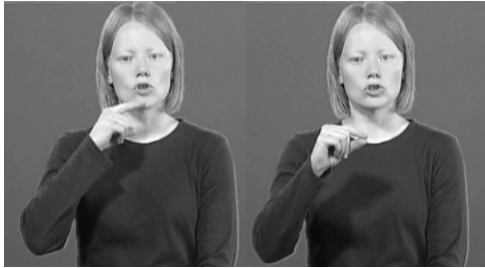
Fig. 6: COD.
© Statped, Department for Special Education Technology, www.statped.no

Skavlan's description of the sign THURSDAY is "fingerspelled T with a sideways movement as if stroking a moustache". According to Skavlan the school had a drawing teacher with a moustache, and this man came to teach on Thursdays and Fridays. We have not found any modern counterpart of this sign.

For some NSL users the signs TUESDAY and THURSDAY are now manual homonyms which are only distinguished by the mouthings /tirsdag/ ("Tuesday") vs. /torsdag/ ("Thursday") (Figure 7).

Fig. 7: TUESDAY and THURSDAY, manual homonym signs.
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Some signers reserve the index finger handshape for the TUESDAY sign and the middle finger handshape for the THURSDAY sign.

According to Schröder two more signs (Figure 8) originated as part of the attempt to create one common signed language in Scandinavia:

Fig. 8: TUESDAY and THURSDAY, signs with fingerspelling.
© Statped, Department for Special Education Technology, www.statped.no

9.2 Examples of sentences

The following example sentences are from of the script to a play which was translated into NSL by Beata Slowikowska for Teater Manu. The example sentences follow immediately after the first stage directions. "The young man" is on stage as the lights come up. The Young Woman enters from the door to the right. She immediately starts talking to The Young Man (Figure 9):

YOUNG

WOMAN

DOOR, repeated bidirectional movement
The Young Woman arrives from the door to the right.

PERSON-ARRIVE

PUT-UP WITH, repeated, unidirectional

LIKE

INDEX

CAN'T

I

"Accept the way that you act, I can't do that."

SHORT

Both are silent, briefly.
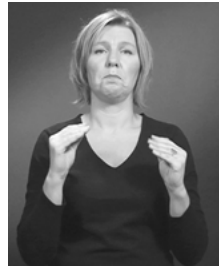
DO-NOT-TALK

CAN'T-DO

"It's too much for me."

I

Fig. 9: Excerpt from Beata Slowikowska's translation of "Natta syng sine songar" by Jon Fosse.
© Teater Manu.

INDEX starts directly from the end of the preceding sign. The citation form of the sign I is one-handed, and only the index finger is selected or active, but in the two instances above all fingers appear selected, and the sign is produced with both hands.

10 History of research

Basic education in NSL has received a high priority, and NSL has a special status as a minority language. However, linguistic research on NSL has not been prioritized. Individual researchers have received funding for projects in competition with researchers from other fields, but so far there have been no programmes for research of NSL, and no established research centres. Due to the lack of dedicated research programs, research has to a large extent been carried out by students affiliated with the various university colleges and universities.

The following overview of research is not comprehensive, as it is limited to those who have either submitted a linguistic thesis on NSL or published printed works on NSL.

Published professional research into NSL began with Marit Vogt-Svendsen's Masters level[28] thesis in special needs education (Vogt-Svendsen 1983). This was a ground-breaking investigation into the oral component of signs. In this work she demonstrated that mouth movements can be an obligatory part of a sign. In her doctoral dissertation in linguistics at NTNU (The Norwegian University of Science and Technology)[29] she investigated the syntactical functions of the non-manual components in interrogatives (Vogt-Svendsen 1990a, 1990b). In Vogt-Svendsen (2001) she made further contributions to our understanding of mouthings and mouth gestures in NSL. Her later work discusses buoys within the framework of cognitive linguistics (Vogt-Svendsen 2009; Bergman and Vogt-Svendsen 2009).

Odd-Inge Schröder has written extensively on NSL and deaf-related topics in many fields, which is evident from the many citations contained in this article. Not included among the citations here are his works on child language development and NSL use in the church and theatre, and a tentative contrastive analysis of NSL vs. Norwegian.

Sonja Erlenkamp was the first professor of Norwegian Sign Language, and worked at HiST (The University College of Sør-Trøndelag)[30] from 2007 to 2012. She

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28 In this article the abbreviations M.A. and Ph.D. are used only when referring to an actual M.A. or Ph.D. degree, and not for other Norwegian degrees like cand. spec. paed., cand. philol., dr. art., etc.
29 The University of Trondheim (UNIT) was renamed The Norwegian University of Science and Technology (NTNU) in 1996.
30 NTNU is located in Trondheim, HiST in and around Trondheim.

has done research on German Sign Language and NSL. Her publications cover NSL word order (Erlenkamp 2011) and a comparison of depicting verbs and gesture (Erlenkamp 2009). She has also worked to inform the media about NSL-related issues.

So far (2014) two people have acquired a PhD in linguistics at UiO (The University of Oslo) with dissertation topics on NSL, Kari Anne Selvik (2006) and Rolf Piene Halvorsen (2012). Eli Raanes acquired her doctoral degree from NTNU (2006) with a thesis on dialogues in tactile (deaf-blind) NSL. Two candidates are currently working on doctoral degrees, Guri Amundsen on discourse analysis, and Irene Greftegreff on NSL phonology.

Four Deaf students have completed a Masters program in NSL at UiO. In their joint M.A. thesis Sonja M. Holten and Hege R. Lønning (Holten and Lønning 2010) described language planning and language changes in NSL, and presented examples of how tegnspråknorsk may have forced certain language changes. In a later article Holten and Lønning (2011) highlight how language attitudes of NSL users may have permitted these changes. Bogumila Slowikowska Schröder (2010) has contributed the first work on the NSL imperative, containing a comprehensive description of the manual and non-manual features of the imperative, and a large number of examples. Beata B. Slowikowska (2009) has contributed to our knowledge on NSL first language acquisition in the first three years of life, in a case study of a deaf child of deaf parents.

Three more students have completed Norwegian Masters degrees in linguistics: Irene Greftegreff (1991) at The University of Trondheim on NSL handshapes, Guri Amundsen (2007) at NTNU with a thesis in applied linguistics on NSL discourse, and Vibeke Bø (2012) at UiO on NSL verb sandwiches.

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James Woodward and Kampol Suwanarat

28 Original Bangkok Sign Language

1 Basic facts about the language

Language name: Original Bangkok Sign Language.

Alternative names: OBSL, Old Bangkok Sign Language.

Location: Used in Bangkok city proper, Thailand as shown in Figure 1.

Fig. 1: Map showing the area where OBSL is used in Bangkok, Thailand within the larger context of Southeast Asia.

Varieties: The variety described in this paper is used in Bangkok city proper by signers over the age of sixty-five.

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Number of signers: Since there has never been a census of deaf people in Bangkok, the real number of signers is unknown. However, some estimate of the number of signers can be made. The website at www.worldpopulationreview.com lists the 2014 population of Bangkok city proper at 5,104,476. Approximately 9.7 % of the population of Thailand is over the age of sixty-five (www.unescap.org), meaning that 495,134 people in Bangkok are over the age of sixty-five. Using United Nations estimates for urban areas of 1 person out of every 1,000 person born profoundly deaf or becoming profoundly deaf at an early age, there would be an estimate of 495 deaf people over the age of sixty-five living in the area where OBSL is used. The estimated number of users of OBSL therefore is up to 495 remaining users.

2 Origin and history

OBSL is an original sign language that developed among deaf people living in Bangkok in the Central Area of Thailand long before the first school for deaf people was established in 1951. Like users of other typical original sign languages, Deaf people who use OBSL have a separate Deaf Linguistic Identify.

Two studies (Woodward 1996, 2000) have used the Swadesh word list modified for sign language research to compare the basic core vocabulary in OBSL with the basic core vocabulary of other sign languages in Thailand and in Viet Nam. OBSL has a 65 % rate of similarity in basic core vocabulary with Original Chiang Mai Sign Language (OCMSL) and only a 26 % rate of similarity in core basic vocabulary with Modern Thai Sign Language (MTSL).

3 Bilingualism and language contact

OBSL was never used in any schools for deaf people. Currently, all users of OBSL are also fluent in MTSL. All users of OBSL are over the age of sixty-five and no younger signers are currently learning OBSL.

4 Political and social context

4.1 Other sign languages in Thailand

In addition to OBSL, there are at least three other sign languages in Thailand: Ban Khor Sign Language, an indigenous sign language in the Northeastern part of Thailand, near the border with Laos; OCMSL, another original sign language used

in the Northern Thailand; and MTSL, which resulted as a mixture of OBSL, OCMSL and ASL in the early 1950s. The massive introduction of American Sign Language vocabulary into the Thai deaf educational system severed the historical connection between OBSL and Modern Thai Sign Language.

OBSL is currently only used in very limited social situations. Instead MTSL replaces OBSL in almost all interaction. Because of this situation, OBSL is a highly endangered sign language. It is quite likely that if documentation of OBSL is not completed in one generation that OBSL will be lost to linguistic study forever, since there is currently no extensive record of OBSL. If OBSL dies before it can be properly documented and described, Deaf people in Thailand will lose a valuable part of their history, all Thai people will lose a valuable part of their national culture, and the rest of us will lose one of the important keys to understanding the history of sign languages and Deaf people in Thailand and Southeast Asia.

While the Thai government (1999) issued an official promulgation recognizing MTSL as a national language for Thai Deaf people, OBSL has not been recognized.

4.2 Organizations

There has never been an organization associated with OBSL or its use.

5 The structure of signs

OBSL, like all sign languages, has a sub-lexical level of structure analogous to but not dependent on the phonological structure of spoken languages. Handshapes, orientations, locations, and movements, and non-manual expressions follow expected patterns found in other sign languages. A chart of handshapes that occur naturally (not dependent on fingerspelling) in OBSL appear in Figure 2. It should be noted that these handshapes are taken from a limited number of signs that have been collected so far. Handshapes other than those listed may occur.

OBSL never has had a fingerspelling system.

Fingers	closed	closed bent	open	extended	extended bent	rounded	rounded tapered	contact	contact tapered	inserted
0										
1 (I)										
1 (P)										
2 (I+M) Spread										
3 (I+M+R)										
3 (M+R+P)										
4										
4 Spread										

Fig. 2: Handshapes that occur naturally in OBSL.

6 Basic morphology and lexicon

A striking fact about the lexicon of OBSL is that there were signs for many concepts already in OBSL before Modern American signs were adopted into the Thai Deaf Educational system. The OBSL signs listed in Figure 3 are only a few of the original Thai signs that could have been easily kept into signs used in the Thai educational

Fig. 3: Some OBSL signs lost because of borrowing from ASL.

system for deaf individuals rather than borrowing signs from American Sign Language. They have been lost forever to younger Thai Deaf signers, many of whom do not know that these signs existed.

In addition to the signs above that have been lost because of borrowing from American Sign Language, other signs from OBSL have been lost because of the creation of new signs in the Thai Deaf Education system due to lack of knowledge of OBSL signs. Listed below are some of these signs. Some examples of these signs are shown in Figure 4.
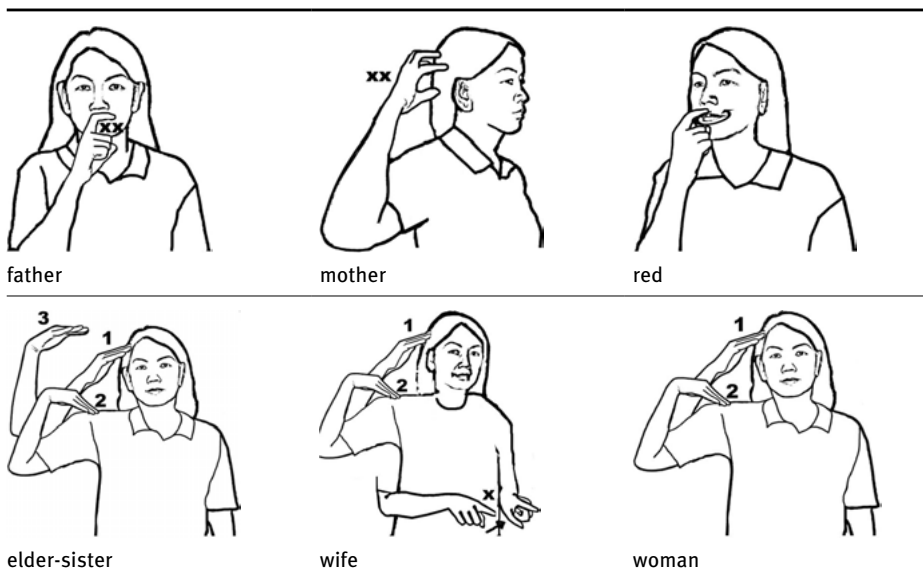
Fig. 4: Some OBSL signs that were lost because of the creation of new signs.

In terms of morphology, OBSL has directional verbs that indicate first person, second person, and third person. Some verbs like GIVE do not change orientation or have minor changes in orientation. Other verbs like TELL radically change orientation. Examples of differences in these two types of directional verbs are shown in Figure 5.

I-give-you   you-give-me   person-on-the-left-gives-
                                         person-on-the-right

I-tell-you   you-tell-me   person-on-the-left-tells-person-
                                         on-the-right

Fig. 5: Some examples of OBSL directional verbs.

7 Basic syntax

In OBSL phrases, modifiers occurs occur after the head. Thus, in verb phrases, auxiliaries occur after the verb head (EAT + WANT), negatives occur after the verb head (EAT + NOT), and long verb phrases follow the pattern: Verb + Auxiliary + Negative (EAT + WANT + NOT). Similarly, in noun phrases, adjectives follow nouns (DOG + BLACK), numerals follow nouns (DOG + THREE), and long noun phrases in OBSL follow the pattern: Noun + Adjective + Numeral (DOG + BLACK + THREE).

In terms of word order in sentences, the basic word order for statements and yes-no questions in OBSL is SOV as shown in Example 1. When the object of a statement or yes-no question is a phrase, the noun head occurs before the verb, but all modifiers are placed after the verb, resulting in SO(head)VO(modifiers) word order as shown in Example 2. The word order in WH-Questions differs from the word order in statements and yes-no questions. When the Subject is a WH-Question Word, the subject cannot occur in initial position, but rather the Subject must move to the end of the sentence resulting in OVS word order as illustrated in Example 3. When the Object is a single WH-Question Word, the Object cannot occur in initial position, but rather the Object must move to the end of the sentence resulting in SVO word order as illustrated in Example 4.

(1)

Subject	Object	Predicate
[N]	[N]	[V]

Best English Translation: "I eat/ate mangos."

(2)

Subject	Object (head)	Predicate	Object (modifiers)
[PRO]	[N]	[V]	[NUM]

Best English Translation: "I ate two mangos."

(3)

Object	Predicate	Object
[N]	[V]	[QW]

Best English Translation: "Who ate mangos?"

(4)

Subject	Predicate	Object
[N]	[V]	[QW]

Best English Translation: "What did mother eat?"

8 History of research

Research began on OBSL in 1996, when James Woodward, then working at Ratchasuda College, Mahidol University at Salaya, Thailand, recorded data on the Swadesh word list and other vocabulary from two OBSL users, one man then in his late fifties and one woman then in her early fifties.

There were plans for Woodward and for Thai Deaf students in the Ratchasuda College Certificate Program in Teaching Thai Sign Language to continue more in depth research on OBSL, but these plans were not able to be realized.

In May 2010, James Woodward and Peoungpaka Janyawong worked with Kampol Suwanarat to collect grammatical data for this article.

Acknowledgements

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James Woodward and Thanu Wongchai
29 Original Chiang Mai Sign Language

1 Basic facts about the language

Language name: Original Chiang Mai Sign Language.

Alternative names: OCMSL, Old Chiang Mai Sign Language.

Location: Used in Chiang Mai city proper, Thailand as shown in Figure 1.

Fig. 1: Map showing the area where OCMSL is used in Chiang Mai, Thailand within the larger context of Southeast Asia.

Varieties: The variety described in this paper is used in Chiang Mai city proper by signers over the age of sixty-five.

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Thanu Wongchai (February 2, 1949 – August 18, 2014), (National Association of the Deaf in Thailand)

Number of signers: Since there has never been a census of deaf people in Chiang Mai, the real number of signers is unknown. However, some estimate of the number of signers can be made. The website at www.worldpopulationreview.com lists the 2014 population of Chiang Mai city proper at 200,952. Approximately 9.7 % of the population of Thailand is over the age of sixty-five (www.unescap.org), meaning that 19,492 people in Chiang Mai are over the age of sixty-five. Using United Nations estimates for urban areas of 1 person out of every 1,000 person born profoundly deaf or becoming profoundly deaf at an early age, there would be an estimate of 19 deaf people over the age of sixty-five living in the area where OCMSL is used. The estimated number of users of OCMSL therefore is up to 19 remaining users.

2 Origin and history

OCMSL is a original sign language that developed among deaf people living in Chiang Mai in the North of Thailand long before the first school for deaf people was established in 1951. Like users of other typical original sign languages, Deaf people who use OCMSL have a separate Deaf Linguistic Identify.

Two studies (Woodward 1996, 2000) have used the Swadesh word list modified for sign language research to compare the basic core vocabulary in OCMSL with the basic core vocabulary of other sign languages in Thailand. OCMSL has a 65 % rate of similarity in basic core vocabulary with Original Bangkok Sign Language (OBSL) and only a 28 % rate of similarity with basic core vocabulary with Modern Thai Sign Language (MTSL).

3 Bilingualism and language contact

OCMSL was never used in any schools for deaf people. Currently, all users of OCMSL are also fluent in MTSL. All users of OCMSL are over the age of sixty-five and no younger signers are currently learning OCMSL.

4 Political and social context

4.1 Other sign languages in Thailand

In addition to OCMSL, there are at least three other sign languages in Thailand: Ban Khor Sign Language, an indigenous sign language in the Northeastern part of

Thailand, near the border with Laos; OBSL, another original sign language used in the Central Thailand; and MTSL, which resulted as a mixture of OCMSL, OBSL and ASL in the early 1950s. The massive introduction of ASL vocabulary into the Thai deaf educational system severed the historical connection between OCMSL and MTSL.

OCMSL is currently only used in very limited social situations. Instead MTSL replaces OCMSL in almost all interaction. Because of this situation and because of the extremely small number of users OCMSL is a critically endangered sign language. It is quite likely that if documentation of OCMSL is not completed in one generation that OCMSL will be lost to linguistic study forever, since there is currently no extensive record of OCMSL. If OCMSL dies before it can be properly documented and described, Deaf people in Thailand will lose a valuable part of their history, all Thai people will lose a valuable part of their national culture, and the rest of us will lose one of the important keys to understanding the history of sign languages and Deaf people in Thailand and Southeast Asia.

While the Thai government (1999) issued an official promulgation recognizing MTSL as a national language for Thai Deaf people, OCMSL has not been recognized.

4.2 Organizations

There has never been an organization associated with OCMSL or its use.

5 The structure of signs

OCMSL, like all sign languages, has a sub-lexical level of structure analogous to but not dependent on the phonological structure of spoken languages. Handshapes, orientations, locations, and movements, and non-manual expressions follow expected patterns found in other sign languages. A chart of handshapes that occur naturally (not dependent on fingerspelling) in OBSL appear in Figure 2. It should be noted that these handshapes are taken from a limited number of signs that have been collected so far. Handshapes other than those listed may occur.

OCMSL never has had a fingerspelling system.

Only a limited amount of data has been gathered on phonological processes in OCMSL. However, it can be observed that the common phonological process and change of assimilation occurs in OCMSL in days for the week. In Figure 3, note in the oldest version of the sign for Tuesday the palm orientation and finger orientation of the second sign are different; and in newest version of the sign for Tuesday the palm orientation and finger orientation of the handshape of the second sign assimilates to the same palm orientation and the same finger orientation as those of the first sign.

Fingers	closed	closed bent	open	extended	extended bent	rounded	rounded tapered	contact	contact tapered	inserted
0										
1 (I)										
1 (P)										
2 (I+M) Spread										
3 (I+M+R)										
3 (M+R+P)										
4										
4 Spread										

Fig. 2: Handshapes that occur naturally in OCMSL.

Oldest sign phrase for Tuesday		
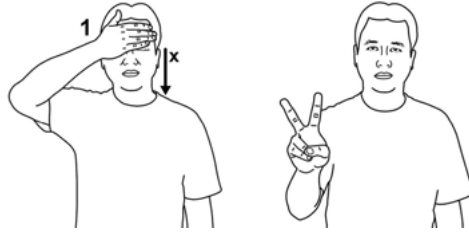
Newest sign phrase for Tuesday		
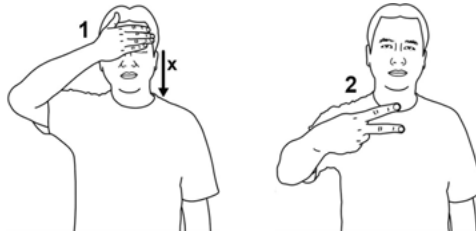
Fig. 3: Oldest and newest signs for Tuesday in OCMSL.

6 Basic morphology and lexicon

It is interesting to note that the difference between "February" (month two) and "two months" (two month) is expressed by word order in spoken/written Thai but by separate morphological criteria in OCMSL as shown in Figure 4. This process

February = MONTH + TWO	

Two Months = MONTH-MONTH + TWO	

Fig. 4: Signs for February and for two months in OCMSL.

cat   dog   pig (1)

pig (2)   sit   stand
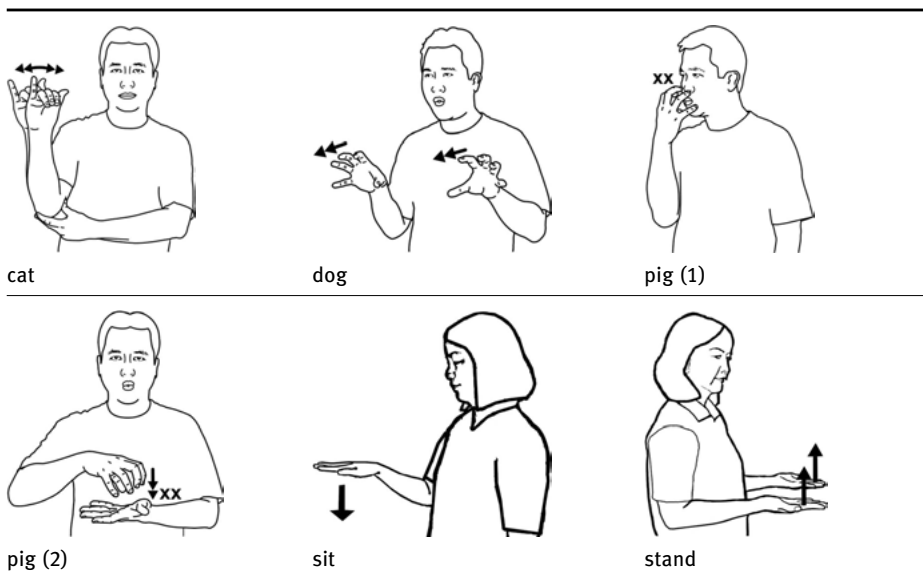
Fig. 5: Some OCMSL signs lost because of borrowing from ASL.

still continues in MTSL although the sign vocabulary for this construction include signs borrowed from ASL. (See article on MTSL).

A striking fact about the lexicon of OCMSL is that there were signs for many basic concepts, such as CAT, DOG, PIG, SIT, STAND already in OCMSL before American signs for these concepts were borrowed into the Thai Deaf Educational system. The OCMSL signs for these concepts are only a few of the original Thai signs that could have been easily kept into signs used in the Thai Dear Educational system rather than borrowing signs from ASL. The signs shown in Figure 5 have been lost forever to most younger Thai Deaf signers, who do not know that these signs exist(ed) and who think that the American signs borrowed into MTSL are native to Thailand.

In addition to the signs above that have been lost because of borrowing from ASL, other signs from OCMSL for kin terms and color terms have been lost because of the creation of new signs in the Thai Deaf Education system due to lack of knowledge of OCMSL signs. Figure 6 shows some examples of OCMSL signs that have been lost because of the creation of new signs.

OCMCL has signs for days of the week as shown in Figure 7. There was no need for the Thai Deaf Education system to create new initialized signs for days of the week into MTSL.
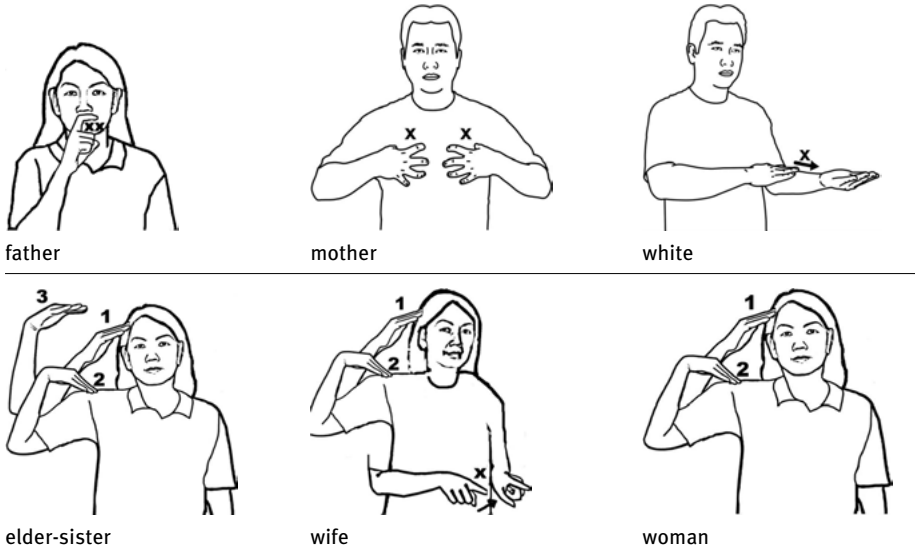
Fig. 6: Some OCMSL signs that were lost because of the creation of new signs.

Finally, OCMSL numbers from six to ten exist in two-handed form. Signs identical to these signs appear not to exist in any modern Southeast Asian Sign Language. One handed cognates of these signs (non-dominant hand deleted) occur in Ho Chi Minh City Sign Language in the numbers six to nine. OCMSL signs for the numbers one to ten are shown in Figure 8.

OCMSL has directional verbs that indicate first person, second person, and third person. Some verbs like GIVE do not change orientation or have minor changes in orientation. Other verbs like TELL radically change orientation. This is shown graphically in Figure 9.

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday
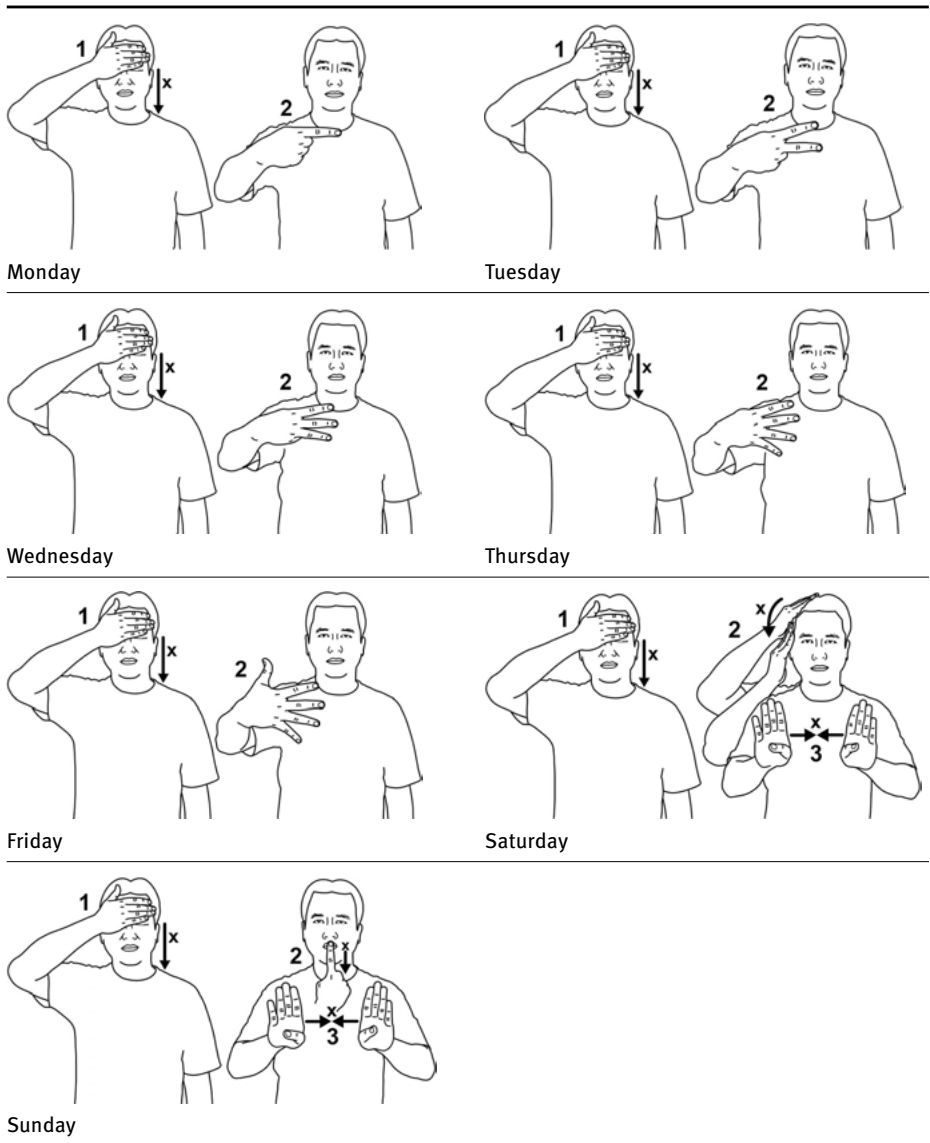
Fig. 7: Signs for days of the week in OCMSL.

one	two	three

four	five	six

seven	eight	nine

ten (1)	ten (2)	

Fig. 8: Signs for the numbers one to ten in OCMSL.
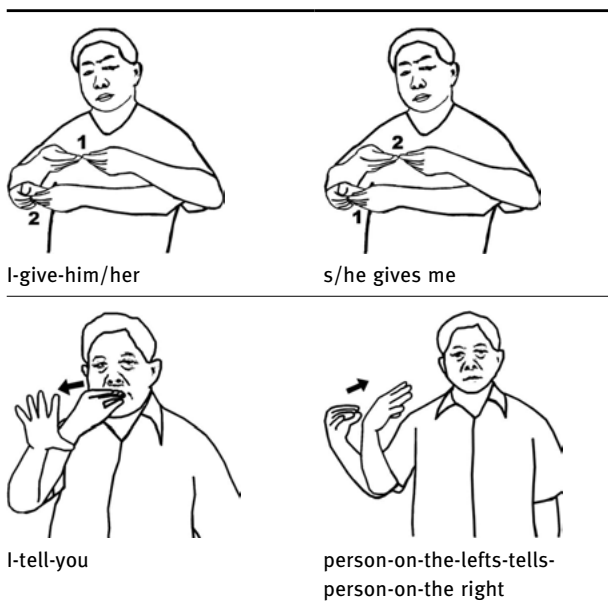
Fig. 9: Some examples of OCMSL directional verbs.

7 Basic syntax

In OCMSL phrases, the head occurs before any modifiers. Thus, in noun phrases, adjectives occur after nouns (CAT + WHITE), numerals occur after nouns (CAT + TWO), and long noun phrases in OCMSL follow the pattern: Noun + Adjective + Numeral (CAT + WHITE + TWO). Similarly in verb phrases, auxiliaries follow the verb head (EAT + WANT), negatives follow the verb head (EAT + NOT), and long verb phrases follow the pattern: Verb + Auxiliary + Negative (EAT + WANT + NOT).

In terms of word order in sentences, the basic word order for statements and yes-no questions in OCMSL is SOV as shown in Example 1. When the object of a statement or yes-no question is a phrase, the noun head occurs before the verb, but all modifiers are placed after the verb, resulting in SO(head)VO(modifiers) word order as shown in Example 2. The word order in WH-Questions differs from the word order in statements and yes-no questions. When the Subject is a WH-Question Word, the subject cannot occur in initial position, but rather the Subject must move to the end of the sentence resulting in OVS word order as illustrated in Example 3. When the Object is a single WH-Question Word, the Object cannot occur in initial position, but rather the Object must move to the end of the sentence resulting in SVO word order as illustrated in Example 4.

(1)

Subject	Object	Predicate
[N]	[N]	[V]

Best English Translation: "I eat/ate mangos."

(2)

Subject	Object (head)	Predicate	Object (modifiers)
[PRO]	[N]	[V]	[NUM]

Best English Translation: "I ate two mangos.".

(3)

Object	Predicate	Subject
[N]	[V]	[QW]

Best English Translation: "Who eats/ate mangos?".

(4)

| Subject | Predicate | Object |
| [N] | [V] | [QW] |

Best English Translation: "What did mother eat?".

8 History of Research

While James Woodward was working at Ratchasuda College, Mahidol University at Salaya, Thailand, in 1996, he recorded data on the Swadesh word list and other vocabulary from one OCMSL user, then in his late forties.

After the discovery of OCMSL in 1996, there was initial interest among some members of the Thai Deaf Community in doing more in-depth research on OCMSL. However, there was no further research on OCMSL until May 2010, when James Woodward and Peoungpaka Janyawong worked with Thanu Wongchai to collect grammatical data for this article.

Acknowledgement

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Woodward, James. 2003. Sign languages and sign language identities in Thailand and Viet Nam. In Leila Monaghan, Constanze Schmaling, Karen Nakamura & Graham H. Turner (eds.), *Many ways to be Deaf: International variation in Deaf communities*, 283–301. Washington, DC: Gallaudet University Press.

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Voghel

30 Quebec Sign Language

1 Basic facts about the language

Language name: Langue des signes québécoise (LSQ) is the name of the language
used by the signing community and by researchers.

Fig. 1: Map of Canada.

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Location: The Canadian Association of the Deaf recognizes both LSQ and American Sign Language as the only official languages of Deaf Canadians. Nevertheless, as pointed out by Parisot and Rinfret (2012), three other Sign Languages make up the Canadian linguistic landscape: the Inuit Sign Language (Schuit, Baker, and Pfau 2011), the Plain Indians Sign Language (Davis 2010) and the Maritimes Sign Language (Yoel 2009), all of which are dying or endangered and expected to disappear with the last generation of users.

LSQ is used in the eastern Canadian provinces where there is a mainly French speaking population, especially in the province of Quebec and in the east of Ontario, New Brunswick and Nova Scotia.

Related languages: American Sign Language (ASL) and Langue des signes française (French Sign Language, LSF).

Number of signers: The estimated number of sign language users in Canada is extremely variable. For example, the Canadian Association of the Deaf (CAD) postulates that there are 300,000 culturally and linguistically Deaf people using a sign language as their reference language. Alongside this estimation based on the US ratio, the 2006 Canadian Census (Statistics Canada 2008) counted 35,370 users of a "gestural language" in Canada, including ASL, LSQ and other gestural forms of communication (home signs, signed codes, etc.). Regarding LSQ, Padden (2010) estimates the number of signers between 5,000 and 6,000, mostly located in francophone Canadian regions, and mainly in Quebec.

2 Organizations for the Deaf

The Canadian Association of the Deaf (CAD) is a national organization representing approximately 300,000 deaf individuals in Canada. The languages used by Canadian deaf persons are ASL, LSQ, English and French. In the Province of Quebec (which has a French-speaking majority), the *Société Culturelle Québécoise des Sourds* (SCQS) is a provincial association whose role is to preserve, promote and develop the cultural and linguistic interests of Deaf people in Quebec as well as to record, protect and promote LSQ.

3 Origin and history

Even though ASL and LSF have largely influenced LSQ, there is no information on signs used by Deaf people before 1831 (Dubuisson and Nadeau 1993). The first teacher to open a school for the deaf in Quebec, Ronald MacDonald, learned sign language in the United States with Laurent Clerc (Miller 1997). This first school,

which rapidly closed due to a lack of funds (1831–1834), was followed by another that opened in Saint-Hyacinthe in 1836 and relocated to Montreal a few years later (1848). The signs used in these first schools were derived from the ASL of the time. A little later, two deaf Frenchmen, Jean-Marie-Joseph Young and Auguste Crog, taught at the boys' and girls' institutes. In 1851, a school for girls, the *Institution des Sourdes-Muettes*, was founded in Montreal by sister Albine Gadbois, who had studied ASL in the United States. All of these teachers, who were fully versed in either ASL or LSF, greatly influenced the sign language of that time and significantly increased the LSQ lexicon. The above-mentioned institutions were the only Canadian ones to serve the French Catholic deaf populations, and students from all over Canada would attend them (Perreault 1996). Sign language was used in the schoolyard, but it was taught exclusively to students showing an inability to lips reading. These students were called the *manual group*. This label would remain in use until the 1960s, when the clergy withdrew from education administration and was replaced by the state. This went along with the integration of deaf students into the regular school system.

In the late 1970s, a McGill University researcher realized that the sign language used in the French community differed from the one used in the English community (Mayberry 1978). Raymond Dewar, a politically engaged Deaf person and great advocate for the Deaf cause, coined the term "langue des signes québécois" in the 1980s (the language had until then been called "langue des signes canadiens français" [French-Canadian sign language]) (Lachance 2002). With the work of Dubuisson conducted with the *Groupe de recherche sur la LSQ et le français sourd* (Research Group on LSQ and Deaf French), which was created at *Université du Québec à Montréal* (UQAM) in 1988, LSQ became a subject of research in the field of linguistics. To date, this group has published two volumes of descriptive grammar, many scientific papers and some 40 Web files on LSQ grammar.

4 Bilingualism and language contact

4.1 Language contact

The geographical and cultural proximity of the United States is largely responsible for the influence of ASL on LSQ today. Moreover, the bilingual context of the country, namely Quebec, New Brunswick and East of Ontario, where LSQ and ASL are the two languages used by the Deaf population, facilitate language contact.

In Quebec, LSQ is constantly in contact with French, the spoken language of Quebec, and also with ASL, which is used in Montreal and everywhere else in North America. Borrowings from French, a result of language contact, take different forms, such as mouthing, spelling and initialization. Mouthing, the total or partial silent reproduction of spoken language lip movement, is the most frequent

form of borrowing in LSQ and involves verbs, adjectives and nouns. Mouthing plays a role in disambiguation and sign clarification, as well as term formation, and is sometimes used without manual signs. Spelling, the representation of written language words through a manual alphabet, is not as important as mouthing in LSQ and is mostly used for technical or specialized terms (Dubuisson et al. 1996). Finally, initialization, the sign formation process by which a handshape matches the first letter of a French word with the same meaning, is also used in LSQ. Many initialized signs (Figure 2 and 3) share a lexical space with new non-initialized signs (e.g., ASSOCIATION and FAMILY) following a strong reaction from Quebec signers against initialization (Machabée and Dubuisson 1995).
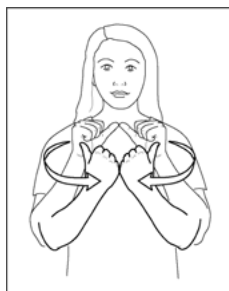
Fig. 2: ASSOCIATION.   **Fig. 3:** FAMILY.[1]

Related to the origin of language, Dubuisson et al. (1996) report that many LSQ signs appear in Lambert's LSF dictionary (1865). Interrogative signs (e.g., HOW, WHY) and the sign for WORK are deemed to be borrowed from LSF (Miller 2001). Furthermore, LSQ has borrowed the manual alphabet and number system from ASL as well as many lexical items such as signs relating to the family (MOTHER, FATHER,[2] SISTER, BROTHER) and time (MONTH, WEEK), as well as the signs YES and NO (Miller 2001). Other signs originate in British Sign Language (used in the Maritimes), such as FIGHT and COLOR. Nowadays, recent borrowings from ASL are common, particularly in the Montreal area (for example, the sign ALL[3] have been integrated into LSQ). With participation in international conferences, International Sign Language (ISL) also has an influence on LSQ, mostly for toponyms. Thus the international signs for CHINA and JAPAN are slowly becoming part of LSQ, particularly among the younger generation.

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1 The sign illustrations come from the image bank of the Groupe de recherche sur la LSQ (2003).

2 However, Delaporte (2006) maintains that the signs FATHER and MOTHER would have come from the old French signs MISTER and MADAM. The latter shows a strong resemblance to the Italian sign SIGNORA (Delaporte 2006: 150).

3 The Canadian Dictionary of ASL, ALL (sign#2) p. 15.

4.2 Education

From 1875 to 1970, Catholic education was controlled by the Clergy, and the education of deaf children was given by the Clerics of St. Viator (to boys) and the Sisters of Providence (to girls). Children six to nine years of age had to leave their families from everywhere in Canada to live in one of the boarding schools located in the two large communities of Montreal and Québec City. In 1970, the government began the deinstitutionalization of educational institutions, and the school model would mainly become a mainstream one.[4]

The province of Quebec is divided in 17 administrative regions covering its vast territory of 1,667,441 km^2. Note that according to the *Institut de la statistique du Québec* (ISQ), the population in 2007 was 7,700,807. Even though this population is mostly distributed in the south, the vastness of the province creates difficulties in accessing special education services in all the regions.

There are now three types of teaching environments in Quebec: regular classes (where the child is integrated with or without an interpreter), special classes in regular schools, and special schools. Officially, the model acknowledged by the *Ministère de l'Éducation* for special classes or schools is total communication. However, a bilingual-bimodal educational approach, in which LSQ is the language of teaching and where LSQ is taught as a subject of learning, was adopted for the Montreal school board in 2004, after being piloted for six years (Vercaingne-Ménard et al. 2004). Thus both written French and LSQ are taught and evaluated. An evaluation of the approach during the first six years has demonstrated a correlation between the understanding of certain concepts of LSQ structure and written French (Dubuisson, Parisot, and Vercaingne-Ménard 2008).

Deaf people in Quebec who use LSQ have only been able to access higher education through interpretation services since the 1980s, where the policy on social inclusion *À part … égale* (OPHQ 1984) provides interpretation services for all levels of education. At higher education levels, the specific needs of deaf students also include note takers and French writing tutors.

4.3 Standardization

The *Société culturelle québécoise des sourds* (SCQS) is mandated by the community to preserve, protect and promote LSQ within the Deaf community in Quebec and works actively on the development of an LSQ dictionary. Standardization is a growing concern in the Deaf community and the SCQS supervises work on the dictionary with the involvement of representatives from the different regions and organizations in the Deaf community. This dictionary will be comprised of signs from the

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4 Unless parents choose a different model or if oral integration in school failed.

community, including regional variants. Apart from this community work, there have been several individual and group initiatives since the 1980s, such as the dictionary of signs by Bourcier and Roy (1985),[5] the lexical lists of the *Coalition Sida des Sourds* du Québec (1998, 2007), and the RESO dictionary[6] of family-related signs (2005). Moreover, some sign lists are available on the Web, for example, on the site of Quebec Deaf Foundation (http://www.courslsq.net/ewac/lsq/dictionary.php) and on the literacy site *Français en mains* (francaisenmains.uqam.ca).

4.4 Men's and women's varieties

For a long period of time, boys and girls received their education in different institutions (colleges for boys and convents for girls). There were lexical differences between the two institutions for historical reasons (girls were schooled by teachers who learned ASL and boys by teachers who learned LSF). Also, many signs executed at the chest level were localized elsewhere by the nuns, who considered the original signs to be too sensual (e.g., BUT, a unimanual sign produced on the chest, became BUT-2, a bimanual sign produced in the neutral space). These signs are now considered synonyms in the language lexicon.

4.5 Hand alphabet

LSQ uses the same digital alphabet used in ASL. LSQ also has the same number system as ASL, which is a one-hand system where the number one is located on the index.

4.6 Mouth-hand system

In Quebec, the most popular mouth-hand system is called *Langue parlé completé* (LPC), which is a French system like Cued Speech is for English. It uses eight hand-shapes and five places of articulation to express the phonetic units of spoken French.

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5 This dictionary contains 1,700 signs and was widely used in teaching LSQ as a second language to hearing students. It is no longer in print.
6 This specialized dictionary of the parent/child communication lexicon contains 1,900 signs and is now in its fourth edition.

5 The structure of signs

Following the work of Stokoe (1960) on the description of ASL's minimal structural units, it has been suggested that LSQ has a phonological structure just as natural spoken languages do (Dubuisson and Nadeau 1993). This description shows that signs in LSQ can be broken down into non-meaning-bearing units.

In this section we present the four main parameters of the LSQ sign structure: handshape, place of articulation, movement and hand orientation. Each of these parameters forms what we call a phoneme inventory. From the point of view of articulation, these elements constitute the basis for the materialization of the language's signs. All LSQ manual signs require at least one handshape, one movement, one place of articulation and one orientation. Cognitively speaking, each of these elements helps make a contrast between two meanings (see examples below) and all play a part in the lexical recognition of signs (Emmorey 2002).

5.1 Handshape

Handshape is the shape taken by the hand during sign articulation. This shape is defined by three criteria: a group of selected fingers, their position (aperture in relation to the palm, tension, spreading of fingers in relation to one another), and the position of the thumb vs. other fingers. For example, handshape /1^S/ (Figure 4) indicates that only the index is selected and that it is in complete extension, while the other fingers are in a closed position. The thumb is in a flexed position, bent over the other fingers (^{S} symbol).

Fig. 4: Handshape /1^S/.

LSQ reports 116 handshapes (Dubuisson et al. 1999). The handshape can be the only element allowing the distinction of lexical units in a minimal pair, as shown in Figures 4 and 5 representing respectively the signs for FEAR and POLICEMAN. All the parameters of these two signs are identical with the exception of the handshape (/1^S/ for the former and /$B^{··C}$/[7] for the latter), which makes it possible to differentiate between the two.

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7 In this handshape, all fingers are selected and in a curved position, and the thumb is in extension towards the front.

Fig. 5: FEAR.

Fig. 6: POLICEMAN.

5.2 Place of articulation

The place of articulation of a sign has a phonological value because, while it is not meaning-bearing, it helps distinguish two meaning-bearing lexical units, as shown in Figure 6 and 7, where the signs for FATHER and MOTHER are produced using the same parameters with the exception of the place of articulation (at the forehead for the former, and at the chin level for the latter).

Fig. 7: FATHER.

Fig. 8: MOTHER.

The three main areas of articulation are the signer's body, the space in front of the signer's body, and the fingerspelling area at shoulder height in front of the signer. A sign may have more than one place of articulation, as for DEAF (ear and chin) and LEARN (neutral space and forehead).

Also, a sign can have more than one handshape. Unlike the signs FEAR and POLICEMAN shown previously, the signs for HEARING and DUCK are considered having two hand shapes (open and close).

A sign is said to be body-anchored if its place of articulation cannot be moved in space. In contrast, a sign is not body-anchored if it can be moved in space, i.e. the sign can be produced directly on a location of the space.

Fig. 9: DEAF.

Fig. 10: LEARN.
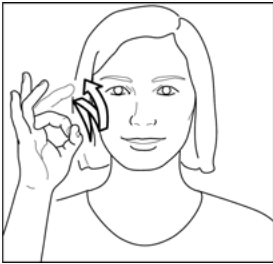
Fig. 11: HEARING.

Fig. 12: DUCK.

5.3 Movement

Movement is the dynamic phonological element. It is the temporal link between states represented by shapes (handshapes) and positions (place of articulation and orientation) of the hand at the time of articulation of signs on the body and in space. It is described according to three characteristics: geometrical form, articulatory aspect and temporal aspect (Miller 1997).

At the geometrical level, the movement represents the path followed by hands in space (straight line, arc, circle, ellipse or a combination of these different outlines), based on planes on which the shape is articulated (horizontal, vertical and transversal). At the articulatory level, movement is analysed according to transitions between different states of articulators, for example, going from a closed handshape to an open handshape, or going from one place of articulation to another. The movement's temporal feature corresponds to the length and repetition of the movement. Signs requiring proximal articulations (shoulders, elbows) are generally longer to produce than signs requiring distal articulations (wrists, phalanges). The following examples show the significance of considering all three descriptive features of movement (geometrical, articulatory and temporal) with the comparison of the signs MEASURE (Figure 13) and STAY (Figure 14). These two signs

Fig. 13: MEASURE.
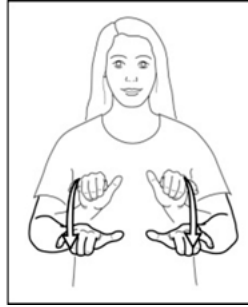
Fig. 14: STAY.

have the same handshape (/I'/) and the same place of articulation (neutral space). Only the movement makes the distinction possible.

At the geometrical level, the shape of the movement for the sign MEASURE is a straight line produced on the horizontal plane. The trajectory of the sign STAY follows an arc in the transversal plane. At the articulatory level, the movement of the sign MEASURE can be described as an internal rotation of the shoulder. From the same point of view, the sign STAY is composed by an extension of the forearm from the elbow. Finally, at the temporal level, while the movement of the sign MEASURE is generated from a major articulator (the shoulder), it is oscillating and short, the movement for the sign STAY is long.

5.4 Orientation

Like movement, orientation can be described from different points of view: internal and external. From an internal point of view, the orientation of the hand is described according to the different positions of the forearm (supination, pronation, neutral) and the hand (radial or ulnar inclination, flexion, extension, neutral position). From the external point of view, this structural parameter is described according to the orientation of the various parts of the hand, such as the palm (perpendicular projection of the palm) and the bones (projection of a parallel on the bones of the back of the hand). Orientation enables us to distinguish between the signs NEED-TO and TAX, shown in Figures 15 and 16.

The sign NEED-TO is produced by a pronation position of the forearm as the hand moves from an extension to a flexion position (internal point of view). The palm is oriented towards the ground and the bones upwards and forward (external point of view). As for the sign TAX, it is performed with a neutral position of the forearm as the hand moves from a radial to an ulnar inclination (internal point of view). The palm is oriented to the left and the bones are oriented upwards, then towards the front (external point of view).

Fig. 15: NEED-TO.   **Fig. 16:** TAX.

5.5 Phonological assimilation phenomena

Each of the above-mentioned phonological elements can be assimilated in a lexical or morphosyntactic context if the phonological environment of the preceding or following items shares common characteristics. For LSQ, cases of phonological assimilation in a lexical context have been documented in the evolution of spelling borrowings (Dubuisson et al. 1999). The sign for JULY has been borrowed from the written language of the majority, i.e. *juillet*. Its original form (J-U-I-L-L-E-T) is uneconomical and manipulation is not easy in the morphosyntactic frame of LSQ. The lexicalized form (J-L) has evolved by keeping the common characteristics of the handshapes involving the extension of thumb and index.

In a morphosyntactic context, phonological assimilation is productive in LSQ and has been described extensively. Apart from the cases of assimilation by derivation in signs involving quantities or negation (Dubuisson et al. 1996), studies on verb agreement have demonstrated that the pointing sign following the verb can have a weak form which is materialized by a regressive assimilation of the verb movement, orientation and/or handshape (Parisot 2003). Figure 17 shows a case of

Fig. 17: DREAM   INDEX1.
'I dream'.

assimilation of the handshape for the verb DREAM in the postverbal pointing sign. While the canonical form of first person pronouns is performed by the extended index oriented towards the signer, it can be assimilated in context to the form of the preceding verb.

In addition, when there is a series of two pronouns in LSQ, the orientation and movement of the first pronoun can be assimilated to the second one. Example 1[8] contains a series of two weak postverbal pronouns. The orientation and movement direction of the first pronoun are the same as the second one. We can still treat this sequence like a series of two pronouns because of their different locations in space, respectively on the spatial locus of the agent (the principal) and the patient (the student).

(1) STUDENT(a) INDEX3(ax) PRINCIPAL(b) 3b-LIKE-3a(Ty)
     INDEX3(by)(Ty) **INDEX3**(ax)(Ty)[9]
     'The principal likes the student.'

6 Basic morphology and lexicon

6.1 Classifiers

LSQ has classifier morphemes, which are generally represented by handshapes. These morphemes have a meaning indicating a typical or noticeable characteristic of the entity they refer to, which is associated with a noun in speech. The classified noun generally appears before the classifier, as shown in Example 2. Classifiers are used in the formation of classifier verbs representing a movement, action (or series of actions), the localization of a referent, feature, or characteristic of a referent.

(2) Dominant hand   BRIDGE(byz)
     2hands   HIGHWAY(a)
     Non-dominant hand   -------------
     Dominant hand   3c-CL:/Vˢ/:CROSS(y-z)
     2hands   BICYCLE(c)
     Non-dominant hand   --------------
     'The bicycle crosses the bridge over the highway.'

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8 All the LSQ examples presented in this paper come from the corpora listed in the references (DATA SOURCES).

9 The authors have prepared a simplified adaptation of the Parisot's transcription protocol (2003). For the purpose of this chapter, we will only use the markers bearing semantic (a, b, c) and spatial (x, y, z) information, as well as codes indicating the direction of the eye gaze towards a point of space (R) and a lateral inclination of the torso (T). A dash between spatial markers indicates a movement between loci. The numbers 1, 2 and 3 indicate the grammatical person.

In Example 2, the noun BICYCLE is produced first and is followed by the verb CROSS that contains the vehicle classifier used to refer to the vehicle's entity category.

A first attempt to describe LSQ classifiers (Dubuisson et al. 1999) suggested four categories: semantic, handling, size and shape, and instrumental. The current state of knowledge on LSQ leads us to propose a different typology with the following categories: entities, handling and size and shape classifiers (following the work of Schembri 2003; Voghel forthcoming). The verbs with which they can appear have different syntactic and semantic characteristics.

Entity classifiers are the most abstract in terms of object representation. The entity classifier represents the global entity. They include the following classes: *long, thin entity* (Figure 18) (an upright person, a cigarette, a pencil, etc.), *wheeled vehicle* (Figure 19) (a car, a bus, a train or a bicycle, as in Example 2), *surface* (Figure 20), *two long thin entities* (Figure 21) (used to describe two upright people or long entities, specific leg movements, if the fingers are pointing downwards, or a person lying down, if the classifier is placed horizontally, etc.). Entity classifiers are found in intransitive verbs and they express a property of a noun, which is the external argument of the verb (the subject), as in Example 2.

With handling classifiers, the handshape represents the shape of the hand when manipulating an object. Figures 22 and 23 respectively show a handling classifier used to illustrate the manipulation of two objects, a book in the first one and a key in the second one. Handling classifiers are found in transitive verbs and they express a property of a noun, which is the internal argument of the verb (the object). Example 3 contains two handling classifiers: the first one refers to the opening of a refrigerator door through the manipulation of its handle and the second one to the manipulation of a jar of milk. The two classifiers are illustrated in Figures 24 and 25.

(3) REFRIGERATOR(ax) 1-CL:/A^s/:OPEN(a)(x-y) MILK(b)

Fig. 18: CL:/1^s/.   **Fig. 19:** CL:/V'/.   **Fig. 20:** CL:/B'/   **Fig. 21:** CL:/V^s/.

Fig. 22: CL:/B^c/   **Fig. 23:** CL:/T''/   **Fig. 24:** CL:/A^s/   **Fig. 25:** CL:/B$^{..c}$/.

1-CL:/Bˑᶜ/TAKE(b)(x-1)
'I open the refrigerator and I take the jar of milk.'

Size and shape classifiers are built around strictly formal perceptive properties of objects. With these classifiers, the shape of the hand represents a characteristic of the shape and contour of the entity with which the noun is associated, and the movement represents its size or width. Size and shape classifiers are found in intransitive verbs and they classify the external argument of the verb (the subject). Their main function is to describe physical properties of objects and locate them within space, as in Example 4, in which the movement of the dominant hand traces the contour of the pile.

(4) CLOTHES(a) 3a-CL:/B'/:ROUND-PILE(aX)
     'The clothes are (there) in a pile.'

Classifiers are also used to form many nouns of the established LSQ lexicon. For example, the signs GLASS and SCISSORS are respectively the result of a handling classifier and an entity classifier.
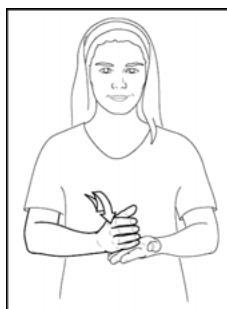
Fig. 26: GLASS.

Fig. 27: SCISSORS.

6.2 Compounds

In LSQ, it is possible to create new words through compounding (Dubuisson et al. 1996). Compounds tend to be sequential rather than simultaneous. To illustrate this, the sign MISTER (Figure 28), is formed by the combination of the signs MAN and POLITE. The sign PARENT (Figure 29) is a combination of the signs FATHER and MOTHER.

Fig. 28: MISTER.

Fig. 29: PARENT.

6.3 Verb morphology

The majority of the verb classifications proposed in the sign language literature are based on the morphological properties of verbs, which determine the type of morphological agreement permitted (Padden 1988). While the characteristics described in these works also apply to LSQ verbs, Parisot (2003) suggests a phonological classification of LSQ verbs based on the number of structural constituents that can be modified to enable their agreement with spatial loci (many, one or none). The goal of this classification is to predict how the manual agreement will occur according to the verb group. When the phonological form of a verb does not allow for a simultaneous flexion, the agreement is made through pointing. Verbs with a static or semi-static form use this strategy.[10]

(5) Phonological classification of verbs in LSQ:
1. Flexible-form verbs: composed of several modifiable structural constituents;
2. Semi-static-form verbs: composed of only one modifiable structural constituent;
3. Static-form verbs: the anchored phonological form does not allow modification of any structural constituent.

First group verbs have a flexible form, i.e. many of their structural constituents can be modified to achieve verbal agreement. This is the case with the verb GIVE, shown in Figure 30, where the direction of the movement between two spatial loci indicates the roles of the arguments represented by these loci.

With these verbs, the structural constituents that can be modified are the place of articulation and the orientation. The verb LOOK-AT has two places of articulation that can be modified. In Example 6, the movement of the verb starts on the y

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10 In many cases, the agreement can be realized by non-manual markers.

Fig. 30: GIVE.

locus and ends on the x locus, respectively indicating the agreement with the verb agent and patient arguments.

(6) GIRL(a) INDEX3(ax) BOY(b)(Ty) 3b-LOOK-AT-3a(y-x)
     'The boy looks at the girl.'

Second group verbs are semi-static-form verbs. These verbs have only one modifiable structural constituent, the place of articulation, as in the verb WORK (Figure 31). The place of articulation in its citation form is the neutral space located in front of the signer. In syntactic context, the sign can be placed to achieve a simultaneous agreement with the subject or object (already located on a specific spatial locus, as shown in Figure 32, where the verb is moved to the left space).

If a second argument must be indicated, the signer must then resort to pointing. The verb DESIRE shown in Example 7 is located on its agent locus, previously assigned to the sign DOLL. The second argument of the verb DESIRE, the theme, is indicated through a post verbal clitic point sign (phonologically attached to the verb).

Fig. 31: WORK.

Fig. 32: WORK(x).

(7) GIRL(a) INDEX3(ax) JEAN(by) 3b-DESIRE-3a(y) **INDEX3**(ax)
      'Jean desires the girl.'

Third group verbs are static-form verbs, i.e. they have no modifiable structural constituent. Those verbs are anchored; their form in discourse is always identical to their citation form. The signer will resort to a clitic pointing sign (attached to the verb) to achieve verbal agreement. This happens when the signer uses the verb LOVE (Figure 33).

Fig. 33: LOVE.

In the Example 1, rewritten in Example 8, the verb LIKE is produced in its citation form, i.e. on the signer's chest. Then the two post-verbal clitic pointing signs reuse loci x and y, indicating respectively the verb agreement with the agent and patient arguments.

(8) STUDENT(a) INDEX3(ax) PRINCIPAL(b) 3b-LIKE-3a(Ty) **INDEX3**(by)(Ty)
      INDEX3(ax)(Ty)
      'The principal likes the student.'

Agreement is not mandatory in LSQ if there is no semantic ambiguity regarding the agent's role. A sentence with only one animate argument, in which the context is clear enough that there is no ambiguity as to the role of the arguments, may not have an agreement marker. Example 9, with only one animate argument, has no agreement marker.

(9) CHOCOLATE(a) MARCEL(bx) 3b-LIKE-3a
      'Marcel likes chocolate.'

Non-manual verb agreement strategies apply to all three verb groups. They can be superimposed on manual strategies, in which case they serve to highlight an element, or they can appear in complementary distribution to mark the animate ar-

guments in an object-subject-verb structure, as shown in Example 10 (Parisot 2003).

(10) SECRETARY(ax) MANAGER(by) 3b-LOVE-3a(Ry, Tx)
'The manager loves the secretary.'

Furthermore, it has been demonstrated that non-manual and manual forms are inversely represented according to the accessibility or non-accessibility of the indicated referent, from a semantic and morphosyntactic point of view. A less accessible referent or a referent to be emphasized in the expressed grammatical relationship will often be activated by a manual indicator (pointing sign or localization), whereas an accessible referent (for example, one which has just been mentioned) will more often be activated by a non-manual indicator, such as the direction of the eye gaze or torso inclination (Parisot and Rinfret 2009; Rinfret 2009).

6.4 Derivational morphology

Derivation happens in many ways. For example, derivation of a sign may involve modification of the movement, like in the sign LEXICON (Figure 34), which is derived from the sign WORD (Figure 35) by adding a straight movement downwards, indicating a semantic plural. It is also possible to modify the handshape of a sign to create a new one, as in the signs ASSOCIATION (Figure 1) and SOCIETY (Figure 36), which are formed by the attribution of new handshapes to the base sign GROUP (Figure 37). In addition, the location or the non manual signal can be modified (Dubuisson et al. 1996). Derivation is also possible by modifying mouth movements. For example, the signs COMFORTABLE and SOFT have the same handshape. But, the first is a derivation of the second one with the addition of mouthing of the French word *confortable*.

Fig. 34: LEXICON.

Fig. 35: WORD.

Fig. 36: SOCIETY.

Fig. 37: GROUP.

6.5 Proper nouns

Proper nouns in LSQ differ from proper nouns in spoken languages in the way they are used (Dubuisson et al. 1996). They are never used to address a person directly, but are used to talk about that person to someone else. Signed proper nouns can be assigned to Deaf people, and to hearing individuals in the entourage of Deaf community, as well as to public, historical, political or religious figures, etc. While some signed proper nouns are only assigned to one individual, others can be passed down from generation to generation, such as a family name. It should be noted that an individual can have more than one signed name, and that the signed name can change during a person's lifetime.

In general, the creation of signed proper nouns in LSQ follows the lexical sign formation rules (Desrosiers and Dubuisson 1992; Dubuisson et al. 1996). The majority of signed proper nouns are descriptive, i.e. based on a physical or specific characteristic of the individual. For example, an individual with very short hair was assigned the signed name CREW-CUT (Figure 38).

Many signed proper nouns are borrowed from the spoken language, French, and then translated into signs. Some use signs that match perfectly the French

Fig. 38: CREW-CUT.

word. The use of an approximate match for the family name Lavoie, such as the sign for VOICE (Figure 39) used for the family name *Lavoie* (*voie*, the French word for *way*, which is a homonym of *voix*, the French word for *voice*). There are also signed proper nouns created by breaking down the French word, like the name *Laverdure* (*greenery*, in English), which is produced in LSQ with the signs LAVER (WASH) and DUR (HARD) (Figure 40).

Fig. 39: VOICE.

Fig. 39: LAVERDURE.

Many signed names are also initialized. The first letter or prominent letters of the French name are used to create the signed personal name.

Some signed proper nouns in LSQ have become common nouns. There are two well-known examples. The sign for ELECTED-MEMBER (Figure 41) comes from the signed personal name used for *Maurice Duplessis*, a former Premier of Quebec, who always had his hands in his waistcoat pockets.

Fig. 41: ELECTED-MEMBER.

7 Basic Syntax

7.1 Construction in space

The role of space in sign languages is probably what differentiates them most from spoken languages. In sign languages, space is used to express syntactic and semantic relationships between elements (Pettito and Bellugi 1988). Nouns in signed speech are generally associated with spatial loci, and relationships between signs are specified by manipulating speech elements in relation to these loci (Bellugi and Klima 1982). Example 11 shows syntactic use of space in LSQ, as the arbitrary localization of lexical elements does not account for a spatial relationship between entities. It does however allow the establishment of a grammatical link between the arguments and verb. The locations of verb articulation serve to determine the roles of arguments.

(11) JUDGE(ax) LAWYER(by) 3b-EXPLAIN-3a(yx)
      'The lawyer explains (something) to the judge.'

The permanence of marks created by assigning loci to nouns allows direct determination of relationships between speech elements without having to resort to a set of abstract features or having to rename the elements. This type of construction, which is enabled by spatial modality, affects how linguistic elements that express grammatical links relate to each other. A noun actualized in an area of space, for example MARIE, leaves a spatial mark that later can only refer to MARIE. The recovery of this mark with the articulation of another element on the same locus, for example READ, indicates a grammatical relationship between the referent MARIE and the action READ. In Example 12, two feminine, singular third-person referents are related to distinct actions. The grammatical relationship between nouns and verbs is essentially expressed through spatial associations.

(12) MARIE(ax) LOUISE(by) 3a-READ(ax) 3b-WRITE(by)
      'Marie reads while Louise writes.'

Reactivation of a noun is never ambiguous in a language such as LSQ, even if several speech nouns share the same grammatical characteristics. In French (Example 13) the pronouns *elle (she)* and *lui (her)* are ambiguous because their referents share the same formal gender and number characteristics.

(13) *Marie offre des fleurs à Lise et elle lui a dit merci.*
      'Marie offers flowers to Lise and she thanks her.'

In LSQ (Example 14), there is no ambiguity because reactivation of the referent is not achieved by a filtering of features that are potentially common to more than

one referent. The reactivation of a locus that refers solely to one element allows for disambiguation.

(14) LISE(ax) MARIE(by) FLOWERS 3b-OFFER-3a(yx) 3a-THANK-3b(xy)
     'Marie offers flowers to Lise and Lise thanks Mary.'

This association allows a noun to be actualized in space and later be reactivated, without having to be repeated before being related to other elements of discourse.

The elements that can be related in this manner can be verbs (Example 15), adjectives (Example 16), clauses (Example 17) or other parts of discourse. In this last case, the part of speech associated with the mark left by the actualization of a noun can be the character's point of view (Miller et al. 2006), or even the time of a location associated with the character or different than the rest of the reported event (Parisot 2003).

(15) PRINCIPAL(ax) STUDENT(by) 3b-PHONE-3(ayx)
     'The student phones the principal.'

(16) MY-HOME CLOSE INDEX(ax) PARK(ax) SMALL(ax)
     'Close to my home, there is a small park.'

(17) GIRL(a) 3a-DRAW(Ry) INDEX3(aRy) NAME(aTx) MARIE(aTx)
     'There is a girl drawing whose name is Marie.'

The strategies used to assign loci or establish relations between elements through spatial marks are the same and include:
– Use of pointing directed towards a locus;
– Direct localization of an element on a locus;
– Inclination of torso towards a locus;
– Direction of eye gaze towards a locus.

Thus in Example 18, the first strategy is used to assign a locus to the noun POLICE-MAN using INDEX3 directed towards locus ... In the same example, the second strategy allowed us to assign the locus x to the noun WORK by articulating the noun directly on the locus instead of producing it in the neutral space, as is done in its citation form.

(18) POLICEMAN(a) INDEX3(ax) WORK(by) POSS.3(bx) 3a-ABANDON(xy)
     'The policeman abandons his work.'

In the Example 19, non-manual strategies enable attribution of a locus to the noun STUDENT by directing the eye gaze towards locus x and by leaning the torso towards locus . and articulating the noun PRINCIPAL simultaneously.

(19) STUDENT(aRx) PRINCIPAL(bTy) 3b- LOVE-3a(yx)
      'The student loves the principal.'

7.2 Order of signs

Although the LSQ sign order is typically Arguments-Verb, we find many different cases of element distribution in sentences. Nonetheless, the verb is never in the first position and arguments are often produced in the *Ground-figure* order (Bouchard et al. 1999). Following the example of two animate arguments, where one is a subject and the other an object, the four recorded orders in a corpus of 144 sentences are as follows:

– Object-subject-verb (54 %);
– Subject-object-verb (40 %);
– Subject-verb-object (3 %);
– Object-verb-subject (1 %);
– Others (2 %).

In LSQ, the order is defined as flexible and results from articulatory and conceptual factors. Conceptually, the representation of relationships between elements is expressed in the language following a *Ground-Figure* construction. The speaker will likely position the *Ground* and then the *Figure*. This order is reflected in all LSQ grammatical relationships:

– Argument-verb (MARIE PIERRE LOVE, Pierre loves Marie.)
– Container-content (VASE FLOWERS PUT, To put flowers in a vase.)
– Owner-object owned (MARIE BOOK POSS., Marie's book.)
– Site-target (MONTREAL QUEBEC GO, Go from Quebec to Montreal.)
– Etc.

With regard to the order Argument-Verb, it seems to be governed more by articulatory constraints than by the category of the verb. Indeed, plain verbs, i.e. those that cannot move in space, do not essentially follow the SVO order in LSQ as it has been proposed for plain verbs in ASL. Both strategies presented above, the manual one (the addition of pointing signs) as well as the non-manual ones (the superimposing of eye gaze and torso position) allow free distribution of this verb category. Example 19 shows an Arguments-Verb distribution including the plain verb LOVE. This distribution is often accompanied by two animate arguments, regardless of the verb category (Parisot 2003).

Bouchard et al. (1999) demonstrate that the variation in LSQ sign order can be explained by considering articulatory economy. They propose four types of economy to identify the choices offered to signers in relation to the various orders noted in LSQ, such as transition economy between:

- handshapes;
- places of articulation;
- movements;
- manual disposition.

The order chosen in (20) shows economy in transitions between handshapes.

(20) EMPLOYEE(a) INDEX(ax) NEWSPAPER(b) 3a-BRING-3b EVERY-DAY)
  'The employee brings the newspaper every day.'

The SOV order in this example from Bouchard et al. (1999) eliminates the transition movements between the handshapes for the signs NEWSPAPER (open hand), EM-PLOYEE (index and thumbs touching) and BRING (open hand). The handshapes for the signs NEWSPAPER and BRING being the same, the chosen order (SOV) is more economical than the more frequent order (OSV). The same applies in example 21, where the economy of the transition between the loci for the signs CHILD (space) LISTEN (ear) TEACHER (temple height) enables understanding of the order chosen by the signer (SVO).

(21) CHILD(ax) 3a-LISTEN-3(by) TEACHER(by)
  'The children are listening to the teacher.'

7.3 Types of sentence

Simple sentences in LSQ contain a verb and at least one argument. Sentences with no semantic ambiguity in the relationship between the verb and its arguments can be articulated without spatial association; in which case there is no movement to indicate the direction of the relationship. This is the case in one-argument senten-ces such as Example 22, or two-argument sentences with one inanimate argument such as Example 23.

(22) MARIE DREAM
  'Marie dreams.'

(23) MARIE CHOCOLATE LOVE
  'Marie loves chocolate.'

Sentences with two animate arguments or two locative arguments must include a spatial distinction in the location of the two arguments. This is the case in Exam-ples 24 and 25. Most of the time, these spatial distinctions are distributed arbitrarily to the left and to the right of the signer, or in more isomorphic positions such as down/up in the expression of authority relationships.

(24) JEAN(ax) COOK(by) 3b-KNOW-neg3a(yx)
'Jean doesn't know the cook.'

(25) TOMORROW MONTREAL(x) PARIS(y) 1-PLANE(yx)
'I am taking a plane from Paris to Montreal tomorrow.'

Complex sentences use the same spatial association pattern as two-argument sentences. However, this consists of the spatial localization of one clause with regard to another. If the clauses in the relationship have the same semantic weight (e.g., enumeration, comparison), they can be produced in different locations using the same localization indicators. This is the case in Example 26, where the signer lists several cities in the Montreal area. Note that a lexical indicator of coordination as a counterpart for spoken French *and* is not used in coordinated structures in LSQ. Coordination can be expressed by simple enumeration (juxtaposition of clauses or noun phrases), spatial enumeration (localization of clauses or noun phrases in different loci), or even by using the digital enumeration process (localization of clauses or noun phrases on different digital loci).

(26) FOR INDEX3(ax) MONTREAL(ax) INDEX3(aX) LONGUEUIL(b)(Rv)
LAVAL(c)(Tw, Rw)) ST-HUBERT(d)(Ty, Ry)) SOREL(e) INDEX3(ez)(Rz)
[...]
'[Services are offered] here, in Montreal, [for cities of the area] Longueuil, Laval, St-Hubert, and farther, Sorel [...]'

The comparative structure in LSQ is achieved by producing two clauses in two different loci (usually to the left and to the right) and by optionally connecting these two clauses with a comparison indicator (e.g., LIKE, SAME, DIFFERENT, OR, etc.).

Complex sentences involving a subordinate relationship (e.g., conditional as in Example 27, relative as in Example 28, etc.), i.e. where completion of the meaning of one clause depends on completion of the clause with which it is related, are structured differently from enumerations or comparisons. In sentences involving a relationship of dependence, the subordinate clause and the main clause will be located in different locations in space, with distinct spatial association markers, usually an eye gaze on one clause and a body shift (torso inclination) on the other clause, as shown in the following examples. In Example 27, the condition (DOLL FIND) is spatially marked by an eye gaze in a non-first person location while the main clause (SLEEP) is spatially marked by a torso movement in the first person position. In Example 28, the main clause (GIRL DRAW INDEX), localized by an eye gaze, is followed by the explanation (NAME MARIE), spatially marked by a distinct torso inclinations.

(27) DOLL(a) 1-FIND-3a(x)(Rx) 1b-SLEEP
'If I find my doll, I will sleep.'

(28) GIRL(a) 3a-DRAW(Ry) INDEX3(aRy) NAME(aTx) MARIE(aTx)
      'There is a girl drawing whose name is Marie.'

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31 Spanish Sign Language[1]

1 Basic facts about the language

Language name: *Lengua de signos española* (Spanish Sign Language), abbreviated as LSE.

Alternative name: *Lengua de señas española* (Spanish Sign Language). There is an ongoing debate regarding the name of the most widely spoken sign language in Spain. The Deaf community prefers the term *lengua de signos*, visually closer to the English expression *sign (language)*, to the patrimonial form *seña* (sign). It is also common to spell it with initial capital letters (*Lengua de Signos Española*), although this goes against the orthographic rules of Spanish. Linguists have differing opinions regarding what the proper denomination should be. The main argument put forward for this is the technical use that many European linguistics make of the term *signo (sign)*. The law that regulates the linguistic rights of Deaf people since 2007 uses the expression *lenguas de signos* (*sign languages)*.

Location: The entire Spanish territory, except Catalonia

Related languages: For nationalist reasons, Deaf people in Catalonia demand the recognition of their own sign language, *lengua de signos catalana* (Catalonian Sign Language), abbreviated as LSC.

Number of signers: According to the *Ethnologue* (Lewis, Simons and Fenning 2013), in 1994 there were 102,000 LSE users and 18,000 LSC users in Spain. Gras-Ferrer (2004) chooses an estimate according to which the number of signers in Spain would be under 20,000.

Organizations for the Deaf: the Deaf associationist movement in Spain has a pyramid structure. The *Confederación Estatal de Sordos de España* (CNSE, Spanish State

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Confederation of the Deaf) encompasses all the federations in the different autonomous regions and, at the local level, there are associations for the Deaf in most cities.

2 Origin and history

Little is known about the origin of the language. The first document that allows us to analyze a historic stage of its development is an index of manual signs included by Lorenzo Hervás y Panduro in his work *Escuela española de sordomudos* (Spanish School for the Deaf-Mute), published in 1795. Lorenzo Hervás was a true pioneer in the research on sign language. The index he compiled has three parts: the first includes signs used in schools to name parts of the sentence; the second provides a short glossary of signs (about 106 terms[2]); and the third, some syntactic structures in LSE.

Another milestone in the evolution of the language is the *Diccionario de mímica y dactilología* (Mime and Fingerspelling Dictionary) by Francisco Fernández Villabrille (1851), which records 1547 signs with descriptions of how they are produced. This dictionary allows us to compare the signs with their current form and thus see their evolution.[3]

The history of the language is tightly bound with the history of the education of Deaf people. In Spain, this education has gone through different stages, some favoring the oralist tendency and others the manualist tendency.

In the 16th century, Fray Pedro Ponce de León took charge of the education of the two deaf brothers of Constable Don Pedro de Velasco. He was a benedictine monk. Susan Plann (1997: 19) hypothesizes that the monastery was ideal for teaching deaf children, as signing was an ancient practice in European benedictine monasteries from the Middle Ages. The author also mentions some contemporary observers who would refer to his methods. Apparently, he communicated with the Deaf children through signs and writing, and they were asked to respond orally. However, the information about his method is scarce, although there are testimonies of the good results he obtained.

Ponce de León had two followers: Ramírez de Carrión and Juan Pablo Bonet. The latter left two works, *Reducción de las letras* (Letter Reduction) and *Arte para enseñar a hablar a los mudos* (Art to Teach the Mute to Speak) (1620), published

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2 It also includes a list of "methodical" signs, that is, signs that refer to grammatical terms.
3 Both the above-mentioned texts by Hervás y Panduro and the dictionary by Fernández Villabrille may be accessed through the *Proyecto Diccionario Histórico* (Historic Dictionary Project) of the Biblioteca Virtual Cervantes (Cervantes Virtual Library) (see Herrero-Blanco, Nogueira and Peidró 2001 in the specific bibliography on LSE).

by Tomás Navarro Tomás (1924), which describe Ramírez de Carrión's teaching method and include a version of the hand alphabet used in Spain. The method described in the books functioned in the following way: first, the object to be named was explained visually through an image with the written name; then, the meaning of the object was explained through sign language. At that time, Spain was a pioneer in this field, and these methods were exported to England and France.

There are no other remarkable documents on the education of the Deaf in Spain until 1795. In that year the Jesuit Lorenzo Hervás y Panduro, intending to continue the work started by Ponce de León, published *Escuela española de sordomudos o arte para enseñarles a escribir y hablar el idioma español* (Spanish School for the Deaf-Mute, or Art to Teach Them to Write and Speak the Spanish Language). The abbot, who included a brief glossary of the signs used by the Deaf at the time, as we mentioned earlier, taught words and gestures simultaneously. He was ahead of his time, and was little understood, when the idea of teaching the Deaf did not awake much interest. He coined the term *Deaf-mute* to refer to the Deaf (previously, the term *mute* was used, without taking into account that the problem was related to the ear and not to the voice). He was aware that he was dealing with a language, not an artificial system, but he was mistaken when he considered it universal.

The first school for the Deaf opened in 1805, and throughout the 19th century, teachers of Deaf people used sign language in education. The teachers José Miguel Alea, Juan Manuel Ballesteros and Francisco Fernández Villabrille stood out at the time as advocates of the use of sign language to teach the Deaf.

In the early 20th century there was a renewed interest in Deaf culture and sign languages. Worth mentioning at this time is Juan Luis Marroquín, who founded the *Federación Nacional de Sociedades de Sordomudos de España* (Spanish National Federation of Deaf-Mute Associations, FNSSE) in 1936, the forerunner of the present-day Spanish State Confederation of the Deaf (CNSE). He also participated in the constitutional convention of the World Federation of the Deaf in 1951. From the 1960s onwards, the associationist movement acquired a key role.

In the late 20th century, several people were influential in the development of sign languages in Spain. The work of Félix Pinedo is basic for the understanding of Deaf culture and the world of the Deaf. He wrote several books on Deaf culture in which he describes his own experience, including *El sordo y su mundo* (Deaf People and Their World 1981) and *Una voz para un silencio* (A Voice for A Silence 1989). This Deaf teacher of sign language also set about compiling the *Diccionario de lengua de signos española* (LSE Dictionary), of which there are now several editions.

3 Bilingualism and language contact

3.1 Education

We will focus on the educational context, because it is here that the greatest tensions and the strongest demands for a greater presence of sign language arise. It is necessary to mention that a law recognizing the Spanish sign languages was passed in October 2007. This would suggest a significant change in the education of Deaf students has taken place, but it is still too early to assess the positive impact of this law on the educational system (see the next section).

Parents of Deaf children can choose from different educational models for their children:

> The educational models available to a student in the Spanish State appear in Section 4 of the *Ley Orgánica 10/2002 de 23 de diciembre, de Calidad de la Educación* (Organic Act 10/2002 of 23rd December, on the Quality of Education, [LOCE]), Article 45.1:
> a) Integration in ordinary classrooms.
> b) In specialized classrooms within ordinary schools.
> c) In Special Education Schools.
> d) In combined education.
> (Esteban-Saiz 2003: 27)

The associations for the Deaf stress the need for bilingual education. In this way, Deaf people would achieve competence in two different languages: sign language and spoken language. For Deaf children it is basic to have a sign language as their native language, or first language, because it is necessary for their cognitive and linguistic development. On the other hand, spoken language is the bridge between the Deaf community and the rest of the hearing society. Bilingual education, or combined education, has been implemented in two different ways in Spain: in integrated schools and in specific schools. The experience of integration has not been very positive in our country, as described by Emilio Ferreiro for the magazine *Faro del silencio*:

> "si hay un solo niño sordo y 20 niños oyentes, lo más probable es que el niño se quede totalmente aislado y eso es muy negativo. Si hay tres, cuatro, cinco niños sordos, la situación cambia muchísimo". (Abella 2005: 12)

> [if there is only one Deaf child and 20 hearing children, the Deaf child will probably end up completely isolated, which is very negative. If there are three, four, five Deaf children, the situation changes dramatically.]

The associations for the Deaf demand two support professionals to implement bilingual education programs:

a) Deaf advisors:[4] Deaf people that are present in the first years of the child's education: Nursery School and Primary School. They serve as educational role models for the children, and also for hearing families with Deaf children. They help the children learn SL and cooperate with teachers and parents to improve communication strategies.

b) Sign language interpreters:[5] The interpreters help Deaf students to follow the lessons in the classroom. These professionals work in Secondary Education and University.

As Plaza-Pust (2004) indicates, there are a series of factors that do not further bilingual education: the problem of the *recognition of sign language as an official language* (this one has been solved, to a certain extent, in Spain), the *predominance of oralists in the educational institutions*, *the parents' lack of information*, *the prejudices against bilingual education and the lack of economic and human resources*. This is extremely negative because, at this time, there is still a struggle to implement this system, rather than to improve a system that should already be functioning.

3.2 Standardization

A lot of materials for standardization and learning have been developed, particularly by the CNSE Foundation (see below, specific bibliography on LSE). A good example is the electronic resource DILSE: *Diccionario normativo de la lengua de signos española* [LSE Normative Dictionary] (Fundación CNSE 2008). A printed version was published in 2011 (Vicente 2011). From 2011 there exists a LSE Linguistic Normalization Center (CNLSE in its Spanish abbreviation).

3.3 Influence from dominant languages

LSE, as other signed languages, is influenced by the vocal languages that are in contact with it, particularly from Spanish. It is usual to form a new sign with the

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4 This professional figure arises from the *Convenio de Colaboración en Materia de Atención Educativa al Alumnado con Necesidades Educativas Especiales Asociadas a Discapacidad Auditiva* (Cooperation Agreement on Educational Attention to Students with Special Educational Needs Related to Hearing Impairments) signed by the Ministerio de Educación y Ciencia (Ministry of Education and Science, MEC) and the Confederación Estatal de Personas Sordas (State Confederation for the Deaf, CNSE) in 1994.

5 They were established in 1992, when a cooperation agreement was signed between the Ministry of Education and Science and the CNSE to assign three interpreters to different high schools in Madrid. In 1999–2000 there were 23 interpreters for 17 high schools in Madrid, Burgos and Salamanca. Nowadays, this interpretation service in secondary education is expanding and its quality varies from one autonomous region to another. The situation is quite different at the university level,

handshape corresponding to the initial letter of the Spanish word in the hand alphabet. This is the case for HIPOTECA ('mortgage'), as shown in Figure 19.

4 Political and social context

4.1 State of the language

The Spanish Deaf community is well aware of the debate that is going on in other countries regarding the future of their sign language.

From a legal point of view, the situation of the Deaf in Spain today is one of the most advanced in the world. An act[6] recognizing two sign languages in the Spanish state, Spanish Sign Language (LSE) and Catalonian Sign Language (LSC), was passed in October 2007. Both of them have acquired the status of official languages of the Deaf communities that live in Catalonia (in the case of LSC) and in the rest of the Spanish territory (LSE). The law recognizes the rights of Deaf people who choose to use a sign language,[7] both in the area of education and in the public services, so that they may have interpreters available in different areas of public life. In addition, the law establishes the creation of the *Centro de Normalización Lingüística de la Lengua de Signos Española* (LSE Linguistic Normalization Center).

At the time of writing this chapter, research was being carried out in order to find out the perception of Deaf people in Spain regarding the implementation of the legal text, and it may be too soon to assess whether this law is having a positive impact on the daily life of the average Deaf person. However, it does seem appropriate to analyze several aspects that may shed some light on the difficulties that arise when trying to apply the provisions of the law.

Regarding the introduction of sign language in compulsory education so that Deaf people may learn it and hearers may also have the opportunity to learn to use it, the political structure of Spain means that in much of the territory the responsibility in the area of education falls to the governments of the autonomous regions. This implies that those governments must draw up similar laws to the one we are discussing and pass them in their parliaments, as well as provide the necessary

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especially because university entrance exams are very difficult for Deaf students due to linguistic barriers in their skills in written Spanish, and few of them go to university.

6 *Ley 27/2007, de 23 de octubre por la que se reconocen las lenguas de signos españolas y se regulan los medios de apoyo a la comunicación oral de las personas sordas, con discapacidad auditiva y sordociegas* (Act 27/2007, of 23rd December, which recognizes the Spanish sign languages and regulates the means to support the oral communication of Deaf people, people with hearing impairments, and Deaf-blind people).

7 In the case of Deaf children, the parents decide whether or not the children will learn one of the two sign languages recognized and regulated by the law.

economic and human resources so that those rights may be truly exercised. Only the governments of Catalonia and Andalucía have passed laws regulating linguistic rights for Deaf people.

In several autonomous regions, even before the law was enacted, interpretation services began to be introduced in the classrooms, particularly in secondary education. These attempts, though still inadequate, suggest a desire to integrate young Deaf people in the educational context through their own language. The use of LSE as the language of instruction in the classroom is still very limited and, except in very specific cases, it depends on the willingness of teachers, who attend courses on their own initiative to learn LSE.[8]

Regarding the acknowledged right of the Deaf community living in Spain to have interpretation services in their sign language in order to be able to access public services on equal terms, the difficulties that arise in practice are similar to those in the educational context, since the autonomous governments are also responsible for the provision of social services. Although nowadays the public administrations are beginning to incorporate sign language interpreters to their staff, it can be said that even today, the associations for the Deaf still bear the brunt of managing interpretation services, funded with government subsidies. In general, Deaf people complain that the services are insufficient and that they must be requested too far in advance.

4.2 Maintenance efforts

As has been mentioned in the previous section, the CNLSE is the organization that has the responsability of LSE standardization and dissemination. Before its creation in 2011, a specific group devoted to linguistic policy worked within the CNSE. This group promoted work on linguistic normalization for some years. For instance, it has published several dictionaries (see specific bibliography on LSE), an LSE textbook and other material. The *Federación de Sordos Catalana* (Catalonian Federation for the Deaf, FESOCA) has also taken similar initiatives for the LSC. These organizations for the Deaf argue that the linguistic planning of sign language must take into account the opinion of its users, the Deaf. Therefore, they believe they should be the ones to manage the task of normalization, since sign language constitutes a linguistic and cultural heritage that concerns them (Ferreiro-Lago and Esteban-Saiz 2009).

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8 Gras-Ferrer has researched, among many other data, the percentage of professionals working in the field of Deafness that take sign language courses and states: "In schools that have professionals with some level of sign-language competence, only 38.9 % of these people use sign language as a means of instruction. This does not generate much optimism about Deaf children's future exposure to sign language" (Gras-Ferrer 2004: 241). It must be pointed out that the study and these claims are prior to the enactment of the law that regulates Deaf people's linguistic rights in Spain.

Some Spanish universities have contributed to the debate regarding LSE standardandization and promotion, and CNLSE gives arguments related to the importance of education for the future of sign language and for linguistic normalization. Only universities can train professionals for sign language interpreting and teaching in conditions that guarantee adequate standards of quality. In order to dignify sign language, it is essential to introduce it into the university curriculum. In Spain, the training of sign language interpreters was regulated for the first time in 1995 through vocational training programs,[9] which means that these professionals are not required to have a university degree to carry out their work.

We should not overlook the fact that the number of sign language courses has increased significantly in recent years, both those offered by associations for the Deaf and those offered by universities. However, although it is a fact that some Deaf people are teaching LSE at the universities and collaborating in LSE research, they have not reached the doctorate degree yet, nor have a tenure position. There exists a growing interest on the part of society in the language and culture of the Deaf. In addition, a greater visibility of sign language can also be perceived in public events, especially when they are supported by a political party or by a public administration service committed to the Deaf community. Regarding television, the percentage of programs interpreted into sign language has risen in recent years, although it still needs to increase.

5 The structure of signs

In order to analyze the structure of signs in LSE, we will start with an initial classification of the signs according to their basic components, handshape, place of articulation and movement. Below we will describe the basic components involved in the production of the signs, taking into account the indications of the *Diccionario normativo de la lengua de signos española*, abbreviated DILSE (LSE Normative Dictionary, Fundación CNSE 2008), which we have chosen because it has been compiled with the intention of unifying LSE.

5.1 Classification of the signs

Considering the different basic components and how the hands are involved in the production of the signs, we can distinguish:

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9 This professional is recognized in *Real Decreto 2060/95 de 22 de diciembre de 1995* (Royal Decree 2060/95) of 22nd December 1995), which establishes the vocational training program *Título de Técnico Superior en Interpretación de la Lengua de Signos* (Sign Language Interpreting Higher Level Technical Certification).

1. Monomanual signs: those produced with one hand only. For right-handed signers, the hand involved is the right hand, and for left-handed signers, the left hand. This is called the dominant hand.

2. Bimanual signs: signs that involve both hands. These signs can be produced in two ways:

    a) The dominant hand makes the sign, while the other hand acts as a base. In the production of this kind of signs, the non-dominant or passive hand is restricted to a limited set of possible handshapes, which are the numbers 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 13, 16, 19, 22, 23, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 59, 60, 62, 63, 65, 66, 67, 68, 72, 74, 75 and 85 in Figure 4. For all these handshapes DILSE offers some examples.

    b) Both hands participate actively in the production of the sign. In this case, the passive hand tends to mirror the handshape and the movement of the dominant hand, but this may occur in three different ways:

    (i) The dominant hand and the passive hand make exactly the same movement. (AUSTRALIA)

Fig. 1: AUSTRALIA.

    (ii) The passive hand alternates movement with the dominant hand. (JUSTICE, EXAM)

Fig. 2a: JUSTICE.   **Fig. 2b:** EXAM.

(iii) Both hands start at the same point and separate in opposite symmetrical movements. (TRAVEL)

Fig. 3: TRAVEL.

5.2 Basic components

The DILSE (LSE Normative Dictionary, Fundación CNSE 2008) is an LSE dictionary that lists entries both in oral language and in sign language. In this second case, certain steps must be followed to look up a sign: first, one must choose the handshape; secondly, whether one or both hands are used; thirdly, whether both hands share the same handshape and movement; then, one can select an orientation and, finally, it is possible to select a place of contact or a place of articulation.

5.2.1 Handshape

Handshape refers to the shape taken by the fingers of the hand when producing a sign. There are a wide variety of possibilities, so it is quite difficult to establish the exact number of handshapes that exist in LSE. In fact, researchers disagree on this point. For example, Rodríguez-González (1992) lists twenty-nine different handshapes, while Muñoz-Baell (1999) identifies seventy-one handshapes, although she points out that only forty-five of them have a distinctive value.

The DILSE includes a total of eigthy-six handshapes (see Figure 4), which we will not describe in detail.

It must be pointed out that some of the handshapes match the letter handshapes of the manual alphabet. This is the case, for example, for numbers 1 (A), 48 (B),[10] 54 (C), or 55 (O).

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10 For B fingers in handshape 48 are oriented to the left, considering the perspective of a right-handed signer.
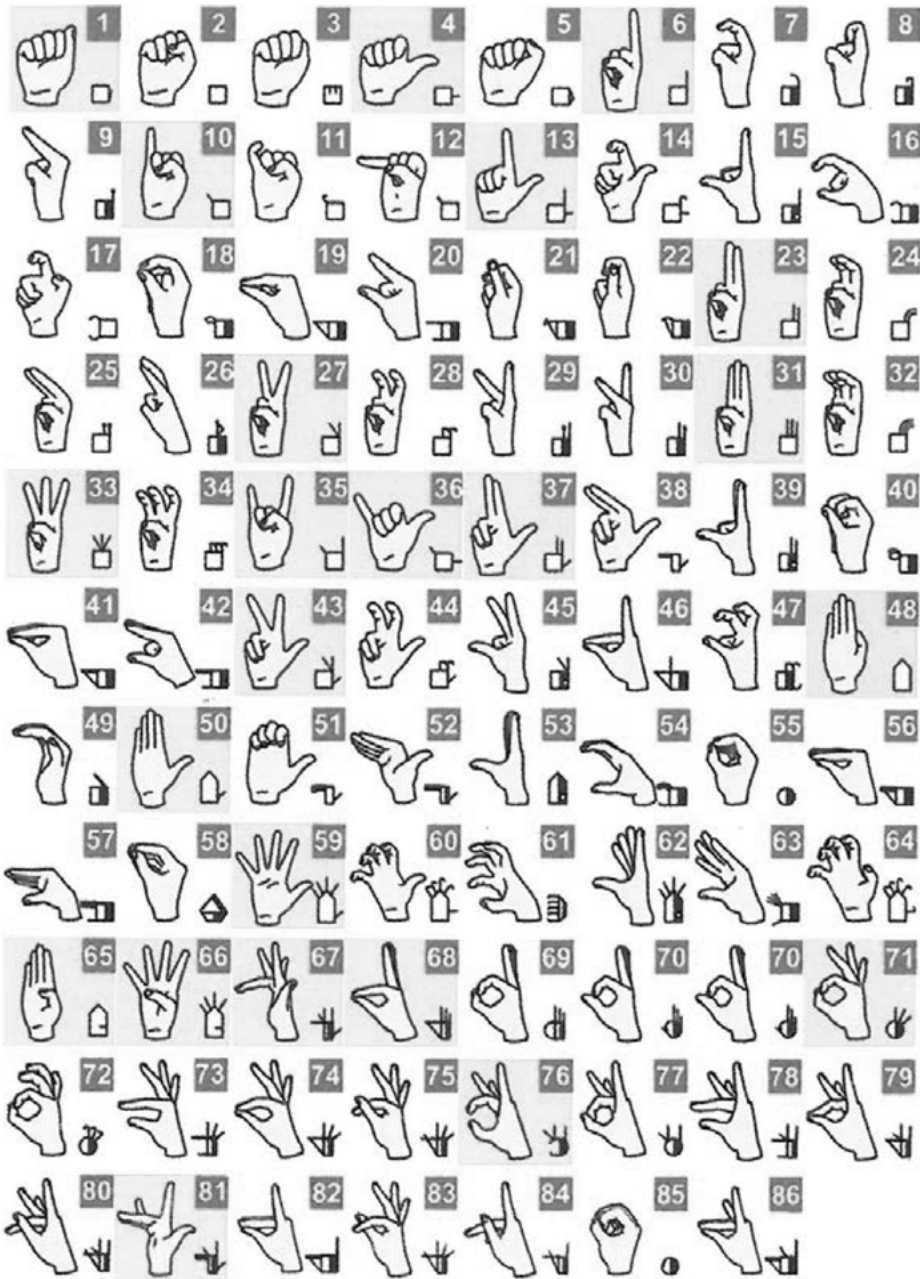
Fig. 4: Handshapes.
(Copyrigth Fundación CNSE, reproduced with permission)

5.2.2 Place of articulation or location

This is the area where the hand moves to produce the sign.

The area of the face stands out as the most relevant when locating a sign. This is because signers look each other in the eye while they speak; therefore, it seems only natural that this area should favor the production of more subtle and detailed signs (see Figures 5a, 5b, 5c).

Another area worth mentioning is the neutral space (which refers to the area in front of the signer). In this case, the degree of relevance will increase according to its proximity to the face; see the examples in Figures 1 and 2: AUSTRALIA, JUSTICE, EXAM, as Siple predicts: "From data on visual acuity we predict much finer distinctions will be made in the hand-shape, location and movement of signs performed near the center of the viewers vision, i.e. signer's face and upper body, than in the same aspects of signs farther away from center of fixation" (Siple 1978: 107).

Some researchers have compiled quite a detailed list of the places where a sign can be articulated in LSE. For instance, Rodríguez-Gonzalez (1992: 177–179) indicates twenty-five places of articulation divided into four main areas: the neutral

Fig. 5a: RED.
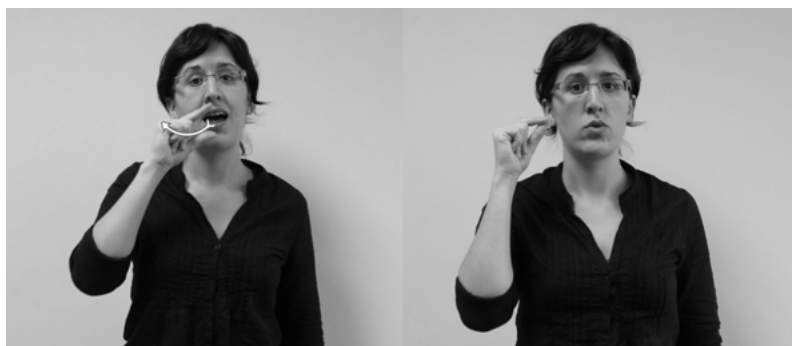
Fig. 5b: LIP.

Fig. 5c: CURIOUS.

space, the head, the passive arm and the passive hand. The author adds finer distinctions within each of those four basic areas. Muñoz-Baell (1999) includes some other areas, such as the shoulders, the chest, the waist, and the sides of the body.

The DILSE does not show an exhaustive inventory of the different places of articulation, but it does offer the possibility of selecting nine areas over the body or six places of contact. Signs such as AUSTRALIA or TRAVEL (see Figures 1 and 3) are produced without contact, while RED and CURIOUS (see Figure 5a, 5c) require contact.

5.2.3 Movement

We can distinguish between simple movements and simultaneous and sequential movements (Brennan 1992), depending on the hands involved.

Thus, simple movements can be straight (DUTY, Figure 6a), circular (WASHING-MACHINE), arching (MUSIC), wavy (CANTABRIA, Figure 6b), spiral (CURL, Figure 6c), or zigzag (LIGHTNING).
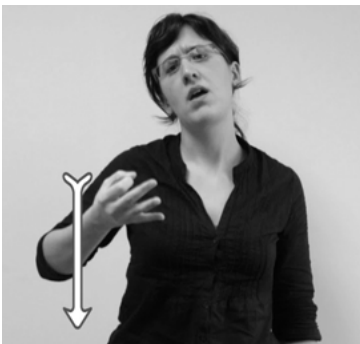
Fig. 6a: DUTY.

Fig. 6b: CANTABRIA (a geographical name).

Fig. 6c: CURL.

Regarding movements in which both hands are involved, the DILSE considers the possibility of symmetrical movements of both hands, either simple (AUSTRA-LIA) or alternating (JUSTICE), and of different movements of each hand. The latter means that the dominant hand moves and establishes contact (or not) with the passive hand, which remains in place (BEER, Figure 7).

Fig. 7: BEER.

Movement is related to hand orientation. Hand orientation can be functional in signed discourse. It is grammatical for the expression of arguments in agreement verb clauses (*cfr. infra* sections on *Classifiers* and *The syntax of agreement verbs*).

5.2.4 Non-manual component

The literature on LSE usually mentions the non-manual component, although it is not commonly found as a basic part of lexical elements. Facial expression and the movement of the head and the torso are involved in the articulation of signs such as SWEET/PAIN (Figures 8a, 8b), which are produced in exactly the same way, except for the non-manual component. The non-manual component may also have other functions, which we will discuss below in the sections *Described Morphological Processes in LSE* and *The Functions of the Non-Manual Component in the Area of Syntax*.

Mouth action can act as a resource for differentiating two or more concepts which are represented by the same manual sign but must be distinguished in dis-

Fig. 8a: SWEET.

Fig. 8b: PAIN.

course. In these cases the oral movement reproduces partially the articulation of the Spanish vocal word. Iglesias-Lago (2006: 252) provides some examples involving modal signs.

6 Associated sign systems

The hand alphabet is a way of representing the letters of the Spanish alphabet and is used by the Deaf to express oral language place names and proper names, as well as terms for which there is still no sign.

This option is used quite frequently by Deaf people to communicate with hearers. However, we should point out that the Spanish Deaf community is rather reticent to use the hand alphabet (or fingerspelling) to communicate with each other. On the other hand, it is very useful for LSE interpreters, since in their work they
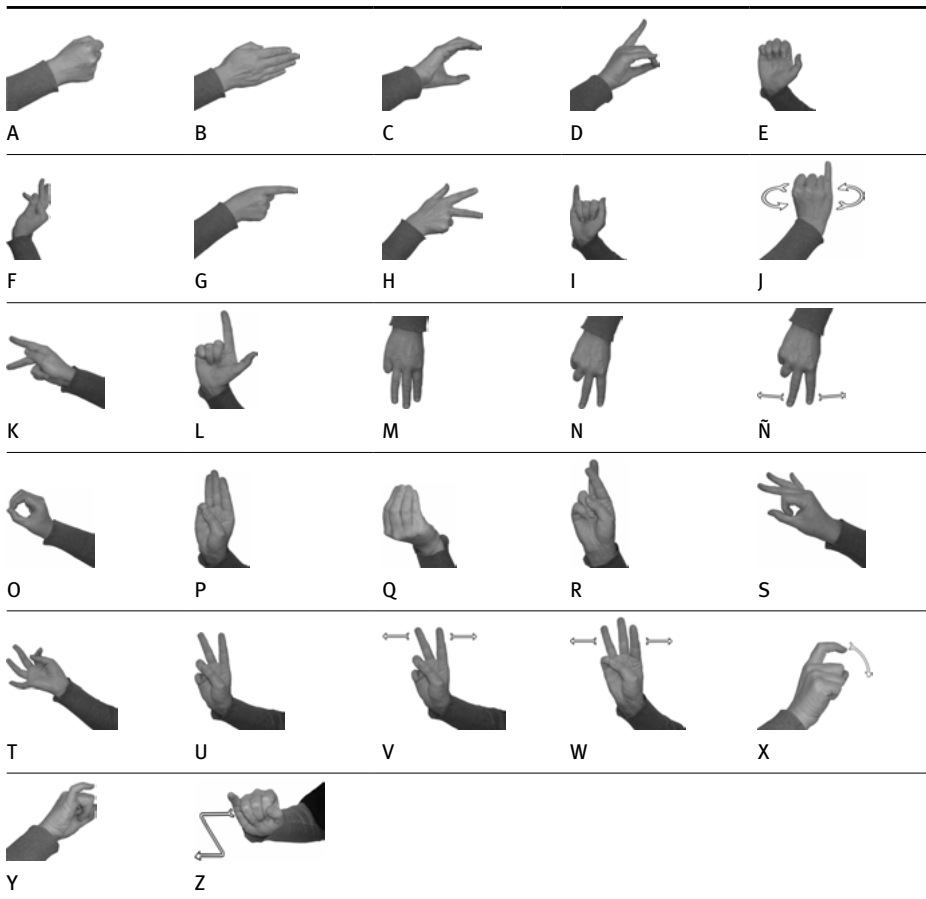
Fig. 9: Hand alphabet.

often find concepts for which there is no sign, or proper names that are not sufficiently known among the Deaf community to have their own sign.

The hand alphabet is a good example of contact, since it illustrates how spoken language is present in LSE in the creation of new terms. In fact, the hand alphabet has become a process of coining new vocabulary and it is now present in the production of many signs.

In Spain, the use of the hand alphabet was recorded as far back as the 17th century, in the work of Juan Pablo Bonet (see the section *Origin and History*). His books include drawings of the manual representations of the letters, which have undergone few changes since then to the current hand alphabet used by Deaf people in Spain today.[11]

7 Basic morphology and lexicon

7.1 Nouns and verbs

From a semantic-referential point of view, the basic distinction between nouns and verbs can be summarized by saying that nouns refer to objects (whatever type they may be, concrete or abstract, among other possible classifications) and verbs to actions or events.

From a formal point of view, in oral languages nouns are commonly affected by certain types of modifications, such as gender, number, case or determination, while verbs undergo distinctions like aspect, tense, mood or person.

When considering which morphological processes characterize nouns and verbs, respectively, in LSE, we are faced with quite a complex picture, since some of the traditional categories, such as tense, are not associated either to the verb or to the noun.

In addition, we find morphological processes that may be associated both to signs that refer to things (apparently nouns) and to signs that refer to actions or events (therefore, likely to be considered verbs). One such process is repetition. This is due to the spatial-temporal nature of signs, which allows their basic components, particularly handshape and movement, to be combined in order to turn an entity (an object) into a process. For example, in LSE, the same sign is used for the noun WORK and for the verb TO WORK.[12] However, we will understand that it is a

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11 As an interesting aside, we would like to mention the illustrations of the manual alphabet painted by Goya under the title ʿGoya en Piedrahitaʾ, in 1812. The artist's Deafness has turned him into a very influential Figure for the Deaf community.

12 The same manual articulation can be interpreted as an adjective (CURIOUS), a verb (TO BE CURIOUS) or a noun (CURIOSITY) (cfr. Rodríguez-Gonzalez 1992: 253) (see Figure 5c, CURIOUS). The sign used to mean TO HARVEST is also the sign used to refer to the month of AUGUST, illustrating a kind of metonymic relationship (cfr. Pinedo 2000, s. v. *agosto* and *segar*).

verb when it is associated to certain repetitive movements that, together with a specific facial expression, indicate iterative or durative aspect. Something similar applies to SHIP and TO SAIL: the sign for the verb admits variations in movement that express aspectual distinctions (how the process of sailing takes place), emphasized by a particular facial expression. Thus, for instance, to express sailing for a long time, the manual articulation will be repeated several times, accompanied by a blowing facial expression.

7.2 Described Morphological Processes in LSE

7.2.1 Repetition

The reduplication or repetition of a movement is a morphological process that has been identified in several sign languages, including LSE. This phenomenon has been studied by Fernández-Soneira (2008). Associated to nouns, it expresses plurality, and it is used with signs that meet certain articulatory conditions. In particular, they must be produced in the neutral space, without any contact with the body. According to the author, it is more likely to occur in the following cases (cfr Fernández-Soneira 2008: 42–43):

– Monomanual signs articulated in the neutral space: PERSON, CHILD (Figures 10a, 10b)
– Symmetrical bimanual signs: HOUSE[13] (Figure 10c)
– Some asymmetric bimanual signs, with a non-dominant or passive hand and a dominant or active hand: THING (Figure 10d), MONDAY.

Fig. 10a: PERSON.

Fig. 10b: CHILD.

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13 Author's examples for LSE.

Fig. 10c: HOUSE.

Fig. 10d: THING.

In the case of verbs, repetition is associated with the continuous, intensive or iterative aspects (Fernández-Soneira 2008: 126–129). For instance, in a verb like READ, which is articulated with a V handshape oriented towards the passive hand, the repetition of the circular movement indicates reading for long time.

7.2.2 Incorporation

The term incorporation has been used in a sense that is very similar to its usual meaning in the literature on oral languages, that is, to describe those cases in which a classifier handshape acts as a predicate (Meir 1999) or, in other words, as a phenomenon through which a noun is incorporated into a verb stem.[14] However, when this phenomenon is described in a sign language, it is typically considered as

> una fusión de dos señas con existencia independiente en la lengua, una seña base (seña incorporante) y una seña incorporada que puede ser un modificador, un elemento negativo o un cuantificador numeral, de forma que se mantienen todos los parámetros formativos de la seña incorporante salvo uno de ellos, la configuración, que se modifica al añadir la información nueva; el resultado será una única seña que amalgame los significados de las dos señas fusionadas. (Fernández-Soneira and Martínez-Fuentes 2003: 68–69)

> [a merger of two signs existing independently in the language, a base sign (the incorporating sign) and an incorporated sign, which may be a modifier, a negative element or a numeral quantifier, in such a way that all the formation parameters of the incorporating sign are main-

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14 The phenomenon of noun incorporation as the reduction of a clause constituent was studied by Mithun (1984), who defined it as follows: "an N stem is compounded with a V stem to yield a larger, derived V stem" (Mithun 1984: 847).

tained, except one of them, the handshape, which is modified by the addition of new informa-
tion. The result is a single sign that blends the meanings of the two merged signs.]

We will focus on numeral incorporation, which is the most productive process. The
incorporation of a negative occurs occasionally in some specific signs, such as
KNOW-NO. Regarding the incorporation of a modifier, size information may be
added to some signs, as in BELLY-BIG (Figure 11). In these cases, dimension is
expressed iconically through the amplification of the manual articulation and a
non-manual component involving puffed cheeks and blowing, characteristic fea-
tures of the expression of degree in LSE.

Only a few nouns in LSE admit the process of numeral incorporation. The fol-
lowing conditions must be met:
a) The handshape of the base sign contains the numeral 1 or, in other words, the
   G handshape (see pictures in Figure 9).
b) In general, the sign refers to a unit of time (such as "hour", "week", "month"
   or "year").[15] In some cases, the sign incorporating the numeral is articulated
   on the time axis (see below the section on the expression of time), in order to
   express, for example, "two years from now" or "in two years' time."

It is generally possible to incorporate numerals from 1 to 10. In the case of HOUR,
the series from 1 to 5 is signed with the dominant hand on the wrist of the base
hand, tracing a circular movement. The series from 6 to 10, which requires the two
hands to quantify the articulation, is located in the neutral space.

Fig. 11: BELLY-BIG.

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15 There are some other nouns that do not refer to units of time, but to countable things, whose
articulation contains the handshape G, such as FLOOR, and that allow the incorporation of the
ordinal number: first floor, second floor, etc.

Fig. 12: 2-MONTHS.

Fig. 13: 4-WEEKS.

In the case of weeks, incorporation is possible for numerals 1 to 4, tracing a movement from left to right (from the signer's point of view) with the finger or fingers extended outward. Incorporation is limited to these four numerals in reference to the four weeks in a month, which are represented by the passive hand with the index, middle, ring and little fingers together and extended. However, for numeral incorporation to take place, the presence of the passive hand in this handshape is not required. Over the fingers, the dominant hand signs 1, 2, 3 or 4 weeks, noting that the deictic nature of this articulation[16] makes it possible to refer to alternate weeks.

7.2.3 Classifiers

Some languages have morphological or morphosyntactic processes to refer to objects by one of their properties, that is, classifying them according to different criteria: shape, size, the way in which they are manipulated, or other similar characteristics. In LSE, like in other sign languages, this kind of processes are very productive, both in the area of lexical creation and in signed discourse, where great iconographic advantage can be taken of the use of manual handshapes combined with other parameters, particularly movement, orientation, contact and facial expression.

We will suggest a restrictive definition, excluding the transference processes described by Cuxac (2000: 31–95). This author analyzes and describes statements in which a signer "speaks as he shows," that is, a type of discourse that is not

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16 We have identified the most iconic uses. As described in Cabeza and Fernández-Soneira (2004: 79), the signer may use the iconic reference provided by the non-dominant hand to indicate a specific day of the month. In this process, the gaze plays an important role in making the object represented by the passive hand actual or real.
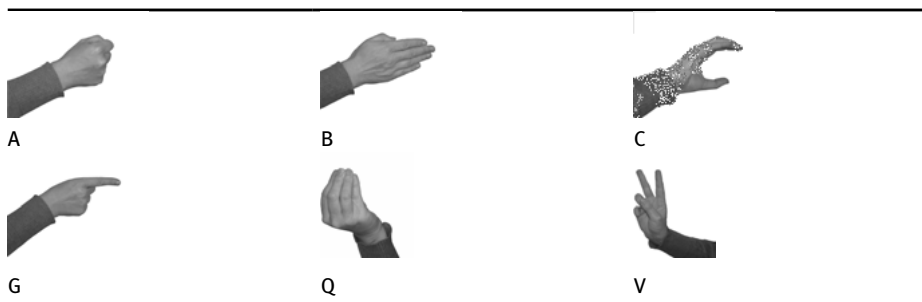
Fig. 14: handshapes A, B, C, G, Q, V.

signed in a standard language, but in a highly creative and iconic way. We must point out, however, that some of the handshapes referred to by Cuxac are of a classifying nature.

We understand, then, that a classifier is a handshape that, combined with a location, an orientation, a movement and non-manual components, allows a predication[17] to be formed. These handshapes act as proforms in the discourse when they are combined with the other components mentioned. We will restrict this analysis to the description of some classifier handshapes, disregarding the types of movements these handshapes may trace (Valli and Lucas 1995: 77–78, quoting Supalla 1978).

Some handshapes that can act as classifiers are those in Figure 14.

For example, to represent moving vehicles (more specifically, different types of cars) LSE usually uses a B handshape (extended hand with fingers together), which may undergo modifications depending on the movements and circumstances described (for example, the fingers may be bent as a result of a collision with another referent expressed by the passive hand; see Video Frames 1).

The same B handshape may be used to refer to any flat object, like a book or a notebook. However, the signer may also use another classifier for the object "book", referring to it by means of its thickness through a C handshape, in which the fingers may be more or less open according to the thickness of the book men-
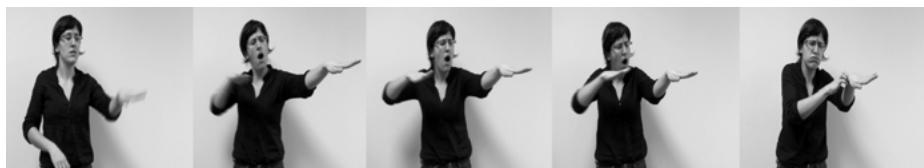
Video Frames 1.

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17 Definition, adapted by the authors, from Valli and Lucas (1995: 77).

tioned. When a classifier refers to a gradual notion, as in this case, the facial component is involved to modulate the degree, as in the earlier example BELLY-BIG (see Figure 11). The C handshape may represent the way in which the object is manipulated (for instance, how it is taken from a shelf). It is also used to represent cylindrical objects, like glasses.

Different classifier handshapes may be used to refer to people. The most common one is the G handshape, mentioned in the section on numeral incorporation. To refer to a moving individual, it is used with an upward orientation. Another person classifier is the V handshape oriented downward. This one allows the action of walking to be described through the alternate movement of the two fingers, the index and middle fingers. The fist (A handshape) is yet another person classifier, which represents the head (see Figure 14).

7.2.4 Aspect

We have already seen that non-manual components may be associated to classifiers and, in general, to any signs that express gradable qualities, in order to indicate greater or lower intensity. In addition, facial gestures usually convey aspectual information in verbs.

In LSE it has been observed that there are certain non-manual morphemes whose presence constitutes an aspect marker in the predicate. For example, a tense facial expression with clenched teeth and raised eyebrows can be related to the inchoative aspect. The continuous aspect is usually expressed through the vocalization of the Spanish gerund morpheme: *-ando*, *-endo*, *-iendo*; arbitrary oralizations: *la-la-la*, *pa-pa-pa*, *po-po-po*, *z-z-z*, *a-a-a*, labial friction, or through the use of the gaze, which follows the hands movement. The frequentative aspect is usually expressed through the use of the independent aspect morpheme *ta-ta-ta*, *la-la-la* (Morales et al. 2000: 92–114).

7.2.5 Tense/Time

In a strict sense, tense does not exist, since it is not marked by a suffix associated to the verb. Instead, in LSE, as in other sign languages, time relationships are expressed in space. There, time axes are created to allow the signer to indicate deictic time relationships, which may be direct or indirect. In the first case (direct time relationships, taking the speech act as a base), the main reference point is the signer's own body. The simple future is indicated by pointing forward and the past, backward, over one's shoulder. When time relationships are indirect, that is, when there is an intermediate time reference that serves as a base to indicate relationships of simultaneity, anteriority or posteriority, a different axis is used, located in front of the signer and parallel to his or her body. A time reference is marked on

this second axis, and events are then situated before, after or at the same time as that reference point. From the signer's perspective, the events located to the left of that point on the secondary axis take place before, while those located to the right take place afterwards.[18]

Besides the expression of time in space, through the use of time axes, it is also common to use lexical procedures to locate an event in time, such as TOMORROW or NOW. This includes naming the days of the week and the months of the year.

7.2.6 Person

The person category also has a deictic nature, just like the time category described above. It is expressed with the index finger extended and the remaining fingers in a closed fist (G handshape, see Figure 14).

The use of the G handshape allows numerals to be included in the process of referring to or identifying people. In these cases (US-TWO, YOU-THREE; see Figures 15 and 16) the numeral identifying the people is articulated with a slight movement of the hand that expresses plurality and, at the same time, indicates the position of the people to whom it refers. According to Fernández-Soneira and Martínez-Fuentes (2003: 72–73), some authors see these cases as examples of numeral incorporation, although they admit there is no agreement on this point.

It is also possible to refer to a plural number of people with a circular movement of the dominant hand in a G handshape. When referring to "us", the circular movement will include the signer; when referring to "you", it will include the addressee or addressees, and when referring to "they", the sign will be made to the side, excluding the interlocutors.

Fig. 15: US-TWO.
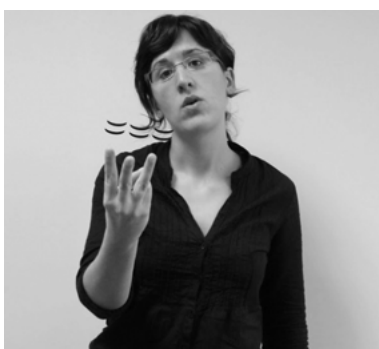
Fig. 16: YOU-THREE.

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18 Cfr. Cabeza-Pereiro and Fernández-Soneira (2004).

7.3 Word formation in LSE

As in other sign languages, in LSE there are several procedures to create new words. The improvement of the social situation of the Spanish Deaf community has brought about the need to expand the vocabulary of their language in order to guarantee them full access to different areas of social participation. In particular, the introduction of LSE interpreters in the classrooms where there are Deaf students has already led to the influx of numerous neologisms, as has the publication of reference material, such as dictionaries and glossaries.

Iconic creations, in which the signer may take advantage of the classifier handshapes, are especially productive, but they are not the only possible way to form neologisms. We will also consider the procedures known as initialization (see Sutton-Spence and Woll 1999: 227) and composition.

7.3.1 Productive lexicon (iconic creations)

Cooperating with Deaf people in LSE research allows us, sometimes, to witness the creation of a sign to refer to something that had previously lacked a sign in LSE. For instance, the effort to create a corpus of linguistic data led Deaf collaborators

Fig. 17: DATA-CORPUS.

Fig. 18: LAPTOP-COMPUTER.

to search for an appropriate name for the set of linguistic information that constitutes a corpus. They settled upon an iconographic representation that we could gloss as "taking material from different origins." The sign created in this way is formed with the passive hand in a B handshape, with the palm facing upward. The active hand makes the sign for TAKE three times over the passive hand (Figure 17).

The expression 'laptop computer' is represented by a sign that uses an iconic procedure based on a classifier handshape, the B handshape (Figure 18).

7.3.2 Initialization / Fingerspelling signs

Initialization consists in using the manual alphabet handshape corresponding to the initial letter of the Spanish word that needs to be translated into LSE. In general, a local movement is added to that fingerspelled form:

Fig. 19: MORTGAGE.

- *FONÉTICA* (PHONETICS): it is articulated by adding a circular movement to the F handshape and locating it on the signer's throat. It may be accompanied of a lip configuration as if to pronounce the sound /f/.
- *HIPOTECA* (MORTGAGE): the dominant hand makes an H handshape over the open palm of the passive hand, with a slight up and down local movement (Figure 19).

In some words, the manual alphabet sign is repeated twice. This is the case, for instance, of COCA-COLA or the name of the city of Cáceres, which are produced in an identical manner, with the C handshape.

7.3.3 Compounds

The formation of compound nouns in LSE is similar to the processes that have been described for other sign languages (see Klima and Bellugi 1979: 216–221):

a) The movement of the first part is cut short or omitted.
b) The second part takes on an added emphasis.
c) If the second part uses the passive hand as a base, its placement is moved forward to the first part.
d) The transition between both parts is smoother than between two independent words.
e) The length of the compound sign is more similar to the length of a single sign than to the length of two consecutive signs.

For the compound word PARENTS, instead of the signs FATHER and MOTHER, represented by identical handshapes with different locations and orientations (above and below the mouth for FATHER; to the left and to the right of the mouth for MOTHER), signers produce the first part of the sign FATHER and move on, without making the second contact, to the articulation of MOTHER. There is, therefore, a transition that makes it be perceived as a single compound sign.

In the case of WEEKEND, the signs SATURDAY and SUNDAY are linked. Here, the SUNDAY handshape is moved forward to the first part of the compound (see Figures 20, 21 and 22).

As an example of spontaneous creation, we would like to mention the sign for Language Center, invented by one of the Deaf collaborators within the University of Vigo research group to fulfill the need for that lexical expression in LSE. We should explain that in Spanish (and Galician) the structure used to name this language school associated with the university is "N de N" (*Centro de Lenguas*). To create an equivalent expression in LSE, our Deaf researcher took the sign CENTER, turned the dominant hand's A handshape into an L and introduced a twisting movement of the wrist (instead of the double contact of the sign CENTER).

Fig. 20: SATURDAY.

Fig. 21: SUNDAY.

Fig. 22: SATURDAY-SUNDAY.

There are also cases in which the meaning of a sign that already exists in the LSE lexicon is extended. For example, the term "stock" used to mean "the goods and materials that a company keeps, ready to be sold to customers or incorporated to the productive process, generally in under a year's time" is represented by the sign TO HAVE, which also means "to possess" (Aroca et al. 2002c, Thematic glossary 4: *Economy*, entry *stock*). The sign used to refer to "management" (as a "group of business owners or employers, usually associated") is the same sign used for COMPANY (Aroca et al. 2003c, Thematic glossary 11: *Society and politics*, entry *management*).

8 Basic syntax

LSE syntax takes advantage of the possibilities offered by the signing space to express basic grammatical relationships, in particular, predicate-argument relationships within the clause. This is the area we will consider first, although we will also provide some basic notions regarding certain constructions with peculiar characteristics, such as existential and possessive clauses (closely related to each other). We will only pay limited attention to word order, which is usually an unavoidable element in the syntactic description of a language, mainly because the spatial nature of LSE grammar pushes traditional syntactic order into the background. Finally, we will examine the functions of facial expression in the area of syntax.

8.1 Grammatical relationships expressed in the signing space

We will refer to a verb typology that is widely used in the literature on sign languages. It is based on the modifications that may affect the morphology of the verb depending on the arguments involved in the process described. The following three verb types have been identified and used in the description of different sign languages:[19] plain verbs, agreement verbs and spatial verbs.

8.2 Plain verbs

These are verbs whose articulation does not express relationships between arguments, nor does it indicate a location. They are, then, neutral verbs regarding the incorporation of syntactic markers into their morphology, although they can undergo other morphological variations, in particular those related to aspect.

The following verbs, among many others, belong to the plain verb category in LSE: THINK, EAT, LIVE, WORK.

THINK, EAT and LIVE are articulated on the signer's body. In the first two cases, their place of articulation constitutes an example of iconicity. THINK is produced in the forehead area, with a Q handshape and a circular movement. The same Q handshape is used for EAT, which is articulated on the mouth. In both cases, and also in the case of LIVE, the identity of the Agent,[20] must be expressed

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19 Among them, ASL (Padden 1990, Valli and Lucas 1995), BSL (Sutton-Spence and Woll 1999), LIS (Pizzuto 1986)

20 According to the Functional Grammar conventions, the names of the semantic or syntactic functions are spelled with an initial capital letter.

through lexical or anaphoric processes[21] or it must be able to be clearly understood from the situational context. The same applies to the Object (what is eaten or what is thought) and the Locative (the place where one lives).

WORK is articulated in the neutral space, without contact with the signer's body. However, when it comes to the expression of the people involved, the predicates follow the same pattern as the above-mentioned verbs, that is, it is necessary to specify the participants through lexical or pronominal means, except when they can be clearly understood from the situational context.

8.3 The syntax of agreement verbs

Agreement verbs, also called directional verbs, are articulated in the neutral space. Through their constitutive components, in particular hand orientation and movement, they identify the arguments, whether they are the interlocutors participating in the speech act, or any other person or object referred to. In other words, these verbs incorporate person markers into their morphology and create syntactic relationships that may be considered agreement relationships. Like plain verbs, they may also undergo modifications related to aspect.

The loci (see note 21) indicated in the signing space are pertinent, that is, once an object is located at a specific point, that location represents an argument that is related to the predicate in the way expressed through the verb components.

Some LSE verbs that fall into this category are UNDERSTAND, WARN, GIVE, ASK or HELP. In all these cases, the articulation of the verb incorporates an Agent and a Goal or Recipient (Dik 1989: 101–103) or, in syntactic terms, a Subject and an Object.

Fernández-Soneira (2008) reviews the expressions of number and person agreement with this type of verbs in LSE and makes the following statement:

> Es agramatical la no correspondencia de la cantidad expresada por los argumentos y por la flexión verbal. Si los argumentos aparecen cuantificados y el verbo se flexiona para expresar concordancia con esos argumentos (sujeto, complemento directo ...), la expresión de ambos debe ser compatible. Esto quiere decir que si, por ejemplo, hacemos una pregunta a dos receptores, la flexión del verbo no puede repetirse tres o más veces en el espacio. (Fernández-Soneira 2008: 106)

> [The lack of agreement between the quantity expressed by the arguments and by the verbal inflection is ungrammatical. If the arguments are quantified and the verb is inflected to express agreement with those arguments (subject, direct object, etc.), the expression of both must be compatible. This means, for example, that if we ask a question to two recipients, the verbal inflection cannot be repeated three or more times in the signing space.]

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21 When we mention anaphoric processes, we are referring to points in the signing space that are associated to a referent and thus acquire pronominal relevance in the discourse, known as *loci* (plural of *locus*) (Liddell 1990; Engberg-Pedersen 1993).

Fig. 23: We see each other (you and I).

Fig. 24: They see each other.

In some cases, reciprocity is expressed: MEET, SEE-EACH-OTHER (see Figures 23 and 24).

Sometimes, only one of the arguments is marked in the morphology of the verb. For example, the verb SAY only admits morphological modifications in relation to the Recipient. In LEAVE, the starting point of the movement varies depending on whether the signer or another person is the Agent of the process.

8.4 Spatial verbs

It has often been said that the difference between these verbs and agreement verbs is that spatial verbs make a topographic use of space, instead of a syntactic one (Sutton-Spence and Woll 1999: 145). Without going into this distinction in great detail, about which there are differing opinions (Engberg-Pedersen 1993: 159), we would like to point out that the most specific characteristic of this type of verbs is that they refer to locative predicates, that is, their semantic content expresses a location, a destination or a path.

The usual classifications (Padden 1990; Liddell 1990; Engberg-Pedersen 1993: 157; Fernández-Soneira 2008) include in this category certain predicates in which the signer uses a classifier. In these cases, the classifier configuration usually appears in the discourse after a lexical sign. The classifier functions as a proform, whose movement in the signing space constitutes, together with the associated non-manual components, the nucleus of the predicate. The most specific characteristic of classifier predicates is that the proform expresses the participant in the event, while the movement and the remaining components (including non-manual ones) provide the predicative information.

Fernández-Soneira (2008) highlights the possibility of repeating the classifier to express a plurality of objects. In the following Example by the author,[22] the lexical element CAR is followed by the typical classifier used to refer to moving vehicles, which is articulated with both hands and is repeated three or four times.

$$\text{Blow}$$

(1) PARKING LOT CAR MANY CAR CL$_{[BIMAN]}$:PARKED-CAR-CL$_{[N:MULT]}$ [LOC X,Y,Z]
'There are a lot of cars in the parking lot.'

The verb GO-TO is articulated with the dominant hand in a B handshape located on the wrist of the passive hand, in the same handshape. The dominant hand represents a destination iconically. The orientation of the hand may undergo changes depending on the characteristics of the trip that the signer wants to represent.

8.5 Adjectival predicates

As in other languages, in LSE it is also possible to find adjectives in the role of predicate. In these cases, the presence of a verb is usually not necessary.

(2) PAULA SAD
'Paula is sad.'

8.6 Other predicates expressing relationships: existential and possessive relationships

There are specific verbs to express existential and possessive relationships in LSE. The same verbs are used in both types of constructions. Interestingly, they appear in final position. However, a verb is not always necessary:

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22 Fernández-Soneira (2008: 115). Translated from the original, in Spanish.

Without a verb:

(3) PRON-1 EXAM THREE
    'I have three exams.'

Verb in final position:

(4) SCHOOL MANY STUDENT THERE-ARE
    'There are many students at the school.'

(5) FISH THERE-IS-NOT
    'There is no fish.'

8.7 Word order

It is well known that the visual-gestural nature of sign languages means that their grammar takes special advantage of all the possibilities associated with space. Sequential order is usually more linked to patterns in the structure of the information, like the need to identify an element as the Theme or Topic, or as the Focus. In this section, we will merely provide a few guidelines regarding some specific aspects related to certain constituents of the clause that function as Theme or Focus.

Time and place circumstances occupy an initial position (see Examples 4 and 7).

On the other hand, the lexical expression of negation[23] always takes a post-verbal position or, more generally, a post-predicative position, as shown in the following Examples, taken from Moriyón (2004: 56) and translated from Spanish by the authors:

$$\overline{\qquad\qquad\qquad\qquad}^{\text{neg}}$$

(6) TEO SAY EXPENSIVE REALLY NO
    'Teo says it is not really expensive.'

$$\overline{\qquad\qquad}^{\text{neg}}$$

(7) YESTERDAY CARLOS COME NO
    'Carlos did not come yesterday.'

Lexical negation is accompanied by a non-manual component that is articulated simultaneously with the element affected by the negation. This is represented by a line above the gloss, accompanied by the abbreviation *neg*.

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23 Negative polarity is frequently not expressed lexically, but through facial expression (see the section on negation in *Functions of the non-manual component in the area of syntax*).

Interrogative expressions, quite common in LSE (WHO, WHAT, HOW, HOW MUCH, WHEN_PAST, WHEN_FUTURE), occupy the final position in the clause.

8.8 Functions of the non-manual component in the area of syntax

As we have already seen, the non-manual component is part of the sublexical structure of signs. In LSE, the non-manual component also functions as a marker of sentence type (Baker 1980 has described this function in ASL), that is, a marker of modality, since it indicates whether the sentence is interrogative, negative, conditional, etc. Non-manual components are the equivalent of intonation in oral languages (Zeshan 2004). They are suprasegmental phenomena that act upon a variable number of words in the sentence. Among the common functions of intonation and the non-manual component we find the function of identifying types of statements: "La 'entonación' es la curva melódica que describe la voz al pronunciar las palabras, las frases y las oraciones. [...] es significativa porque transporta [...] los índices expresivos de la actitud mental del hablante". ['Intonation' is the melodic curve traced by the voice when pronouncing words, phrases, and sentences. [...] It is indicative because it carries [...] the indicators of the speaker's mental attitude.] (Alcaraz and Martínez 1981: 200)

In LSE facial gesture is present in the expression of negation, interrogation and the deontic and epistemic modalities.

8.8.1 Negation

The non-manual components used to express negation may affect only one sign or the entire statement. They may also affect specific parts of the statement (see examples 6 and 7).

The non-manual components used in sign languages usually coincide with the facial expressions and head movements used by speakers to express negation nonverbally, especially in the case of speakers and signers from the same areas, since signers are usually influenced by the hearing community and by their common culture. Anyway, the non-manual marking of negation is quite universal, so the following common characteristics are easily perceived in different sign languages.

In LSE, signers tend to use the negative particle produced with a G handshape oriented upward, with a movement from left to right, which is usually placed after the verb it affects. This negative particle is usually accompanied by a movement of the head from one side to the other, or by the following facial expression: knitted brows, semiclosed eyes, lips turned outward, corners of the mouth down and wrinkled nose. The facial expression is not mandatory, but it is quite common.

8.8.2 Interrogation

When analyzing how interrogation works in sign languages, a distinction is usually made between the two types of interrogative sentences that are also identified in oral languages: polarized, or total, interrogatives and non-polarized, or partial, interrogatives.

In LSE, polarized questions are usually marked by a movement of the eyebrows, which may be either raised or knit together, and the head, shoulders and torso are generally tilted forward. Optionally, the interrogative particle YES/NO may be added, with the following articulation: a G handshape (closed fist with extended index finger) is located in the neutral space and moves first up and down (YES) and then from left to right (NO).

Non-polarized questions in LSE are characterized by the presence of an interrogative particle, but they are also accompanied by a non-manual component (knitted brows, movement of the head, and shoulders forward). There are a variety of interrogative particles (WHO, WHAT, WHEN, HOW, WHERE, WHY, WHICH, HOW MUCH), and they are usually positioned at the end of the sentence. Sometimes, they are accompanied by the oralization of the equivalent interrogative particle in oral language (Báez and Cabeza 2002).

8.8.3 Expression of the deontic and epistemic modalities.

The epistemic and deontic modalities[24] are expressed in LSE through a series of signs that are usually accompanied by a facial expression, or through the exclusive use of facial expression.

There are two main areas in which the deontic and epistemic modalities are clearly differentiated: the eye area, more specifically, the position of the eyebrows, and the mouth area, in particular, the movement of the lips.

Frowning usually marks the deontic modality, since it belongs to the sphere of objectivity and certainty. On the other hand, raising the eyebrows tends to be a characteristic of the epistemic modality, because here we are in the area of subjectivity and doubt. There is an exception: epistemic sentences expressing impossibility and necessity are usually marked by knitted brows. This is easily explained, however, because this type of statements is very close to certainty, so the choice of this facial expression is not surprising.

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24 We will define the *epistemic modality* as that in which the subject expresses his or her opinion regarding the possibility of realization of the fact expressed in the sentence. Through the *deontic modality*, the subject expresses abilities and obligations in relation to him or herself or to other individuals (Iglesias-Lago 2009).

Regarding the mouth area, there are also two contrasting expressions that can easily be associated with one or the other meaning. Protruding lips usually express the deontic modality, while the downward movement of the corners of the mouth and the upward movement of the lower lip are used to express the epistemic modality. Once again, the exception is found in meanings associated with the impossible and the necessary, as we have already seen in the eye area (Iglesias-Lago 2006).

8.8.4 The use of the non-manual component in reported speech

Besides these functions, the non-manual component is also involved in reported speech, that is, when the signer reports the words said by a different person or narrates events that happened to a third party. The signer takes on the role of the other person, so that his or her gaze, facial expression and body language imitate those of that third party. That person may be the agent, the patient or the beneficiary of the process described in the sentence.

9 History of research

In the 80s and 90s certain activity could be perceived in the university community, particularly in relation to Álvaro Marchesi, professor of Developmental Psychology and Education, in his research on the education of Deaf children. Marchesi rejected the oralist tradition in force since the Milan Conference (1880) and worked on children's cognitive and linguistic development, taking into account Deaf people's different linguistic conditions. (See specific bibliography on LSE).

In 1992, an international conference on sign languages was held in Salamanca. This conference helped to stimulate linguists' interest in LSE, and also strengthen the Deaf community's sense of self-awareness and recognition of their own language.

Another crucial landmark was the publication of a Ph.D. thesis by María Ángeles Rodríguez-González, entitled *Lenguaje de signos* (Sign Language), in 1992. It was the first doctoral thesis on sign language ever written in Spain.

In the 90s, sign language research groups were created in different Spanish universities, and towards the end of the decade, the first meetings of LSE researchers were held in Spain. In 1997, the Spanish State Confederation of the Deaf (CNSE) organized the First Meeting of LSE Research Teams (*I Encuentro de Equipos de Investigación de la Lengua de Signos Española*) in Madrid. In 1999, the Workshop on the Linguistics and Psycholinguistics of Sign Languages (*Taller de Lingüística y Psicolingüística de las Lenguas de Signos*) was held in A Coruña. The First LSE National Conference (*I Congreso Nacional de la LSE*) took place in Alicante in 2001. In September 2009 it was held for the third time in Madrid. As in other countries,

linguistics conferences have begun to devote a specific section to research on sign languages. A conference of the World Federation of the Deaf (WFD) was held in Madrid in 2007. Since 2011 annual meetings on LSE research have been organized by the CNLSE.

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James Tai and Jane Tsay
32 Taiwan Sign Language

1 Basic facts about Taiwan Sign Language

Language name: Taiwan shouyu (in Chinese); Taiwan Sign Language (in English)

Alternative names: Taiwan ziran shouyu 'Taiwan natural sign language'

Location: Taiwan, Republic of China

Varieties: Northern dialect and southern dialect. Both are included in the Taiwan Sign Language Online Dictionary.

Number of signers: 30,000–60,000

2 Origin and history

Taiwan Sign Language (hereafter, TSL) here refers to the native language developed and used by the deaf in Taiwan. Smith (2005) reported that it was used by approximately 30,000 deaf persons residing in Taiwan, but did not mention how this estimation was obtained. According to the 2012 report of the Ministry of the Interior, Taiwan, there were about 122,285 citizens with Hearing Mechanism Disability in Taiwan. However, the report did not include information about how many of these citizens with hearing disability used TSL for communication.[1]

The history of TSL can be dated back to when the first school for the deaf was established in 1915 by the Japanese during the period of Japanese occupation of Taiwan (1895–1945). Little is known about what kind of sign language had existed in Taiwan prior to the Japanese occupation. Korea was also occupied by Japan during 1910–1945. Therefore, TSL as well as Korean Sign Language are historically related to Japanese Sign Language (JSL). Even today, TSL still shares high degree of mutual intelligibility between the lexicons of TSL, JSL, and KSL (Su and Tai 2009).

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1 There has not been any official survey of the number of TSL signers. According to the former president of the National Association of the Deaf in the Republic of China, Mr. Yushan GU (personal communication), there are approximately 60,000 signers of TSL.

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During the Japanese occupation of Taiwan, soon after the first deaf school was established in Tainan (in southern Taiwan) in 1915, another deaf school was founded in Taipei (in northern Taiwan) in 1917. The first group of Japanese teachers at Tainan Deaf School came from the Osaka area in Japan, while the first group of Japanese teachers at Taipei Deaf School came from the Tokyo area. The dialectal differences of JSL in these two areas thus contributed to the initial differences between the southern dialect and the northern dialect of TSL, indicated by _S and _N, respectively, in the examples. These two TSL dialects are mutually intelligible. The grammatical structures for these two dialects are basically the same. The differences between these two dialects are primarily lexical. For example, the words FIVE, TEN, CAR, WINE, VEGETABLE, GREEN-ONION and PINEAPPLE are signed differently in these two dialects of TSL.

After World War II, in 1945, Taiwan was turned over to the Republic of China. The Japanese teachers at both schools for the deaf in Taiwan were sent back to Japan. The Taiwanese teachers at both schools continued to teach the students with JSL. In 1949, the Communist Party came to power in China, resulting in a large immigration of more than two million Chinese from Mainland China to Taiwan. Some deaf people and several former teachers at the Nanjing and Shanghai schools for the deaf in China also came to Taiwan and brought with them Chinese Sign Language (CSL), known as *zhongguo shouyu* 'China sign language' in Mandarin. Therefore, some signs from CSL may also have been introduced into TSL.[2]

Also, after 1945, Mandarin Chinese replaced Japanese as the official language for education, administration, and mass media in Taiwan. Consequently, Signed Chinese, an artificial sign language created mainly by the educators based on the ambient spoken language Mandarin, became the instruction language at the deaf schools. Although Signed Chinese is very different from TSL in morphology and syntax, it has borrowed a large number of lexical items from TSL. In Taiwan, TSL is known as *ziran shouyu* 'natural sign language', while Signed Chinese refers to the signed Mandarin Chinese known as *wenfa shouyu* 'grammatical sign language'.

3 Bilingualism and language contact

3.1 Education

Nowadays, there are three public deaf schools located in northern, central and southern Taiwan. Since early 1970s, the Total Communication approach has been adopted for school instruction. Spoken Mandarin Chinese, Signed Chinese, and

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2 For a more detailed description of the history of deaf education in Taiwan during 1945 and 1949, see Smith (2005).

written Chinese have all been used in classroom instruction, while Deaf students continue to use TSL to communicate with each other. Thus, in the three deaf schools, students are in contact with Mandarin Chinese, written as well as spoken, in addition to Signed Chinese and TSL. This kind of language situation has contributed to the change of TSL in the last century in both lexicon and syntax. When deaf children are enrolled in ordinary schools, they are drilled to have the oral communication skill in Mandarin Chinese. It is not unusual that they learn TSL as grown-ups to communicate with deaf signers of TSL. Deaf signers of TSL sometimes also use Signed Chinese to communicate with others, especially when encountering professional and technical terms.

3.2 Standardization

In the mid-1970s, the Ministry of Education formed a work group of representatives of the three deaf schools to standardize and unify the signs to be used for instructional purposes in Taiwan. They determined a basic vocabulary of approximately 1750 signs and also invented signs for words and concepts often used in teaching. This collection of signs, widely adopted from Signed Chinese, *Shouyu Huace* (Li 1978), was accepted with great enthusiasm by the educators. However, because very few deaf people were even marginally involved in the work preparation, the Deaf community was disappointed and felt that the work failed to reflect their views as to how signs should be presented (Smith 2005). In the subsequent editions of this work (Ministry of Education 1987, Ministry of Education, Special Education Work Group 2000a, 2000b), more deaf signers were involved.

While the educators in deaf schools prefer using the "standardized" signs which are mostly based on Signed Chinese, TSL signers continue to use and consider the original signs as more "natural", except for technical terms or modern inventions. In the TSL Online Dictionary to be introduced in this chapter, all variations of signs are included without any intention of standardizing the language.

3.3 Influence from dominant languages

In Taiwan, Mandarin Chinese is the official and most dominant spoken language. Its immediate influence shows in the prevailing use of Signed Chinese in the deaf education system. Although Signed Chinese is based on the grammar of Mandarin Chinese, thus called *wenfa shouyu* 'grammatical sign language', it shares a large number of lexical items with TSL.

TSL and Signed Chinese in Taiwan are mutually intelligible mainly at the level of the shared vocabulary and frozen phrases. In actual discourse, the mutual intelligibility might be reduced due to the differences in grammatical structures.

In addition to Mandarin, deaf and hard-hearing persons are also exposed to two other Sinitic languages, Southern Min (also called Taiwanese) and Hakka. The influence of these two spoken languages has not been reported.

Chinese is used in all printed materials such as documents, books, and newspapers. When specific Chinese characters are being referred to, they are either written out on paper or traced the character with the index finger on the palm of the weak hand (Smith 1989). Character signs based the Chinese orthography are commonly used in TSL (see Section 6.1).

4 Political and social context

4.1 Organizations

There are mainly two organizations of the deaf in Taiwan, i.e. National Association of the Deaf in the Republic of China http://www.nad.org.tw/ap/index.aspx and Chinese Deaf Association http://www.deaf.org.tw/.

The National Association of the Deaf in the Republic of China was established in 1992 to promote academic research of Deaf culture and the improvement of the welfare for the hearing-impaired. It also aims to assist the government in planning for a barrier-free environment for hearing-impaired people. They also provide employment and psychological counseling for the deaf.

The Chinese Deaf Association was established in 1995 by a group of enthusiastic deaf people to develop a barrier-free environment for the Taiwanese hearing-impaired and to establish an Overseas Study Guidance Center for the Hearing-impaired. They also established the Employment Library Center and the Employment Guidance Center for the Hearing-impaired to further guarantee the rights and welfare of the deaf people.

4.2 State of the language

Due to the policy of "mainstream" education, the majority of deaf and hard-hearing students are trained to orally use Mandarin Chinese as their main communication tool. This policy is preferred by the parents of deaf children and endorsed by the experts in the field of special education. Therefore, deaf and hard-hearing children are encouraged to enroll in schools for the hearing children to receive the same curriculum as hearing students. As a result, the number of deaf children enrolled in the three public deaf schools has been shrinking and these three schools have been forced to enroll other kinds of students with special needs (e.g., handicapped, autism, mentally retarded) to prevent the schools from closing.

The official governmental policy requires TSL interpreters in courts and civic services for deaf persons, as well as in national broadcastings of important news. However, the majority of the parents and speech therapists prefer deaf and hard-hearing children to be able to have the oral skill of communication.

4.3 Language maintenance efforts

In the United States, ASL seems to be accepted as a real language by the general public, and many universities accept ASL courses to fulfill foreign language requirements. Also generally understood in the U.S. is the notion that culture and language exit together and Deaf culture is perceived by many as a natural part of American multiculturalism. In contrast, the Deaf culture of TSL is not appreciated as such. Parents of deaf children prefer to enroll their children in schools for hearing children. Even if they have to enroll their deaf children in deaf schools, they put pressure on deaf schools not to teach TSL. However, some local educators, psychologists, and linguists have expressed their concern that this may not be the wisest policy in the long run. More importantly, the Deaf themselves are teaching TSL, publishing TSL textbooks, and participating in research projects of TSL as well as in international forums on sign language and deaf education. Thus, against the lack of general appreciation of Deaf culture in the society, there are positive signs for the acceptance of TSL in deaf community and educational circles.

5 The structure of signs

Regarding distinctive features of signs, we introduce handshape, place of articulation, movement, orientation, and non-manual features.

5.1 Handshape

TSL has 62 distinctive handshapes based on previous studies and our collection of TSL signs (cf. Smith and Ting 1979, 1984; Lee 2003; Chang, Su, and Tai 2005).[3] See Appendix I for the list of handshapes in TSL.

5.2 Place of articulation

PLEASE vs. BE is a minimal pair that contrasts in location. They both use the handshape B (1a), with the palm parallel to the center plane of the body. The index

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3 Handshape names adopt the American Sign Language handshape names in English alphabet and numbers with necessary variations. See Appendix I for more details.

finger of the hand in PLEASE makes contact on the forehead (1b), while in BE, the contact is at the chin (1c).[4] See Appendix II for TSL notation conventions.

(1) Phonemic contrast in location: PLEASE vs. BE

(a) Handshape B   (b) PLEASE   (c) BE

5.3 Movement

MALE vs. THANK is a minimal pair that contrasts in local movement. Both signs use the handshape Open A (2a), but in MALE the hand rotates back and forth at the wrist (2b), while in THANK the thumb repeatedly bends (2c).

(2) Contrast in local movement: MALE vs. THANK

(a) Handshape Open A   (b) MALE   (c) THANK

5.4 Orientation

NOW vs. CALM-DOWN is a minimal pair that contrasts in hand orientation. They both use the handshape Open B (3a) on both hands, and both start with the hands palm-downward and involve downward movements, but in NOW, the fingertips of both hands point forward away from the body (3b), while in CALM-DOWN they point towards each other (3c).

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4 Pictures in this paper are from the TSL Database of the Sign Language Research Group at the National Chung Cheng University, Taiwan, unless otherwise noted. The demonstrator is Mr. Yushan Gu.

(3) Contrast in hand orientation: NOW vs. CALM-DOWN
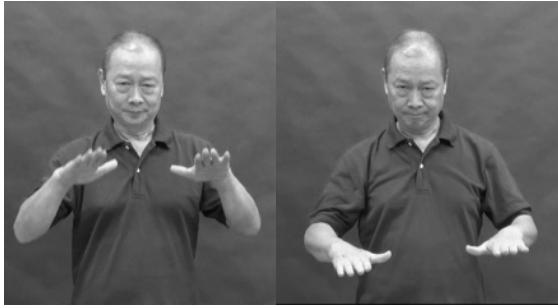
(a) Open B   (b) NOW
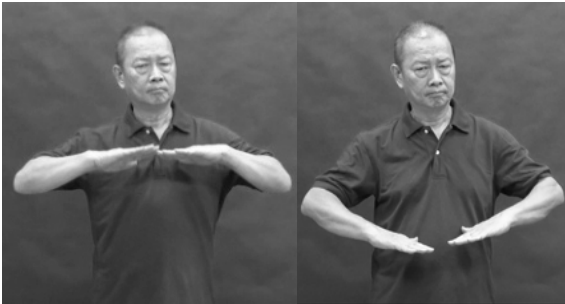
(c) CALM-DOWN

5.5 Non-manual features

HEAD vs. UNDERSTAND is a minimal pair that contrasts in non-manual features. They both involve the handshape 1 (4a), with the index tip contacting the temple, but in HEAD no facial expression is made (4b), while in UNDERSTAND, the mouth is rounded and sucks in air, and the head moves backward at the same time (4c).

(4) Contrast in nonmanual features: HEAD vs. UNDERSTAND
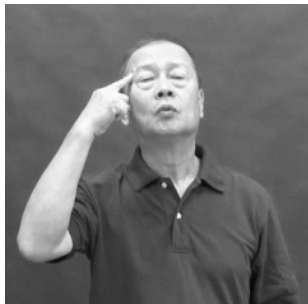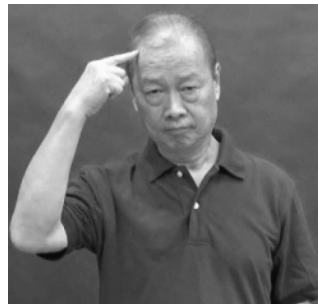
(a) Handshape 1   (b) HEAD   (c) UNDERSTAND

6 Associated sign systems

6.1 Character signs

Character signs based on the Chinese writing system are commonly used along with fingerspelling based on English alphabet. The following methods of constructing character signs in TSL have been identified by Ann (1998).

1. To imitate the shape of either the whole or a part of a Chinese character by means of handshape: 王, 田
2. To trace either the whole or a part of a Chinese character in the air: 千, 就
3. To combine both (1) and (2) methods: 丁, 毛
4. To use both handshape and the mouth: 中, 品
5. To combine a natural sign with tracing: 太

Loan translations from Chinese coinages are also adopted for new things. For example, 'high speed railway', in addition to the mimic sign of the shape of the engine, can also be signed with TSL sign for 'high' compounded with sign for 'iron', a loan translation from the Chinese term 高鐵 'high iron'. Blending of TSL signs and character signs are also adopted to describe new things. For instance, 'cancer' is signed with TSL sign for the sickness plus character sign for 品, pattern after the Chinese character 癌, which consists of a radical for sickness and a component character for 品. In short, TSL can always find ways to express new things.

6.2 Fingerspelling and initialization

Fingerspelling and initialization based on English alphabet are adopted in TSL. For instance, M stands for McDonald because of its logo. English proper names such as Chomsky, and abbreviations, such as MSN and AED, are spelled out in ASL English alphabet. Examples of initialization would be F for 'fruit' and B for 'beer'.

7 Basic morphology and lexicon

7.1 Noun morphology: Compounding

7.1.1 Serial compounding

Compounding differs from affixation in that more than one root morpheme is involved. There are many examples of serial compounds in TSL, which are distinguished from phrases by the order of the morphemes (sometimes reverse of that found in phrases), semantic opacity, and phonological simplification. Below we illustrate the first two of these diagnostics (originally established for ASL by Liddell and Johnson 1986; see also Smith 1982).

Noun phrases in TSL usually have the order [noun^modifier]. So the [modifier^noun] or [noun^noun] structure suggests compounding. Examples in 5 illustrate non-phrasal morpheme order.

(5) Serial compounds: [modifier^noun] or [noun^noun]
　　(a) APPLE　　　　= RED^FRUIT
　　(b) JUDGE　　　　= LAW^MALLET
　　(c) PERSONALITY = PERSON^HABBIT
　　(d) HEARSE　　　= COFFIN^CAR

Examples in 6 illustrate semantic opacity.

(6) Serial compounds: semantic opacity
　　(a) COFFEE　　　= BROWN^STIR
　　(b) ONE-O'CLOCK = TIME^ONE
　　(c) DEFICIT　　　= RED^HIGH-LEVEL
　　(d) SURRENDER　= WHITE^FLAG

Some serial compounds seem to follow templates. For example, [X^PLACE] is a productive compounding template, as shown in the Example 7.

(7) Serial compounds with template [X^PLACE]
　　(a) TRAIN-STATION = TRAIN^PLACE
　　(b) COURT　　　　= LAW^PLACE
　　(c) POLICE-OFFICE = POLICE^PLACE

7.1.2 Parallel compounding

In MARRY, one hand with the sign MALE and the other hand with the sign FEMALE move simultaneously to meet each other in front of the chest (8), while in DIVORCE, the hand with the sign MALE and the other hand with the sign FEMALE move simultaneously apart from each other (9).

(8) MARRY = MALE∪FEMALE – together (hands moving to meet each other)
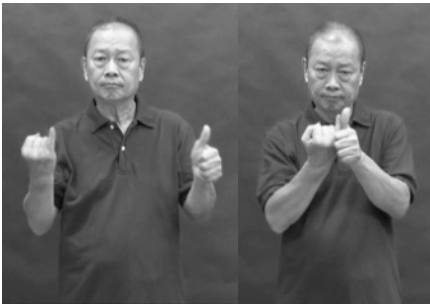
(9) DIVORCE = MALE∪FEMALE – separate (hands moving away from each other)
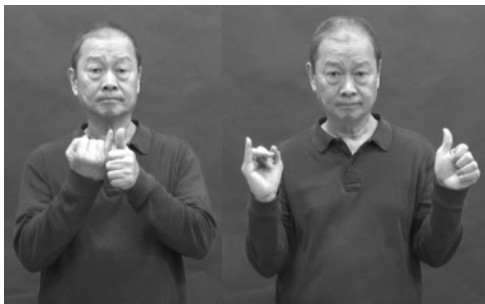
Interestingly, parallel compounds may be contained within serial compounds, while the reverse is apparently impossible. This is consistent with phonological arguments (given below) that different compound types may be "ordered different-ly" in a lexical phonology analysis (or in equivalent constraint-based analyses). In WIFE and HUSBAND, MARRY (a parallel compound with MALE∪FEMALE) is signed followed by FEMALE and MALE in the Example 10 and 11 respectively.

(10) WIFE = MARRY (MALE∪FEMALE) ^ FEMALE
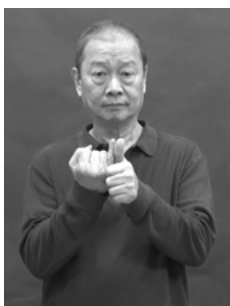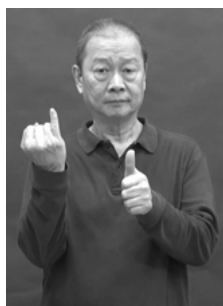
(a) MARRY   (b) FEMALE

(11) HUSBAND=MARRY (MALE∪FEMALE) ^ MALE
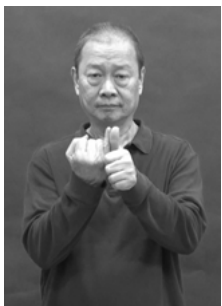
(a) MARRY   (b) MALE

7.2 Verb morphology: agreement and aspect marking

7.2.1 Verb inflection

The classic work on TSL verb inflection is Smith (1989). Verb inflections in TSL include agreement and aspect markers, but apparently not tense markers.

Agreement includes subject-object agreement (usually simultaneous/non-concatenative), verb-subject agreement (using predicate classifier), gender agreement, and number agreement. Aspect marking includes perfective, progressive, and durational aspect which indicates prolonged status and/or intensity and frequency.

7.2.2 Agreement

Here are some general observations about agreement in TSL. First of all, agreement showing a grammatical relation is marked by non-concatenative morphology, specifically by moving the hand away from the subject and/or towards the object. This appears to be a sign language universal (Aronoff, Meir and Sandler 2000) leading some to question whether this should be understood as grammatical agreement at all, rather than an iconic representation of relations between entities in some mental space (e.g., Liddell 2003).

In the following Example 12 'The dog bit the cat,' the verb BITE moves from the agent DOG (co-indexed with j) towards the patient CAT (co-indexed with i). (Note that the patient CAT is signed first, possibly due to topicalization or a topic-comment structure).

(12)

(a) CAT_i (b) DOG_j (c) $BITE_{j \rightarrow i}$.
'The dog bit the cat.'
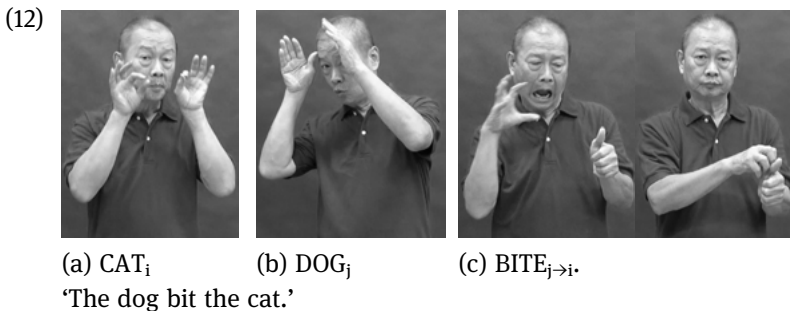
Secondly, some verbs also show agreement with the subject via the use of (predicate) *classifiers* (though again Liddell 2003 and Chang, Su, and Tai 2005 disagree with this analysis).

In the following Example 13 'The dog entered the house', $HOUSE_i$ is mentioned first (13a). Then the subject DOG_j is signed in full form in (13b), but in the form of an animal classifier DOG_{pro} being inflected on the verb $ENTER_{j \rightarrow i}$ as in (13c) (this

kind of predicate classifier is considered a "proform (pro)" in Chang, Su, and Tai 2005).

(13)

(a) HOUSE$_i$ (b) DOG$_j$ (c) HOUSE$_{pro}$+DOG$_{pro}$ −ENTER$_{j \to i}$.

'The dog entered the house.'

Thirdly, there also appears to be agreement with gender and number features. Gender agreement (if used) is also indicated by predicate classifiers. In the following Example 'Tell her,' the third person singular pronoun, indicated by the left position, is marked with the female classifier, the pinky. (Note that the default form of the sign TELL uses the thumb. See Example TELL (one female person) (14)).

(14)
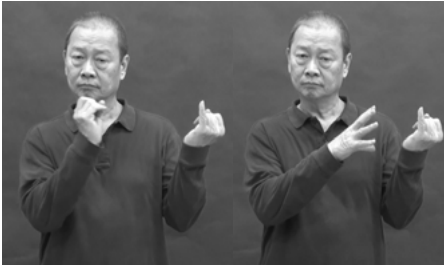
WOMAN$_{pro}$+TELL.
'Tell her.'

Agreement verbs will be introduced below in the section of Basic Syntax.

7.2.3 Aspect marking

Regarding aspect marking, TSL marks perfective aspect on verbs of motion by holding the final position at the end of the verb, similar to what Sandler (1993) observed for ASL. In the following Example 15, there is a hold at the end of the sentence marking the termination of the action.

(15)

(a) HOUSE$_i$ (b) DOG$_j$
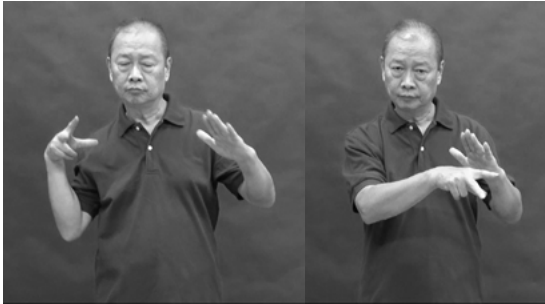
(c) HOUSE$_{pro}$+DOG$_{pro}$−ENTER$_{[hold]}$.
'The dog ran (has run) into the room.

A more common way of expressing perfective is adding a morpheme FINISHED after the verb.

(16)
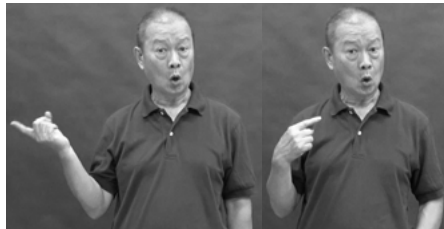
(a) HE$_i$ (b) COME

(c) FINISH.
'He has come (arrived).'

Intensity and frequency are often marked by reduplication. For example, in the examples in (17), the reduplication does not only indicate the repetition (i.e. frequency), it has a connotation of getting more annoying (intensity).

(17) Intensity and frequency marked by reduplication
    (a) ASK-ASK-ASK   'keep asking'
    (b) TELL-TELL-TELL   'keep telling'
    (c) SCOLD-SCOLD-SCOLD 'keep scolding'

Reduplication with a simultaneous raise of the hand(s) also indicates the increase of degree or intensity in either quality or quantity. For example, ADD is signed with the side of one fist (facing outward) touching the side of the other fist (facing inward) in (18). When the movement in ADD is reduplicated together with the reduplicated raise of the two hands, it means 'keep increasing', as in Example (19).

(18)

    ADD

(19) Intensity and frequency marked by reduplication
    (a) ADD (reduplication+ raising the hands)   'keep increasing'
    (b) QUARREL (reduplication + raising the hands) 'keep quarreling (getting
                                                 more and more serious)'
    (c) ARGUE (reduplication + raising the hands)   'keep arguing (getting
                                                 more and more serious)'

Raising hands in these examples naturally accompany reduplication.

7.3 Classifiers

Classifier constructions refer to complex predicates that express motion, position, stative-descriptive information, and handling information (Emmorey 2002).

Classifiers in TSL are all drawn from the list of basic handshapes shown in Appendix I. TSL classifiers can be categorized based on a small set of physical and semantic features underlying lexicon and syntax of human languages following Pinker (1989), including whole entity classifiers (for animate entities, inanimate

entities, instrument), limb classifiers, part classifiers, handling classifiers, and extension/surface classifiers. See Appendix III for the list of classifiers for each category.

8 Basic syntax

8.1 Three types of verbs and word order

As in other sign languages, verbs in TSL can be classified into plain verbs, agreement verbs, and spatial verbs. Plain verbs do not move through sign space to show grammatical relations. They use SVO word order to indicate subject-object grammatical relation, although OSV and SOV orders are also very common due to topicalization of the object. Agreement verbs indicate the subject-object grammatical relationship by moving through sign space. Spatial verbs convey the information about movement and location of an object in real world. The moved objects may be the subject or the object. In essence, agreement verbs move in syntactic space, while spatial verbs move in topographic space (Sutton-Spence and Woll 1999). The word order of agreement verbs is usually OSV, but SOV is also acceptable. As for the spatial verbs, the location of a referent (or an object) is usually signed first followed by the referent and the spatial verb.

    In the section below, we briefly illustrate the three types of verbs, showing their word orders and the classifiers used in classifier predicates vs. spatial verbs.

8.1.1 Plain verbs

Words such as LIKE, REMEMBER, BE-FAMILIAR-WITH, THINK, FEAR, among others are plain verbs in TSL. They show relatively little modification and do not move through space to show grammatical information. Manner and aspect are marked in plain verbs by different speed of repetition of the verb and presence of non-manual features. For example, to express the idea of doing something for a long time, the movement of the verb sign is typically lengthened. To indicate intensity, the verb sign is normally shortened and made with tense, retracted movements (Smith 1989: 82–83).

    Because plain verbs are frequently made using the body as the location, they are sometimes known as "body-anchored" verbs (Sutton-Spence and Woll 1999). As they are "body-anchored", they do not move through space to indicate the subject-object grammatical relation or to give information about person and number of the subject and object. For example, to sign the verb LIKE, the tips of the index finger and the thumb contact the facial location, as shown in (20c).

Since plain verbs cannot move through space to show the information of grammatical relations, the subject (i.e. BROTHER) and the object (i.e. DOG) do not change the movement and orientation of the verb, as shown in (20). However, topicalization of the object is also more frequently used in discourse.

(20)

(a) DOG   (b) BROTHER   (c) LIKE.

'(My) brother likes dogs.'

8.1.2 Agreement verbs

Examples of agreement verbs in TSL are BELIEVE, TELL, GIVE, ASK, SEE, PAY, ANSWER, and many others. Agreement verbs move through space to indicate the subject-object grammatical relationship, thus also allowing the inclusion of information about person and number of the subject and object. This is accomplished by moving the verb in syntactic space. That is, information about who is carrying out the action, and who or what is affected by the action is shown by changes in movement and orientation of the verb.

Unlike plain verbs, agreement verbs change their forms in accordance with the subject or object of the sentence. The different forms that these verbs assume reflect different combinations of subjects and objects. Take the sentences in (21) and (22) for example, the agreement verb BELIEVE moves toward the position where the object is located. In (21) the verb moves toward the object position, i.e. MOTHER, whereas in (22) the signer is the object; therefore, the verb moves toward the signer himself.

(21)

(a) MOTHER   (b) MOTHER$_{pro}$ (c) BELIEVE-MOTHER.
                    +FATHER

'(My) father believes (my) mother.'

(22)

(a) FATHER   (b) BELIEVE-ME.

'(My) father believes me.'

It should be pointed out that in an agreement verb, there is a start point (subject agreement marker), a path movement (verb stem), and then an end point (object agreement marker). In general, the starting point of these verbs is the location of the subject, while the end point is where the object is. However, the agreement verbs such as INVITE, TAKE-FROM, BORROW, etc. are exceptions to this generalization. These verbs show "backwards agreement" where the start point marks the object and the end point marks the subject.

8.1.3 Spatial verbs

Spatial verbs use topographic space, not syntactic space. Spatial verbs in TSL include RUN, JUMP, WALK-TO, and many others. These verbs are referred to as "verbs of motion and location" (Supalla 1982) or "spatial-locative predicates" (Smith 1989). In TSL, the sentence with a spatial verb such as RUN-ABOUT and a classifier morpheme is shown in (23), in which a handshape for a class of objects (i.e. ANIMAL, see 23c) is used to indicate a group of referents such as dogs, cats, frogs, bees, birds, scorpion, and the like. Such a handshape is a bound morpheme and cannot be used in isolation.

(23)

(a) ROOM   (b) DOG   (c) ROOM$_{pro}$+ANIMAL–RUN-ABOUT.

'The dog is running about in the room.'

As shown above, the predicate RUN ABOUT contains information about the movement of the subject, and the classifier handshape ANIMAL is used for any animals with similar features. It is observed that the full sign (e.g., the DOG) is normally produced first, followed by the classifier morpheme (e.g., ANIMAL). The full sign is usually needed to identify the referent; otherwise, it is impossible to identify what the referent really is. As analyzed by Supalla (1982), spatial predicates have two parts – a movement morpheme and a classifier handshape morpheme.

In addition, spatial verbs may inflect to show manner and aspect, but they do not inflect for person or number. They can give information about the path, trajectory and speed of movement of the action described by the verb, and about the location of the action (Chang, Su and Tai 2005).

8.2 Auxiliaries and word order

One of the most interesting issues in sign language syntax is the general absence of auxiliaries in sign languages. TSL is the first sign language which has been demonstrated to have auxiliaries. Smith (1989, 1990) has identified three auxiliaries in TSL. They are Aux-1, Aux-2, and Aux-II. They are shown in (24).

(24)

Aux-1   Aux-2   Aux-II

According to Smith (1990: 216–217), "These signs have all the morphological properties of agreement verbs. They move from subject to object loci." Their primary function is to convey the subject-object relationship. They occur before the main verb and carry the subject-object agreement for the main verb. However, they are not compulsory. All three types of verbs, i.e. plain verbs, agreement verbs, and spatial verbs, can be the main verb. When the main verb is an agreement verb, there is no need for agreement morphology anymore. Aux-1 is the most frequently used auxiliary. It uses the index figure to form the 1 handshape. To carry out the agreement, it begins with the tip of the 1 handshape either in contact with or just in front of the center of the trunk and moves along a straight path to a new location wherein the index figure is pointing at the object locus. Aux-2 uses a bent V handshape to face an object locus, while the back of the hand facing the subject locus. Aux-II is pro-

duced with both hands, with the strong hand acting on the weak hand. The strong hand is associated with the subject locus, while the stationary weak hand is associated with the object locus. The following pair of sentences in (25) and (26) illustrates how an auxiliary can be used to carry the agreement function for a plain verb.

(25)

(a) SISTER (b) FEAR (c) COCKROACH.
'My sister is afraid of cockroaches.'

(26)
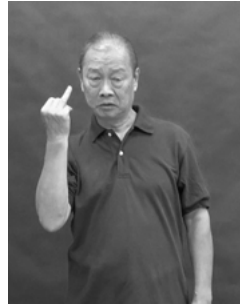
(a) COCKROACH (b) SISTER

(c) AUX-2 (d) FEAR.
'My sister is afraid of cockroaches.'

Note that in (26), the word order is OSAuxV due to topicalization. The fact that auxiliaries must occur before the main verb argues for their status as auxiliaries and for some scholars for a piece evidence for SVO as the underlying order in TSL, even though OSV and SOV are most common surface word orders in this language.

8.3 Word Order and non-manual expressions for modals, negation, and question

While auxiliaries for agreement function are placed before the main verb. Modals (epistemic and deontic) are placed after the main verb, as for example in (27) and (28).

(27) HE FALL-DOWN WILL
'He will fall down.'

(28) MOTHER REST MUST
'My mother must rest.'

However, some modals can be placed either before or after the main verb. When placed before the verb, they also carry a connotation of willingness and ability on the part of the subject in the Examples (29) and (30).

(29) HE WILL COME
'He will come.'

(30) HE CAN COME
'He can come.'

Negation and other negative expressions are ordered after the main verb. The negation signs or signs with negation incorporated in them are accompanied with different kinds of facial expression and head movement. For example in (31), the negation sign is accompanied with narrowed eyes (en) and head shake (hs), while lips kept together and pushed out (mm). In (32), the negation sign is accompanied with narrowed eyes, head tilted back (ht<), and tongue protruded (th).[5]

$$\overline{\text{en/hs/mm}}$$

(31) HE TALL NOT-HAVE
'He is not tall.'

$$\overline{\text{en/ht</th}}$$

(32) HE SIGN-LANGUAGE NOT-ABLE
'He doesn't know sign language.'

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5 There seems to be no general rule of facial expression and head movement for negation signs in TSL. Different negation signs carry different facial expressions and head movements which express negation in conjunction with other emotions. See Tai et al. (in preparation) for a detailed description.

In Wh-questions, question words such as WHO, WHAT, WHERE, WHEN and others are placed at the end of the sentence. They are also accompanied by non-manual expressions. For example, in (33), the question word WHO is also accompanied by eyes opened (<u>eo</u>), brows knitted (ˇˇ), and head tilted slightly forward (<u>ht></u>). In (34), the question word WHAT is accompanied by eyes narrowed, brows knitted, and head tilted slightly back.

<div align="center"><u>eo/ˇˇ/ht></u></div>

(33) LIKE HE WHO
    'Who likes him?'

<div align="center"><u>en/ˇˇ/ht<</u></div>

(34) YOU THINK WHAT
    'What are you thinking about?'

Yes-No questions in TSL is generally expressed without a question marker at the end of the sentence. Rather, non-manual expressions are used either at the very end of the sentence or accompany the predicate.[6] For example in (35), the non-manual expression consisting of opened eyes, head nod (<u>hn</u>), and raised brows (^^) is used after the predicate 'be drunk'. In (36), the same non-manual expression is used but co-occurring with the predicate rather than after.

<div align="center"><u>eo/hn/^^</u></div>

(35) BROTHER DRUNK
    'Is your brother drunk?'

<div align="center"><u>eo/hn/^^</u></div>

(36) FATHER WORK
    'Is your father working?'

9 Interesting or unusual features of the language

The most interesting features of TSL are character signs and blending of character signs and loan translations from Chinese as discussed in Section 6.

    The use of auxiliary verbs to indicate subject-object relationship for all three types of verbs is an unusual syntactic feature of TSL (Smith 1990).

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6 For tag questions and alternative questions, see Tai et al. (in preparation) for discussion.

10 Examples of words and sentences

10.1 Taiwan Sign Language Online Dictionary (TSL Browser)

The current edition (3rd edition) of Taiwan Sign Language Online Dictionary (Tsay et al. 2015) contains about 3,500 lexical items. Under each lexical item, there is a video of the signing with a text description in both Chinese and English. The website is http://tsl.ccu.edu.tw/web/browser.htm.

10.2 Examples of words

(37) Numbers

(a) ONE   (b) TWO   (c) FIVE_N

(d) FIVE_S   (e) TEN_N   (f) TEN_S

(38) Kinship terms

(a) FATHER

(b) MOTHER

(c) ELDER BROTHER

(d) ELDER SISTER

(39) Color terms

(a) BLACK

(b) WHITE

(c) RED_N

(d) RED_S

(e) GREEN

(40) Verbs

(a) DRINK

(b) SLEEP

(c) EAT

(41) Nouns

(a) BIRD

(b) DOG

(c) TREE

(42) Cultural terms

(a) LANGUAGE

(b) SIGN-LANGUAGE

(c) DEAF

(d) HEARING

(43) Personal names (family names)

(a) WANG

(b) LI

(c) LIN

10.3. Examples of sentences

(44) Sentence type: Declarative sentence with a transitive verb

(a) CAT$_i$ (b) DOG$_j$
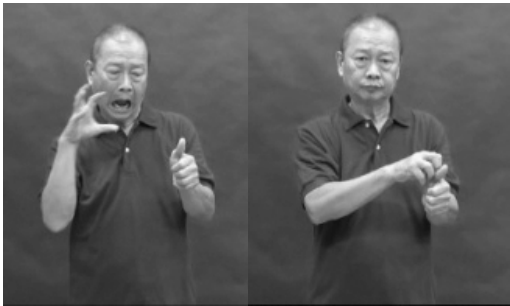
(c) BITE$_{j \rightarrow i}$.
'The dog bit the cat.'

(45) Sentence type: Declarative sentence with am intransitive verb
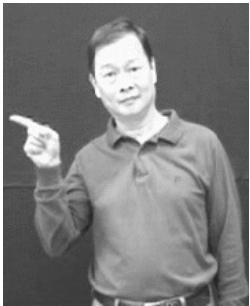
(a) HE   (b) FALL-DOWN.
'He fell down.'

(46) Sentence type: Negation

(a) HE

(b) TALL

(c) NOT-HAVE.
'He is not tall.'

(47) Sentence type: Question

(a) YOU

(b) THINK

(c) WHAT?
'What are you thinking about?'

11 History of research

Linguistics research on TSL began quite late. Wayne Smith and Jean Ann were the first to investigate the linguistic structure of TSL. Smith (1989) investigated morphological characteristics of verbs in TSL, whereas Ann (1993) studied the interaction between the physiology of the hand and ease of articulation. Since then, the linguistic studies on TSL has primarily been conducted by the Sign Language Research Group led by Prof. James H-Y. Tai of the Institute of Linguistics at National Chung Cheng University, Taiwan. This group has constructed an online dictionary of TSL (Tsay et al. 2015) with both Chinese and English descriptions, as introduced above. Two edited volumes on lexicon and grammar of TSL have been published (Myers and Tai 2005; Tai and Tsay 2009). Two volumes of TSL reference grammar (Tsay et al. in preparation; Tai et al. in preparation) are also in preparation. More than twenty works on various aspects of linguistic research of TSL have been published, notably, Chang (2011a, 2011b). Tai (2005, 2013), Tai and Su (2013), Zhang (2007). In addition, the Linguistics Institute of the National Chung Cheng University has produced three Ph.D. dissertations and 16 M.A. theses on TSL studies. All the above-mentioned works are accessible on the TSL Research Group website http://tsl.ccu.edu.tw/web/index.php.

Appendix I: Handshapes in Taiwan Sign Language

Handshape names adopt the American Sign Language handshape names in English alphabet and numeral digits with necessary variations. In parentheses are the handshapes names in Chinese characters used in the previous studies on TSL. Romanization in Mandarin Pinyin is provided along with the character names.

Open A (男 nan)	Flexed A (副 fu)	B (胡 hu)	Open B (手 shou)	Bent B (九 jiu)
C (方 fang)	Bent C (紳 shen)	F (錢 qian)	Open F (WC)	G (像 xiang)
I (女 nyu)	Flat I (千 qian)	Curved I (蟲 chong)	K (欠 qian)	Open K (布袋戲 budaixi)
L (六 liu)	Bent L (句 ju)	Curved L (爺 ye)	Curved-Baby L (難 nan)	Flexed L (很 hen)
Extended N (鴨 ya)	O (零 ling)	Open O (果 guo)	Flat O (萬 wan)	Baby O (呂 lyu)
Bent-Baby O (雞 ji)	R (筆 bi)	S (拳 quan)	U (棕 zong)	V (二 er)

Curved V (二十 ershi)	W (三san)	Curved W (三十 sanshi)	Unspread W (童 tong)	X (十 shi)
Y (民 min)	L-I (守 shou)	X-I (奶 nainai)	1-I (語 yu)	Flat 1-I (龍 long)
1 (一 yi)	3 (七 qi)	Curved 3 (虎 hu)	4 (四 si)	Curved 4 (四十 sishi)
5 (五 wu)	Bent 5 (同 tong)	5-Curved Pinky (八ba)	Curved 5-Pinky (八十 bashi)	Piled 5 (薑 jiang)
8 (借 jie)	Open 8 (菜 cai)	Crossed Thumb-Index (隻 zhi)	Thumb-Midde-Pinky (飛機 feiji)	Curved-Index (鵝 e)
Curved Middle (博 bo)	Middle (兄 xiong)	Curved-Index-Middle (高 gao)	Ring (姐 jie)	Ring-Pinky (百 bai)
Bent Curved-Index-Middle (矮 ai)	Thumb-Pinky (細 xi)			

Appendix II: TSL notation conventions

TSL notation conventions	
SIGN	Chinese glosses for manual signs are written in capital letters, e.g., CHILD, TAKE, BITE
SIGN-SIGN	Multiword glosses connected by a hyphen are used when more than one English word is required to translate a single sign, e.g., GO-AWAY
SIGN++	Reduplication
^	This symbol is used between parts of a compound sign, e.g., MARRY (MALE^FEMALE)
+	The symbol marks simultaneous signing with both hands, e.g., WOMAN$_{pro}$+TELL
∪	It indicates that the two signs are produced simultaneously, i.e. parallel compound, e.g., MARRY = MALE∪FEMALE
G$_{pro}$+F$_{pro}$−move	Classifier predicates expressing motion events are typically composed of a proform for Ground (G$_{pro}$) and a preform for Figure (F$_{pro}$), the latter being integrated with Motion and Path (F$_{pro}$−move). The marker "+" indicates that G$_{pro}$ and F$_{pro}$ are signed simultaneously by both hands, with G$_{pro}$ signed by the non-moving hand, and F$_{pro}$ by the moving hand. The marker dash "−" indicates that the conceptual components "Figure preform", "Motion" and "Path" are indivisible and are expressed as one unit by the moving hand, e.g., HOUSE$_{pro}$+DOG$_{pro}$−ENTER

Appendix III

TSL classifiers with their categorization based on physical and semantic features

1. Whole entity classifiers for animate entities A – cannot exist as lexical items independently

 Human beings, animals

 Human beings, animals

 Human beings, animals

2. Whole entity classifiers for animate entities B – also occur as partial or whole lexical items

	Fish		Shrimp
	Frog		Worm

3. Whole entity classifiers for inanimate entities A – cannot exist as lexical items independently

	3-dimensional objects (ball, stone, apple)		2-dimensional round objects (CD, biscuit, bicycle)
	3-dimensional small objects (small-size fruits)		2-dimensional round small objects (coin, button)
	2-dimensional flat objects (paper, leaf, surface of objects)		0-dimensional small objects (raindrop, dew, bean)
	1-dimensional vertical objects (electric pole, flag pole)		
	1-dimensional horizontal objects (river, road, rope, branch, pen)		

4. Whole entity classifiers for inanimate entities B – also occur as partial or whole lexical items

	Airplane		Boat
	Car		Train/truck
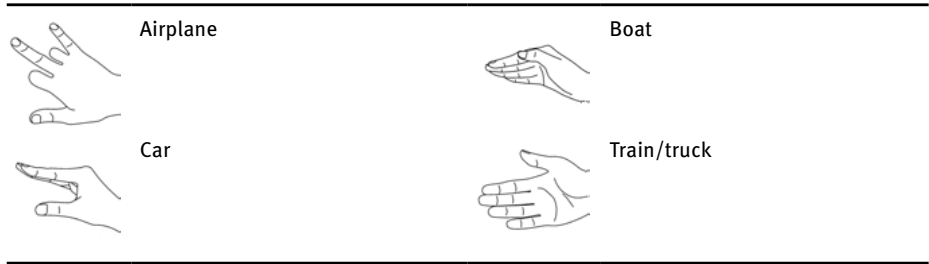
5. Whole entity classifiers for instrument

	Toothbrush		Comb
	Scissors		Knife

6. Limb classifiers

	For walking, standing, and swimming		For kneeling down
	For jumping		Jumping on one leg
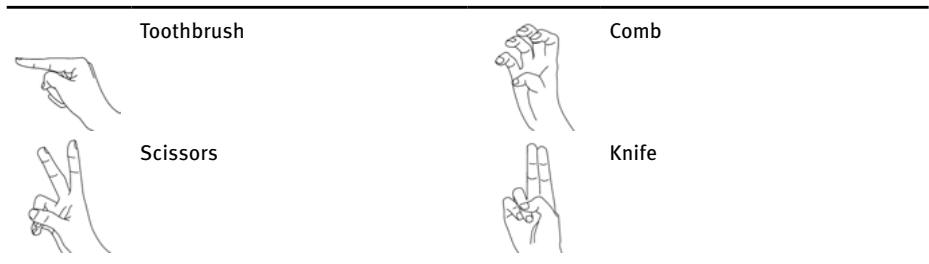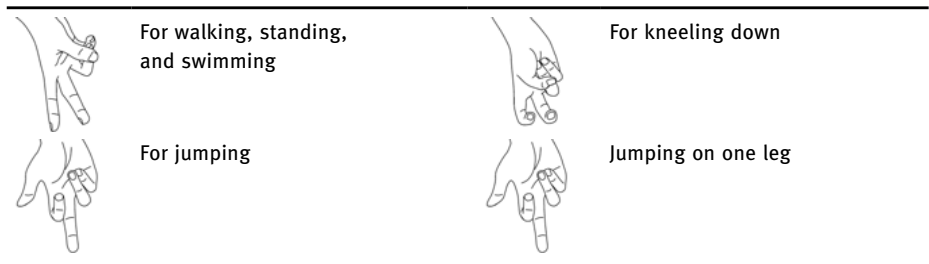
7. Part classifiers for animate entities

	Chicken		Duck
	Goose		Snake
	Dragon, giraffe		

8. Part classifiers for inanimate entities

	Bicycle, motorcycle		Telephone
	Spout (for filling the gasoline)		Clothes hanger

9. Handling classifiers

	For grasping concrete or abstract entities		For round or cylindrical objects (ball, mug)
	For objects with handlers (hammer, toothbrush, saw)		For tiny objects (needle, thread)

10. Extension/surface classifiers

	For tracing a line or a surface		For tracing the width or height (space, volume)
	For tracing length or height of cylindrical objects		For tracing the shape of thin objects

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Chinese Deaf Association – http://www.deaf.org.tw/
Association for the Hearing Impaired – http://www.soundhome.org.tw/

Sam Lutalo-Kiingi and Goedele A. M. De Clerck
33 Ugandan Sign Language

1 Basic facts about the language

Language name: Ugandan Sign Language (UgSL). In the first linguistic studies, the acronym for Ugandan Sign Language was given as 'USL'. Lutalo-Kiingi (2014) recently proposed a change to 'UgSL' to reduce possible confusion in scholarship with (English translations of) descriptions of other sign languages. The acronym 'Ug' is often used in Ugandan political and economic contexts as a country identifier.

Alternative names: The deaf community in Uganda refer to their language as UGANDA SIGN. Ugandan Sign Language is called *Olulimi lwobubonelo e Uganda* in Luganda and *Lugha ya Alama ya Uganda* in Swahili.

Location: Urban areas of Uganda, and to some extent in rural areas/villages, where deaf people are using gestural communication and/or home signs.

Varieties: Five regional varieties of UgSL can be distinguished, used around Gulu and Lira towns (northern) region; Ngora and Mbale towns (eastern) region; Mbarara town (western) region, and the city of Kampala. These varieties are known to have some cultural/lexical as well as phonological differences (Wallin et al. 2006).

This chapter draws on corpus data collected for the Ugandan Sign Language Dictionary (Wallin et al. 2006) from all regions in Uganda and additional data collected in the eastern and Kampala region for the morpho-syntactical study of Lutalo-Kiingi (2014, in press) (for in-depth methodological discussion, also see Lutalo-Kiingi 2014).

Number of signers: The Ugandan government is currently working on national identity registration of its citizens, including the registration of disability, and is developing census data. The Ugandan Sign Language Dictionary (Wallin et al. 2006) mentions that 528,000 deaf, deafened and hard of hearing people live in Uganda, but does not differentiate between signers and non-signers. Based on membership of regional deaf associations in Uganda as documented during the development of the UgSL Dictionary, the number of deaf UgSL signers can be roughly estimated at 25,000.

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2 Origin and history

Research on the history of deaf individuals in Uganda prior to the establishment of formal deaf education in the 1960s and on the development of Ugandan Sign Language (UgSL) and the Ugandan deaf community is still to begin. Miles (2005) mentions a track to rulers with an impairment among the Buganda, and more particularly to Ssekabaka Kiggala, a Kabaka ('King') who held the throne from 1475–1501. Further research is needed to clear up whether the man was born deaf, or lost his hearing at a later age, or perhaps was no longer able to respond to questions due to age and absence of mind. We note that *Kiggala* is the word for 'deaf' in Luganda, one of the spoken languages of Uganda (Lutalo-Kiingi 2014).

The roads of the development of UgSL and the Ugandan deaf community can be tracked to Uganda's first deaf school, the Uganda School for the Deaf, which was established in Kampala (Namirembe) and opened in 1961, and the later establishment of the Ngora Regional School for the Deaf in 1969 in Kumi, Eastern Uganda. Deaf Ugandans recall bringing their home signs and the emergence of an indigenous sign language on the playground. This eventually evolved into the language that is now called UgSL (Lutalo-Kiingi 2014; also see the next section for more information on educational developments and the influence of foreign sign languages in deaf education in Uganda).

3 Bilingualism and language contact

UgSL is used in a linguistically diverse country. Over 40 spoken languages of three main language groups are used in Uganda and UgSL users are continuously into contact with other languages (Lule and Wallin 2010). It is therefore appropriate to refer to *multilingualism* in this context rather than *bilingualism*, as is the case throughout the African continent (Altmayer and Wolff 2013). English and Kiswahili are the two official languages of Uganda, Kiswashili being a language used in the region across country-borders. Although English and Luganda, an indigenous language which has a larger group of speakers than Kiswahili, were previously the first and second national languages, this was changed in 2006 from Luganda to Kiswahili. Indigenous languages such as Luganda are not recognised by the government, but are used in bilingual educational programs (Parry 2000; Ouane and Glanz 2011). UgSL was officially recognised in the constitution of Uganda in 1995 (also see the next section on political and social context).

3.1 Education

Deaf education in Uganda began when the country became independent from Britain in the early 1960s. Two primary deaf schools were established in 1961 and

1969: a residential school at Ntinda, Kampala, and a school in Ngora, Kumi District (Eastern region) respectively. Under the support of NGOs and development projects, deaf schools have been established in other regions in the last decade, such as the Nancy School for the Deaf in Lira and the Laroo School for the Deaf in Gulu (Northern Uganda), and the St. Mark's School for the Deaf in Masaka (Lule and Wallin 2010). Also deaf units in mainstreamed schools have emerged, sometimes with government-funded interpreting services, such as in Ngora High School in the Eastern region's Kumi District, and some Primary Teacher Colleges since 2005. A major achievement and important step in the educational opportunities for Ugandan deaf learners is the establishment of secondary deaf schools in Wakiso (Kampala) in 2006 and in Mbale (2007) (Lule and Wallin 2010).

Currently there are 11 deaf primary schools in Uganda, and two secondary deaf schools (Lutalo-Kiingi 2014). There are around 40 units for deaf children in mainstream schools, but more than 40 of the 100 districts in Uganda have yet to establish one of these units and, since less than 2% of deaf children in Uganda are attending school, educational access is still a challenge (Miles, Wapling and Beart 2011).

Educational research is needed to document and provide an overview of the services and quality of the services that deaf schools and deaf units in mainstreamed schools are currently providing to deaf learners in Uganda and of the educational philosophies and practices of bi/multilingualism in the schools. Kristensen et al. (2006) mention staff training and development, physical facilities in the schools, and individual assessment as points of attention. Priority in advocacy should be given to specialised teacher training for teachers of deaf children in Uganda, support to language development of Ugandan deaf children (UgSL and bilingual) and peer support and sign language training for parents of deaf children (also see Miles, Wapling and Beart 2011; for further information on UgSL legislation and education, see next section).

The use of UgSL is accepted in all deaf schools; however observation during school visits indicates that language use in the classroom is likely to be a form of total communication or signed English (also see Lule and Wallin 2010). This deserves further study. The Ugandan government requires all teachers employed in deaf schools to be qualified, registered on the government payroll, to learn UgSL for six months and to pass a basic competency exam. There are currently few deaf adults who have been able to go through this process of gaining subject and teaching qualifications (with limited interpreting support services). However, the broad basis of awareness and support to UgSL and the need to provide deaf role models for deaf learners in educational settings has motivated NGOs and parents associations to collect funding in support of the employment of deaf 'support teachers' in deaf schools.

A challenge for the development of sign language/bilingual policy and practice in educational contexts is found in (the interpretation of) dominant international

frameworks of 'inclusion' and 'Education for all'. The application of these frameworks to deaf learners in Uganda and other countries in sub-Saharan Africa needs to be approached critically since assistive devices such as hearing aids, and sign language interpretation services and/or communication support are not available or only available to a limited extent. Another question that needs to be explored is how deaf education can be shaped from a complex multicultural and multilingual framework to meet the needs of diverse learners (also Storbeck and Magongwa 2006; Lutalo-Kiingi and De Clerck 2015).

3.2 Influence from other sign languages

Deaf educational developments in sub-Saharan Africa have often been supported by missionaries, NGOs and development projects, and have been influenced by the educational philosophies, practices, and sign languages that were used in donor countries (also see Kiyaga and Moores 2003; Lutalo-Kiingi and De Clerck in press-b). This was also the case in Uganda. The introduction of British Sign Language (BSL) in Uganda was related to the foundation of the Ugandan School for the Deaf and the study of the school's first teacher, Mrs Lule, at Manchester University, in the UK in 1957. Mrs Lule, who had two deaf children, followed the British educational system and adopted the oral approach. BSL was disseminated by Mrs Lule's daughter, who had learnt it from other deaf children in the UK and was enrolled in Uganda's first deaf school beginning in 1961 (Krarup 1998).

Influence from American Sign Language (ASL) in the early education system can also be noticed.

In the end of the 1970s, two Ugandan deaf adults who were trained in Andrew Foster's center for teaching training for deaf Africans in Nigeria attempted to introduce sign language (an ASL-based form of signed English) in the Uganda School for the Deaf (Ntinda) upon their return. A church was also established for deaf school students. Due to civil war in Uganda in the end of the 1970s, and again in the mid 1980s, ASL-influence remained rather limited. Recent ethnographic research illuminates resistance of students and deaf teaching assistants to the use of ASL-based signing at the school in the mid-1980s. In this period of time total communication philosophies, which were introduced by VSO volunteers in the Ntinda and Ngora deaf schools, also supported sign language use in the classroom (Lutalo-Kiingi and De Clerck in press-a). The first Manual of Uganda Signs was developed by VSO volunteer Johanna Hobbs and the team of the Ugandan School for the Deaf (Uganda School for the Deaf 1988). ASL influence through deaf churches has become more prominent since the end of the 1980s when a generation of deaf school graduates attended the church as adults.

Another language that had contact with UgSL in the 1980s due to the education system is Kenyan Sign Language (KSL). Since Uganda did not have secondary deaf education at the time, scholarships were offered by Christoffell's Christian Blind

Mission (CBM) for deaf Ugandans with low-income families, especially those from Kampala and Ngora, to study in Kenya (Lutalo-Kiingi and De Clerck in press-a; Lule and Wallin 2010).

Crucial for awareness of UgSL and the preservation of the language, were the East African WFD seminars that started in 1987. This consciousness raising on Ugandan Sign Language was supported further by the cooperation from the Ugandan National Association of the Deaf (UNAD) and the Danish Deaf Association (DDL) from 1992 until 2006. This collaboration resulted in a slight influence from Danish Sign Language (DTS, Dansk tegnsprog), specifically in signs used in the project domains (also see Lutalo-Kiingi 2014).

Examples of UgSL signs borrowed from these other sign languages include the DTS sign EVALUATION, the KSL sign BAD, the BSL sign BOY and the ASL sign NAME.

Spoken languages have also influenced UgSL. The second language of deaf Ugandan signers is usually English, and some are also familiar with Luganda and Kiswahili and other local languages (Lutalo-Kiingi 2014). UgSL has borrowed mouthings from all of these spoken languages, for example Luganda <tono> (from the morpheme in *butono* 'a little' and *batono* 'few') in quantifiers; English <sef> (from *self*) in a pronoun series; and Kiswahili <bado> (from *bado* 'not yet') in a negation sign (Lutalo-Kiingi 2014: 349).

3.3 Variation and standardisation

UgSL varies across the different geographical areas of Uganda and, corresponding to the locations of the main deaf schools and deaf associations in Uganda, five regional variants can be distinguished: the Northern variant, used in the districts of Lira and Gulu; the Eastern variant, used in the district of Ngora; and the Central variant, used in Kampala, Uganda's capital. The most widespread is the Central variant, as this tends to be used in higher education, the Ugandan National Association of the Deaf (UNAD), and many local deaf associations, and there are more deaf people living in the Central region than in others. In the rest of Uganda deaf people are also living in rural villages, districts and sub-counties, sometimes relatively isolated with only the chance to sign with other deaf people occasionally, when they attend meetings in the districts or sub-counties (Wallin et al. 2006).

Sociolinguistic variation related to gender, age, cultural and educational background, and style/register can be noticed in the UgSL dictionary corpus (Wallin et al. 2006; Lutalo-Kiingi 2014) and deserves further research; also regional variation needs further study, due to recent educational developments such as the establishment of deaf units in the Western region and of secondary deaf schools.

Most geographical variation in UgSL is lexical, with differences in signs for numbers, clothes, agriculture and crops, foods, and places, and cultural practices. E.g., different signs have been used for "Kampala" (the capital city) in the other

Ugandan regions, although the variant from the Kampala region has become adopted in the other regions as well; the Eastern variety has an interesting system for cardinal numbers, which has been influenced by KSL. To a lesser extent, UgSL exhibits phonological variation in handshapes (Wallin et al. 2006; Lutalo-Kiingi 2014).

A recent change in language attitudes and use which deserves further sociolinguistic study is the granting of a higher status of English and English-based signing with ASL influence by a young, educated elite within and beyond the UNAD, often of postlingually deaf and mainstreamed backgrounds and from secondary deaf schools, who take leadership positions with the community. This is also related to increased virtual and transnational interaction in the region (Lutalo-Kiingi and De Clerck in press-a). The preferred use of Signed English in educational contexts is another factor of influence (also see Lule and Wallin 2010). The UgSL variant and related cultural practices used by both the older generation and the majority of young native signers is increasingly devalued and new initialised signs are preferred in lexicographic domains of politics, education, religion and health, as it is often incorrectly assumed that no UgSL signs are available. When these developments are tied to the working of NGOs and projects, they become bases for language change (Lutalo-Kiingi and De Clerck in press-a; also see Lutalo-Kiingi & De Clerck 2015).

The constitutional recognition of UgSL and the legal framework that is in place, combined with an intense period of awareness raising supported by development work, and a broad use of UgSL provide a supportive framework to the vitality of the UgSL. Alongside deaf UgSL signers, UgSL is used by family and friends, a growing number of sign language interpreters and special needs teachers and, to a limited degree, public and private service professionals (health care staff, police officers, etc.). The developments described in the paragraph above and in the section on language contact and education, illustrate that the development of meta-linguistic awareness among the community leadership and the broader community will be beneficial and crucial to protect the language. The digitalisation of the UgSL dictionary, which was based on corpus research methods, the development of further lexicographic and sociolinguistic research, and the dissemination of UgSL research will be important challenges for the future (Lutalo-Kiingi and De Clerck in press-a; more information in the next section on the political and social context, the UgSL policy, and UgSL teaching and training).

4 Political and social context

4.1 Organisations

The Ugandan National Association of the Deaf (UNAD) was first established in 1973 by deaf people themselves, and is an umbrella organisation for 11 regional and

more than 110 district deaf associations in Uganda. The secretariat, with deaf staff, was formed in 1992 with the cooperation of the Danish Deaf Association (DDL), which worked with UNAD for 14 years. Since 2009, UNAD has had a permanent office in Kampala. The UNAD cooperates with partners nationally including the umbrella organisation the National Union of Disabled Persons of Uganda (NUDI-PU), formed in 1987; Deaf Link Uganda (DLU), formed in 2008; the United Deaf Women's Organisation (UDEWO) formed in 2010; and the National Association of Parents of Deaf Children (NAPADEC), formed in 2012.

The UNAD has benefited from long-term cooperation with the DDL and Danish International Development Agency (DANIDA) for capacity building and in its achievement of milestones. Awareness raising on the value of UgSL in the community and among parents of deaf children, educators and government officers provided a start for a campaign that culminated in the recognition of UgSL in the Constitution of the Republic of Uganda in 1995 (Wallin et al. 2006; Lule and Wallin 2010; Lutalo-Kiingi and De Clerck in press-a).

4.2 Official status

The constitutional recognition of UgSL (Art. 35) includes that "the state shall promote the development of sign language for the deaf" (principle xxiv) (Uganda Government 1995). This recognition provides a basis for further sign language planning, which includes policy development and financial resources for UgSL interpreters, and other aspects of linguistic rights such as the visibility of UgSL in media. The foundation of deaf schools and payment of qualified teachers aims to ensure that deaf learners access quality education within a signing environment, which may be organised in deaf units in regular schools (also see the draft Special Needs and Inclusive Education Policy 2011). Universal Primary Education (UPE) (1997) and Universal Post Primary Education and Training (UPPET) (secondary, technical and vocational) were introduced (2007) (also see Mbabazi 2008). Other relevant policy documents are: the Persons with Disabilities Act (2006), Equal Opportunities Act (2008), and Affirmative action for students with disabilities in universities (also see Republic of Uganda 2006; Lule and Wallin 2010). A major challenge for the future lies in the development of action to realise these rights in practice and in the development of policy for UgSL use in educational settings and the development of UgSL curricula and teaching materials (include handbooks and media) to ensure the right of all Ugandan deaf children to acquire UgSL (also see Lutalo-Kiingi and De Clerck in press-b).

There are significant opportunities for political participation and representation of deaf citizens in Uganda in decision making on issues of UgSL, deafness, and disability (also see Wallin et al. 2006). Parliamentary rules state that there must be at least five MPs representing persons with disabilities (PWDs), and at present, one of these MPs is deaf. Some local councils have deaf representatives.

Also, deaf people are involved in the National Council of Disability, which was established in 2004 to monitor implementation of governmental policies on disability. Some deaf people are involved in political parties as well. Deaf Ugandans are also well represented in the working of non-governmental organisations that are working with deaf people such as the Ugandan National Association of the Deaf, the National Union of Disabled Persons of Uganda (NUDIPU), Sign Health, etc.

4.3 Sign language teaching and interpreting

In the period of 2000–2001, 120 deaf and hearing sign language instructors were certified by the Ugandan National Institute of Special Education (UNISE, the forerunner of Kyambogo University). In 2002, UgSL teaching and interpreting training programmes were established at Kyambogo University; the programs are still running today and Uganda has more than 200 certified UgSL interpreters (Lutalo-Kiingi and De Clerck in press-a). In cooperation with Stockholm University, the Kyambogo research team was trained to conduct first lexicographic research on UgSL, which led to the publication of the Ugandan Sign Language Dictionary in 2006 (Wallin et al. 2006). This capacity building process has planted seeds for on-going training of deaf sign language instructors and the provision of UgSL courses by the UNAD (also see Lutalo-Kiingi and De Clerck in press-a, for a discussion of these developments from a perspective of sustainability).

Having qualified UgSL interpreters enables NGOs, governmental services, and public services such as hospitals and police to provide interpretation. However, at the time of writing, register or regulation of interpreters and government policies and services of UgSL interpreters still need to be developed and the provision of UgSL interpreting depends on goodwill and financial resources.

4.4 Media and technology

Starting in 1995, the deaf community enjoyed access to television media, through interpreters on the UBC TV news (Wallin et al. 2006). UgSL interpreting qualifications, the Uganda Communications Act (1998), and advocacy by UNAD led to opportunities for deaf Ugandans to access television media. Ugandan Television (the national TV station at the time) merged to become UBC-TV (Ugandan Broadcasting Corporation) in 2006 and funding was restrained (Wallin et al. 2006). From 2006–2010, TV interpreting provision was limited to Sunday news and became a contentious political issue. The provision of UgSL interpreting on television stations is currently overseen by the Uganda Communication Corporation and has resulted in greater provision. However, interpreting services and subtitling are still piecemeal and there are no dedicated sign language programmes, which restricts the information available to UgSL users. Limited access to technology due to constraints in

financial resources and internet speed is a drawback for the use and development of UgSL media. However, supported by international donors and in cooperation with NUDIPU, the UNAD and the Ugandan deaf community are taking initiatives in this area, for example by providing training for deaf community members in digital and social media (Eroku 2013a, b).

4.5 Social aspects

Ugandan society is multilingual and multicultural, and deaf community members participate in a diverse range of family, group, and community contexts. Most deaf UgSL users are members of an ethnic group, and socialise within it to some extent; they are also members of the Ugandan deaf community. This community has grown through the establishment of deaf schools and the training and employment opportunities provided by NGOs and development projects in recent decades, with a strong collective organisation. Many Ugandan deaf people meet weekly on Sundays at deaf churches in cities, which are open for deaf community members from various religious backgrounds, and catch up on news and events or join in sports activities after services. Other formal meeting places are deaf schools and deaf associations, where deaf people are employed, as well as shops and bars run by deaf Ugandans which have become sites for casual daily socialising. Weddings, *kwanjula* (traditional introduction ceremonies where the bride introduces her friends and relatives to her fiancé) and funerals of deaf community members are also important rituals that are part of Ugandan deaf community life. Other key gatherings include deaf-organised festivals such as the International Deaf Awareness Week, held in a different region of Uganda each September; open days at deaf schools; and other village or deaf-organised festivals (e.g., just prior to Christmas and Eid al-Fitr).

4.6 Attitudes

Positive perspectives on UgSL and deaf people, especially in urban areas, have been fostered by the government's recognition of UgSL (1995); the development of UgSL teaching and research at Kyambogo University and courses throughout the country; the representation of the Ugandan deaf community in NGOs and political organisations; the sensitisation and awareness raising by the UNAD and the National Union of Disabled Persons of Uganda (NUDIPU); and the inclusion of UgSL on television.

The UNAD and the Ugandan deaf community have also challenged negative perceptions of deafness and the use of derogatory words with negative meanings of deafness (also see Kiyaga and Moores 2003; Wallin et al. 2006); for example, the use of the Luganda word *kasiru* ('mute') and the Kiswahili word *bubu* ('mute') instead of the more polite Luganda term *kiggala* and the Kiswahili term *ziwi*

('deaf'). These negative meanings of deafness and associations of 'less normal' have perpetuated the prejudices of family members who do not want to associate with their deaf family members, because they are the *kasiru* part of the family (also see Lutalo-Kiingi 2014).

Advocacy efforts and projects by NGOs are now increasingly directed towards deaf people and their families in rural communities, who have had less access to these information channels (Wallin et al. 2006; Lule and Wallin 2010).

In general, the positive societal changes mentioned in the UgSL dictionary, comprising the extended use of this language in deaf schools and deaf units at mainstreamed schools, at universities, at the political level, in the media, in public services, and on the street, continue to be confirmed and strengthened (also see Lutalo-Kiingi and De Clerck in press-a).

5 The structure of signs

This section merely gives an overview of the key aspects of UgSL phonology because this topic has not been investigated to any great depth so far, to the authors' knowledge. Nyst (1999) provides some explanation about variation in UgSL handshapes, e.g., occurrences of closed and open handshapes for the same sign; however, phonology has not been a major topic in most of the linguistic studies of UgSL, including Wallin et al. (2006) and Lutalo-Kiingi (2014, in press), the latter two of which focus chiefly on morphology and syntax. Phonology is an underresearched area for African sign languages generally (Lutalo-Kiingi 2014) even though the knowledge base on phonological aspects of Western sign languages is substantial (e.g., Boyes-Braem 1981; Crasborn 2012).

5.1 Initialised signs

UgSL uses many different initialised signs, which tend to be based on the fingerspelling handshape for the first letter of the English word for the signified concept or object. Interestingly, some of these initialised signs are derived from the (two-handed) fingerspelling alphabet of BSL, while others are from the (one-handed) ASL alphabet on which the modern UgSL alphabet is based. Sometimes, the sign involves the first and last letter, or the first two letters (cf. Sutton-Spence and Woll 1999). Such signs can be considered borrowings from English or whatever spoken language the word is from.

UgSL tends to use initialised signs mostly for place names, kinship, and a limited number of nouns and verbs. An example is the sign ENTEBBE/BOY 'boy' which uses the fingerspelled 'B' from BSL (Lutalo-Kiingi 2014: 87). The ASL alphabet is commonly seen in initialised signs related to religion such as CHRIST, LORD and

CHURCH, because of the historical influence of Andrew Foster's Christian Mission of the Deaf through Ugandan deaf trainees in Nigeria and American missionaries in Kenya (also see section 3.2 on influence from other sign languages).

As mentioned above, some signers seem to believe that ASL or English-based signs have higher status than more visual or iconic signs. For example, a long-standing UgSL sign for 'lunch' used a handshape referring to the time '12 o'clock', located near the mouth. Younger signers are now using the ASL handshape for 'L' positioned in the same location to mean 'lunch', and avoiding the traditional sign based on '12'. Other examples of this phenomenon are the signs TALL, TRANSPORT and EVIDENCE (see Table 1). This trend may mean there is a risk that older signs will be lost, and moreover that the influence from Western sign languages poses a threat to the vitality of UgSL.

Tab. 1: The signs for visual and initialised in UgSL.

(a)

UgSL sign visual for TALL

(b)

Initial sign for 'T' (TALL)

(c)

UgSL sign visual for TRANSPORT

(d)

Initial sign for 'T' (TRANSPORT)

(e)

UgSL sign visual for EVIDENCE

(f)

Initial sign for 'E' (EVIDENCE)

5.2 Handshape

Research into UgSL has identified a total of 47 sets of handshapes, 16 of which have more than one group of related handshapes (Wallin et al. 2006). Of the 2,199 signs that were recorded in the first edition of the UgSL dictionary in 2006, 43 % are one-handed signs. Figure 1 shows a minimal pair for which the handshape of the dominant hand is the only differing parameter.

Fig. 1: The signs CRASH and BARRIER/HINDER.

Pluralisation can be expressed through handshape modification, albeit rarely (Lutalo-Kiingi 2014). Lutalo-Kiingi (2014) explores UgSL handshapes in the domain of number and in classifiers, and to a lesser extent those used in pronominal and possessive forms.

5.3 Place of articulation

All signs in UgSL are articulated in one of two areas: neutral space or the body. Research has proposed 14 major demarcated places of articulation, relating to the face, the body and the arm. For the face, these are: above face (head), upper face (forehead), side of upper face (temple), middle face (eyes, nose), side of middle face (ear, cheek), lower face (mouth, chin), and below the face (neck). For the body, these are: shoulder, chest, abdomen and hip/waist. For the arm, these are upper arm (armpits),

Fig. 2: The signs STUDENT and HOSPITAL.

lower arm and elbow (outer). Figure 2 shows an example of a sign with a forehead location (STUDENT) and one with an upper arm location (HOSPITAL).

5.4 Orientation

The orientation of the palms and fingers can be in various different directions such as palm up, palm down, fingers pointing right or left, etc. For some minimal pairs, orientation is the only differing parameter, e.g., identical signs that differ only in whether the palm is facing inward or outward. The hand orientation is the only contrasting parameter in the minimal pair BOMB and SUNLIGHT, shown in Figure 3.

Fig. 3: The signs BOMB and SUNLIGHT.

The orientation of UgSL letters, which are from the ASL alphabet, is palm-outward, while in forms for the numbers 1–9, the palm is oriented inward toward the signer (Lutalo-Kiingi 2014: 145–146).

5.5 Movement

Many signs have a specific movement embedded within them and there is a distinction between the major movements of the hand, e.g., to change place, and internal movements of fingers where the hand is confined in one place. Movements may include directionality, intensity, repetition and/or manner. Figure 4 illustrates a

Fig. 4: The signs DEFEAT and FORGE 'commit forgery'.

different movement of the index fingers on the forehead location for the UgSL signs DEFEAT and FORGE (the movement of the latter being repetitive).

5.6 Non-manual features

Facial expressions, mouth gestures and other non-manual features may be used for several different purposes, including as intensifiers and grammatical markers, e.g., indicators of interrogatives. In addition, a large number of lexical signs require specific non-manual features as an essential part of their phonology. Non-manual features in UgSL include mouthings borrowed from English, Luganda and Swahili. These can differentiate meanings of signs. For example, the signs MUZUNGU 'white person' and ENGLISH 'English language' are differentiated solely through the reduced mouthings <mu> and <i> respectively, shown in Figure 5 (Lutalo-Kiingi 2014: 115).

Fig. 5: The signs MUZUNGU 'white person' and ENGLISH.

5.7 Assimilation

UgSL has a several forms whose phonology and structure has been affected by assimilation, including SEEN, which is from a combination of two separate signs meaning 'see' and 'finish' (Lutalo-Kiingi 2014: 116). Signs for the numbers from 11 to 14 have undergone assimilation that has influenced their orientation and movement (Lutalo-Kiingi 2014: 148). In addition, HUNDRED 'hundred' has been phonologically reduced through a process of assimilation, though it can still be articulated as three distinct sequential digits (Lutalo-Kiingi 2014: 150).

6 Associated sign systems

Other sign languages that have had an impact on UgSL include KSL and DTS, as well as ASL and BSL which have already been mentioned. For example, UgSL sign-

ers use the sign ATTITUDE from DTS and BAD from KSL. A one-handed fingerspelling alphabet has been used in UgSL since about the 1990s, when it was borrowed from ASL. This alphabet is especially used for spelling proper nouns that do not have their own signs. Previously, the two-handed BSL alphabet was used by UgSL signers, due to the influence of British teachers in deaf education in Uganda. As mentioned above, the BSL alphabet is still in evidence in several UgSL signs, such as for place names.

Prior to the 1960s, there is no known existence of a fingerspelling alphabet in UgSL. Given the lack of access to formal education, it is unlikely that an alphabet was used routinely before the 1960s (Wallin et al. 2006; Lutalo-Kiingi 2014).

7 Basic morphology and lexicon

7.1 Classifiers and spatial modification

Spatial modification, spatial arrangement and changing place of articulation are notable features of UgSL, especially when considering classifiers. Signs in this class are usually located in a 'default' location, but may be shifted in the sign space to a number of different loci. UgSL has several categories of classifiers, including size and shape specifiers, handling classifiers, entity classifiers and limb classifiers. The information in this section and the examples are derived largely from one of the authors' doctoral thesis, Lutalo-Kiingi (2014), to appear in print as Lutalo-Kiingi (in press).

These categories can be broadened to two main types: noun and verb classifiers. Noun classifiers might be size and shape specifiers (SASS), mass classifiers, or lexicalised classifiers. Examples from the first two groups appear to be numerous, but thus far only one example of a lexicalised classifier has been found. This is a form glossed as TH-$_{CL\text{-}AKAKEBE}$ ('can of soda/pop or beer'), which has both noun-like and verb-like characteristics (see Figure 6). Verb classifiers may be categorised as han-

Fig. 6: The sign TH-$_{CL\text{-}AKAKEBE}$.

dling classifiers, which are transitive; entity classifiers, which are intransitive; or limb classifiers, which are also intransitive. Entity classifiers may represent individual people, groups of people, cars, buses, trains, etc., while limb classifiers may represent animal or human limbs. Space constraints prevent the authors from providing examples from all of these categories; however, an example of a SASS and a handle classifier are considered below, as is the aforementioned lexicalised classifier.

The iconic form glossed C-$_{\text{CL-CYLINDRICAL-OBJECT}}$ is a SASS which may represent a cup, glass, bottle or flask (see Figure 7).

(1) TABLE CUP C-$_{\text{CL-CYLINDRICAL-OBJECT}}$
      'The cup is on the table'.

The lexicalised entity classifier form TH-$_{\text{CL-}AKAKEBE}$ (see Figure 6), whose gloss is borrowed from the Luganda word for 'pop or beer can', may appear similar to a SASS but its range of meanings is limited to two very similar types of items (pop cans and beer cans), unlike a typical SASS. In addition, TH-$_{\text{CL-}AKAKEBE}$ behaves like a verb classifier in some sentences, e.g., when used in transitive 'giving' contexts.

Fig. 7: The sign C-$_{\text{CL-CYLINDRICAL-OBJECT}}$.

(2) PRO$_3$ WOMAN BEER TH-$_{\text{CL-3}AKAKEBE_1}$[1]
      'That woman is giving away the beer.'

For the entity classifier glossed S-ARM-$_{\text{CL}}$ (see Figure 8), viewing the filmed example sentence is vital as the still photograph does not portray the necessary movement, which conveys the verbal information (also see the sentence below), while the orientation and handshape (including the forearm) iconically reflect a head and body.

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1 The subscripts '3' and '1' indicate that the classifier moves from a third person to a first person location.

Fig. 8: The sign S-ARM-$_{CL}$.

(3) FRIEND BOTH S-ARM-$_{CL}$
'My friend and I wandered off somewhere.'

7.2 Personal pronouns

UgSL has an especially extensive pronominal system, including personal, demonstrative, relative, emphatic, honorific, possessive and reciprocal pronouns. There is a rich set of pronominal pointing signs in UgSL, especially those relating to the concept of 'self'.

Like many other sign languages, UgSL uses an index point for singular first person, second person and third person pronouns (glossed PRO_1, PRO_2 and PRO_3 respectively). The first person singular pronoun usually refers to a physically present referent (the self), and often involves contact with the body. The referents for second and third person pronouns may or may not be present. UgSL uses two index points (glossed as PRO_{2-1}), one toward the signer and one away from the signer, to mean 'you and me' (or vice versa 'me and you'). It is also possible to use simultaneity when articulating the index points which indicate singular first, second and third person pronouns; for example, PRO_2 'you' may be signed with one hand, and PRO_1 'I' with the other (Lutalo-Kiingi 2014). There is a difference in orientation of the index finger between second and third person reference (the palm-down index form is used for the second person reference, while the palm-up, supinated index form is used for the third person reference). This suggests that UgSL may make a distinction between second and third person pronouns (Lutalo-Kiingi 2014).

A plural (indeterminate number) first person inclusive pronoun exists in UgSL, WE-CENTRAL, shown by a finger drawn in a circle near the signer. This differs in articulation from the second person plural pronoun (which excludes first person), PRO_2-COLL, in which the finger points away from the signer and moves in a sideways arc. For the plural third person pronoun, UgSL uses a similar form, PRO_3-COLL, but it is articulated less centrally (i.e. more to the right for a right-handed signer, or more to the left for a left-handed signer) (see Figure 9).

Fig. 9: The sign $_3PRO_{3\text{-}DUAL}$ (Lutalo-Kiingi 2014: 194).

As an alternative to using the form meaning 'you and me', a UgSL signer may choose to employ the dual first person pronoun $_2PRO_{\text{-}DUAL1}$, meaning 'both of us'. UgSL also has a dual pronoun for first and third person, $_3PRO_{\text{-}DUAL1}$, meaning 'both s/he and I', with the same handshape as the dual first person pronoun, but a different location, i.e. to the side of the signer instead of in the central sign space as with the previous form. Similar forms exist for dual third person 'the two of them' and dual second person 'you two', with the latter performed more centrally. There is also a dual second and third person pronoun meaning 'you and s/he', which has a broader/longer movement than dual second person and dual third person forms.

Tab. 2: (from Lutalo-Kiingi 2014: 181) shows items from four of the pronominal series of UgSL.

(a)

The sign PRO_2

(b)

The sign $PRO_{3\text{-}PEJ}$

(c)

The sign $PRO_{3\text{-}RESP}$

(d)

The sign $PRO_{3\text{-}PEJ}$
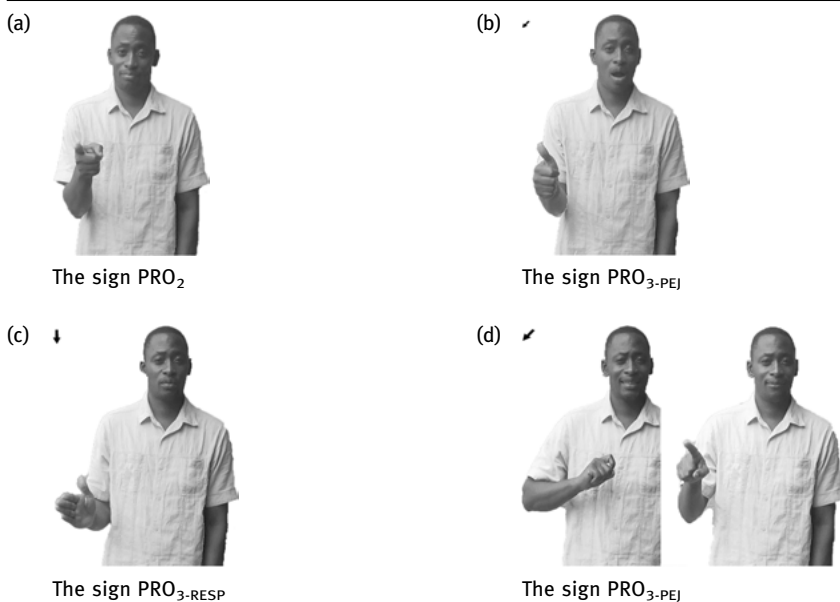
A dual pronominal form refers to two entities. This can either take the form of two distinctive points made with an index finger handshape, carried out with one hand or two hands, or a to-and-from movement with two extended fingers. The dual in UgSL has the same handshape as TWO-OF-US in BSL (for BSL see Cormier 2007: 76).

With respect to duals realised by index finger pointing, there is a degree of variation. The two-handed pointing can be carried out simultaneously, with both hands moving at the same time, or sequentially, one hand pointing first and then the other, and even repeatedly in sequence.

7.3 Possessive pronouns

UgSL distinguishes between alienable and inalienable possession in its use of possessive pronouns, and uses two main signs to indicate attributive possession: the possessive pronoun POSS and the index point POSS-$_{IX}$ (which has the same handshape as PRO$_2$ but a different function). There is also an emphatic possessive pronoun. Example 4 shows how POSS$_{2\text{-}IX}$ (for second person) is used to denote possession.

(4) MOTHER POSS$_{2\text{-}EMP}$ CARE-FOR PRO$_2$ MOTHER POSS$_{2\text{-}IX}$ CARE-FOR
    'Does your mother care for you?'
    (Lutalo-Kiingi 2014: 322)

In some sign languages, a pointing sign (similar in appearance to the one glossed here as PRO2) is used for second-person inalienable possession of body parts, but UgSL signers tend to omit any possessive/pronominal signs, and simply refer to the body part (using a body location), as in the case of second or third person, the pronoun POSS-$_{IX}$ must be used (for discussion and comparison see Lutalo-Kiingi 2014).

7.4 Demonstrative pronouns

UgSL has three different types of demonstrative pronouns, relating to time, place and space. Relative pronouns are used to mark relative clauses within larger sentences, and an emphatic form is used for this function in UgSL.

7.5 Locative pronouns

Locative pronouns can inflect for numbers between two and nine. These are glossed SIGN-NUMBER-$_{\text{DUAL}}$.[2] These may be simultaneous, e.g., the form TWO-$_{\text{DUAL}}$ meaning 'two each' (see Figure 10).

Fig. 10: The sign $_3$TWO$_{\text{3-DUAL}}$.

Numerals can be combined with pronominal forms that have non-singular reference. The dual pronoun uses the same handshape that is used in the number sign TWO, and handshapes for higher numbers can also be used in pronouns. In UgSL, this is possible for the numerals THREE, FOUR and FIVE. According to Cormier (2007), first person pronouns can be numeral-incorporated. In UgSL this is possible for up to five first persons, although numeral incorporated forms showing four or five first persons are rarely seen (Lutalo-Kiingi 2014). For the trial form, which can change its location to indicate first, second, or third person, the handshape of sign THREE1 must be used. The other form for 'three', i.e. THREE2, is not used for this purpose (see the section on numerals, Table 3, item a). Quadral and quintal forms use the handshapes of the signs FOUR and FIVE1 (see Table 3, item e). A form with the handshape of the number SIX (see Table 3, item g) occurs only rarely and seems marginal in the language. Handshapes for numerals above six are not used in personal pronouns (Lutalo-Kiingi 2014).

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2 Above, the word *dual* referred to the general notion of signifying two referents or entities linguistically, but here, *dual* refers to forms in a sign language which use both hands to signify two locations simultaneously.

8 Basic syntax

8.1 Negation

To express clause negation, UgSL signers use three particles, glossed PA, BADO and NONE (see Figures 11, 12 and 13) for clause/wide scope negation and as answers to questions involving existential/possessive signs. These uninflective particles are the clause negators with highest frequency in UgSL (Lutalo-Kiingi 2014) and are also central to the expression of possession and existence (cf. Zeshan 2004: 32).

Unlike most other sign languages, UgSL uses manual components as its primary means of negation. In some UgSL negation signs, the manual and non-manual components appear to be articulated simultaneously (Lutalo-Kiingi 2014).

The possessive/existential verb PA conveys basic clause negation as well as performing other functions. Its accompanying mouth pattern makes it appear as if the signer is saying 'pa', hence the gloss. The sign is performed with both hands, with the fingers splaying outwards in front of the signer, and the location and hand orientation remains the same regardless of the subject.

PA is more commonly used than the other two main clause negators, and seems to be unique cross-linguistically (cf. Zeshan 2006) because it has such a

Fig. 11: The sign PA.

Fig. 12: The sign BADO.

Fig. 13: The sign NONE.

wide range of meanings. It is used for negation, negative existence, negative possession and aspectual connotations.

The adverb BADO 'not yet' communicates something that has not yet taken place and is a clause and constituent negator. Like PA, it is so-named because of its accompanying mouth pattern, 'bado' ('not yet' in Swahili).

BADO is a suppletive negative form whose positive counterparts are the completive aspect markers FINISH and BEEN-IX. It frequently appears sentence-finally. Examples of BADO as a clause negator are as follows (from Lutalo-Kiingi 2014: 275):

(5) FOOD DEM-$_{IX+y}$ BADO
    'There is no food yet.'

(6) PRO$_2$ SN:MULESA $_2$COME$_1$ BADO
    'Mulesa has not come yet'

The particle NONE 'never' or 'nobody' acts as a negative quantifier and can negate the existence or possession of objects and people. It can also have an aspectual connotation (e.g., to mean 'I never will' or 'up to now, I never have'). NONE may be spatially modified (e.g., to mean 'nothing there, there or there'). Additionally, this sign is the usual way to render translation equivalents of negative adverbial and pronominal expressions including 'never', 'nothing' and 'nobody' in UgSL. NONE and may be a grammaticalised form of ZERO.

It appears less often than PA, but more often than BADO, and there seems to be some regional variation in its use.

Many utterances equally allow for interpretations stemming from both functions of NONE, negative quantification and negative existence (see examples 7 and 8).

(7) SOME PEOPLE PRO$_{3\text{-}COLL}$ BORN DEAF NONE
    'There were no people who were born deaf among them.'
    (Lutalo-Kiingi 2014: 279)

Fig. 14: The sign KNOW-NEG.

Fig. 15: The sign LIKE-NEG.

(8) AFRICA (UGANDA) DEM-$_{IX}$ DEVELOPMENT NONE
    'Africa does not have any development. / There is no development in Africa.'
    (Lutalo-Kiingi 2014: 279)

Some negative UgSL signs exhibit an outward and/or downward movement, away from the body, with an open hand. Notable examples are KNOW-NEG, and LIKE-NEG (see Figures 14 and 15), which are phonologically similar to their positive counterparts LIKE and KNOW, except that the positive forms do not contain the outward/downward movement or negative non-manual features. This means that UgSL likely has a negative bound morpheme -NEG which is comprised of an open hand twisting away from the signer's body.

    In UgSL, negative non-manual features tend to occur throughout the negated sentence, not merely with a single sign. However, sometimes the negative non-manual features occur during half of the sentence only. There are many non-manual features that can convey negation. These include head movements, mouth patterns, mouth gestures, eye or eyebrow movements, or combinations of these.

8.2 Interrogatives

UgSL makes use of several interrogative constructions, including Wh- and yes-no questions. The syntax of questions in UgSL usually involves the specific question-indicators appearing sentence-finally, i.e. WH-question signs and non-manual features such as raised eyebrows. Question particles, individual forms at the end of a polar or WH-question, sometimes appear in UgSL but are not always obligatory (Lutalo-Kiingi 2014).

Like other sign languages that use generic interrogatives (cf. Zeshan 2006), UgSL has one generic interrogative glossed here as WH. (The same form also has non-interrogative functions, in which case it is glossed as PALM-UP.)

WH is articulated with one or two hands, with a wrist turn resulting in the hand(s) palm-up (see Figure 16). The two-handed form is more frequent, whereas the one-handed forms occurs where a drop of the second hand may be motivated by informality. WH conveys the expectation of a response; it is also possible to simultaneously incorporate emphasis by the addition of accompanying facial expressions. The functions of WH correlate with differences in the syntactic behaviour of the sign. Mouth patterns are often used to disambiguate the meaning (indicated by <what> and <how> in Examples 9 and 10).

Fig. 16: The sign WH.

$$\overline{}^{\text{sq}}\quad\overline{}^{\text{br}}$$

(9) r: GIRL GIRL-CHILD FUTURE PRO$_{\text{3-REF-REDUP}}$ GET WHAT WH
   l: PRO$_3$--------
   'What is the benefit for the young girl in the future?'
   (Lutalo-Kiingi 2014: 223)

(10) BAMBI GIRL+CHILD BEAUTY BEST MUST BACK SCHOOL / GIRL+SHOULDER REFUSE WH
   'It is such a pity about the beautiful young girl; she must go to school but why does my sister not support her daughter to go to school?'
   (Lutalo-Kiingi 2014: 223)

$$\overline{\text{br}}$$

(11) PRO$_2$ ARRIVE WH
'When do you arrive?'
(Lutalo-Kiingi 2014: 223)

$$\overline{\text{<what>}}$$

(12) WORK WH
'What is the work you are doing today?'
(Lutalo-Kiingi 2014: 224)

$$\overline{\text{<how>}}$$

(13) TEACH WH
'How do you teach?'
(Lutalo-Kiingi 2014: 225)

There are further forms associated with the meaning 'who' and 'whose', which are not detailed fully here (see Lutalo-Kiingi 2014). However, it is interesting that these have obligatory mouth gestures which function at the lexical level.

Yes/no (polar) questions in UgSL are indicated through use of a non-manual feature at the end of the utterance or throughout it. Normally, this non-manual feature is raised eyebrows, as shown in examples (14) and (15):

$$\overline{\text{y/n}}$$

(14) r: DEAF-----[3]
    l: PRO$_2$
    'Are you deaf?'
    (Lutalo-Kiingi 2014: 118)

Polar questions can also feature squinted eyes, if the signer thinks they might know the answer to the question. The squinted eyes may also have a pragmatic function, as they have a slightly more polite connotation than the usual raised eyebrows:

$$\overline{\text{sq}}$$

(15) r: DEAF------
    l: PRO$_2$
    'You're Deaf, are you not?'

---

3 This gloss (DEAF above PRO$_2$) indicates that both signs are performed simultaneously in UgSL, i.e. DEAF with the right hand, and PRO$_2$ with the left.

9 Number and quantification

Number and quantification are particularly interesting domains in UgSL, because this language has several different numeral series including restrictive and collective numerals as well as a broad array of quantifiers. Tables 3 and 4 show some of the UgSL signs in this domain (see also the section on locative pronouns).

UgSL has a decimal-based number system, but also shows some characteristics of a digital system, which is typologically unusual. In UgSL, most numerals are expressed by signing each number as it would occur in writing; for example, '195' is articulated as ONE NINE FIVE. This system is called 'digital' because each digit of the number is signed successively, and there is no mathematical operation between the individual digits (Lutalo-Kiingi 2014; for further information on number systems see Zeshan et al. forthcoming).

10 Examples of words and sentences

The previous sections contain several examples of UgSL sentences and individual signs.

11 History of research

Formal linguistic research into UgSL began with Nyst's (1999) study of handshape variation in UgSL, with findings proposing approximately 53 different handshapes. This research, accordingly, focussed its attention on the phonological elements of UgSL, as did later research by Nyst and Baker (2003). This phonological study made comparisons of name-signs used in the sign languages of Uganda, Ghana, Mali, and The Netherlands.

Sign linguistics research in Uganda continued with a lexicological, corpus-based study conducted from 2000 to 2006 which resulted in the compilation of the Ugandan Sign Language Dictionary, or UgSLD (Wallin et al. 2006), a collection of 2,199 lexical items and descriptions of their grammatical use in basic sentences. The UgSLD is representative of the five places around the country where deaf community members frequently gather (see Varieties in Section 1 of this chapter, and Section 3.3). A digital database was not created for this project because at its commencement, computers were not widely accessible in Uganda and a published book was preferable at the time. This is an important objective for continued research.

Expanding this basis of UgSL research, Lutalo-Kiingi (2007 and 2008) wrote a Bachelor thesis and published a book chapter on the expression of possession in

Tab. 3: The sign variants for 'three', 'four', 'five' and iconic sign for 'six' (Lutalo-Kiingi 2014: 145–147).

(a)

Sign for THREE1 "3"

(b)

Sign for THREE2 "3"

(c)

Sign for FOUR1 "4"

(d)

Sign for FOUR2 "4"

(e)

Sign for FIVE1 "5"

(f)

Sign for FIVE2 "5"

(g)
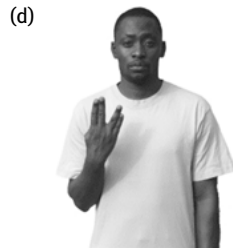
Sign for SIX "6"

Tab. 4: Numerical series in UgSL.

(a)

The sign DOUBLE

(b)

The sign TWO-TOGETHER₃-DUAL

(c)

The sign ONE-ONLY
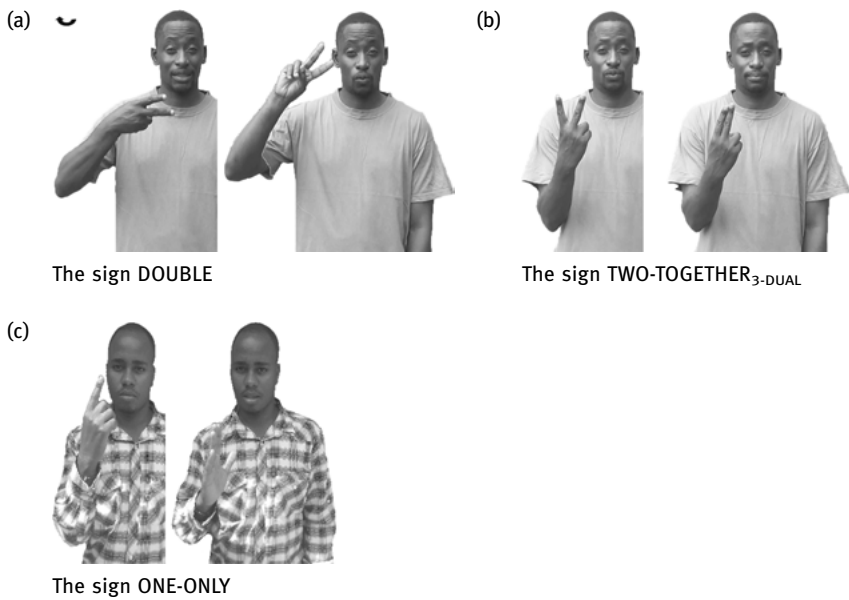
UgSL. This included the creation of new elicitation material for collecting data relating to possession, and encompassed both predicative possession and attributive possessive pronouns.

Lutalo-Kiingi's subsequent doctoral thesis (2014) addressed a gap in the limited linguistic research on UgSL, by exploring the relationship between its morphology and syntax using an annotated corpus of spontaneous language data and addressing topics including negation, number, pronouns and sign classes. This is the first description of morpho-syntactic constructions of an African sign language.

Thus far, there has been little research on social and cultural aspects of the lives of Ugandan deaf community members. A first basic description of the Ugandan deaf community, drawing on descriptions of deaf communities as minority groups in Western countries, was included in the Ugandan Sign Language Dictionary (Wallin et al. 2006), and on-going research on the sustainable development of the Ugandan deaf community (e.g., Lutalo-Kiingi and De Clerck in press-a) aims to gain further insight into the socio-cultural contexts of Ugandan deaf people.

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Part II: **Alternate Sign Languages**

Jennifer Green and David P. Wilkins
34 Arandic Alternate Sign Language(s)

1 Basic facts about the language

This chapter describes sign language(s) used in Arandic language speaking communities of Central Australia. These sign languages have been called 'alternate' because they are not usually the primary mode of communication, but rather employed alongside other semiotic systems, including speech, gesture and drawing practices. Alternate sign languages are "developed by people already competent in some spoken language ... for use as an alternative to speech in circumstances where, for whatever reason, speech is not used" (Kendon [1988] 2013: 4). Whilst a proficient Arandic signer is able to converse entirely in sign with an interlocutor who is their match, in typical instances of everyday use signed utterances do not carry the entire communicative load – rather they are one component of a 'composite signal'. Although these sign languages may be employed as an alternative to speech, co-speech signing is also common practice amongst hearing signers.

Documentations of Arandic sign languages span more than a century. The Lutheran missionary Carl Strehlow described the sign equivalents of around 450 spoken Western Arrarnta language forms (Strehlow 1915). Since the same sign frequently covers the semantic range of more than one spoken language term, the actual number of signs he describes is significantly fewer. Although this issue of sign polysemy makes the counting of unique sign forms a difficult task, during field research in Central Australia in the 1980s Kendon recorded between 400–500 signs for Anmatyerr and Kaytetye, compared to around 1500 for the neighboring Warlpiri (Kendon [1988] 2013, 1984, 1986–1997). Drawing on 1993 research on sign language use by the Central Arrernte in Alice Springs Wilkins (1997a) estimated that there are around 300–500 Central Arrernte lexical sign items.

The sign data referred to in this chapter draws on recent research on Arandic sign. Renewed interest in sign and extensive surveys of sign knowledge in the region have resulted in a searchable web-based sign language dictionary and a considerable corpus of sign recordings (Green, Woods and Foley 2011; http://iltyemiltyem.com/sign/). Although the on-line dictionary was initially conceived as one to document Arandic sign the web site now includes sign examples from the Warlpiri and Ngaatjatjarra languages as well. We also draw on Kendon's analysis of sign languages from Central Australia, and in particular his documentation of sign use by Anmatyerr and Kaytetye peoples of the Arandic group. The illustrative

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examples given in this chapter are accompanied by links to the on-line sign dictionary where the examples can be viewed.[1]

Kendon ([1988] 2013: 2) has made a distinction between alternate sign systems that are fully-fledged sign languages and those that are merely instances of sign use. Where the codified vocabulary of sign is large and signing is used as an autonomous mode of discourse we have a fully-fledged *sign language*. Where the inventory is small and cannot communicate all ideas independent of other communicative systems, we have *sign use*. In practice, there appears to be a cline between *sign language* and *sign use* in Central Australia. This is partly because sign language is largely a gendered and age-related practice, with women being more proficient than men and older people more proficient than younger ones. There also appear to be differences across the region with respect to the degree of elaboration of the alternate sign language. The distinction between alternate sign language and alternate sign use is further complicated by the fact that there has been loss of sign knowledge within the region as a result of colonization and consequent disruption of traditional cultural practices. As one senior Arrernte woman has noted, "[m]ore people in the [bush] communities know about hand signs than town people do" (Turner 2010: 110).

The term 'Arandic' is usually used to refer to a distinct subgroup of the Pama-Nyungan family of Australian languages spoken in an area of Central Australia roughly centering on Alice Springs (Figure 1). Within the Arandic group are a range of varieties, including Northern and Southern Alyawarr, Central and Eastern Anmatyerr, Eastern and Central Arrernte (sometimes referred to as Mparntwe Arrernte), Western Arrarnta and Kaytetye.[2] Regional variations in sign 'identity' are based on a complex set of factors, but predominantly on the variety of speech (if used) of the signer and hence on their language and cultural identity. So, for example, an Alyawarr or a Kaytetye person may employ identical signs in most domains, yet *speak* distinct languages and belong to particular geographical areas within the Arandic region. We are identifying instances of language-specific sign production – Alyawarr sign, Kaytetye sign, Central Arrernte sign etc. – even though the sign systems used across these desert communities in Central Australia are essentially identical apart from minor lexical differences. As many people in these communities are multilingual it is also possible that a particular signer will use sign in communicative contexts where one or another of several spoken languages predominate. A sign/speech composite thus may consist of a sign that is more or less shared across the Central desert region, but coupled with regional and community-

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1 Viewer registration is required for access to the sign web-site (http://iltyemiltyem.com/sign/).

2 Language abbreviations: Ar – Arandic; An – Anmatyerr; CAn – Central Anmatyerr; EAn – Eastern Anmatyerr; K – Kaytetye; E&CArr – Eastern and Central Arrernte; WArr – Western Arrarnta. Other abbreviations: CONT – continuous; DO&ALONG – do verb action whilst in motion; NP – non past; PRIV – privative; RECIP – reciprocal; REFL – reflexive.
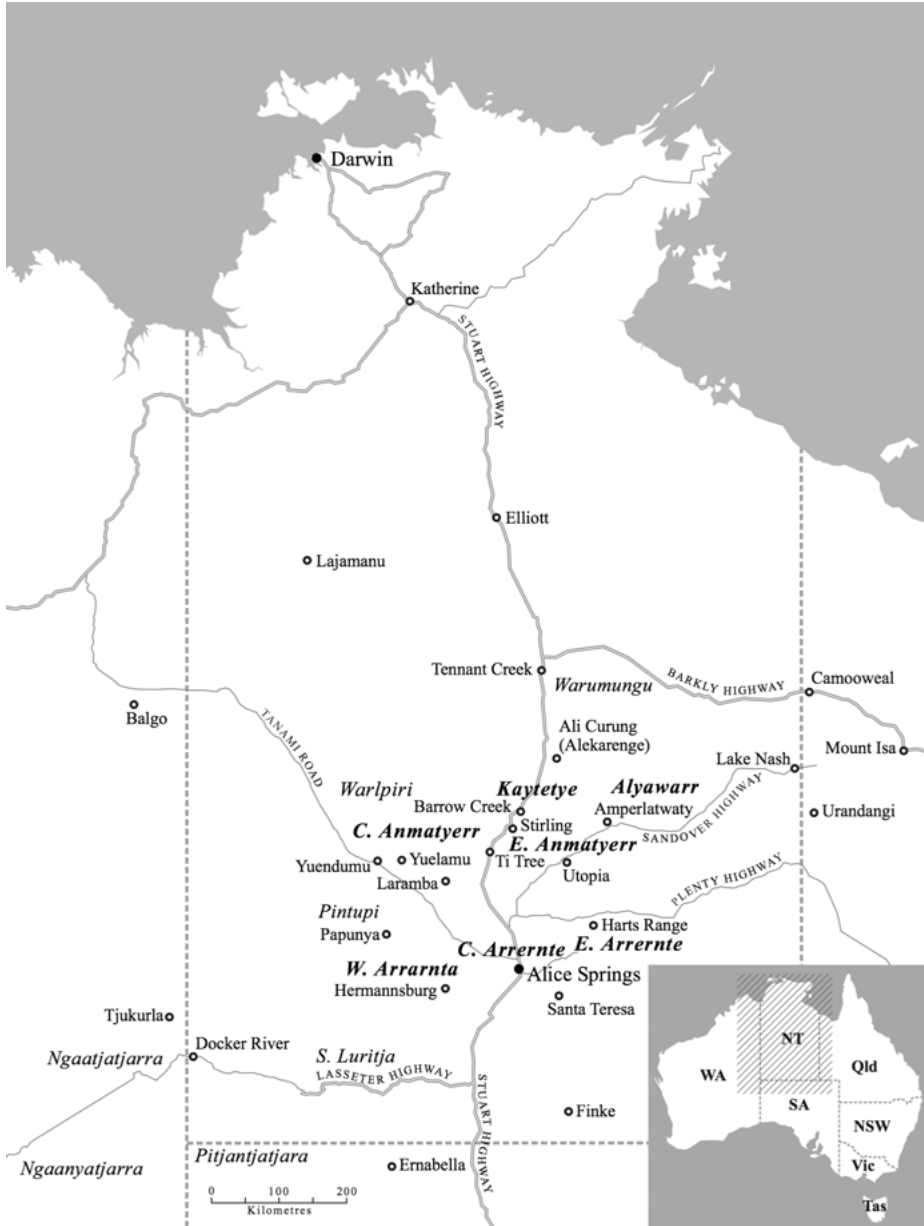
Fig. 1: Map showing the location of Arandic languages and their neighboring languages. (Languages belonging to the Arandic group are in bold italics) (first appearing in Green 2014a: 5)
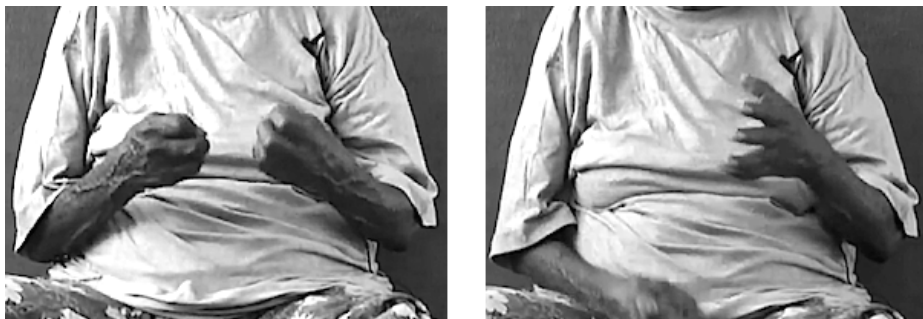
Fig. 2: Signing SIGN using the signs HAND and TELL. (http://iltyemiltyem.com/sign/)

specific varieties of speech – either one of the Arandic languages or one of the neighboring languages such as Warlpiri or Warumungu.

There is no community-based and agreed upon acronym used to refer to these sign languages from Central Australia. Speakers of Arandic languages do however have a number of ways of referring, in speech, to their signing practices. *Iltyem-iltyem*, an Arandic adverbial term based on a reduplicated form of *ilty* 'hand', is glossed as 'using your hands to communicate, either using hand signs while talking or using hand signs alone'. The action of signing is referred to in various ways including *iltyem-iltyemel ilem* (*ilem* 'say, tell'); *iltyem-iltyemel angkem* (*angkem* 'speak); *iltyem-iltyemel apayutnhem/ingwem* (*apayutnhem/ingwem* 'ask') and *akerter ilem* (EAn) (*akerter* 'not speaking'; *ilem* 'say, tell').[3] Figure 2 shows how the practice of signing is signed, by a sequence comprising the sign HAND and the sign TELL.

2 Political and social context

Especially in the northern part of the Arandic region, there are communities where older women use a form of alternate sign language that is what Kendon refers to as "highly developed". Throughout the whole region a system of sign is still in everyday use, even though we see significant variation in complexity (though not in basic sign inventories and sign grammar). At one end of a continuum, female bereaved kin may sign instead of speaking during extended periods of 'sorry business' such as when a widow is under a speech ban during the period of mourning

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3 In this chapter we use the standard Arandic orthographies for the spelling of Arandic words in example sentences in particular Arandic languages. However, we do not include the final orthographic 'e' used in several of these dialects when Arandic terms are quoted in the main text. This does not affect the pronunciation of the word.

(traditionally up to a full year). At the other end of this continuum – where the number of signs in everyday use by all members of a community may be as few as 30 – all members of the community may use sign to supplement other modes of communication and to replace speech when talk is not practical or desirable. Arandic sign thus ranges from a fully autonomous mode of discourse used in all circumstances (it can be used to tell full narratives) to a more limited expressive potential in which some propositions cannot be expressed.

In everyday conversation sign is used for particular cultural and pragmatic reasons. Austin-Broos (2009: 157) mentions how sign is used in the "ordered management of sociality" amongst the Western Arrarnta. In particular, she notes how spoken language may be used in engagement with one person, while sign is simultaneously used to engage another. A switch to sign may signal the circumspection required of certain topics. Signs are used in certain types of restricted ceremonies and in other situations where speaking is inappropriate. Sign is used when hunting (as speaking would scare off prey); when giving somebody directions; and it is used for communication between interlocutors who are visible to each other yet out of ear-shot. It provides a means of conducting discreet side-conversations when public audibility could be a disadvantage and it can be used to communicate in noisy environments when speech would not be heard. Sign may also be employed for specific medical reasons (like aphasia) when a person has trouble speaking (see example below). For elderly people who are hearing or speech impaired, sign can become the most useful communicative resource available to them.

This chapter is primarily about sign use by hearing signers. We are yet to conduct long-overdue studies of the ways that deaf individuals in the Arandic region acquire and combine the various semiotic resources at their disposal, and how they communicate with deaf and with hearing members of their communities. There is some anecdotal evidence that they use at least some traditional sign. Kendon ([1988] 2013: 406–407) suggests that deaf members of these communities develop "improvized" or home-sign systems for communication rather than becoming fluent in the "prevailing Aboriginal sign language". However, he adds, "Very little is known about this topic". Cooke and Adone (1994) and Maypilama and Adone (2012, 2013) report that Yolŋu sign (YSL) is the primary means of communication amongst deaf people in the community of Galiwin'ku in Northeast Arnhem Land (see also Bauer 2012, 2014). O'Reilly (2006) makes similar observations of Indigenous and Torres Strait Islander sign use in far north Queensland. We make a preliminary distinction between Central Australian sign systems and 'home-sign' systems that tend to have restricted distribution in a community and are not easily transmitted between generations. However, as Nyst, Sylla and Magassouba (2012) argue, a more nuanced typology of 'home sign' is needed to reflect the diverse social settings such systems are found in. Further research is needed to establish the role that home sign plays in Indigenous communities where traditional sign systems also exist and to determine what characteristics these have in common with sign

systems found in other small communities where there is a high degree of shared knowledge of persons and of place (De Vos 2012).

In this Chapter we give examples of sign use in different contexts – with or without co-occurring speech. We draw attention to examples of sign language use where the contribution that sign makes to complex utterances is in addition to or complementary to that provided by other semiotic means: speech, gesture and drawing. For example, in cases of co-speech signing, the GO-TOWARDS sign and other indexicals add crucial absolute spatial information that expands on the limited spatial information given by deictic terms within the utterance (although in the case of the various forms of pointing there is a question as to whether these are to be considered co-speech gestures or co-speech signs (Wilkins 2003)). Signs can also replace a spoken lexical item in an utterance, and there are common instances where a spoken language form for one concept combines with the sign for another to create a multimodal utterance where both speech and sign contribute semantically to the utterance. Finally, we will show how the ability to place the sign in space can make a binding to a person, drawing or location that the speech does not specify.

3 The structure of signs

All of the signs are manual. In general facial expression, eye-gaze and posture-shift have no formal position in the system of signs as such, and only play a role at the discourse level (Kendon [1988] 2013: 113). Signs are distinguished on the basis of several parameters, including the location of the sign; arm position; hand shape; movements of the hand, forearm, wrist and fingers; the way that articulators contact each other and other parts of the body, and various aspects of movement, such as the number of repetitions of the sign action and the orientation of the sign in space.

Kendon ([1988] 2013: 121) distinguished 41 linguistically contrastive hand shapes in his detailed analyses of sign languages in Central Australia (what he termed the Northern Central Desert). Eighteen of these 41 handshapes are found in all of the sign languages surveyed, and these account for 85 %–97 % of the signs (Kendon [1988] 2013: 126). He notes that many of these hand shapes "are the same as or highly similar" to those needed for a description of ASL, even though the languages are totally unrelated. The number of distinct hand shapes varies between sign languages in the Central Desert, although the number of signs Kendon surveyed in each varied. As our documentation project has concentrated on community consultations, recording sign and making sign accessible via the web site we are as yet to undertake deeper levels of linguistic analysis that would allow us to either confirm or update Kendon's detailed analysis in this regard.

Below we give some examples of sign hand shapes and of some Arandic signs that employ them. Where possible we indicate the range of Arandic languages that use these particular signs. Variations in form for some signs are common, and many signers have more than one local Arandic sign language variety in their communicative repertoire. Table 1 begins with the hand shapes that Kendon found to be most common in all of the desert sign systems, and ends with a few that are less common. The first examples, the 'B' hand shape and the single finger 'pointing' hand, are common in both Arandic sign systems and in other sign languages of the world. By way of contrast, the horned or 'ILY' hand shape (no 3 in table 1) is the 3rd most common in Central Australian sign languages but only found infrequently as a marked hand shape in ASL, Auslan and BSL. The 'fist' shape (no 6 in Table 1) is the 2nd most frequent in ASL but only ranks 12th in NCD languages (Kendon [1988] 2013: 132).

Kendon reports that most signs recorded for Aboriginal Australia are one-handed (80 % for Northern Central Desert languages) which is in contrast to the much higher incidence of bimanual signs for primary sign languages. Of the two handed signs, asymmetrical ones in which one hand is subordinate to the other are more common than symmetrical ones. The range of hand shapes for the subordinate hand is more restricted than for the dominant hand, in line with findings for similar

Tab. 1: Some common hand shapes found in Arandic alternate sign languages with examples of signs that use them.

	Hand shape	Sign examples
1	The 'flat hand' or 'B'. All digits extended and drawn together. Thumb may be abducted.	a) SPOUSE (Ar) Right hand with palm facing down pats the back of left hand twice. This sign may also represent a person's 'father's mother', their 'brother-in-law' or their 'sister-in-law' b) HUNGRY (An, Aly) Palm moved backwards and forwards across abdomen (thumb might be abducted) c) GIVE (Ar) Palm up, fingers forward. Thumb may be abducted. The path of the sign action can index giver and recipient d) HIT, KILL (Ar) Flat hand rotated backwards and forth. Thumb might be abducted

Tab. 1: (continued).

	Hand shape	Sign examples
2	Index finger extended. All others fully flexed. Thumb may be extended and partially abducted	a) DOG (Ar) Index finger is moved/ waggled from side-to-side b) YES (An, Aly, K) Affirmative. Index finger held up and rotated quickly, or moved rapidly backwards and forwards c) FATHER, AUNTIE, MAN'S CHILD ETC. (Ar) Index finger tapped several times on chin d) LIE DOWN (Ar) Extended index finger moves away from body
3	The 'horn' or 'ILY' hand. Digits 1 and 4 fully extended. Digits 2 and 3 fully flexed. Thumb generally abducted	a) GO-TOWARDS (E&CArr, An, K) Hand moves away from the body in the direction of the movement b) LISTEN/HEAR (E&CArr; An) 'Horn' hand point towards the ear c) MOUNTAIN DEVIL LIZARD (CAn) 'Horn' hand is rotated from side to side in a motion said to replicate the action of the lizard as it walks
4	'5' handshape'. All digits fully extended	a) NOTHING, NO, NEGATION (Ar) All five fingers are extended and spread, and the hand is flipped quickly in a rotary movement. Both hands may be used to provide emphasis b) KANGAROO (Ar) Fingers opened twice (or three times)

Tab. 1: (continued).

	Hand shape	Sign examples
5	'V' or '2' handshape. Index and middle fingers extended and spread. The extended fingers may be slightly bent	a) LOOK, SEE (Ar) Fingers loose and slightly bent. Hand moves in direction of 'seen' object b) WALLABY (An; Aly)
6	A 'fist'. All digits fully flexed at all joints	a) WATER (An, Aly) Thumb upwards, hand rotated rapidly several times b) FOOD; BREAD (An, Aly, E&CArr) Palm down and wrist flexed (or rotated) (as if grinding seed to make dough for damper)
7	Digits 2, 3 and 4 fully flexed. Tip of digit 1 in contact with tip of thumb	a) EMU (An, Aly, K) Palm facing signer. Wrist flexed several times b) CAT (An) All fingers converge to contact one another in an arrangement "suggestive of cat's paw" (Kendon [1988] 2013: 173). Wrist flexed up and down.

phenomena in ASL (Kendon [1988] 2013: 133). Handedness seems to be generally of no consequence to the meaning of the sign, with the exception of some signs for kin terms. Our own observations show that signers frequently swap hands to sign, often the result of pragmatic factors such as physical constraints of bodily posture and changing moment-to-moment circumstances. Individuals may show some preference for using one hand rather than the other, and thus be predominantly right-handed or left-handed signers.

4 Basic morphology and lexicon

The forms of many Arandic hand signs are based on imagistic representations of salient features of their referents. Signs for various animals may be based on symbolic representations of their tracks or movement, and those for particular plants on the distinctiveness of their smell (shown by a sign where the hand contacts the nose) or on particular actions associated with them. The sign ECHIDNA (Figure 3) is based on the shape of its hind legs (and hence tracks). The Arandic sign MAN, made by sweeping a flat/5 hand across the upper chest, is based on the cicatrices that men have on their chests, and that for 'CORRECT/STRAIGHT' is based on the enactment of a straight path by one hand across the flat palm of the other. In other instances a direct iconic link between the sign form and its referent is not immediately apparent. See, for example, the sign GOANNA (Figure 4).

The sign lexicon is changing as new signs are adopted for modern things. This can be deduced from a glance at the semantic range of signs recorded since first

Fig. 3: Central Anmatyerr sign ECHIDNA.
(http://iltyemiltyem.com/sign/anmatyerr/inarleng/)

Fig. 4: Central Anmatyerr sign GOANNA.
(http://iltyemiltyem.com/sign/anmatyerr/arlewatyerr-5/)

Fig. 5: Central Anmatyerr sign POLICE.
(http://iltyemiltyem.com/sign/anmatyerr/rrkwenty/)

Fig. 6: Central Anmatyerr sign VEHICLE.
(http://iltyemiltyem.com/sign/anmatyerr/mwetekay-mwerr/)

contact of Australian Indigenous peoples with explorers, missionaries and ethnographers (for example early records of sign show that there were signs for CAMEL, POLICE, VEHICLE and TEA). The sign POLICE (Figure 5) is made by mimicking the action of arrest. There are two signs for VEHICLE: one involves the representation of the action of the hands on a steering wheel (Figure 6), and the other the motion of turning a car key in the ignition (see Kendon [1988] 2013: 107).

Modifications of basic sign forms and the ways that they are deployed in space can incorporate additional information, and a number of these strategies are similar to those found in primary sign languages such as Auslan or BSL. The SEE sign (see no 5A in Table 1) is an example of a verb sign in which the 'neutral' form SEE forms the central element of a series of semantically related sign actions which cover the spoken language forms shown in Table 2.

The SEE sign can be (deictically) oriented in horizontal space towards an object or person to indicate what is being 'seen' (for example the hand can be turned so that the fingers face the interlocutor, another person or object, or even the signer herself). A further 'overlay' of vertical orientation of sight path can be added (look-

Tab. 2: Central Arrernte spoken language terms covered by modifications to the basic sign form SEE.

Central Arrernte lexeme	gloss
areme	look at, see, watch, notice, visit, meet
untheme	look for
alkngarelheme	look back behind
utnyeneme	look up at something, look upwards
arntarnte-areme	look after, take care of
atyerneme	lean to one side and look at something
irtwareme	watch someone or something as they leave

ing from above, looking from below). Moving the hand or fingers (but not the arm) up and down or backwards and forwards, indicates the scanning line or line of sight of the narrative protagonist. The signer may move the sign hand to take up the sight perspective of an entity whose position has been established in space, usually by semiotic means other than sign (see sand drawing Example below).

Signers may take the perspective of a narrative character, raising the sign SEE to the side of their face, tilting their head and squinting their eyes as if watching someone or something move off into the distance. This combination will then be interpreted as rendering the spoken language concept *irtwareme* 'watch someone or something as they leave'. While this particular combination of sign with facial and head movements has been recorded several times, this does not appear to be part of the conventional 'rule system' of the sign language.

If the SEE handshape is held and beaten continuously it indicates 'continuous' action, corresponding to the spoken language form *are-p-are-me* (see-CONT-NP) 'watch; keep looking at'. Moving the arm and hand along a path trajectory shows that the 'seeing/looking' action takes place while moving in the direction indicated (typically the absolute direction). This corresponds to the spoken language form *are-rl.ape-me* (see-DO&ALONG-NP) 'go along looking at'. Two SEE signs [i.e. employing both the LH and the RH] facing one another show reciprocal action, corresponding to spoken language *are-rre-me* (see-RECIP-NP) 'look at one another' (Fig-

Fig. 7: Two SEE signs articulated simultaneously to show reciprocal action.
Source: Archival session name SIGN-20120227 (Sign20120227_ECamp_02.mov).

ure 7). Pointing the SEE sign at oneself [i.e. SEE oriented towards the signer] can mean somebody or something was looking at the signer. In certain contexts this can also be interpreted as 'look at self', corresponding to spoken language *are-lhe-me* (see-REFL-NP).

4.1 Kin signs and sign polysemy

Frequently one sign has many meanings, corresponding to more than one everyday spoken language form. For example, one sign is used to cover the four spoken language words for 'woman', 'girl', 'sun' and 'the Pleiades' (see Wilkins 1997a). Meanings of specific everyday language forms are also created through sign-compounding of more semantically general units. Signs for kin terms is one domain in which polysemy is found. Kendon notes that "the most outstanding feature of kinship signs in all parts of Australia where these have been reported is that almost all of them consist of pointing to some part of the body" (Kendon [1988] 2013: 352) even though we find language specific differences in the nature of these body-location/kin type pairings. The signs themselves illustrate metonymic relationships between the body and the kin types in question, conceptualized in terms of "modes of bodily relationship, either derived from patterns of interaction, as in modes of carrying or avoidance, or from physiological relationships, as with the relationship of child to mother's womb or breast" (Kendon [1988] 2013: 356). Related is the belief that particular sensations in parts of the body can be understood as telepathic indications of certain kin relations.

Figures 8 and 9 show the place of articulation and the hand shape for two Anmatyerr kin signs. The first (Figure 8) is the sign for a person's *angey* (father), their *awenh* (father's sister) and their *aler* (man's child, person's brother's child). This example shows clearly that signs represent more general categories of mean-

Fig. 8: Central Anmatyerr kin sign FATHER ETC (*angey* 'father, father's brothers'); AUNT (*awenh* 'father's sister'); NEPHEW/NIECE (*aler* 'man's child, person's brother's child').
Source: Archival session name SIGN-20130523 (Sign20130523-01.mov, 34:10).
(http://iltyemiltyem.com/sign/anmatyerr/angey-atherr-alakenh/)

Fig. 9: Central Anmatyerr kin sign CHILD (*ampa* 'woman's child, a person's sister's child').
Source: Archival session name SIGN-20130523 (Sign20130523-03.mov, 2:51).
(http://iltyemiltyem.com/sign/anmatyerr/ampa-pt-pro/)

ing than spoken language forms. A conflation of gender distinctions occurs, and several kin types are signed in the same way because they belong to the same conceptual category (in this case the same patrimoiety). The second (Figure 9) is the sign for CHILD (*ampa* 'woman's child, a person's sister's child'). Both of these signs show forms of iconicity that are mirrored in the spoken language equivalents. There is a symbolic association between paternal links and the 'beard' that is clear in the iconicity of the sign (Figure 8) and also present in spoken figurative language. Other kin signs employ different parts of the body in sign articulation. For example the sign for YOUNGER SIBLING is articulated on the ipsilateral shoulder; the sign MOTHER'S FATHER on the thigh, and the sign SPOUSE/SISTER-IN-LAW/FATHER'S MOTHER on the wrist (see Table 1, 1A).

4.2 Number

In Arandic languages, as in many languages of Australia, the spoken system for 'numbers' typically only covers 'one', 'two', 'few' and 'many'. In alternate sign languages of Central Australia fingers are presented, with movement, as instantiations of number concepts. An upraised index finger represents 'one'; the index and second finger spread and moved to the right represents 'two'; and 'many' is shown by presenting all five digits (on one or both hands) and waving the hand(s) forward and back several times (Table 3). It is typical for the palm to face the signer with the fingers pointing upward, but some variation is observed.

While spoken Arandic languages tend not to have conventional number terms for the numbers three, four, five and so on, the sign system tends to be more specific. Thus, while saying *urrpetye* 'a few', a Central Arrernte person may simultaneously indicate the specific quantity 'four' (all four fingers raised, thumb tucked in, palm inwards toward signer) to show the exact number. The word *alakentye* 'thus many; that time of day' in Central Arrernte, for instance, is used to tell the

Tab. 3: Representations of number in Arandic sign.

	ONE (Ar) Upraised index finger, palm (inwards), wrist flexed (http://iltyemiltyem.com/sign/anmatyerr/anyent-perlern-ankerr-2/)
	TWO (Ar) Two fingers are held up. Palm may be facing towards or away from the signer (http://iltyemiltyem.com/sign/anmatyerr/rrkwenty-atherr-rrkwenty-apetyem/)
	MANY (Ar) Both hands held up, palm towards body, and moved forwards and back in unison. There is also a single handed version (http://iltyemiltyem.com/sign/anmatyerr/angey-pt-pro-alakenh/)

listener to attend to sign, sand drawing or some other external representation for a more precise indication of number or time than can be given in the spoken language. In this sense, the semantic systems of the various semiotic modes are not identical, and in some domains sign is richer in its conceptual coding or in its ability to represent certain concepts (space, time, and number concepts chief among them).

4.3 Signing in absolute space

The structured use of space for grammatical purposes as seen in primary sign languages is less developed in these alternate sign languages. Spatial information is conveyed by orientation and movement of the sign in space (Kendon [1988] 2013: 311). Variations in the elevation of the signing arm and in the hand shapes used indicate degrees of distance and precision: "… there is an analogic relationship between the form of the sign and the distance and nature of the spatial extent of the location referred to" (ibid: 241).

Speakers of the Arandic languages typically show directional precision when they gesture and sign (Wilkins 2003, 2006).[4] Underlying this form of spatial thinking appears to be a large-scale mental map in which places and remembered acts and actions are located, and within which the speaker's current location is con-

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4 Many languages of Aboriginal Australia use an absolute system for encoding spatial relations (for an overview see Green 2014a: 20).

stantly updated. This allows people to use absolutely-oriented signs and indexical gestures to provide direct reference to places and people (associated with locations), and obviates the need for specific signs for places and people. For instance, a woman in Alice Springs deploys five signs in the following sequence: (i) QUESTION (ii) YOU (iii) DRIVE (iv) GO-TOWARDS (high-angled arm, oriented north-west) (v) QUESTION. This is interpreted in context as 'Are you driving to Alherramp [and will you take me]?' The GO-TOWARDS sign (Table 1, 3a) is angled 'high' to show a place at quite a distance from the place where the interaction occurs. Further, the absolute orientation of the sign signals the exact location of a place which, knowing the person who signed the utterance, is pragmatically interpreted as being Alherramp (Napperby), an Anmatyerr community a couple of hundred kilometres to the north-west of Alice Springs. Similarly, an individual may make an index point to a house and sign QUESTION, and this could be interpreted as "Where's Karen?" The individual referred to is deduced by the interlocutor who knows the person who is asking and guesses which person associated with that particular house they are likely to be seeking. As with locations in space, time also can be given an absolute spatial representation. To indicate when an event did or will happen, a flat hand is oriented to the location where the sun would be at the time intended. Since the sun's position in the sky varies somewhat throughout the year, the absolute point may also indicate the time of the year as well as the time of day (cf. Boroditsky and Gaby 2010).

5 Basic syntax

5.1 Word order and expression of grammatical relations

More research is needed to understand issues of word order and syntax across the continuum from everyday Arandic sign use through to the fully developed sign language used among older women. Unlike spoken Arandic language varieties, there is no signing of obligatory verb inflections or of core grammatical case markings. As Kendon writes, "These may be supplied by the recipient as part of the process by which an utterance is understood" (Kendon [1988] 2013: 251). There is no tense marking or marking of subject number on verbs and little morphological derivation (although, as we have discussed above, there are ways of showing reflexive and reciprocal notions for some verb signs). Relative to the spoken language varieties, there is some preservation of aspect distinctions through modifications to verb signs. Tense may be inferred by context although temporal adverbs can be signed in order to give an utterance a temporal frame (Kendon [1988] 2013: 275). Although strings of clauses can form a sign sentence or an utterance there is no complex clause marking – i.e. no morphological marking of complement clauses

and/or relative clauses. At the moment we have not been able to find any distinctions, manual or non-manual, between dependent and independent clauses.

The personal pronouns are basically pointing signs, and the inclusive/exclusive distinction that exists in some Arandic spoken languages is made in the following manner: a two hand indexically rocking between signer and addressee means 'we-two inclusive', whereas the same two hand rocking indexically between signer and the person next to them while the signer is looking at the interlocutor indicates 'we-two exclusive'. Similar indexical strategies for pronominal reference are also found in Auslan (Johnston and Schembri 2007; Johnston 2013), BSL (Sutton-Spence and Woll 1999), and ASL (Liddell 2003).

There appears to be a tendency towards fixed sign word order, and, as far as we can tell, it is more strongly SV and VO in declarative utterances. The tendency towards fixed word order may be more associated with the use of fewer signs, becoming more language like (as Kendon noted) with more expert sign users. We suggest that this is another property that differs along the sign *language* sign *use* cline.

6 Examples of words and sentences

In the following section we give some Examples of Arandic sign constructions employing up to four signs that typically occur when the reduced vocabulary of about 30 or so signs are used. Many more Examples can be viewed on the *iltyemiltyem* sign language web-site. In Examples 2–4 the co-signing speech [CoS] is also shown and it can be seen that, at least in these elicitation contexts, the speech and sign are closely aligned. Example 1 illustrates the common strategy used to negate sign verbs. The sign LISTEN/HEAR is followed by the multi-purpose sign NOTHING/NO/ NEGATION.

(1)

LISTEN/HEAR   NOTHING/NO/NEGATION
'I didn't/can't hear.'
Source: Archival session name SIGN-20120228-01 (Sign20120228_CLong_06.mov).

In Example 2 a generic sign for MEAT is followed by the more specific sign for KANGAROO. The ordering of the signs in this instance parallels that found in Arandic spoken language noun phrases.

(2)

MEAT	KANGAROO
ker	*aherr* [CoS]
meat	kangaroo

'Kangaroo meat.'
(http://iltyemiltyem.com/sign/anmatyerr/ker-aherr/)

An action sign may follow a temporal sign, such as NOW/TODAY; LATER; or EARLIER/BEFORE. Such sequences give meanings such as LATER SEE [you] 'See you later', or NOW EAT '(I'm) eating now'. An Example of a three sign utterance that includes a temporal sign is given in (3).

(3)

TODAY	COME	POLICE
Lyet	*pety-em*	*rrkwenty* [CoS]
today	come-NP	police

'The police are coming today.' (CAn)
(http://iltyemiltyem.com/sign/anmatyerr/lyet-apetyem-rrkwenty/)

Four signs are used in Example 4. In this instance the NOTHING/NO/NEGATION sign, which also appears in Example 1, follows the sign WATER.

(4)

THIRSTY	SIT	WATER	NOTHING/NO/NEGATION
Angkethakw	*an-em*	*kwaty-kweny*	[CoS]
thirsty	be-NP	water-PRIV	

'[I am] thirsty now, without water.' (CAn)

(http://iltyemiltyem.com/sign/anmatyerr/angkwethakw-anem-kwaty-kweny/)

7 Associated sign systems

7.1 Signing in sand stories

Arandic sand stories are a traditional form of narration in which graphics form an essential part of a composite utterance (Wilkins 1997b; Green 2014a; Green and Wilkins 2014). This is another gendered practice, with women being the most experienced at using sand drawing to convey elaborate narratives covering a range of traditional, historical and personal themes. The dynamic graphic components of the stories are the key feature which distinguishes this type of narrative performance from others, although a narrator may use a range of other verbal and visual elements including speech, sign, and gesture as well. Narrators of sand stories incorporate drawing and sign in their stories, both with and without speech. In some cases, sign provides meanings that are not made explicit by the other semiotic means, and in others the use of sign in addition to speech and drawing adds pragmatic weight to the utterance.

Sand drawing is generally laid down according to absolute spatial coordinate principles, and the semi-permanent graphic schema on the ground in front of a narrator often acts as a visual referential space for keeping track of participants while signing and narrating. Whereas primary sign languages of the deaf typically set up loci in signing space for reference tracking, this does not appear to occur within the Arandic alternate sign language. Rather this communicative function is achieved in the interaction between sign and indexing to sand drawing. Figure 10 shows the typical seated position of the sand story narrator. Her hand briefly touches a 'U' shape drawn on the ground to represent 'person', and then moves into the air and articulates the sign GO-TOWARDS (see Green 2014b).

Green and Wilkins (2014) give an example of how an Anmatyerr/Central Arrernte speaker who became aphasic and had non-fluent speech in the years imme-

Fig. 10: The sign GO-TOWARDS is articulated over the sand drawing space. (Green 2014b: 231. Illustration Jenny Taylor)

diately following a stroke was able to continue communicating in the community through the use of sign and sand drawing. She could tell full narratives when she combined the two visual systems. The extract below illustrates how sign and sand articulate to one another in the absence of speech. In particular, we focus on use of the sign SEE (Table 1, 5a) and show how it is anchored to the drawn symbols, while at the same time taking advantage of the affordances of the broader sign/gestural space above the ground.

The basic graphic schema is shown in Figure 11. The narrator drew a 'U'-shaped person symbol a), a spear b) and a spear-thrower c) indicating that the character is a man. The man is drawn facing another person symbol d) with a digging stick e) and a food carrier f), indicating a woman. The first 'U' shape is drawn slightly larger and deeper than the second and this difference is size, along with the proximity and relative sizes of specific tools (spears, digging sticks etc.) makes the gender of the drawn story characters clear. A smaller person symbol g) is drawn nested within the woman symbol d) indicating a child sitting on the woman's lap. After drawing the schema shown in Figure 11 the narrator fixes her gaze on the drawing space, uses her middle finger to point to (and touch) the woman symbol (Figure 12a). The SEE sign is then held up over man symbol, and then de-
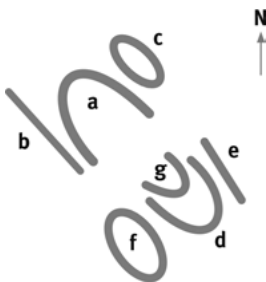
Fig. 11: Representation of seven symbols drawn on the ground, showing the order they were drawn in and their spatial configuration.
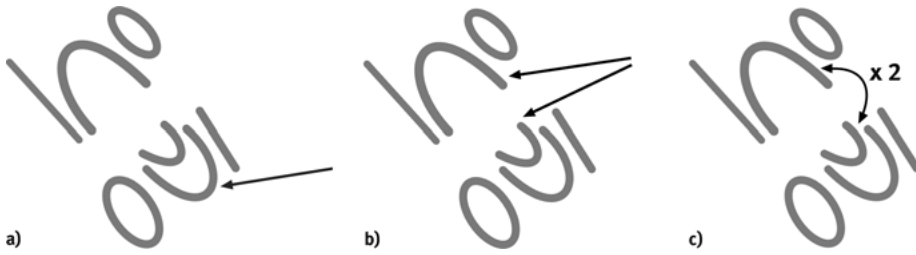
Fig. 12: Pointing gestures and signs are anchored to the drawn symbols.

ployed in a beat-like fashion directed towards child symbol, emphasizing continuous action (Figure 12b). Then the SEE sign moves from man symbol down towards child symbol twice (Figure 12c). This entire sequence – comprising gesture, sign and drawing – is understood to mean '[He told] her to look after the child.'

With her gaze still fixed on the drawing space, the narrator continues to combine lexical signs and pointing actions, some articulating directly to the symbols drawn on the ground, some having their origins in the broader space around the narrator and ending above the drawing space, and some using the potentials of absolute direction to locate the story in a precise geocentric frame of reference. Erasure is used to mark changes in time/space and to indicate minor relocations of the narrative characters. This demonstrates just how powerful the combination of sign, sand drawing, absolute spatial reckoning and cultural pragmatics is in communicating complex narrative ideas (all in the absence of any supporting spoken language). Moreover, it exemplifies how the sand drawing space can be used with a function analogous to the way deaf signers using a primary sign language first set up the space and objects in it, then use the now invisible loci in signing space to track referents and predicate relations and actions between objects.[5]

8 Interesting or unusual features of the language

8.1 'Respect' in sign

The existence of 'special registers' in Aboriginal spoken languages is well documented. This verbal style is one of a range of strategies used to encode respect in situations where cultural value is attached to indirect communication. Mother-in-law/son-in-law avoidance is one of the most marked cases when respectful behav-

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5 There may be instances when Arandic signers gesture/point to the place where a referent was signed (as a reminder of the sign), but it seems that they do not point to multiple distinct loci in signing space.

ior is expected, but there are other kin that are treated with appropriate deference, and special ways of speaking are used in the context of birth, death and initiation.[6] As far as we know such specialized behavior has not been previously recorded for sign languages in Australia. However, the first author worked with a senior Anmatyerr woman who, in an elicitation context, modified 'ordinary' signs to show how they are deployed in respect contexts, such as in reference to a woman's *rtwalty* or son-in-law (Green and Wilkins 2014). Thus for some signers there appears to be a contrast between so-called 'ordinary' signs and 'respect' ones. For a woman under a speech ban or for others who use sign as an alternative to speech there are thus two marked socio-pragmatic dimensions. In the first instance the imperative to use sign signals a particular communicative context, and secondly the modification of the way that signs are formed can index an additional level of circumspection required when communication is *about* certain kin.

Consequently expert women who use sign in bereavement and 'sadness time' control not only a single sign language, but in addition registers within that language. Further research is required to establish how widespread this practice is, but preliminary observations of a small number of signs show the following features. Although the hand orientation tends to remain the same in 'respect' forms as for the equivalent 'ordinary' signs, there is an overall tendency for a reduced signing space and for a more tense and restricted articulation of the signs. In all of the signs surveyed there are simplifications of the hand shapes. For example some signs that normally use a flat hand, a 'horn' hand, or an extended index finger are reduced to a fist; other signs in which 2 or 3 fingers are extended are contracted so that only the index finger remains prominent. A loose 'C' hand becomes drawn in and more tense. If articulation of the sign involves rotation then this is reduced, and the path or trajectory of the sign is abbreviated. For example the Anmatyerr sign KANGAROO (Table 1, 4b and Example 2) is formed by a rapidly repeated action where the fingertips contact the thumb then spread. In the respect form of the sign KANGAROO the degree of spreading is reduced.

There are also some specific features associated with individual sign lexemes. For some signs in this respect register both the movement trajectory and the space where the respect form of the sign is articulated is different to the 'ordinary' sign. For example, in the respect sign for LIE-DOWN (Table 1, 2d) the index finger is withdrawn and contracts to a fist, and the trajectory of the sign is reversed and is projected towards the contralateral shoulder rather than away from the body in front of the signer: rather than an IN-OUT trajectory there is an OUT-IN trajectory with different source and endpoint body locations.

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6 Varieties of these registers have been referred to elsewhere as 'avoidance', 'mother-in-law', or 'brother-in-law' languages (for an overview see Green 2014a: 52). We use 'ordinary' and 'everyday' interchangeably in this chapter for the unmarked speech style characteristic of day-to-day discourse.

Another notable feature associated with this particular way of signing is the way the lips tend to be pressed or protruded (and held closed) as the signs are articulated. With the lips held in this configuration, non-speech vocalization may also (but does not always) occur. This use of non-speech vocalization is consistent with the fact that there is a range of special non-speech sounds (or sound-producing behaviours) that are used to indicate respect, bereavement, sorrow and/or kin avoidance (whether or not signing is taking place). These include thigh-slapping, a pronounced clearing of the throat, or special sounds made with the lips (Henderson and Dobson 1994: 589; Green 2010: 551).[7]

8.2 Tactile signing

Although the sign systems described in this paper are primarily ones that employ the visual/kinesic modality there is yet another extension of the system that draws on the semiotic potentials of touch and haptic sensation (Green and Wilkins 2014). In a preliminary recording session the first author has videoed about twenty or so signs which may be articulated through hand-to-hand tactile engagement. Salient physical aspects of 'ordinary' signs are chosen for this form of representation. For example the sign TODAY (see Example 3) is indicated by touching the hand in the curve between the thumb and forefinger, and the sign GO-TOWARDS by articulating the 'horn' handshape on the interlocutor's hand. This illustrates yet another dimension of signing practices in Central Australia and shows the diversity of communicative practices that exist there. More work is needed to determine how widespread these practices are. While the existence of tactile and hand-over-hand signing is well-known in deaf-blind communities, this is the first indication of similar practices in Indigenous sign systems from Australia.

9 Final Remarks

In this description of sign language(s) used in Arandic communities we have aimed to capture some aspects of what is in fact a continuum of sign use. We must emphasize that even at the lower end of the continuum we are not simply talking about a set of 'quotable gestures' or 'emblems' (Kendon 2004) as is often described for spoken languages around the world. It is true that at the lowest end of the continuum there is not the expressive potential expected of a full language, but as we've said, this is not merely a set of gestures. It is very much a language-like system

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7 Kendon ([1988] 2013: 155) suggests that a woman who is observing the mourning speech taboo "tends to hold her mouth tightly closed, in a sort of clamp posture".

and people fluently use sign for everyday communication. Sign users who only control a small repertoire of signs add the local conventions of deictic practice and regularly generate signed utterances containing several signs, covering the semantic domains of people, animals, food and drink, local artifacts, time, motion and location, transitive and intransitive actions, basic descriptors (adjectival and adverbial), quantification, questioning and negation. Even though the range of propositions that can be expressed is limited when used without the support of other semiotic systems, people can conduct short silent conversations. When combined with the local sand drawing practices – another characteristic Arandic semiotic practice – the expressive potential is increased to a level where full narratives can be told without any spoken language input (Green 2014a, Wilkins 1997b).

Clearly much more work needs to be done to provide accurate descriptions of both end points of the continuum and to explain points in between. Moreover, a description of the varieties of sign language use in a single Arandic community (or any Centralian desert community) is yet to be researched and written. The searchable corpus of sign languages from Central Australia (http://iltyemiltyem. com/sign/) is a practical tool and one step on the way to furthering the objective of understanding how different alternate sign languages found in Indigenous Australia vary. This online repository enables researchers to work collaboratively and explore similarities and differences between Arandic sign and Indigenous sign languages found further afield (Adone and Maypilama 2014; Maypilama and Adone 2012, 2103; Bauer 2012, 2014).

Further work is needed to understand how signs are articulated in various contexts, how sign production changes when there other semiotic systems employed, and when there is a rapid transition to the next sign (or the hand configuration needed to draw in the sand). The reduction in signs appears to bring with it a broader range of rules of interpretive pragmatics that is also of importance to study. There is also the question of sign 'sandhi' or of knowing how anticipation of coming signs affects the production of a given sign. These questions are also of relevance when a signer/drawer alternates rapidly between semiotic systems – actions deployed predominantly in the air (signs and gesture) and others enacted on the ground (drawing). Although clearly the signs are articulated within a system of contrastive sign features, one of the noticeable features of signs from these alternate sign systems is the 'looseness' with which they are deployed. We suspect that the disambiguating potentials of the other semiotic systems that frequently support signing may license relative freedom/lack of precision in some communicative contexts.

We have tried to emphasize the important social and cultural significance of sign for Arandic communities. As we have noted, speakers and signers of these languages regard more elaborate knowledge of sign as being endangered, so if these questions are to be explored they need to be explored now. From the perspective of language use and communication within Indigenous communities, we hope

to have shown how attention to sign use in relation to other semiotic systems in the community reveals interesting divisions of labor with respect to meaning potential. The alternate sign language is not a pale shadow of the spoken language system, but rather a system that excels where the local spoken languages may often fail – in areas of space, time and number to name the most prominent. As an integrated suite of communicative systems, sign, gesture, speech and sand drawing are a powerful window not only on how members of Arandic communities systematically deploy communicative resources in interaction to jointly create meaning, but also on the human capacity for meaning-making more generally.

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35 Monastic Sign Language from Medieval to Modern Times

1 Basic facts about the language

Language name: Monastic Sign Language

Alternative names: See 'Varieties'

Location: Monastic communities around the world (Europe, North America, South America, Oceania, Africa, Asia)

Varieties: Anglo-Saxon Monastic Sign Language (defunct); Augustinian Sign Language, also known as Canons Sign Language (defunct); *Benedictine Sign Language*, also known as *Cluny dialect*; *Cistercian Sign Language*; *Trappist Sign Language* (varieties in *italics* are discussed in this chapter)

Number of signers: No available estimate

2 Origin and history

Benedictine monasteries and their descendants have used some form of signed communication from the tenth century to present times even though most of their members were hearing. Monastic sign language came into being as a speech surrogate because many early cloistered religious communities, such as the Cluniacs and Cistercians, adhered to the rule of silence originally established by St. Benedict (ca. 480 – ca. 550) in his plans for monasticism (Bruce 2001). The sixth-century *Rule of Benedict* (a handbook for the organization and operation of monastic foundations, available online – see Chapters 6, 38 and 42 regarding silence) does not mention signing nor any "vow" of silence. It only stipulates that silence should prevail and could be broken if at all necessary by some signal rather than by speech (see different translations of this statement in Bragg 1997: 9, and Bruce 2007: 60–61). Reducing the amount of speech in the monastic community was a precaution to prevent idle gossip, slander or other sins of the tongue that could damage the disciplined development of the individual monk. It also gave opportunities for peaceful prayer, preserved the silence needed for monks to enter into

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union with God, and fostered virtues of humility and obedience. Monks were not allowed to converse with one another, but could do so with their Superiors when necessary and with permission. While important monastic officials, like the abbot, the cellarer and the porter, could speak according to the demands of their offices, their words, in general, could only be used for holy purposes, such as for praising God or for instructing disciples. The discipline of silence was practiced during certain times of the day (during the celebration of the divine office which took place during most hours of the day, and at night, during the great silence when talking was strictly forbidden), as well as in certain areas of the monastery, such as the church, the dormitory, the refectory and the kitchen (Barakat 1975a).

Observance of the rule varied widely, and the use of sign lexicons was unknown until the tenth-century Benedictine reform. The earliest records indicate its use at the abbey of Cluny in France, founded in 910 (for a thorough discussion of this practice at Cluny in medieval times, see Bruce 2007). The cultivation of silence raised practical difficulties in large religious houses, like Cluny, as the responsibilities of communal life required that individuals communicate with one another – not only about the daily operation of their community but also for carrying out their rituals. To overcome this challenge, Cluniac monks created a silent language of meaning-specific hand signs that allowed them to express their needs without resorting to speech. The practice became prevalent in religious communities throughout Western and Northern Europe by the end of the twelfth century, with modifications made to adapt the sign system to the local needs of religious houses distant from Cluny.

The reformation of the Benedictine discipline in the tenth century resulted in the formation of separate orders in the eleventh century. The Cistercian Order (founded by reform-minded Benedictines) appeared in 1098, and in the seventeenth century, they separated into two Observances – the Common and the Strict. The popular name for the main branch of the Cistercians of the Strict Observance since the nineteenth century has been Trappist as they were centered on an abbey in France called Notre-Dame de La Trappe. In their commitment to silence and solitude, and as the Roman Catholic Church's strictest monastic order, the Trappists have continued their use of signs until the reforms introduced by Vatican II (1962–1965; for more on the history of monastic life, see Johnston 2000; Louf 1983).

2.1 The evolution of monastic sign lexicons

Sign lexicons were created to help preserve the silence needed for communion with God rather than to replace speech. They were meant only to facilitate necessary communication; thus, they were limited in nature and written prescriptively to prevent unwanted change or too much usage. As such, the signs without any intrinsic grammar could be understood in the narrow context of the monastery where they were used.

The Cluniac sign lexicon as it appeared in compilations of monastic customs or customaries (see the Appendix in Bruce 2007: 177–182) consisted of a vocabulary of 118 hand signs that were taught to novices. The lexicon was organized into four categories: 35 signs for *food* (bread, beans and fish, drinks and condiments, and items associated with food like serving trays and drinking vessels; also discussed in Ambrose 2006; Romeo 1979); 22 signs for *clothing* (wool tunic, trousers, frock, cowl, and shoes, along with bedding and personal tools, like knife and sewing kit, and accessories, like ankle straps and belts); 22 signs for the *divine office* (for chants, hymns and books in the Church, along with signs for celestial and saintly persons); and a *miscellaneous* category with 39 signs for people (monastic officials such as abbot, prior, cellarer, gardener, as well as monk, priest, etc.), actions (to talk, to hear, to not know, to tell a lie, to kiss, to dress, to undress, to wash feet), qualities (quickness, slowness) and abstract concepts (something good, something bad, something done). Each entry provided the name of the signified item or object, described the sign and often explained the sign-form, as in the first entry: "For the sign of bread, make a complete circle using each thumb and the next two fingers, the reason being that bread is usually round" (Bruce 2007: 177). The brevity of this early sign list ensured that novices could only express their basic needs as the 118 signs were mainly nouns. Only fifteen signs in the Cluniac sign lexicon represented verbs or abstract concepts (exemplified in the miscellaneous category above). New monks were taught those few signs that they would need to understand rudimentary instruction and reprimand during their novitiate. The rest of the community could learn the full range of signs that comprised this silent language after many years in the abbey.

Officially compiled sign lists from the time of Cluny onwards exist and are relatively extensive and reliable for Benedictine, Anglo-Saxon, Cistercian and Trappist sign languages (all considered to be dialects in Lewis 2009). Communities of reformed canons (followers of the so-called *Rule of Augustine*, available online) also adopted the custom of sign language from the Cluniacs in the twelfth century (Bruce 2007: 153, 165–166), but Augustinian or Canons Sign Language is now defunct along with Anglo-Saxon Monastic Sign Language (an Old English translation of the Cluny list).

The earliest sign lists from Cluny reached England during the reign of Edgar, 959–975. All but one in Old English were written in Latin (see Umiker-Sebeok and Sebeok 1987, for sample texts from seven early Latin sign lists). The translation of sign lexicons into vernacular languages began in the eleventh century with the Old English *Monasteriales indicia* (discussed by Conde-Silvestre 2001; Sherlock and Zajac 1988). The Old English sign lexicon with 127 hand signs has been edited and translated into German by Kluge (1885) and into English by Banham (1991). Portuguese and French translations appeared by the early modern period in Cistercian circles. Martins (1958) gives us a Portuguese list from the sixteenth century, and Du Bois (1824) provides us with a French one from the seventeenth century

(see also Hutt 1968). Translation of Latin sign lexicons into vernacular languages in the later medieval and early modern periods ensured the accessibility of this custom to new generations of Christian ascetics.

Even before the earliest surviving texts from the eleventh century appeared, monastic sign language was in use during the Benedictine reform movement in the tenth century. Sign lists have not changed much in size or content in more than 900 years since their circulation began. The average number of signs in the earliest sign lists from the eleventh century is 189.5 based on the lists supplied by Bruce (2007): Cluny (1078/1084) had a list of 118 signs, Fleury (1087) 154, Canterbury (mid-11th century) 127, and Hirsau (before 1091) 359. Rijnberk (1953) provides the list sizes from nineteen sources from the eleventh to nineteenth centuries. The vocabulary lists range from 52 signs from an undated manuscript to 472 signs in the latest list from 1837, 'Custom from La Trappe after the reform by Rancé' (originally in French as *Us de la Trappe après la réforme par de Rancé*). Five lists had less than 100 signs, eight had between 100 and 200, four had between 200 and 300, one had over 300 signs, and the previously mentioned Trappist list (from 1837) was the largest at over 400 signs. The average list size from those examined by Rijnberk is 178 signs. Note that this is even lower than the average of 189.5 signs from the earliest sign lists from the eleventh century. This shows very clearly that signs were meant for limited communication in monasteries not only in the eleventh century but also throughout the ages.

In the eleventh century, the earliest list used to train novices at Cluny was adopted, expanded and adapted by other medieval monasteries to their local environments in the Loire Valley (Fleury), the south of England (Canterbury) and the Black Forest (Hirsau). New signs were added to reflect local and regional differences in food, officials and helpers, and liturgical services. Adopted signs were also revised for precision and clarity. While SICKNESS and CONFESSION were signed in the same way at Cluny by placing a hand against one's chest (Bruce 2007: 181), CONFESSION was differentiated, for example, at Fleury by the addition of a gesture denoting speech. The descriptions from Fleury below show how exact fingers are specified (in italics) that was not originally on the Cluny list:

- For the sign of HEARING, hold your *index* finger against your ear.
- For the sign of NOT KNOWING, *touch* (instead of 'wipe') your lips with *your index and middle fingers* (instead of 'a raised finger').
- For the sign of TELLING A LIE, place *your index and middle fingers* (instead of 'a finger') inside of your lips and then draw them out again (adapted from Bruce 2007: 107).

Bruce (2007: 108) claims that the Fleury sign lexicon "may have played a more direct role in the instruction of this custom than the Cluniac sign catalogue" as the "revisions undertaken to make its sign descriptions more precise and intelligible imply the expectations of a readership for whom textual clarity was of the utmost importance".

Because the reforming abbot, William of Hirsau in Southwest Germany, sent monks to Cluny to study the reformed way of life there, it is likely that his longer list (of 359 sign-forms, the longest catalogue to survive from the Middle Ages) represents the Cluny sign language of his time better than the lists from Cluny itself, which may have excluded unofficial signs or those that had come into use since the introduction of sign language there (Banham 1991; Bruce 2007). The Cluniac sign lexicon with 118 hand signs was compiled specifically for the instruction of novices and was not meant to be an exhaustive inventory of every sign in use at Cluny. Nine of the new signs in the Hirsau sign lexicon also appeared in the Old English sign list copied earlier in the eleventh century at Canterbury. Most of the signs represented items related to the celebration of the liturgy (provost, alb, chalice, etc.). They are absent from the Cluniac list probably because novices played a limited role in liturgical services and did not need to learn these signs although they did exist at Cluny. Banham (1991: 12–13) observed that the modification of monastic sign language in England involved the choice to exclude Cluniac signs that were not fitting or relevant in Anglo-Saxon abbeys, resulting in a new idiom of monastic sign language tailored to the cultural and religious environment of reformed English monasticism.

2.2 The Cistercians

The Cistercians continued in the twelfth century the tradition of silence and signing started by the reformed Benedictines. Early Cistercians also refrained from speaking in certain parts of their abbeys (cloister, refectory and infirmary) and throughout the night. They discouraged unnecessary speech in the chapter house, in places where they worked and even at the abbot's table. Their lay brothers and women associated with the Cistercian Order also adhered to the same strict rules of silence. In 1152, the Cistercian General Chapter even laid out punishment for anyone who chose words over signs during meals.

Although some Cistercian sign lexicons preserved the structure and content of the Cluniac lexicon in prose compositions, many were written in verse, with the most detailed of them describing 216 sign-forms in 275 lines of hexameter. The recasting of prose sign lexicons into hexameter may have served, according to Bruce (2007), as a mnemonic device for the reader or listener to help them memorize and eventually to master the use of specific signs. Many Cistercian sign descriptions rewritten in verse were nevertheless very similar to the Cluniac examples.

The Cistercians also had new signs not found in the Cluniac sign vocabulary that reflected their active interest in religious, social and economic domains in the world outside of their communities (Bruce 2007). Their involvement in late medieval society as preachers against heresy can be seen in signs such as LAY BROTHER, HERETIC, and PAGAN, and as caregivers to the disenfranchised and destitute in

hospitals and leper-houses in signs such as LEPER and BLIND. New signs referring to payments and specific monetary currencies suggest their participation in some aspects of the emergent money-based economy of the twelfth and thirteenth centuries. Like the Cluniacs, the Cistercians limited their use of signs to a small vocabulary of nouns. The existence of manuscript copies of Cistercian sign lexicons in the fourteenth and fifteenth centuries indicates that the custom of sign usage continued until the end of the Middle Ages. However, religious conflicts and civil unrest in the sixteenth century threatened traditional standards of discipline, including the use of sign language which fell out of practice.

In 1624, ten abbots of the Cistercians of the Strict Observance (the Trappists) drafted a series of reforming statutes that included an order to resume the practice of personal silence and the use of sign language to preserve this silence. The Trappists thus reestablished sign usage in many Cistercian houses. Consequently, the seventeenth-century French sign lexicon (mentioned earlier as available in Du Bois 1824: 248–258) contains 167 signs, such as ABBOT, BREAD, CHEESE, NOVICE, MONK and VINEGAR, which are actually very similar to their Cluniac antecedents, demonstrating that the signs had survived intact from the medieval periods of use (the origins of Cistercian Sign Language are discussed further in Bruce 2001).

In the nineteenth century, territorial expansion of the Trappist order brought this sign system to monastic communities in North America and Asia, far removed geographically from their origins in France (see Lekai 1977; Pennington 1994, for more on the history of the Cistercians).

2.3 Contemporary Cistercian Sign Language

This system of communication has been studied most extensively by Barakat (1975b; all further citation refers to the 1987 reprint in Umiker-Sebeok and Sebeok). He investigated the use of Cistercian Sign Language a few years after the Second Vatican Council (hereafter, Vatican II, held between 1962–1965) at the Trappist community of St. Joseph's Abbey in Spencer, Massachusetts (the impact of Vatican II policies on monastic sign usage will be discussed in the section on *State of the language*).

Barakat (1987: 147–315) provides us with two "Authorized Lists of Signs" in his Dictionary of Cistercian Sign Language. The first list – the most important with signs sanctioned by the Cistercian Order – is the traditional one that must be followed by monasteries that do not have their own list. It is composed of descriptions with accompanying photos for 324 *basic* or simple signs with photos. One hundred and eighty-nine *derived* or compound signs are also described without accompanying photos since derived signs are made up of basic ones. The second list – sanctioned by St. Joseph's Abbey – contains many exact duplicates from the first official list but also some dialectal forms that have been approved for use only within St. Joseph's community. It consists of 194 basic signs with accompanying photos, and

106 derived signs. A third longer list of "Original Signs" supplements the traditional authorized list's meager inventory. These signs are unique creations by members of the community that are not valid for other monasteries and are deemed to be *useless*, as they are not part of the permanent vocabulary of the two Authorized Lists. This list consists of 626 basic and derived signs (without photos) as well as the 26 letters of a two-handed finger alphabet (with photos; this hand alphabet will be discussed in a later section on Associated sign systems). Barakat (1987: 281) states that the original signs "are of special significance to the members of the monastic community who find it necessary to communicate on a wider level of human social intercourse". Four appendices in this Dictionary also list the sign system for numbers, saints of importance to the Cistercians, members of Saint Joseph's Abbey and Cistercian houses. In spite of having a seemingly longer list than previously available, Barakat (1987: 150) cautions us that his Dictionary is "also an illustration of the limitations of the sign language. If it is not constantly up-dated to include new signs for new items introduced into the monastery, it will slowly degenerate until speech results. And this is, indeed, what has happened; speech is obviously taking precedence" (as observed in the early 1970s).

The "Authorized list of signs for the Cistercian Order" for Saint Joseph's Abbey is an English translation of the official French list, respecting the French word-order, from *Us de l'Ordre des Cisterciens de la Stricte Observance précédés de la règle de Saint Benoît, de la charte de charité et des constitutions* (Order of the Cistercians of the Strict Observance 1926). Similarly, the authorized Cistercian Order List has been translated from French into both Japanese and Chinese for monastic foundations in the Far East (Quay 2001). The Chinese version of the sign list was destroyed on mainland China during the political upheavals prior to the Lantao Island foundation in 1950. The Japanese handwritten manuscript, however, is still being used today in the teaching of novices. The title – *Torapisuto shudoin te mane* – can be translated literally in English as 'Trappist monastery hand mimicry', suggesting the pantomimic nature of the signs although the original French title was *Manière de faire les signes en usage dans l'Ordre de Cîteaux* ('How to do the signs used in the Cîteaux Order').

The contemporary studies by Barakat (1987 reprint; originally 1975b) and Quay (2001) are based on the lived experiences of individual monks while all previous studies of monastic sign language have used customaries and sign lists as their focus. As will be described further, just as Barakat had collected original signs from an American Trappist community, I have also collected such signs predominantly from a Japanese monastery but also from a Chinese one.

2.4 Data collection in the Far East

Some of the data have been presented in Quay (2001) and some are new to this chapter. Data were collected from fieldwork done at Our Lady of the Lighthouse Trappist Monastery (hereafter referred to as Lighthouse) in Hokkaido, Japan and at Our Lady of Joy Trappist Monastery (hereafter referred to as Joy) on Lantao Island, Hong Kong. Specific examples from Trappist Sign Language in Japan and China will be used to illustrate general points about contemporary monastic sign language. The data from Lighthouse were collected through interviews and still photography, starting at the end of November 1996 (soon after the monastery's centenary celebrations) and again in 1997. A lecture given by the prior, Father Paul Takahashi, on the "Four seasons of monastic life" at International Christian University in Tokyo in January 1997 and personal communication (from 1996 to 1999) with the prior by telephone and fax provided additional insights to contemporary monastic life. At Lighthouse, the abbot, Father Maur, the prior, Father Paul, the guest-master, Brother Jacob, and a senior monk, Father Simeon, participated in interviews. Although video-recording was attempted at the Japanese monastery, this was not as successful as still photography, the same method used by Barakat (1987). Data were collected at the monastery in Hong Kong in March 1997, mostly from interviews with the titular prior, Father Benedict, and the guest-master, Father Giles. Informal conversations also took place with the novice master, Brother Theophile, and a visiting monk, Father Basil, from St. Joseph's Abbey in Spencer, Massachusetts, where Barakat's research had been carried out.

3 Bilingualism and language contact

While many of the rituals conducted in monasteries before Vatican II have been done in Latin, not all monks, particularly adult converts, were proficient in spoken Latin. Latin has nevertheless been the dominant medium of oral expression (particularly in liturgical celebration) in every aspect of monastic life for centuries in the Roman Catholic faith. As mentioned earlier, all medieval sign lists (except the Anglo-Saxon one) were written in Latin. Signing practices were thus taught to novices for the most part through Latin until the early modern period when these lists were finally translated into vernacular languages. Those who entered monastic life as adults probably had little knowledge of Latin as a spoken idiom. Thus, it is possible to infer that the signs used during the divine office and other ceremonial activities actually helped rituals to proceed more smoothly than if monastic communication had relied on spoken Latin instructions. According to Bruce (2007: 79), monastic sign language served several important functions by allowing "brethren from different linguistic backgrounds to bridge the gap separating those who could not otherwise understand one another using spoken words", by promoting a sense

of solidarity among monks from different backgrounds, and by providing "a kind of institutional lingua franca for monks with limited skills in Latin and no shared vernacular language".

The importance of monastic sign language to the forty-fourth monastery affiliated with the Cistercian Order of the Strict Observance in Northern Japan can be inferred from the cultural and linguistic diversity of its members in the early years following its establishment in 1896. Lighthouse started with five monks from France, two from Holland, one from Italy and one from Canada (Our Lady of the Lighthouse 1996). It owed its beginning to Bishop Berlioze of the Paris Foreign Mission Society, who was also the Bishop of Hakodate, a city close to the site of the present monastery in Tobetsu, Hokkaido. The first superior of Lighthouse from 1897 to 1926 was a Frenchman, Dom Gerard Peuiller, originally the prior of the abbey of Bricquebec. Two groups of French and Dutch monks were recruited in 1898 and 1902. By March 1903, the community had twenty-five members with twelve from Europe. By the foundation's 25th anniversary in 1921, a shift had occurred from a predominantly European to a Japanese community with eleven monks from foreign countries and forty-four Japanese monks. As posited above, we can infer from the composition of monks that monastic sign language probably served as a lingua franca for the community of Japanese and Europeans, who each had their own vernacular languages.

In China, Trappist foundations date back to 1883. However, the monks there were persecuted by the Japanese in 1937 and by the Communists ten years later (Lekai 1977: 209). Our Lady of Consolation Monastery (located about 120 kilometers northwest of Beijing) was destroyed in 1947 as a result of the Chinese Revolution. The monks who fled from China were from a younger foundation, Liesse, originally founded by Our Lady of Consolation in 1928. Its superior, Dom Paulinus Lee, was able to regroup a number of dispersed and exiled monks on the Island of Lantao in 1950. Our Lady of Joy was thus established in Hong Kong where the liturgy was conducted in Mandarin, Cantonese, English and Latin. The monastic tradition brought over from China is still practised by priests and brothers, most of whom have served over fifty years in religious life. A few younger men from Hong Kong as well as from Canada, the Philippines, Singapore and the United States have joined this community in recent times (Pennington, n. d., but this information was received in 1997). However, their lingua franca is no longer monastic sign language but English.

From 1965 onwards (after Vatican II), the Japanese language was introduced into the celebration of the liturgy. By October 1968, the mass was sung in Japanese in place of Latin, and by September 1970, the office of Vespers was also changed from Latin to Japanese. Thus, for about 74 years, all monks at Lighthouse were at least bilingual in their vernacular language and Latin. They also had their sign language to help them communicate with those from different linguistic backgrounds in their community. Many monks in Japan and China found themselves in

a multilingual context, due to the fact that monastic communities started relatively later in Asia than in Europe, and were either started by (as in Japan) or continued with (as on Lantao Island) an influx of brethren from other parts of the world. The imposition of monastic sign language before Vatican II fostered solidarity in communities where linguistic diversity would have proven a challenge for communication aimed at monastic decorum and personal discipline.

4 Political and Social Context

The appeal of monastic sign language is in its adaptability. Monks who adopted the system of signs would abandon or change signs they deemed irrelevant or inadequate for their purposes and also fashion new signs (original ones) to make up for deficiencies that they perceived in their model. Thus over the centuries, and particularly with the spread of Trappist foundations around the world (outside of Europe to the Americas, Africa, Oceania and Asia) in the nineteenth century, each community inadvertently created regionally specific variations of the sign system to express cultural expectations and monastic ideals distinct from the experiences of the original French brethren. This can be exemplified by data from the Japanese and Chinese communities.

In spite of the fact that Cistercian or Trappist Sign Language is not a true language like deaf sign languages, it has taken on some characteristics of natural languages by changing and developing over time to a point where some abstract communication, though limited when compared to speech, has developed beyond what was originally officially sanctioned. Not only did each monastery produce its own version of sign language, but Kendon (1990: 311), in his review of Umiker-Sebeok and Sebeok's (1987) volume on *Monastic sign languages*, points out that "even the official lists show considerable diversity". Like spoken languages, monastic sign languages have developed and changed with time and social use. Original signs produced at the Japanese and Chinese monasteries provide evidence that the monks created signs as the need arose and adapted existing ones from the Cistercian Order List to meet some of their needs. These unofficial signs enriched their communication and were deeply rooted in the culture and natural surroundings from which they were created (as described in Quay 2001, and further below).

4.1 State of the language

Since the relaxation of rules of silence after Vatican II, Trappist Sign Language, in particular, and Cistercian Sign Language, in general, are no longer used. The Second Vatican Council authorized Catholic orders to modernize their codes of behav-

iour. As a result, Trappists were henceforth allowed to speak a very limited number of words to be determined by individual abbots (Jaksa and Stech 1980).

At the Chinese monastery, sign language was practised from their establishment at Lantao in 1950 until 1969 (Father Giles, personal communication, March 11, 1997). Sign language was used frequently when they were still on mainland China, but this discipline was relaxed after the Communists dispersed the community in the late 1940s (Father Benedict, personal communication, March 12, 1997). So speech, more often than not, replaced the use of signs among the exiled monks. Monastic signs are no longer taught to the Chinese novices today. The Chinese version of the authorized sign list was destroyed, as mentioned earlier, on mainland China during the time of political unrest. During my fieldwork in March 1997, I was informed that only about eight senior monks out of sixteen at Joy still remember how to do the signs. Of those eight, the guest-master, Father Giles, and the titular prior, Father Benedict, were interviewed. They could still recall and demonstrate some sign usage.

4.2 Language maintenance efforts

While there have been less need to use the signs now that monks are allowed to speak when necessary, the official sanctioned signs (from the Authorized List) are still being taught to novices at Lighthouse (Father Paul, personal communication, October 7, 1999). Thus, as has been the case since the tenth century, instruction in sign language is still considered to be an important part of the preparation of novices for monastic life. The novices at the Japanese monastery are taught at least the most important signs – for instance, the sign to indicate a need to leave the chapel so that religious ceremonies can proceed uninterrupted. The master of novices would sign the most frequently of all members in the community because he had to cue and prompt his charges during activities, such as during the orchestration of the divine office, which would have been habitual or intuitive for experienced monks but not for the neophytes. Although the novices were not full participants in the services, it was important for them to learn the signs for every important aspect of the liturgy because, even as professed monks, they would have to rely on nonverbal cues from the precentor to guide them through the ceremonies. Using hand signs to announce the need for particular texts, the precentor could direct individual and communal participation in the divine office and the liturgy of the mass. The novices would thus learn to recognize hand signs for common choir books, like ANTIPHONARIES, HYMNALS and PSALTERS as well as those for texts read during the mass, like MISSALS, GOSPELS and EPISTLES. Since one of the monks at Lighthouse has been deaf from birth, monastic signs are also used with him from time to time. Needless to say, novices who arrived after the reforms of Vatican II would have little knowledge of local or original signs that had been particular to their monastery. This would also be true of novices in medieval times

as novices were only taught the most pertinent and necessary signs chosen from the many employed by professed monks in their communities (see Bruce 2007: 71, for a discussion of the evidence for this inference).

4.3 Usage of the sign language in the Asian context

Quay (2001) listed many original signs for food at the Japanese monastery because rules of silence forbade monks from speaking in the kitchens and the refectory. Thus, sign language became an important tool for the preparation and orchestration of meals. Novices in the Japanese monastery would learn the authorized signs for common food items (like bread, eggs, vegetables, fish, milk and honey) because they were expected to use such signs while performing kitchen duties and taking their meals in the refectory. Once they became professed members, they would learn original signs particular to the local food in their area, such as DAIKON ('radish') and GOBO ('burdock') for vegetables grown in the region, or TOFU ('soybean curd'), RICE, SUSHI, SOBA ('brown noodles'), UDON ('thick noodles'), SASHIMI ('raw fish') for typical food items in the Japanese diet (see Quay, 2001, for descriptions and photos for some of these signs). Because the monastery was located near the sea, they also had signs for TUNA, KONBU ('kelp/seaweed'), EEL, OYSTER and various shellfish (Quay 2001: 223). Such signs give us an idea of the local aquatic ecosystem at Lighthouse. Since the monks took turns working in the kitchens, most monks would have to use the signs for food items at some period during their lifetime in the monastery. The use of signs was a practical necessity in the monastic kitchen. While working in the kitchens, some would cook as others arranged the food on trays or carried the trays into the refectory. All would rely on signs to request specific food items and utensils to perform their duties as they were not allowed to speak during the preparation of food. Bruce (2007: 80) found evidence in medieval customaries to suggest that monastic sign language played a much more significant role in the preparation of meals than for obtaining rations or the actual consumption of food and drink. Basically, the strict regulation of food and drink meant that monks had no choice regarding the content or portions of their meals; therefore, they would also have no need to (mis)use sign language when they gathered to eat. Bruce (2007: 83) found a monastic customary from the thirteenth century that instructed officials explicitly to report monks observed making unnecessary signs while they ate. Signs for condiments were an exception to this rule. The Japanese monks could thus ask for SOYA SAUCE, TONKATSU SAUCE, SALT or PEPPER (Quay 2001: 225) from servers by using the signs not only to attract the attention of the servers but also to indicate their choice of condiments should they need to add more flavour to their food.

One particular example of an unofficial sign at Lighthouse reflects, on the one hand, the strong need to communicate in spite of religious restrictions, and on the other, the unique historical experiences of some of the monks who ended up at

Lighthouse after the atomic bombs were dropped on Hiroshima and Nagasaki in August 1945. Nagasaki, in particular, with a substantial Catholic community since the sixteenth century, had one of the highest percentages of Christians in the country in 1945. When asked for any signs unique to their monastery, two monks who entered Lighthouse after the end of World War II produced two variations of the sign, ATOMIC BOMB, derived from SMALL + EXPLOSION:

Variation 1:

SMALL: place right index finger upright in front of closed lips (similar to Barakat's [1987: 265 for photo] description for SMALL: "place the tip of right little finger on right side of mouth, then turn the finger a bit")

EXPLOSION: press tip of index finger to thumb for both hands and close all other fingers loosely in fist, then make two giant arcs pushing out to the side with both fists as if drawing the letter M

Variation 2:

SMALL: touch the tip of the right thumb on the tip of the little finger on the same hand with other fingers pressed into the palm

EXPLOSION: slightly curved open palms of both hands make the shape of a mushroom cloud from top to bottom

The first sign variation for ATOMIC BOMB is less iconic than the second one. SMALL in variation 2 seems to refer more to the concept of an atom being very tiny, rather than the adjective which is implied in variation 1 of SMALL. The sign EXPLOSION is also shown in variation 2 to describe the shape of a mushroom cloud. The derived sign for ATOMIC BOMB is original to Lighthouse because some of the monks from Nagasaki who ended up at Lighthouse wanted to explain, despite restrictions on speech, how they lost their entire families but had survived because they had dug tunnels in the hillside. As noted by Barakat (1987: 150), original signs, as in the above example, were "invented for immediate purposes and rarely gain recognition beyond the exchange in which they are used".

The senior monk who demonstrated the more iconic compound (variation 2) for ATOMIC BOMB also demonstrated:

PLANE: spread both arms straight out from sides like the wings of a plane (see Figure 1 in the last section of this chapter);

PROPELLER PLANE: two closed fists with thumb and index finger sticking straight out turning in circles in front of body;

JET: back-facing open right palm hangs downward and pushes backwards by side of body; and

ROCKET BOMB: MISSILE (index finger draws an arc in the air) + EXPLOSION (as in variation 2 above).

He explained that the derived sign ROCKET BOMB referred to the bombs being dropped on London during World War II. After the war, politically-aware brethren used such signs at the monastery to discuss the war and to try to understand the world through the eyes of God despite being forbidden to use speech to share their thoughts. The sign for PLANE in the Japanese monastery is a basic sign, whereas PLANE is a derived sign, METAL + WING, in Barakat (1987: 277). It is interesting that the Japanese monks had hyponyms for PLANE, a relatively new means of transportation in the first half of the twentieth century. We can speculate that such signs fell out of use when the memories and the need to share the horrors of their atomic bomb experience faded.

Lighthouse also had the original sign, COMMUNIST. It was signed the same way as for RED, involving the placement of the index finger at the center of the lower lip (see photo in Quay 2001: 220; in Barakat 1987: 199, this forefinger bends the lip slightly). The sign COMMUNIST existed because Soviet Russians had taken some of the monks to Siberia around 1947 to 1948 as forced labour. Like those who survived the atomic bombings, they too had a burning need to communicate about their experiences in spite of the rules of silence. Such signs at Lighthouse allowed the monks to understand each other's experiences during a time of turmoil and provide evidence of the impact and intrusion of historical events on this particular cloistered community. The monastery itself became a strategic fortified zone when the Sino-Japanese war broke out in 1937, and its elected abbot, Dom Benedict Morvan, was forced to leave Lighthouse in August 1942. Of fourteen young monks during that period who were pressed into military service, four did not survive (Our Lady of the Lighthouse 1996).

Two other signs unique to Lighthouse for cultural reasons are:

HANKO ('seal'): press right thumb against the fleshy palm at the base of the left thumb; and

ONEGAISHIMASU (roughly translated as 'Please help me'):
　　　　　　　　bring right palm towards lips
　　　　　　　　(see Figure 2 in the last section of this chapter).

Instead of signing one's name to documents or letters, the Japanese use a seal usually bearing the Chinese characters for one's family name. Lighthouse had the sign HANKO for this cultural practice. The sign ONEGAISHIMASU to request for help is a polite form composed literally of *onegai* meaning a wish or request and the verb *suru* meaning 'to do', giving us the meaning, 'to fulfil someone's wish'. This sign used at Lighthouse is very different in structure from the sign HELP at the American Trappist monastery with the description: "place fingertips on stomach, then draw them back in opposite directions to sides" (see Barakat, 1987: 180, for a photo). However, the sentence, "please help me", was signed at the Chinese monastery in exactly the same way as a combination of ONEGAISHIMASU at Light-

house plus HELP at St. Joseph's. But the authorized sign for HELP was demonstrated and described at Joy as "pretending to put on an apron", a pantomimic action similar in visual outcome to Barakat's description of the same sign. Note that PLEASE (on the "Authorized list of signs for St. Joseph's Abbey" but not for the Cistercian Order) at St. Joseph's Abbey is done slightly differently from ONEGAI-SHIMASU as the tips of the fingers are kissed when the right hand is brought to the mouth (see photo in Barakat 1987: 258).

One sign unique to the Chinese monastery with cultural connotations (depicted in Figure 5 in the last section of this chapter) is:

PROUD: Bow head over upturned index, middle and ring finger

This is an *ironic* cultural expression in sign. The three upturned fingers represent incense sticks, and bowing over them suggests that a proud person wants to be worshipped or needs respect from others. The Chinese have used incense or joss sticks traditionally in religious ceremonies and ancestor veneration. The ironic component of this original sign is that a person with excessively high opinions of himself or of his own importance expects to be worshipped (as depicted by the action of bowing over incense sticks).

Besides adding new signs with cultural connotations, some existing signs were omitted due to differing cultural perceptions. For example, the sign for INVITATOR (see photo in Barakat 1987: 249), is the same as the finger alphabet "T" in American Sign Language, where the tip of the right thumb is inserted between the right index and middle fingers in a fist. This gesture is considered obscene in Japan (and in Asia in general) and was not used at Lighthouse, but the prior could not remember whether they created another gesture for INVITATOR to replace the one deemed offensive. So even though this was an authorized sign, social taboos prevented its use in the Asian context.

4.4 Attitudes to sign language

Only the prescribed signs were considered to be useful. Monastic sign language was deemed to be as dangerous a medium for sinful thoughts as speech because it provided negligent monks with an outlet for the expression of idle thoughts. In fact, fears about the misuse of monastic signs played an important role in shaping the linguistic character of this silent language (as will be discussed below about its structure, basic morphology and lexicon). While monks across the centuries, as well as those in Japan, have tailored the original monastic sign vocabulary from medieval times as they saw fit, they have adhered to the ideal that the replication of human discourse was not the purpose of their sign language. At no point have any communities attempted to alter the semiotic structure of this system. Although novices are taught the sign language in preparation for monastic life, once they

have mastered the signs, they are warned repeatedly against the frequent use of the few signs they know. Before Vatican II, they were punished not only for speaking when they should not, but also for employing "useless" signs (that is, signs not from the Authorized List; Brother Jacob, personal communication, February 24, 1997). Barakat (1987: 92) noted that "useless" signs tended to outnumber authorized ones (as was also found at the Japanese monastery) and represented "an effort on the part of the monks to update the signs to make the language a more adequate means of expression, although the vast majority of these signs do not gain currency for any length of time" (such as the original signs mentioned earlier that were used shortly after war time experiences when the outside world intruded on the cloistered community).

4.5 Men and women's varieties

The first sign lexicon addressed specifically to women was a Middle English product of the fifteenth century composed for the nuns of Sion, a convent of the order of St. Brigit in Middlesex (see Bentley 1833, for the sign list; also available in Aungier 1840: 405–409). Although no contemporary data were collected from Trappist convents, the monks interviewed at both Lighthouse and Joy believed that their female counterparts before Vatican II were not only stricter than they were with the rule of silence, but also signed more faithfully than they did by adhering to the Authorized List of Signs for the Cistercian Order, which applied equally to both male and female cenobites.

5 The structure of signs

Since monastic signs were not meant to replace speech but served instead as a limited form of necessary communication, they tended to be iconic in nature and were often based on concrete visual analogies (Barakat's *pantomimic* signs) or had qualitative, cultural or linguistic association (Barakat's *qualitative* signs and signs *related partially or fully to speech*). These categories of signs are in contrast to Barakat's *pure signs* which had no relation to speech or pantomimic action, and were thus more like the natural signs of the deaf, which tended to be arbitrary in nature. Such arbitrary signs were rare and could be found mainly among the specialized terminology for priests (signed the same way at Lighthouse and St. Joseph's Abbey since such signs are from the Authorized List) such as:

ABBOT: touch the upper right forehead vertically with tips of right forefinger and middle finger held tightly together (photo in Barakat 1987: 155);

PRIOR: close right hand and raise thumb stiffly from fist (photo in Barakat 1987: 196); and

SUB-PRIOR: extend thumb and little finger from right fist (photo in Barakat 1987: 211).

On the whole, even religious terminology is based on concrete visual images, such as ALB for the white vestment worn by the monks, which is signed by pinching one's actual garment by the right knee (photo in Barakat 1987: 155), and CRUCIFIX or CROSS, signed simply by forming a cross with the index fingers of both hands (photo in Barakat 1987: 168). Because such signs that draw their meaning from observable attributes are intuitive and easier to memorize, the meaning of monastic sign-forms are derived overwhelmingly from common visual experiences associated with:

– appearance, as by the indication of the shape of different types of potatos at Lighthouse after making the sign POTATO for SATO-IMO ('taro'), YAMA-IMO ('yam') and SATSUMA-IMO ('sweet potato') (Quay 2001: 224); or
– qualitative characteristics of their referents, such as the sign for ASIAN which is done by flattening the nose with the index finger or pushing the corner of the eye upwards with the index finger (flat noses or slant eyes being imputed stereotypical features). Flattening the nose with the index finger is also done to indicate JAPANESE, as opposed to EUROPEAN with their big noses, signed by drawing a big arc over the nose with the index finger.

Monastic sign-forms tended to make reference to easily recognizable physical attributes or visual characteristics of their referent. For example, the derived sign for WHALE is composed of the sign for FISH (palm facing left and fingers held together mimicking the movement of a fish in water; photo in Barakat 1987: 176) plus a depiction of water spouting from the blowhole of a whale drawn in the air (using the index fingers to draw two arcs). Although the original rules of the Trappist Order forbade meat to be eaten, whale meat was considered by canon law in the early history of the Japanese monastery to be fish rather than meat.

Signs also imitated the habitual actions associated with their referent, especially related to the preparation of food. This can be seen, for example, in the two-fingered patting of the other cupped palm for SUSHI (photo in Quay 2001: 223), or in grasping the left index finger with the right hand as if milking a cow for the sign MILK (see Figure 4b in the last section of this chapter). Even the sign for GOD (done by forming a vertical triangle with the tips of the thumbs and index fingers of both hands; photo in Barakat 1987: 178) can be understood as being associated with the Holy Trinity, whereby the Christian Godhead is one God in three persons – the Father, the Son and the Holy Spirit.

In terms of linguistic associations, Barakat (1987: 108–111) lists examples of signs based on spoken English such as:

– signs partially dependent on speech: HAWAII = HIGH + Y + E (fingerspelling will be discussed further in the next section); SHINY = SHINE + (point to) knee; and

– speech signs having exact or nearly exact phonetic equivalents in speech sounds: DEER for 'dear', or SEW for 'so', or TWO for 'to' or 'too'.

The Chinese monastery used linguistic association to create some of their sign names, which required receivers of such signs to see and hear the utterance as these signs based on the spoken language were both visual and phonetic. In the Chinese monastery, members were addressed not by their duty as in the American monastery (Barakat 1987: 311–314) but by their family name and seniority as is the Chinese custom. So Father Huang could be addressed or indicated by the signs of PRIEST + YELLOW since *Huang* can be translated into English as the color term (YELLOW: draw a line with two fingers from the forehead to the nose; from the authorized list with photo in Barakat 1987: 219). The sub-prior, titular prior and the organist in the Lantao community shared the same family name, *Chao*, which sounds like the Chinese word for 'using your eyes' or 'searching for something', so the sign for CHAO involves looking through a circle formed by the right hand as if looking through a telescope. Although the titular prior has the highest rank among the three, he is younger than the sub-prior, so he is referred to as SECOND + CHAO, while the sub-prior is referred to as FIRST or BIG (because of his age) + CHAO and the organist is THIRD + CHAO. Thus, the formation of the sign names at the Chinese monastery reveals cultural differences between the Chinese and American Trappists while at the same time demonstrating how the signs are partially dependent on Chinese speech.

6 Associated sign systems

6.1 Hand alphabet and number system

According to Bragg (1997), the use of a finger alphabet in a monastic setting was undocumented until the nineteenth century (although not necessarily unavailable to the general population in the sixteenth one), which strongly suggests its absence in medieval times. Note, however, that the Anglo-Saxon monk, the Venerable Bede, in 725 already suggests that a manual counting system used in medieval monasteries can represent different letters of the alphabet to encode words (in *De temporum ratione* or 'The reckoning of time', translated by Wallis 1999). A non-cloistered mendicant order, the Franciscans (who did not follow the *Rule of Benedict*), are attributed with the emergence of a finger alphabet in the late sixteenth century as part of their social-work duty ministering to the ill and the dying, who may also

have been hard of hearing (see Bragg 1997: 15–23, for more on the origins of a finger alphabet).

The photos of the hand alphabet (considered to be original signs) provided in Barakat (1987: 283–286) show quite clearly that the hearing monks in the modern period have created the hand alphabet based on the written capital letters of the alphabet. Because the letters are depicted by using both hands to form the shapes, they are very iconic in comparison to the finger alphabet in American Sign Language. For example, the letter A is formed by pointing the "forefinger and middle finger of left hand down with other fingers pressed into palm and back of hand facing forward" and then placing the "right forefinger across ... [to form] an 'A' configuration" (photo in Barakat 1987: 283).

Similarly, the Chinese monks created original signs for the following numbers based on written Chinese characters:

10 (十): cross middle finger over index finger of right hand with other fingers pressed into palm
9 (九): upraised but bent index finger with other fingers pressed into palm
8 (八): spread open thumb and index finger and point them downwards while keeping other fingers pressed into palm (see Figure 6 in the last section of this chapter)
7 (七): thumb, index and middle fingers are turned upwards and bent towards each other in the shape of the Chinese character for seven with other fingers pressed into palm
6 (六): thumb and little finger widespread and pointing upwards with other fingers pressed into palm

The number 1,000 was demonstrated at the Chinese and Japanese monasteries as an example of an original sign:

At Joy: do the sign for 10 (see above) and place into open mouth (see Figure 7)
At Lighthouse: place tip of all ten fingers into open mouth

Surprisingly, in both the Chinese and Japanese communities, the open mouth signals multiplication by one hundred. At St. Joseph's Abbey, the number 10 is produced by holding up five fingers of the right hand and five fingers of the left hand (the same way that 10 is produced at Lighthouse). The sign for 100 is then produced at St. Joseph's by placing the tip of the right index finger in an open mouth but not in contact, which is similar to the indication of multiplication by one hundred demonstrated in the Chinese and Japanese monasteries. However, the number 1,000 is produced quite differently, either by making the signs "ONE + T" or "ONE + ZERO + ZERO + ZERO" (Barakat 1987: 309). T for 'thousand' is done by holding up

the left index finger and placing the right index finger directly on top to form the capital letter T. Thus, this sign is associated linguistically either with the hand alphabet or the numeric system, "1 + 0 + 0 + 0".

7 Basic morphology and lexicon

The previous section showed that the hand alphabet and number system as associated sign systems could be based fully or partially on *written* language in the American and Chinese Trappist communities. Monastic sign language, in general, is an encoding system for *spoken* languages with an artificial and semantically restricted lexicon composed mainly of nouns. Inflectional and derivational morphemes do not play any part in this restricted communication system. All we can discuss is the word class of its limited lexicon. For example, of the 580 signs in the Japanese translation of the "Authorized list of signs for the Cistercian Order" (*Torapisuto Shudoin Te Mane* or 'Trappist Monastery Hand Mimicry'), *nouns* make up eighty percent of the lexicon, followed by *verbs* at eleven percent and *adjectives/adverbs* at nine percent. There are no particles or postpositions that are normally found in Japanese speech in the sign lexicon at Lighthouse. Since first and second person pronouns can be omitted in spoken Japanese "unless it is necessary to emphasize *me*-ness or *you*-ness" (Makino and Tsutsui 1986: 30), pronouns in general do not feature in the data collected from Lighthouse. However, Barakat (1987: 301) lists a variety of possessive, object and subject pronouns as original signs produced at St. Joseph's Abbey, where the spoken language, English, does require pronouns.

Compounding, however, is used to produce derived signs, which are complex signs arbitrarily created from basic signs composed of a single element in sequences such as:

Noun+Noun:	JESUS CHRIST	(= GOD + CROSS)*
Noun+Noun+Noun:	GOSPEL	(= BOOK + JESUS CHRIST*)
Adjective+Noun:	COFFEE	(= BLACK + WATER)
Noun+Verb:	RICE	(= BEAN + EAT)

While JESUS CHRIST is composed of two basic signs, GOD and CROSS, the sign GOSPEL is composed of the basic sign, BOOK (done by mimicking the opening and closing of a book with both hands together, palms facing up), and the derived one, JESUS CHRIST, from the compound of GOD plus CROSS. The guest-master at Joy demonstrated the derived sign for COFFEE and claimed that it was an original sign for his monastery. However, the two basic signs, BLACK (place the index finger under nose like a moustache) plus WATER (join tips of fingers of right hand almost together with palm up in the shape of a container), are from the authorized list,

similar to photos in Barakat (1987: 159, 216). BLACK + *DRINK* (place tip of right thumb with other fingers closed in palm on lips and tilt head backwards as if taking a drink; photo in Barakat 1987: 172) indicate COFFEE at the American monastery. Although it may appear surprising that two communities far apart geographically used similar authorized signs to create the new derived one, perhaps it is less surprising when we note that the derived sign for COFFEE is based on its concrete visual appearance. The derived sign for RICE, on the other hand, is done differently at the Japanese and American monasteries. The noun *object* BEAN precedes the verb EAT for RICE at Lighthouse, whereas RICE at St. Joseph's Abbey (also an original derived sign) is composed of the noun *subject* CHINESE (no indication of how this sign is produced can be found in Barakat, but it was produced at Lighthouse by making twisting movements of the closed fist from the neck downwards to indicate a pigtail) preceding the verb EAT (bring thumb, index and middle finger to the mouth several times with fingers touching at tips only; photo in Barakat 1987: 173). Not surprisingly, most derived signs contain nouns more often than any other word class since nouns make up four-fifths of the authorized list of signs for Lighthouse.

A more complex derived sign can be seen for the original sign CURRY RICE at Lighthouse (see photos in Quay 2001: 226), where curry rice has been adopted as a distinctive Japanese dish:

TURBAN + POWDER + JAPANESE + BEAN + EAT
Noun   Noun   Adjective   Noun   Verb

While the last two signs make up RICE and the first two indicate CURRY, the sign for JAPANESE is added to signify that the curry in Japan is made differently from Indian curries and has its own particular taste (sweet rather than spicy). Rather than "curry" being an endocentric compound consisting of "powder" as its head (B) with "turban" as the modifier (A) meaning 'Indian', so that A + B denotes a special kind of B (in this case, the type of powder usually used in curries), the addition of "Japanese" adds a contrast to the original meaning. These three signs modify the derived sign for RICE to denote the typical Japanese-style [Indian] curry rice dish. All the signs, whether they are authorized or original, reflect the daily lives of the monks, and Barakat (1987: 113) states quite accurately that "the authorized and local lists are composed mostly of basic and simple signs, whereas the list of original signs contains nearly all the compound signs".

8 Basic syntax

Monastic sign languages borrow their syntax from the spoken languages of the monks who use them. Thus it is not a true language in the sense that it cannot

fulfil all the conditions of "natural communication systems that 1) have both a lexicon and a grammar, 2) are capable of expressing any thought on any subject, 3) are learned by at least some infants during the normal language-acquisition threshold age, and 4) are living, growing, changing systems" (Bragg 1997: 2). It only has a limited lexicon that prevents topics from being developed fully in discussions so that the simplest statements are formed with great difficulty and ambiguity. Exchanges, as expected in communities with a strict rule of silence, are brief and incomplete with frequent topic shifts. Unlike deaf sign languages, the term *sign language* for the monastic variety indicates only in a general manner that a system of meaning-specific gestures are employed as a functional replacement for speech. From the tenth century onwards, monks have used this elaborate system of meaning-specific hand signs to communicate their needs and to receive instruction and reprimand without recourse to speech. Any tendency of the signs to develop grammar would have been suppressed as this would have defeated the rationale of the *Rule of Benedict*. Bruce (2007: 72) referred to monastic sign language as "a disabled language that was useful only for the expression of single nominal concepts".

Barakat (1987: 120–143) provides a list of 91 English sentences, each of which he asked two or more monks at St. Joseph's to sign for him for comparative purposes, and which he then asked others to interpret. As the sentences became more complex with dependent clauses, interrogatives or tense elements, the signed sentences became more garbled and difficult to understand, especially when viewed out of context. Barakat (1987: 144–145) concludes with seventeen points outlining the syntactic deficiencies of Cistercian Sign Language as gleaned from English sentences. Basically, most of Barakat's points are a listing of grammatical elements that have been omitted in the signed sentences as a result of the small inventory of authorized signs.

Some of the syntactic deficiencies outlined by Barakat can be illustrated with three Japanese sentences signed at Lighthouse:

(1) USHI + CHICHI + KAKARI
    ox   + milk   + charge
    Spoken equivalent:
    [Watashi wa] Nyuugyuu no kakari deshita.
    English: 'I was in charge of the dairy cattle.'

(2) USHI + CHICHI + KAKARI GA NAIKOTO
    ox   + milk   + without any charge
    Spoken equivalent:
    [Watashi wa] Nyuugyuu no kakari dewa arimasen deshita.
    English: 'I was not in charge of the dairy cattle.'

(3) KINOU   + YORU* + ATSUI + UDON + TAKUSAN + TABERU + ONAKA
    yesterday + night   + hot   + noodle + much   + eat   + stomach
    + IPPAI
    + full
    [*See Figure 3 in the last section of this chapter]
    Spoken sentence:
    Kinou no yoru, atsui udon o takusan tabete onaka ga ippai ni natta.
    English: 'Last night, I ate a lot of hot Japanese noodle and became full.'

The sentence in (1) can be seen in Figure 4a–c, in the last section of this chapter. 'Dairy cattle' or 'cow' is an authorized derived sign composed of OX plus MILK while CHARGE is a basic authorized sign. Nevertheless, MILK as shown in photo 4b is not demonstrated exactly as described on the "Authorized list for the Cistercian Order" (Barakat 1987: 188) nor on the "Authorized list for St. Joseph's Abbey" (Barakat 1987: 251). This example supports not only Barakat's first point that monastic sign language operates on an "idiolect-dialect" level, but exemplifies four other points about the lack of syntactic elements in signed sentences. When comparing the Japanese signed sentence with its spoken equivalent in Example 1, we can see the absence of the subject pronoun (*watashi*), particles (*wa* and *no*), and verb and tense marker (*deshita*). Note that the subject pronoun is enclosed in square brackets for the spoken equivalent because it is possible to omit personal pronouns in spoken Japanese as explained earlier.

Photos 4a, b, d demonstrate the negative version of the sentence in (1) in Example 2. According to Barakat, negative statements and questions offer some difficulty, but in English, they have the sign NO (see photo in Barakat 1987: 253 – "shake right hand vigorously at side of the body") on the "Authorized list for St. Joseph's Abbey" that has been adapted from and is similar to the sign NOTHING (see photo in Barakat 1987: 191 – "shake right hand loosely at side of body") from the "Authorized list for the Cistercian Order". To signal the negative of CHARGE as shown in Figure 4d, the *side* of the palm (instead of the flat palm for the affirmative) of the right hand is placed on the left shoulder and taps the shoulder several times. Instead of adding a negative element like NO or NOTHING, the negation is part of a basic sign just by changing the position of the palm and adding a repeated movement. This sign is on the Authorized List for the Japanese monastery but not on the Authorized List for the Cistercian Order. KAKARI GA NAIKOTO (literally 'no one is in charge of') is the entry in the Japanese manuscript for this basic sign, which does not correspond exactly to the spoken equivalent provided, *kakari dewa arimasen deshita*. Given the lack of particles, verbs and tense markers in the monastic sign language, this is not surprising. The phrase *kakari ga naikoto* is not grammatical in the spoken language, but its signed equivalent visually conveys the negative meaning of *kakari*. The compound sign composed of OX plus MILK for both the affirmative and negative examples above can also be ambiguous (causes "gar-

bling" according to Barakat) as the two elements together can be interpreted as meaning 'cow', 'milking cow', 'dairy' or 'dairy cattle'. Only the context of being part of the community and knowing the speaker would provide the most accurate interpretation (for further discussion about the ambiguity of Cistercian Sign Language, see Barakat 1975a).

The third sentence in (3) is longer and more complex than the first two. Just as for the first two examples in (1) and (2), the third signed sentence in (3) is missing syntactic elements when compared to its spoken equivalent. Particles such as *no, o, ga* and *ni* are not expressed. The verb form *naru* ('to become') and its past tense marker in **natta** are also not expressed. Connectives (such as 'and') are missing (another point made by Barakat), as exemplified by the omission of the connective in the inflection *te* of the verb *taberu* ('eat'). While Barakat also pointed out the lack of plural verb and noun forms, this does not apply to Japanese since plurality is not shown by inflectional morphemes as in English. But both languages do have possessives that are omitted in signed sentences, as in the possessive particle in *kinou **no** yoru* ('last night').

Even though it has a low level of abstraction, the third sentence provided in (3) is a relatively long message. Although the order of the signs would remain the same, it could be interpreted with a totally different meaning as *Kinou no yoru, atsui udon o takusan tabete **mada** onaka ippai* or 'Last night I ate a lot of hot Japanese noodle so I'm **still** full'. The adverb *mada* ('still') would not be expressed because it does not exist in the authorized list. This lack of adjectives and adverbs in the signed repertoire applied also to Barakat's English examples. Even short messages can become unclear, as in *Karee raisu o tabeta* ('I ate curry rice'). The signed sentence would be CURRY RICE + EAT; but as shown earlier, "curry rice" is a derived sign expressed through compounding five basic signs, which would then result in the "garbled" sequence, TURBAN + POWDER + JAPANESE + BEAN + EAT + EAT! As mentioned earlier, this sign system functions for short simple messages pertaining to the operation of monastic life and is not intended for discussion of matters outside the community or for idle chatter. Thus, as also concluded by Barakat, long and especially abstract messages are difficult to express in monastic sign language.

9 Interesting or unusual features of the language

9.1 From monastic sign language to deaf education

Interestingly, the history of monastic sign language intersects with the history of deaf education in the sixteenth century. A Spanish Benedictine monk, Pedro Ponce de León, has generally been credited as being the first to teach deaf children at the monastery of San Salvador de Oña (Daniels 1997; Plann 1993). He started the first

known school for the deaf within his monastery, and he is recognized as the first *successful* teacher of the deaf in the Western world. He began with two students from a wealthy Castilian family, Don Francisco and Don Pedro de Velasco, who arrived at Oña in 1546 at the ages of nine and twelve, respectively. Plann (1993, 1997) postulates that the two students must have brought their home signs to the monastery as they had three other deaf siblings in their family of eight children. Ponce was already comfortable using signs since he signed daily with others in his community during recurrent periods of silence, and evidence exists that the signs used in Spanish monasteries at that time originated from Cluny (Daniels 1997). Ponce and his two deaf students must have communicated initially in a mixture of monastic and home signs, which evolved into manual signs, followed by the finger alphabet and writing, and finally, with instruction in speaking words. Daniels (1997: 15) believes that Ponce "saw signs as the quickest way to language and comprehension, considering them a helpful step for his pupils until they could walk alone in the world of speech". His fame is due to the fact that his deaf students learned not only to read and write but also to speak aloud.

Plann (1993) proposes, however, that the deaf artist and painter to Felipe II, Juan Fernández Navarrete (1526–1579), should have been recognized as the first educated deaf person instead of the Velasco children. At the Spanish court, he communicated using signs, could read and write, was well-versed in history and the Scriptures, and could keep account of his gambling wins and losses. He had entered the monastery of La Estrella of the Order of Saint Jerome in Logroño a decade before the Velasco children started at Oña and had been taught by Brother Vicente de Santo Domingo, a member of a monastic community that also adhered strictly to rules of silence. However, Juan Navarrete never learned to speak and was known as El Mudo, the Mute. Thus, Plann (1993: 10) writes: "The reality, then, is that Ponce was most likely the first to teach deaf people to speak, but contrary to the well-established myth, he may well not have been the first teacher of deaf people".

The existence of sign language in monastic communities, coupled with Benedictine monastic zeal towards education (as discussed in Daniels 1997), is thus believed to have led to modern education for deaf children (who had previously been denied any education due to misconceptions and beliefs that the deaf could not be taught). It is important to state explicitly in closing that deaf sign languages have not evolved from those invented by medieval monks (see also Bragg 1997; Stokoe 1978). Instead, the monastic sign system helped Ponce and those who followed after him in their initial communication with deaf children, which then resulted in education for the deaf. The fact that monastic sign language does not have the expressive potential of deaf sign languages has allowed it to survive intact for more than ten centuries, a tribute to St. Benedict's original vision of silence as the foundation for communion with God.

10 Examples of words and sentences

10.1 Some examples of signed words and sentences from the Japanese monastery

Fig. 1

PLANE (*hikouki*).
Original sign
A basic pantomimic sign at Lighthouse but a derived sign composed of METAL and WING at St. Joseph's Abbey.

Fig. 2
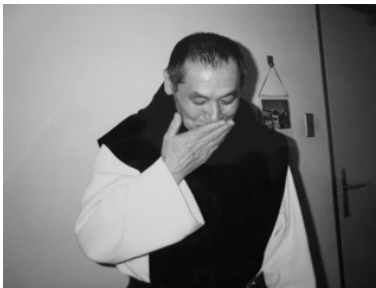
ONEIGAISHIMASU ('to fulfil someone's wish', when requesting help)
Original sign
Bring right palm towards lips.
Signed in the same way for PLEASE at the Chinese monastery.

Fig. 3

NIGHT (*yoru*).
Authorized sign
Place tip of right index finger over closed left eye and tip of thumb over closed right eye.

(a)

OX (*ushi*)
Authorized sign
Hold up index finger of each hand and
place both as if they are horns on forehead.

(b)

MILK (*chichi*)
Authorized sign, but performed slightly dif-
ferently at Lighthouse than at St. Joseph's
Abbey
Grasp index finger as if milking a cow.

(c)

CHARGE (*kakari*)
('a person in charge of')
Authorized sign
Place palm of right hand on left shoulder.

(d)
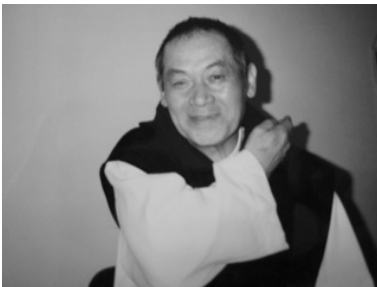
NOT-CHARGE (*kakari ga naikoto*)
('a person not in charge of')
Authorized sign from local Lighthouse list
(not on Cistercian Order list)
Tap the left shoulder several times with the
side of the palm while the back of the palm
faces outwards.

Fig. 4: Signed sentence 1 = (a) + (b) + (c) 'I was in charge of the dairy cattle'.
Signed sentence 2 = (a) + (b) + (d) 'I was not in charge of the dairy cattle'.

10.2 Some examples of signed words from the Chinese monastery

Fig. 5
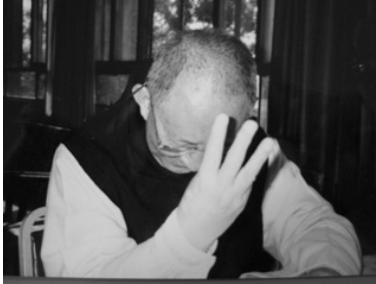
PROUD (as in 'needing respect from others').
Original sign
Bow head over upturned index, middle and ring finger.

Fig. 6

EIGHT.
Original sign
Signed like the shape of the Chinese character for the number eight, 八.

Fig. 7

ONE-THOUSAND.
Original sign
Place the sign for TEN (produced like the shape of the Chinese character for the number ten, 十) into mouth to signify multiplication by one hundred.

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Debby Banham
36 The Old English Monastic Sign Language

1 Basic facts about the language

Language name: Old English monastic sign list

Alternative names: *Monasteriales indicia*, Anglo-Saxon Monastic Sign Language

Location: England

Varieties: none; the text is only known from one manuscript

Number of signers: unknown; there is very limited evidence that the signs were used in practice

2 Origin and history

The Old English monastic sign list is found in an eleventh-century manuscript, British Library, Cotton Tiberius A. iii. Although the text has a garbled Latin heading, *Monasteriales indicia* ('monastic signs') the text is in Old English (sometimes known as Anglo-Saxon), the language of England up until the twelfth century. It represents a translation and adaptation of the sign language that had been used in reformed Benedictine monasteries in Frankish territories since the mid-tenth century. Although the manuscript comes from Canterbury, the only evidence for signs actually being used by English monks before the Norman Conquest comes from Winchester (see below). There is no reason to think that the list was in use outside monasteries, although it contains gestures, such as a finger to the lips for silence, that are still in use today, and presumably had a more general currency in Anglo-Saxon England. We do not know what signs, if any, were used by deaf people in the early middle ages; in fact, very little is known about the lives of deaf people at this time. The list could never have been used as a complete system of communication, as it has only 127 signs, nearly all for nouns. This would be an advantage for monks, who were supposed to avoid idle chatter, but would mean that users would need recourse to spoken or written language to supplement the signs.

Similarities between the signs used, and even the way they are described, make it clear that the Old English list depends on continental Latin lists, all stemming

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from signs used in the great reforming monastery of Cluny, probably from the time of Abbot Odo, 925–942 (the texts are edited by Jarecki 1981, and the tradition discussed by Bruce 2007). It was the reformers' rigorous interpretation of the Benedictine Rule, with its requirement for silence in church, in the refectory and at night, that meant they needed to communicate in signs. As other monasteries were reformed from Cluny, the use of signs was exported to the newly reformed communities, and the signs they used (a slightly different list in each case) recorded in writing. This seems to be what happened when the reform came to England in the later tenth century, too. The English reformers' closest links were with Saint-Benoît-sur-Loire (Fleury), but the Old English list does not show particular similarities with that from Fleury.

There is good evidence that signs were not used for functional communication in the pre-reform English Church. The Venerable Bede, living and working at that most Benedictine of the early Anglo-Saxon monasteries, Jarrow (Tyneside), in the eighth century, recommended signalling words and sentences, although only as a game or trick, by means of finger-counting (see below), converted into letters by reference to Greek alphabetical numerals, a cumbersome system that would never be used by someone familiar with even the few signs in the Old English list (see Banham 2006). Bede makes no mention of signs for whole words.

The *Monasteriales indicia*, explained as 'the signs that are to used in the monastery … where it is desired to keep silence according to the command of the Rule', are found in a manuscript (British Library, Cotton Tiberius A. iii) written at Canterbury in the mid-eleventh century. The contents of the manuscript are miscellaneous (although all ecclesiastical in one sense or another), but many of the texts relate to the tenth-century English reform (for a recent discussion of the manuscript, see Cooper 2006). There is, for instance, the *Regularis concordia*, the 'agreement about the rule' drawn up for English monasteries under the patronage of King Edgar (959–75), an Old English version of the Benedictine Rule, and a Colloquy for teaching Latin in monastic schools. The first two are the work of Æthelwold, the reformer who became bishop of Winchester in 963, and the third by his pupil Ælfric of Eynsham.

Æthelwold was the strictest of the three leaders of the English reform, and it is in the 'Life' of this bishop by his follower Wulfstan that we find the only evidence for the actual use of signs in pre-Conquest England. In this episode, a monk, whose name, Theodric, suggests he was from the Continent, comes to tell Æthelwold something urgent 'by means of signs', and rudely interrupts the bishop's reading. Unfortunately, it is not part of the story to tell us what the urgent matter was, or what signs were used. The point of bringing signs into the story may simply have been to demonstrate Æthelwold's devotion to the reform: he even understood the signs continental monks used (see Banham 2012 for further discussion of this episode). It is possible that the Old English list was produced under Æthelwold's aegis for the same purpose; the signs may not even have been in normal use at his own monasteries in Winchester.

3 Bilingualism and language contact

The Old English sign list must have been devised for speakers of Old English; the whole text is written in that language, but nearly all the signs appear to have been borrowed or adapted from the continental Latin lists. There is very little that is distinctively English about the list, except perhaps the selection of signs for food and clothing (see Banham 1996, notes to signs 57–60, etc.)

It appears that signs were taught in monastic schools (this may be why the *Indicia* and Ælfric's Colloquy are found in the same manuscript); the continental lists are in Latin, so Latin must have been taught first. But there is evidence that Latin knowledge was not as good in England, so it may have been necessary to teach the signs before the children had acquired Latin, hence the English list being in the vernacular. (In the twentieth century at St-Benoît-sur-Loire, boys entering the monastery were issued with a list in French, no doubt for the same reason.) It may even have been recognised that some English monks would never acquire a functional command of Latin.

If signs were in widespread use in religious houses, they would have provided a *lingua franca*, in addition to Latin, for monks or nuns with different native languages, as possibly in the story of Æthelwold and Theodric above. There are certainly 'regional' varieties of monastic sign language (although not from pre-Conquest England), but this may not be due to influence from local languages. Differences in monastic practice are a more likely explanation. Indeed, historians use similarities and differences between their sign lists to trace the relationships between reformed monasteries.

4 Political and social context

The manuscript context of the list, together with the story in the Life of Æthelwold, tell us a little about attitudes to sign language in England in the tenth and eleventh centuries: clearly it was associated with the reform movement, and particularly with the more rigorous wing of that movement. As we have seen, there is no evidence for knowledge of the list outside religious communities, and very few laypeople would have had sufficient education to read it. The English reforming movement in turn owed its origins to the reformed houses of Francia, and the sign list itself demonstrated those connections in the selection and description of its signs. The close association of the reforming movement with the monarchy, and the reformers' loyalty to King Edgar, whose support had brought them to power in the English Church, are also apparent from the list, with its signs for *king* (118) and *queen* (no. 119).

The existence of signs for *queen*, who is entrusted in the *Regularis concordia* with the protection of female religious, and for *nun* (no. 122) suggests that the list

was intended for use in nunneries, as well as male monasteries. However, there is no evidence, parallel to the episode in Æthelwold's Life, for the use of signs in a female house, nor that the signs existed in separate men's and women's varieties. The *Regularis concordia* requires nuns, as well as monks, to follow its provisions, but offers no adaptations for their needs. The implication is that abbesses were expected to make their own adjustments for female use, and this may have been true of the sign list, too.

5 The structure of signs

The shape made by the hand(s) is the main means of distinguishing one sign from another, as in that for *bread*: 'put your two thumbs together, and your two index fingers one against the other in front' (no. 54; the Latin description of the corresponding Cluny sign makes it clear that a circle should be the outcome).

The location of the hand(s) when making a sign is sometimes specified, presumably in relation to the torso: 'When you want a cup or a measure, put your hand down low, and spread out your fingers' (no. 79). For other signs it is necessary to touch something, such as the cowl in the sign for *monk* (no. 121), or point, as at the eyes in the sign for *schoolmaster* (no. 5). But frequently, no mention is made of location; presumably in these cases, as long as the correct shape was made with the hand(s), it did not matter where they were held. There seems to be no significance to the orientation of the hands in making the signs, except where this is integral to making the correct shape, as in the sign for *lid* (no. 80): 'lift up your left hand half closed, and likewise the right, and then curve it over the left'.

A number of the signs mimic the movement of the object indicated, such as that of a *fish* swimming (no. 70), 'move your hand in the way that it does its tail when it swims', or of its use, such as turning pages in the signs for books (nos 8–12, 29–33, 45–6), or manufacture, such as the use of a knife for *cooked vegetable dish* (no. 57), 'move your other hand downwards by the side [of the first], as if you were shredding vegetables'. Movement is also used in describing shapes, for instance to indicate the status of some of the persons in the final section of the list (see below).

6 Associated sign systems

As indicated above, the closest relations of the Old English monastic sign list are continental lists with the same function. Attempts have also been made (most convincingly by Barley 1974) to explore a relationship between the Old English sign list and the system of finger counting expounded in the Venerable Bede's *De temporum*

ratione (On the Reckoning of Time). However, Bede's finger counting was not original, but based on a text known as the *Supputatio Romana* ('Roman counting'), that probably originated in Ireland. Both the original and Bede's version were known on the Continent in the ninth century when monastic sign language was first used (as far as we know), but there is no evidence for influence from the one on the other. The *Supputatio* can only be used to represent words by transforming its number signs into letters and spelling out, as explained above, so none of its signs are comparable with those of the *Monasteriales indicia*. The Old English list does not provide signs for numbers, so we cannot tell whether its users would have followed the simple 'one finger, two fingers …' system we use today, or the more complex one suggested by Bede, which in theory allows one to count as far as a million.

There is good evidence that signs were used in English monasteries after the Norman Conquest, and a number of sign lists survive. There is just enough similarity between these and the Old English list to suggest a continuous English tradition, in writing and perhaps in use, rather than a wholly new introduction from the Continent. Of the four surviving lists from post-Conquest England, only that from Syon nunnery is in the vernacular, by then Middle English (edited by Aungier 1840: 405–409).

7 Basic morphology and lexicon

Of the 127 signs in the Old English list, the vast majority (120) represent nouns. A number of these stand for persons, either within the monastic community (nos 1–6: *abbot*, *dean*, *provost*, *cellarer*, *schoolmaster* and *sacrist*) or (mostly) outside (nos. 118–27: *king*, *queen*, *bishop*, *monk*, *nun*, *priest who is not a monk*, *deacon*, *celibate priest*, *layman* and *laywoman*). The rest stand for objects that Benedictines might need to refer to during the three periods of silence prescribed by their Rule: in church, at meals, and at night. There are thus a large number of books, as well as liturgical vessels and vestments, signs for food and drink, and the equipment for eating and drinking them, and for clothing and personal items such as sewing and writing tools, which may have been given out in the dormitory. The buildings represented include not only *church*, *refectory* and *dormitory* (nos 7, 49 and 87 respectively), but also *chapterhouse*, *privy*, *bathhouse* and *bakehouse* (nos 44, 94, 95 and 111).

Only four signs certainly stand for verbs: *ask permission to sit down*, *stand up* and *sit down* (nos 38, 39 and 40), the last two simply indicating upwards or downwards movement, while the first adds 'and ask permission with bowed head and put his hand to his chest', and *wash the hair* (no. 96): 'stroke with your flat hand on your hair, as if you were washing it'. Three more might be verbs: *refuse more*, *accept*, and *refuse* (nos 41–3), but they could also be interpreted as interjections (*no more*, *yes*, *no*): 'If any brother is offered more of anything, of which he has

enough, then turn his hand downwards, horizontally, and move it about slightly, stretched out,' 'If he wants what is offered, then turn his hand downwards on edge, and move it slightly towards him,' and 'If he does not want it, then again, let him move it slightly away.' Other verbs are implicit in the description of other signs, but are not listed in their own right: looking after, or overseeing, indicated by pointing at the eyes in the signs for the 'master, who looks after the children' and *sacrist*, who looks after the church (nos 5 and 6), as well as asking permission (no. 38) and asking forgiveness in the sign for *chapterhouse* (no. 44): 'put your hand on the front of your head and bow a little, as if you were asking forgiveness'. A number of the signs for nouns imitate an action, such as turning a key for *sacrist* (no. 6), or combing the hair for *comb* (no. 100), and thus might be used for that action as well.

There are also adjectives implied in signs for nouns: 'quiet' (or perhaps a verb, 'keep quiet'), indicated by a finger to the lips in the sign for *church* (no. 7), 'large', indicated by the thumb, for example in the sign for *tapers* (no. 25), 'small', indicated by the little finger, as in the sign for *schoolmaster* (no. 5), 'long', measured against the arm, as in the sign for *rectangular book* (no. 12), and 'sharp', shown by 'boring' into the palm of one hand with one finger of the other (nos 59, for *leek*, and 77, for *sloe*). The general sign for *book*, which is not listed separately, has to be deduced from the descriptions of signs for numerous individual types of book: *gradual* (containing liturgical texts), distinguished by a bent thumb for its musical notation (no. 8), for example, or *small martyrology*, indicated by drawing the finger across the throat and raising the little finger (no. 45). Other possible classifiers exist: the signs for *schoolmaster* and *sacrist* (both of whom 'look after') are distinguished by the sign for *small* in the master's case and *bell* in the sacrist's, but it is not clear whether they are envisaged as belonging to a more general class of 'lookers-after'.

Compounds: The sign for the schoolmaster can be seen as a true compound, being made up of the signs for *look* (after) and *small*, so that the whole would mean 'the one who looks after the little ones', whereas that for *sacrist* would only be a compound of the same type if it was interpreted as meaning 'the person who looks after the bell'. It is probably better understood as 'the person who looks after (the church) and rings the bell', a derivative referring to two of the sacrist's functions. The sign for *small martyrology* could be seen as a compound of the form 'book about death that is small', or all the signs for books, which consist of the general sign for *book*, followed by some kind of distinguishing feature, could be classed as derivatives.

Noun morphology: as well as those noun signs (many of them for persons) already mentioned which mimic actions, many describe the shape of objects, such as the eucharistic *wafer* (no. 21) or a *pear* (no. 74), or their materials, as in the sign for *pillow* (no. 90).

There appears to be no provision for signing personal names: there is a sign for 'any monk whose sign you do not know' (no. 121), but the individuals listed are indicated by their rank or office (*king*, no. 118, or *cellarer*, no. 4), rather than named. Many Old English personal names are made up of ordinary words (Æthelred means 'noble counsel', for instance), but the list does not have a large enough vocabulary to improvise them.

(A fuller semiotic discussion can be found in Conde-Silvestre 2001.)

8 Basic syntax

Since the list consists overwhelmingly of nouns, with very few adjectives or verbs, it can hardly be said to possess syntax, even to the extent that the Continental or later lists do. There is very little evidence for how signs might have been combined to form sentences, or even shorter syntactical units. Some of the signs are introduced in the text by such phrases as 'If you want ...' (for example, no. 123, 'a priest who is not a monk') or 'If you need ...' (such as no. 97, for *water*), suggesting that the signs for nouns were generally used in isolation, the syntactic context merely being implied. The compound signs, however, suggest an order placing a verb before its object (no. 5: 'look after the little ones'), as in Old English, but an adjective or other modifier after the noun it modifies (no. 45, combining signs for *book*, *death*, and *small*), which is opposite to the Old English order.

9 Interesting or unusual features

The Old English sign list is technically the oldest of the monastic sign language texts, but that is only an accident of manuscript survival. It is found in a book older than those that preserve the Cluny list, but this latter was undoubtedly composed before the English one, even though it was written down later. Historians of sign language as used by deaf people might be interested to know if there is any connection between the two types, but there is certainly no evidence for this from Anglo-Saxon England.

What does makes the Old English sign list valuable is the glimpse it gives of life within an English reformed monastery, offered by few other sources. One might, for instance, need *salt meat*, despite the Benedictine Rule's prohibition of quadruped flesh, but in a reformed house one needed a good reason to do so (no. 78). In an English monastery, *wine* was found in the church (no. 22), but not in the refectory, where the continental lists locate it. The range of fruits (*apples*, *pears*, *plums*, *cherries*, *sloes*, nos. 73–77) suggests that monks were pioneering horticulturalists, but the choice of vegetables was evidently quite small: the *leek* is the only one that

has its own sign (no. 59). English monks wore the fur-lined *pelisse* (no. 105), but apparently no tunic (which has a sign in the continental lists but not in the *Monasteriales indicia*). The Old English list is the only one of the early group to mention *soap* (no. 98), but one would hesitate to suggest that Anglo-Saxon monks' personal hygiene was better than in continental monasteries.

10 Examples of words and sentences

The sign for (lay)*man* is one of the few that is shared by monastic and modern sign languages: to translate the Old English: 'The sign for a layman is that you take hold of your chin with your whole hand, as if you were taking yourself by the beard' (no. 126). That for 'any woman not in orders' involves drawing the finger across the forehead to indicate her headband (no. 127). Interestingly, these are the last two signs in the list: laypeople below the rank of royalty are perhaps the individuals least likely to be encountered by users of monastic sign language, or least likely to be discussed. The signs for *monk* and *nun* (nos 121 and 2) also indicate their distinctive headgear, the cowl and the veil.

The signs for *accept* and *refuse* (nos 42 and 43, discussed above) may be construed as a more general 'yes' and 'no', although they are not described as such. There is no sign for human beings in general, or indeed for any non-human creature. Abstract nouns are extremely rare, and verbs, as mentioned above, scarcely less so. This is partly because the list is extremely short, even compared with the other monastic sign lists, and partly because it is limited to signs needed in a

Fig: nos 2 (schoolmaster) and 127 (woman).

monastery. Many items common in secular life are excluded as a result, and even items a monk might want to discuss would be considered outside the remit of legitimate conversation during the hours of silence. Thus we have no sign for *people*, *dog*, *bird*, *language*, *culture*, *speak/sign*, or *think*.

11 History of research

The sign list was first edited by Kluge (1885), but the appearance of his edition did not lead to a proliferation of publications concerning our text. Logeman (1899) added a few observations, followed at some length by Swaen (1920). After that, the Old English list was largely ignored, except for brief references in work on the Latin texts, until Nigel Barley compared it with Bede's finger counting (1974) and offered a couple of emendations (1977). Towards the end of the twentieth century, a rather more active period began, with David Sherlock's translation (1989), my edition (1990), and, more recently, Scott Bruce's book (2007), setting the Old English text in the context of the Latin genre, and my own article (2012) giving more of its historical context in late Anglo-Saxon England.

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Jeffrey Davis
37 North American Indian Sign Language

1 Basic Facts about the Language

Language name: Plains Indian Sign Language (PISL) (See Figure 1)

Alternative names: American Indian Sign Language, Plains Sign Talk, Hand Talk; collectively, these varieties are referred to as North American Indian Sign Language.[1]

Location: Great Plains Cultural Areas of Native North America (United States and Canada). Historically, PISL served various social and discourse functions both within and between native communities of the Great Plains cultural areas. This geographic area was centrally located on the North American continent and spanned over one and a half million square miles (4.3 million square kilometers), an area comparable to that of the European Union's twenty-eight member states combined (4.4 million square kilometers); that is, spanning an area from the North Saskatchewan River in Canada to the Rio Grande in Mexico, and from the Mississippi-Missouri valleys to the foothills of the Rocky Mountains.

Varieties: PISL has been the best documented North American indigenous sign language variety and the focus of this chapter; although, different indigenous sign varieties have also been observed among Native communities of Northwestern Canada, the Southwestern United States, and other American indigenous communities from the Artic to Mesoamerica.

Number of signers: The extant number of PISL signers is unknown at this time, although it has been reported that as few as one hundred or more North American Indians may still know and use PISL to varying degrees of proficiency (Davis 2013). PISL transmission has declined from its widespread use in previous times, due in part to its replacement by English, and ASL in some cases. Due to this replacement,

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1 Various terms are used in the literature to refer to the indigenous peoples and languages of the Americas. "Native American" (U.S.) or "First Nations" (Canada) are generally considered politically correct terms; however, members of these groups generally call themselves *Indians* (Karttunen 1994; Davis and McKay-Cody 2010). "North American Indian" is sometimes necessary to distinguish the Indians of North America from those of Central and South America. Self-designations of native groups are used to the extent possible, and depending on the reference cited, preference indicated, or consensus of the community, the use of certain terms may vary – e.g., Assiniboine, Blackfoot/ Blackfeet, Crow/Apsaloka, Gros Ventre/Hidasta, Navajo/Diné, etc. For this reason, or to avoid redundancy, the author alternates or shortens the length of some terms.

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Fig. 1: Map of Historical Great Plains Indian Cultural and Linguistic Areas.
Key to Plains tribal territories, from W. C. Sturtevant (ed.), *HNAI*, vol. 13, *Plains* 92001: ix).
By permission of the Smithsonian Institution, National Anthropological Archives. *Note:* The Teton region of North and South Dakota is predominately Dakotan/Lakhotan (see Mithun 1999: map 5).

there continues to be an urgency to document, preserve, and revitalize PISL and other indigenous languages now primarily used by American Indians who are elders or deaf. While considered endangered, PISL has not vanished. It is still used within some Native groups in traditional storytelling, rituals, legends, prayers, conversational narratives, and continues to be learned by some members of the clan, tribe, or nation, among hearing and deaf members alike. No formal survey of Plains Indian signers has been undertaken since the mid-1950s. However, since 2009, the

fieldwork project reported here has filmed twenty-five proficient Native signers, and we are continually meeting and involving others who still know and use the PISL variety.[2]

2 Origin and history

The North American continent was once an area of extreme linguistic and cultural diversity with hundreds of distinct and mutually unintelligible languages spoken by the native populations. Historically, there was frequent contact between Native groups speaking many mutually unintelligible languages. In contrast to Europe, which has only three language families (Indo-European, Finno-Ugric, and Basque), the North American language families number over 50, varying in size and extent. Today, the vast majority of extant North American languages are located west of the Rocky Mountains and Great Plains (see Mithun 2001: 1). Even the world's leading scholars of North American Indian languages (most notably, Campbell 2000, Goddard 1996, and Mithun 1999) do not know exactly how many Native American languages there are all together, nor how many there have been that have now vanished. Estimates of the number of surviving (extant) or previous (extinct) Native American languages have ranged from as few as 400 prior to the arrival of Europeans to more than 2,500 (Campbell 2000: 3).

Linguistic and ethnographic documentation from both historical and contemporary sources indicates that signing was used for a variety of discourse purposes across the major American Indian cultural areas – the Southeast, Gulf Coast, Southwest, Great Plains, Plateau/Great Basin, Northeast, Subarctic, and Mesoamerican geographic areas (Campbell 2000; Davis 2007, 2010, 2013; Mithun 1999; Taylor 1978, 1981, 1996). It has been well documented in the research literature that a highly conventionalized and linguistically enriched sign language emerged as a common means of communication among various American Indian communities and nations. The use of sign language among native groups was so prevalent and widespread in previous times that it served as a *lingua franca*. Evidently, the PISL variety (also called *sign talk* or *hand talk* in some native communities) once served various social and discourse functions within and between numerous American Indian communities of the Great Plains and other cultural groups bordering this area.

Along these lines, Taylor (1981 and 1996) identified and described three major Indian lingua francas: Mobilian (a variety of Choctaw-Chickasaw) of the Southeast, Chinook of the Northwest, and Plains Indian Sign Language of the Great Plains expanse. The historical and sociolinguistic evidence suggest that the Plains Indian signed lingua franca had already emerged prior to European contact and developed through nativization and creolization processes, having been acquired natively and expanded lexically and grammatically. In previous times, the lack of a single dominant language group in the Great Plains cultural area may be the reason for the adoption of PISL over any particular spoken language; thus, PISL is the most well documented and described indigenous sign language variety, probably because of the central role it served historically as a widespread lingua franca (Davis 2007, 2010, 2013; Taylor 1978, 1981, 1996; West 1960).[3]

Hence, several prominent linguistic scholars hypothesized that signed communication was used among North American Indians prior to European contact, contributing to the development of a sign language lingua franca, comparable to the pidgins, trade languages, and mixed systems used by some native groups (Campbell 2000; Mithun 1999; Taylor 1978, 1981, 1996). Conceivably, the Indian's use of sign language across the North American continent could have been influenced by the need to communicate with the explorers and colonizers from diverse language backgrounds – e.g., the pan-human use of gesture or pantomime in foreign language contexts. Responding to this assumption – i.e. that European contact was necessary in order for an alternative sign language to have emerged, Taylor (1978: 224) maintains that "the Spaniards did not invent the sign language – a hypothesis that is scarcely credible in any event – since the earliest Spanish penetration of the Plains area, that of Coronado in 1541–1542, encountered Indians who were using signs." Previously, Samarin (1987) had challenged Taylor's (1978) case for the existence of a "pre-European contact sign language." Samarin offers no alternative interpretation, but alludes to the notion that Indian sign language somehow developed following the arrival of Europeans; thereby, assuming that early explorers and colonizers used ad hoc gestures to communicate with the native peoples they encountered, and taking for granted that European contact was necessary in order for an alternative sign language to have emerged. Yet, several notable scholars have reexamined the historical documentation and like Taylor (1978, 1981, 1996) they too have made compelling arguments to support the hypothesis for the existence of Indian sign language prior to European contact (Campbell 2000; Mithun 1999; Goddard 1979, 1996; Wurtzburg and Campbell 1995).

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3 Speakers of mutually unintelligible American Indian languages to mediate contact often either adopted or developed a third language, which linguists called a *lingua franca*. In addition to the three major Indian lingua francas – Mobilian, Chinook, and Plains Sign Language (Taylor 1981); several European and Indian spoken languages may have historically served as lingua francas to varying degrees (see Mithun 1999).

In sum, based on the contents of numerous early accounts, Wurzburg and Campbell (1995: 164) concluded that "even if the Europeans started with ad hoc gestures, they soon learned the native system and used it for communication." After all, there were already many separate languages spoken by numerous native groups, and sign language could just as easily have originally emerged in these North American multilingual communities without the influence of explorers or colonizers. In brief, sign language was observed by many European explorers upon initial contact with native groups of North America and well documented by early scholars (Boas 1890; Clark 1885; Dunbar 1801; Gallaudet 1847; Long 1823; Mallery 1880a, b). These historical accounts may be open to different interpretations – such as, the use of gesture for on the spot communication, the accompaniment of gestures with speech, or a gestural code shared among the native groups of these areas. Whatever the origins, it has been well documented that a signed lingua franca emerged and was used for many generations across a wide geographic expanse, likely enhanced by the post-colonization rise of horse nomadism as well as the intensive language contact that ensued (Davis 2010).

3 Bilingualism and language contact

In former times, education policies prohibited the use of native spoken and signed languages, which were further discouraged from being used in residential schools settings. A major consequence of intensive language and cultural contact has been a shift towards English as the dominant or primary language of most individuals from American Indian backgrounds. The fact that PISL has survived and continues to be used is noteworthy – especially considering the pressures for linguistic and cultural assimilation historically imposed on indigenous peoples to acquire and use the dominant spoken or signed languages of the larger society or community. For example, deaf members of Indian communities in the US and First Nations of Canada generally attend schools for the deaf and are predominately learning American Sign Language (ASL) instead of the traditional varieties of Indian Sign Language. Consequently, English and ASL have gradually replaced the vital intermediary role once served by the Indian sign language variety, and fewer individuals from these Native communities have been learning American Indian languages, including the traditional ways of signing (Davis and McKay-Cody 2010).

In contrast to industrialized societies, where sign language is used primarily by members of the larger Deaf community, in some indigenous communities or villages, signing is used by both deaf and hearing community members. Recently, an increasing number of anthropologists, linguists, and other scholars have been studying indigenous and village types of sign languages worldwide (Davis 2010, 2013; Nonaka 2009; Zeshan and de Vos 2012). For example, well documented cases of "village sign language" have involved Adamorobe Sign Language in Ghana

(Nyst 2007); Kata Kolok in Bali, Indonesia (Marsaja 2008); and, Meemul Tziij among the Maya in Guatemala and Mexico (Fox Tree 2009).

Likewise, sign language has traditionally been used among North American Indians as an alternative to spoken language even when deaf people were not members of these indigenous communities, or even when deaf members were not present (Davis 2010, 2013). While there are similarities between 'deaf signing villages' and American indigenous sign language varieties like PISL, there are also distinctions. Along these lines, the Indigenous signed languages of South America (Umiker-Sebeok and Sebeok 1978), Aboriginal signed languages of Central Australia (Kendon 1988; Green and Wilkins, this volume), and Plains Indian Sign Language (Davis 2010) have been classified as alternate or secondary sign languages (Pfau et al. 2012). Previously, such distinctions had been based on Kendon's (1988) work among the Australian Aborigines, which differentiated *Primary* and *Secondary Sign Language.* Accordingly, four main types of secondary sign language have generally been considered: sawmill sign language, monastic sign languages, Aboriginal sign languages of Australia, and Plains Indian Sign Language. Heretofore, the so called secondary/alternate types have been distinguished from the primary types of sign language that have emerged within some villages or communities that were predominately hearing, but with a high incidence of genetic deafness – such as the historical case of Martha's Vineyard, Massachusetts (Groce 1985; Nash, this volume) or the present day occurrence of Al-Sayyid Bedouin Sign Language (Sandler et al. 2005; Kisch 2008).

More recently, however, Pfau et al. (2012: 544) examined the linguistic evidence presented in Davis (2010) and acknowledged that "PISL exhibits most linguistic features and shows only little influence from surrounding spoken languages – which is not surprising given that it was originally used as a lingua franca between speakers of different languages. Pfau (2012: 544) goes on to write "that it is therefore highly problematic to classify PISL as a secondary sign language." Although PISL was widely used by hearing tribal members and functioned as an alternative to spoken language, it has also been learned as a primary sign language by both deaf and hearing members of these native communities. We find that the most proficient PISL signers are typically tribal members who were deaf or who had deaf family members. Our findings suggest that PISL became linguistically enriched when it was transmitted from one generation to the next and acquired as a primary language by members of the community who are deaf (Davis 2005, 2006, 2007, 2010; Davis and Supalla 1995; Davis and McKay-Cody 2010). For example, McKay-Cody (1997) compared a traditional PISL narrative filmed in 1930 about buffalo hunting signed by Mountain Chief (Blackfeet/Piegan chief) with a similar narrative signed by James Wooden Legs (Northern Cheyenne) who learned PISL natively as a young deaf child on the Northern Cheyenne reservation in the 1960s. More than two-thirds of the PISL signs used by James Wooden Legs in his version of the buffalo hunting story were identical or similar to the signs documented in the historical

version of the narrative signed by Mountain Chief. McKay-Cody's study demonstrated that the phonological parameters, morphological complexities, and narrative structures of historical and contemporary PISL are comparable with those found in conventionalized sign language (e.g., ASL). Prior to our research, which commenced at the University of Arizona in the 1990s, there had been few studies about the outcomes of sign language acquisition of deaf children born into a situation in which sign is used as an alternative to speech by hearing members indigenous communities.

Thus, we find alternate signs being used to varying degrees of proficiency, ranging from signs that accompany speech, to signing without speech, to signing that functions similarly to a primary sign language. In brief, rather than viewing primary and secondary/alternate sign language dichotomously, we can observe how they function interdependently. These forms of signing range from home-sign (Davis and Supalla 1995; Goldin-Meadow 2005), which emerges in one-generation within families with deaf members – to full-fledged sign languages, which are widely transmitted and acquired for many generations (e.g., PISL). Simply stated, these ways of signing are best considered along a communication continuum (Davis 2007, 2010, 2011).

To summarize, we find striking similarities and differences between 'deaf signing villages' and American indigenous sign language varieties. While PISL was used by many hearing Indians as an alternative to spoken language, in certain Native American signing communities it continued to be acquired as the primary language of deaf members in the community, as well as community members who were not deaf. Up until today, deaf tribal members have played a vital role in the development and transmission of indigenous sign language. Although the origins and spread of PISL remain speculative, it most likely developed from the emergent signing of tribal or clan members who were deaf or with deaf family members – comparable to the ways home sign or village signing have emerged. Most significantly, PISL has been transmitted inter-generationally and served as a lingua franca internationally across a vast geographical expanse. Besides being used as an alternative or accompaniment to spoken language both intra-tribally and inter-tribally, it has also been acquired as a native or first language for many generations. As PISL was transmitted multi-generationally and spread internationally, it developed greater lexical and grammatical complexity, was acquired by both deaf and hearing community members, and served a broad array of discourse functions and communication purposes. As PISL spread from smaller native groups to larger geographic areas and spheres of interaction, its role expanded into a lingua franca for international purposes. PISL was used over a large geographic area and served a wide range of discourse functions for many years, to an extent unparalleled by any currently or previously known case of an indigenous sign language.

3.1 Language contact

Historically, there has been much contact between American Indians and Deaf Americans from seventeenth century colonization until today. American Indians inhabited the areas being colonized by the first European immigrants – including Martha's Vineyard. Historical records indicate that frequent contact took place between American Indians who signed and students and faculty at schools for the deaf (reported in Mallery 1881); for example, the historical proximity of the first American deaf schools which had been established in the early 1800s and American Indians who had commonly used sign language. Moreover, between 1847 and 1890, early publications geared for teachers of the deaf prominently featured lexical descriptions of Indian Sign Language, and these publications were widely distributed to educators and deaf schools through the periodical American Annals for the Deaf and Dumb. Thomas H. Gallaudet, co-founder of the first school for deaf students in the U.S. in 1817, used the Dunbar (1801) and Long (1823) descriptions titled the "Indian Language of Signs," to strengthen the case that "the natural language of signs" was essential to teaching and communicating with deaf (Gallaudet 1847–1848; also reported in Davis 2007, 2010). Thus, it is plausible that American Indian signs were introduced to deaf students during this historical period.

Additional contact between the American Indians and deaf people also occurred; for instance, the New Mexico School for the Deaf and the School for Indians were constructed next to each other in Santa Fe in the late nineteenth century. Indian children who were deaf also began attending some state residential schools for the deaf around the US during the historical period that sign language was commonly used among Indian groups. Furthermore, it has been documented and reported that some deaf children from Indian families first acquired indigenous sign language varieties like PISL as a primary language before attending schools for the deaf and learning ASL as a second language (Davis and Supalla 1995; Davis and McKay-Cody 2010). Thus, the evidence of PISL and ASL contact has been corroborated from two main historical sources: 1) eighteenth century descriptions of Indian signs, which were published and widely distributed to educators at schools for deaf children around the country; and 2) historical accounts of American Indians visiting residential schools for deaf students during the nineteenth century. In brief, between 1847 and 1890, early publications prominently featured lexical descriptions of Indian Sign Language, and these publications were widely distributed to educators and deaf schools through periodicals like *American Annals for the Deaf and Dumb*; and, sign language contact could have occurred due to the proximity of the first American deaf schools established in the 1800s and Native American communities which had commonly used sign language (for example, Arizona, Montana, New Mexico, South Dakota, Washington, among others). As a result of the wide geographic spread and the status of PISL as a lingua franca prior to and leading into the twentieth-century, deaf people are known to have come into contact with American Indians who signed. For example, during my extensive

fieldwork since the 1990s, several deaf American Indians have reported that they learned PISL, or another indigenous sign language variety, before they attended schools for the deaf and learned ASL as a second sign language.

4 Political and social context

Plains Indian Sign Language (PISL) is considered distinct from American Sign Language (ASL) used in Deaf communities of the U.S. and Canada. As stated earlier, the fact that PISL continues to be learned and used today is remarkable, considering the pressures for linguistic and cultural assimilation historically imposed on indigenous peoples to acquire and use the dominant spoken or signed languages of the school, community, or larger society. In contrast to national sign languages of urban deaf communities, in these indigenous communities, signing is commonly shared by both deaf and hearing members of the community, contributing to a high degree of integration between deaf and hearing individuals. Still, Zeshan and de Vos (2012) have reported that all documented cases of village sign languages are currently endangered or have already vanished. Paradoxically, the endangerment of indigenous or village sign languages is most likely due to the success and spread of the urban sign languages (like ASL), pressuring indigenous community members to learn the more predominately used sign languages of the larger Deaf community (Davis and McKay Cody 2010).

Although considered an endangered language, the PISL variety has not vanished; it is still being used within some native groups in traditional storytelling, rituals, and conversational narratives involving both deaf and hearing Indians. For example, we find it is still being learned and used to varying degrees by some members of the Algonquian (Blackfeet/Blackfoot and Northern Cheyenne) and Siouan language families (Assiniboine/Nokota, Crow, Gros Ventre/Mandan, and Sioux/Lakhota). Previously, Taylor (1978, 1981, 1996), Thompson (2007), and West (1960) had reported the Plains sign variety being used among Sahaptian (Nez Perce), Salishan (Spokane, Kalispel) and Uto-Aztecan (Bannock, Shoshoni, Ute) linguistic communities. Our quest to meet and involve additional signers of indigenous varieties is ongoing, and there continues to be an extreme urgency to document, preserve, and revitalize indigenous languages.

Shockingly, there has been rapid decline of indigenous languages in past years as a result of numerous historical, social, cultural, and educational factors. Mithun (1999) reported that of the 200 American Indian languages estimated to be spoken in the US and Canada today, most of these are endangered, approximately one-third of these languages being nearly extinct. It is widely recognized in the fields of linguistics and anthropology that one of the most important issues facing humankind today is the rate at which our languages are dying. If the present trend continues, during the 21st century more than half of the world's 7,000 languages

could become extinct, and most of these will vanish without being adequately recorded (Crystal 2000). Language documentation and description for the purpose of revitalizing an endangered language are enormous undertakings. Fortunately, the Linguistic Society of America (LSA), National Endowment for the Humanities (NEH), and National Science Foundation (NSF) recognize the urgency to document, preserve and revitalize the remaining indigenous languages. With the support of research grants from the NEH and NSF's Documenting Endangered Languages (DEL) Program, we are documenting and describing the contemporary uses of American indigenous sign languages like PISL, and collaborating with deaf and hearing members of Native American signing communities to collect additional sign language data. For the work of language revitalization to be successful it is essential to involve native users of the endangered language, and our project has also involved interpreters/translators, ethnographers, and linguistic researchers as Native community allies in these efforts.[4]

Since 2009, the author's fieldwork has concentrated on documenting the PISL variety that is still being used and learned today by members of Assiniboine, Blackfeet, Crow, and Northern Cheyenne groups. As a result, we have filmed more than two-dozen signers from these native communities, and we anticipate meeting and identifying more native signers from these and other Indian nations. This research brings together sign language linguists and members of Native American signing communities for the purpose of language documentation, description, and revitalization; and aims to draw attention to this important, yet sometimes overlooked, part of Indian cultural and linguistic heritage. While PISL has been the best documented indigenous sign language variety, different indigenous sign varieties have also been observed and documented among certain Native communities of Northwestern Canada, the Southwestern United States, and other American indigenous communities from the Artic to Mesoamerica; for example, among the Inuit-Nunavut of the Canadian Artic, the Maya of western Guatemala and the Yucatán, Chiapas, and Oaxaca states/regions of Mexico; as well as the Keresan-Pueblo and Navajo-Diné (see Davis 2010, 2013).

4.1 The structure of signs

Previously, I have described how PISL has a distinctly developed phonological system comparable to ASL and other signed languages (Davis 2010); such as, an abun-

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4 Generally, American Indian leaders and community members have encouraged the use of technologies that would record and preserve their languages and cultural traditions for this and future generations as long as the documentary materials are treated with utmost respect when made available outside of Native communities. Accordingly, we have identified and enlisted highly qualified Indian sign language consultants and collaborators in the field and have respected their wishes about how the filmed narratives should be shared.

dance of minimal pairs – lexical signs contrasting according to a single hand configuration, location, and movement. Thus far, my comparative linguistic studies of PISL has centered on addressing such questions as: Do the documented cases of North American Indian Sign Language constitute one language with a variety of dialects, or a variety of distinct languages? What evidence of historical relatedness do we find between PISL and ASL – such as language contact and lexical borrowing?

To illuminate these questions, the author has conducted lexical similarity studies and linguistic assessments based on written, illustrated, and filmed sources of lexical signs used by North American Indians from the early 1800s into contemporary twentieth- and twenty-first-century descriptive linguistic studies (Davis 2007, 2010, 2011). My studies have taken into account two main types of historical relatedness – genetic and lexical borrowing; therefore, I have examined the degree of genetic relatedness between varieties of PISL, and considered the potential for historical PISL-ASL contact.

When comparing two languages to determine historical relatedness, researchers must sort out instances in which the lexical similarity between words may be coincidental, rather than due to historical relatedness. Also, we must distinguish the two main historical causes of lexical similarity (i.e. a genetic relationship and lexical borrowing) from two factors that are non-historical (i.e. chance and shared symbolism). This is rendered more challenging due to the visual-gestural-spatial properties of signed languages – i.e. a higher potential for "iconicity" and "shared symbolism" or "chance similarity" between signed languages. Kyle and Woll (1985: 113) write: "Although this visual imagery is more immediately apparent and more widespread than in spoken language, the difference is likely to be of degree rather than kind." The results of lexical similarity studies may be skewed by limiting the comparisons to small vocabulary lists of signs (e.g., fifty to one hundred lexical items). Hence, sign language linguists have recognized the need to compare multiple data sets comprised of both randomized and restricted word lists.

For this reason, sign language linguists (Bickford 1991, 2005; Davis 2007, 2010; Guerra Currie et al. 2002; McKee and Kennedy 2000; Parkhurst and Parkhurst 2003; Kyle and Woll 1985; Woll et al. 2001) have generally recognized the need to establish relatively high thresholds of lexical similarity to account for the potential of shared visual symbolism due to iconicity.[5] According to these criteria, if 41–80 percent of the signs are similar or identical, then the two signed languages are not considered genetically related; although, the 41–80 percent range of lexical similarity could be attributed to historical language contact – i.e. lexical borrowing. Nevertheless, it is generally agreed that at least eighty percent lexical similarity or greater – is needed to indicate that sign language varieties are dialects of the same

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5 For example, iconicity can be illustrated with the signs for FIRE, BIRD, HOUSE, BOOK which signifies the fire's "flame", bird's "beak", house's "roof," and book's "cover."

Historical – OWN
Bird Rattler (Blood)

Modern – OWN
James Wooden Legs (N. Cheyenne)

Historical – INDIAN
Bitter Root (Flathead)

Modern – INDIAN
James Wooden Legs

Historical – FRIEND
Strange Owl (N. Cheyenne)

Modern – FRIEND
James Wooden Legs

Fig. 2: Comparing historical (19th Century) and modern (21st Century) PISL Native American signers: Bird Rattler, Blood; Bitter Root, Flathead; and Strange Owl, N. Cheyenne (filmed in 1930); James Wooden Legs, N. Cheyenne (filmed in 2010).

language (i.e. genetically related). Therefore, I have adhered to methods well established in previous lexical similarity studies of sign languages and applied *cod*ing procedures based on similar criteria set forth in previous studies (Davis 2007, 102–109; Guerra Currie et al. 2002, 227).[6]

To summarize the preliminary findings, my lexical comparisons were extracted from more than one thousand previously collected lexical descriptions, illustrations, and films of American Indian signs from five historical periods (1800s, 1820s, 1920s, 1930s, and 2000s). Between 80 to 92 percent of the PISL lexical sign varieties in these comparisons are identical or similar to the sign lexicon of subsequent generations of North American Indian signers, with a historical span of two-hundred years (1801 to 2002). The high percentage of lexical similarity (cognates) suggests that the PISL varieties compared here are dialects of the same language from similar origins – i.e. genetically related members of the same language family. Although my lexical similarity studies are among the largest of this kind, my comparative studies of PISL varieties are ongoing. As such, additional lexical comparisons are needed before more definitive conclusions can be reached about the number of PISL dialects and distinct varieties of North American indigenous sign language. Nonetheless, given the history of language contact and loss of sign language resulting from pressures to use English, and ASL in some cases, it is striking that the core lexicon of PISL has remained relatively stable for at least the past two-hundred years – i.e. in the range of ninety percent similarity between the older and modern varieties (e.g., see Figure 2).

5 Basic morphology, lexicon, and syntax

PISL appears to be typologically similar to other sign languages of the world, which are characterized by certain spatial-grammatical features, verb inflections, and classifier-like constructions (Aronoff, Meier and Sandler 2005; Padden 1988; Emmorey 2003).

PISL is shaped by perceptual, physical, and modality properties common among sign languages of the world. Derivational and inflectional morphological processes are evident, and PISL has bound (affixes) and free morphemes (content words and function words).

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6 Signs were coded as similarly articulated if sharing approximately the same meaning and differing by only one major sign language parameter (e.g., handshape, movement, and place of articulation). This designation also included signs that were articulated similarly or identically with regard to all three major parameters. Though there were some differences in orientation between signs coded as similarly articulated, orientation was not considered a major formational parameter. Lexical descriptions considered to be gestures were excluded in these comparisons (see Davis 2007, 2010; Guerra Currie et al. 2002).

Even though my linguistic descriptions of PISL are still underway, I find it to be a complete, complex language that can be analyzed at various linguistic levels – e.g., phonemic, morphemic, syntactic, semantic and pragmatic. For example, tense is indicated by lexical signs comparable to adverbs – e.g., today, tomorrow, yesterday, since, etc. When occurring, time indicators are at the beginning or end of phrases or sentences. In brief, PISL involves the same lexical categories (nouns, verbs, adjectives, adverbs, etc.) and basic grammatical features as any human language (e.g., tense, questions, topics, negation, pronouns, as well as singular, plural, possessive forms, and so on). There are many examples of rich use of metaphor in the PISL corpus including metonyms, hyponyms and hypernyms; as well as compounds, polysemous forms, and a variety of predicates composed of indicating and depicting signs that are common among sign languages of the world. See Davis (2010, 2011) and the author's website for further descriptions and illustrations (http://pislresearch.com/).

5.1 Basic syntax

The data collected and analyzed thus far show PISL to have basic SOV word order, generally considered the most common among the world's languages. It is worth noting that SOV is also the most common word order in the ambient spoken languages.

SOV parameters	PISL example
noun + postposition	KETTLE-TWO **SIOUX AMONG** "There were Two-Kettles among the Sioux."
adverb + verb	SIOUX **QUICK GO** "The Sioux went quickly."
noun + quantifier	**WOMAN FOUR** "four women"
verb + negative	WHITE-MAN SOLDIER QUICK ATTACK, **SPEAK NO** "The white soldiers attacked quickly, so [we] did not speak."

Fig. 2: SOV typological parameters with PISL examples (Davis 2010: 154).[7]

Additional Examples from PISL (Davis 2010: 154–159)

(1) PRO.3lf PRO.3rt WEAPONS WAR-BONNET EXCHANGE.
     "They (he and he) exchange weapons and war bonnets."

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7 'Two-Kettles Sioux' are a subgroup of the larger Lakota Sioux Native American cultural group.

(2) SIOUX SAY [WHITE-MAN^SOLDIER^CHIEF BRAVE+EST [SIOUX _____ FIGHT]].
"The Sioux say (that) the officer is the bravest (that) the Sioux have ever fought."

(3) PAST SPRING FIVE PRO.1-c SIOUX MANY LODGE TAKE-DOWN TIE-UP MOVE MANY LODGE RIVER GOOD ROSEBUD RIVER MEET.
"Five springs ago, I with many Sioux Indians took down and packed up our lodges and moved from Cheyenne River to the Rosebud River."

While SOV word order is seemingly predominant, it is not the only word order type evident in PISL. We also find examples of null arguments and the use of topic-comment structures. For the time being, based on my preliminary linguistic analysis, PISL appears to be typologically similar to other sign languages, which are characterized by certain spatial-grammatical features, verb inflections, and classifier-like constructions (Davis 2010, 2011, 2013). Further research will compare PISL with the spoken American Indian languages in the same environment, which are typically polysynthetic (Yamamoto and Zepeda 2004). The latest findings about PISL will be integrated into the author's research website and digital corpus of North American Indian sign language documentary materials.

Thus far, the author's research has concentrated on preserving and documenting PISL, including extensive archival work, ethnographic, and linguistic fieldwork. It is hoped that this corpus linguistics project, will encourage other scholars to examine the specific linguistic structures of PISL along with the numerous linguistic features that are evident – phonetic, syntactic, semantic, pragmatic, and semiotic.

6 History of research

Prior to the author's recent fieldwork (2009 to 2012) no formal survey of Plains Indian signers had been carried out for more than one generation. Between 1956 and 1957, La Mont West (Indiana University) conducted anthropological linguistic fieldwork to document PISL, and he was among the first anthropologists to use motion picture equipment in the field for the documentation of language. West (1960) documented and described signing still practiced not only during intertribal gatherings, but also in storytelling and conversation among speakers of the same language. West's fieldwork focused primarily on groups of the northern Plains cultural area. He identified two major PISL dialect groups: 1) North Central Plains dialect, referred to as the Plains Standard; and 2) Far Northern Plains dialect, referred to as Far Northern or Story-telling dialect, which was used mainly in the Canadian provinces of Alberta, British Colombia, Manitoba, and Saskatchewan. His fieldwork documented that the Plains sign variety was known by members of

groups throughout the Plains, Great Basin, and Plateau cultural areas, and that the dialect differences among individuals and groups did not seriously impede communication (1960, 2: 70). West hypothesized that sign language spread from the Southern Plains northward into the Central and Southern Plains, a notion which has been supported by other renowned anthropological linguists (Goddard 1979, 1996; Mithun 1999; Taylor 1978, 1981, 1997; Wurtzburg and Campbell 1995). During his seminal fieldwork, West filmed more than twenty hours of signing produced by 122 adept signers engaged in various conversations and types of discourse; however, his extensive two volume dissertation was never published.

West's fieldwork was a remarkable undertaking, though only twenty percent of his participants were women, who mainly served as translators for their husbands or male family members. He also did not consider the signing of deaf tribal members and how that may or may not have contributed to the sign proficiency of the hearing tribal and family members. Although West documented signers with deaf family members, he did not consider the role PISL played when acquired as one's primary language first. In other words, he focused on the role of PISL as an alternative to spoken language. Likewise, Brenda Farnell (1995) conducted anthropological fieldwork and documented the use of sign language for the purpose of storytelling among the Assiniboine/Nakota and reported that "fluent sign talkers are not common but can be found in various locations on Plains reservations, among elders who learned it as young people and where deafness in a family or among old people have preserved its usefulness (e.g., on the northern Plains, at Fort Belknap, Crow, Northern Cheyenne, and Blackfeet reservations in Montana, and at the Blood Reserve in Canada)" (Farnell 1995: 1–2). Farnell's (1995, 2000) research concentrated on signing co-occurring with speech; and, selected sign language narratives that she filmed were transcribed, analyzed, and translated, and are available in CD format from the University of Texas Press. On the other hand, the author of this chapter has taken into account both the alternate and primary role of PISL, and has been collecting and examining materials from archival sources, as well as discourse narratives collected from a variety of signers during recent fieldwork, including women and deaf tribal members.

In conclusion, the study of indigenous sign languages like PISL is broadening our understanding of the bases of human language and casting light on historical linguistic and sociolinguistic questions about language origins, spread, contact, and change. Although certain challenges arise when documenting an endangered language and we encounter misconceptions about sign language, there is a growing interest in indigenous language revitalization. This is true not only in communities where indigenous sign language once flourished, but also in Sign Language and Deaf Studies Programs worldwide. Fortunately, even in modern times, many individuals are keenly interested in acquiring a first or second sign language and learning more about this and other signed and spoken indigenous languages. It is anticipated that the development of the indigenous sign language digital corpus

and research findings reported here will promote the development of teaching curriculum for younger generations while engaging key stakeholders from Native signing communities in documentary linguistic research. For this purpose, the documentary linguistic materials collected from the author's many years of intensive fieldwork are being transformed into a digital corpus that will be more readily available to those most interested in studying and learning more about indigenous sign language.

6.1 Research Website

To encourage further research and to raise awareness about indigenous sign language in intertribal and international communities, the author is maintaining the following research website, which includes linguistic texts, descriptions, illustrations, and films: http://pislresearch.com/.

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Susanne Mohr
38 Tshaukak'ui – hunting signs of the Ts'ixa in Northern Botswana

1 Basic facts

Since the beginning of sign language linguistics with Stokoe (1960), most researchers have focused on the sign languages of the deaf and their linguistic structure (e.g., Stokoe 1974; Klima and Bellugi 1979; Valli et al. 1995; Emmorey 2002; Sandler and Lillo-Martin 2006). Very little attention has been paid to what have been termed "alternate sign languages" by Kendon (1988) or "secondary sign languages" in other publications (e.g. Pfau 2012). As opposed to the sign language systems of the deaf, which are called "primary sign languages" by Kendon, these are languages developed by people already competent in a spoken language. As they are limited to certain contexts, they are usually somewhat restricted in development and vocabulary. Some of the most well known secondary sign languages are Sawmill Sign Language developed in Northern America (Meissner and Philpott 1975), the sign languages of Aboriginal people in Central Australia (e.g. Kendon 1988; Green and Wilkins this volume) and North America (Davis this volume), and monastic sign languages used by various orders following a rule of silence (e.g. Barakat 1975). Although the contexts of usage are very different, all of the above share certain common linguistic features.

Tshaukak'ui (literally 'speak with hand') is a hunting sign system used by the Ts'ixa, a Kalahari Khoe-speaking group in the Kalahari-Okavango region of Northern Botswana. It is used by (hearing) men on the hunt in the bush, in order to avoid noises that might scare away their prey or attract the attention of dangerous predators. From a functional perspective, it is therefore similar to other secondary sign languages as they are used in circumstances that prohibit speech.

The Ts'ixa were originally hunter-gatherers, which is why they had a special need for a hunting sign system in order to be more efficient in securing their livelihood. However, hunting of larger game is prohibited in Botswana's National Parks nowadays. Mababe, the village at the north-eastern fringe of the Okavango Delta in which the first linguistic data of this sign system were collected, is in the Chobe National Park (cf. Figure 1).

In this area, the Ts'ixa are prohibited from hunting consequently that the sign language has become endangered and fallen out of use. At present, it is sporadically used on poaching missions to the bush. Middle-aged men in their mid thirties

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seem to be the youngest members of the group who are still fluent in using the signs. The exact number of speakers remains unknown but is estimated to be around 50. The endangerment of spoken Ts'ixa (200 competent speakers left) adds to the difficult sociolinguistic environment of the hunting signs.

In this paper, only the variety of the language used by the Ts'ixa in Mababe, based on data collection sessions with four participants, is described. Related hunting sign systems have been mentioned for other Kalahari-Khoe speaking groups such as the ‖Ani and Khwe. First analyses have shown several lexical and phonological differences (Mohr and Fehn 2012, 2013a, b).

This paper describes tshaukak'ui's linguistic structures and sociolinguistic setting. Section 2 elaborates the origin and ethnohistorical background of the Ts'ixa and tshaukak'ui as their hunting sign system. In Section 3, the nature of the data and its collection process are shortly described. In Section 4, the sociolinguistics of tshaukak'ui, with a special focus on language contact between spoken Ts'ixa and tshaukak'ui is discussed. Section 5 outlines the linguistic setup of tshaukak'ui and touches upon its phonology, morphology, lexical iconicity and syntax. Finally, Section 6 provides a short conclusion and outlook.

2 Origin and (ethno)history

The Ts'ixa do not appear in the literature until Westphal's comparative fieldwork on the Khoisan speaking groups of Botswana of the 1950s and 60s. *Ts'ixa*, the term is nowadays used for both the language and the ethnic group, is not originally an ethnonym, but a cover term coined by the Khwe of neighbouring Khwai to refer to the inhabitants of Mababe. In Khwe, *ts'i-xa* means 'having buttocks', which makes reference to people's outer appearance. The Ts'ixa themselves prefer the term *xu-khoe* 'people left behind' which is more general and roughly equals 'San' or 'bushmen'.

There are close family ties between the Ts'ixa and the Khwe of Khwai and Gudigoa on the one hand, as well as with the Yeyi of Shorobe and Sankoyo on the other. A map showing Mababe as well as the neighbouring villages is given in Figure 1.

However, regardless of their origins and family ties, all Ts'ixa of Mababe consider themselves to be San and former hunter-gatherers. Today, hunting still plays an indirect role in the village's economy, as employment is mostly provided by a safari company operating two hunting camps near Mababe. Consequently, some young villagers retain traditional knowledge related to hunting and communication strategies in the bush.[1]

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1 The author thanks Anne-Maria Fehn for providing expert knowledge on the Ts'ixa, their history and the area.
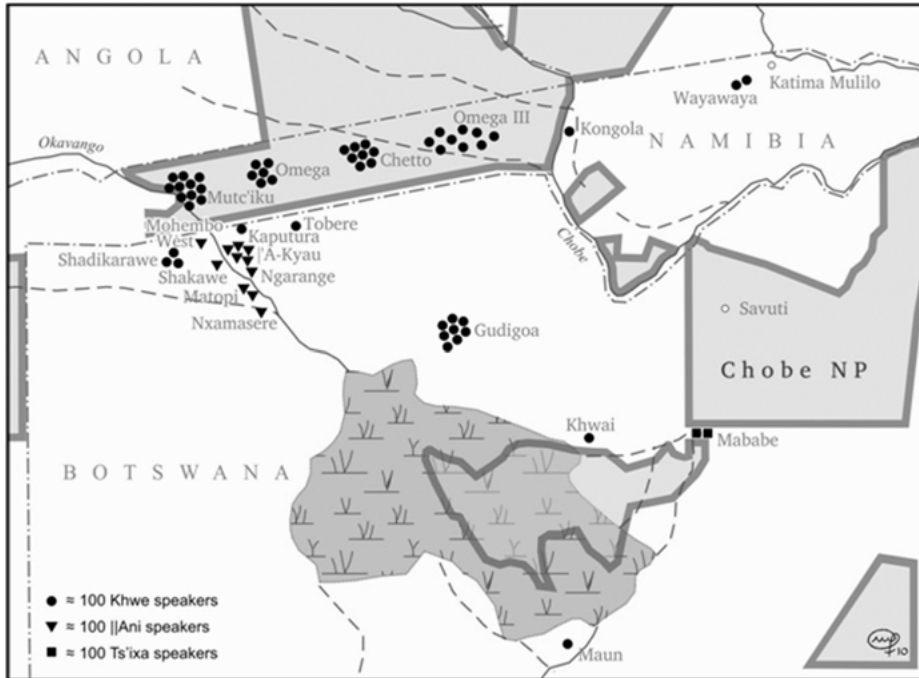
Fig. 1: Chobe National park and location of Mababe village.[2]

Ts'ixa elders still claim that the real home of hunter-gatherers is the bush (Matthias Brenzinger, p.c.). During hunting any sound is avoided, as a slight whisper may put a hunter at life-threatening risk: dangerous predators may be attracted or game may by chased off.

As mentioned in the introduction, specific gesture inventories still recalled by elders in San communities are falling out of use as living contexts for former hunter-gatherers in Southern Africa are changing rapidly and communication patterns adjust to modern needs. Hunting has been more and more proscribed. Until recently, however, members of various Khoisan speech communities were highly mobile and for that reason no large, complex settlements existed. They either set up mat-huts for the night during the dry seasons or slept in temporary shelters during the short rainy seasons. Communication used to take place exclusively in face-to-face interaction and among people who shared the same social and physical environment.

In this face-to-face communication, visual-gestural means are the most important tools for conveying spatial information, fixing points in time, describing dis-

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2 This map is based on data collected by Matthias Brenzinger, used with kind permission by Anne-Maria Fehn. Copyright: Monika Feinen 2010.

tance to places, providing age of children, etc. Spatial gestures, for example, are far more precise and efficient than vague oral descriptions, and they have a very important advantage over auditory-oral messages: they do not make any sound. Elders among Khoisan speech communities like the Ts'ixa lived in "societies of intimates", with specific communication needs and certain strategies for conveying information:

> ... societies [of intimates] are characterized by small group size, kin-based structure, daily face-to-face contact, low socio-economic differentiation, consensual non-hierarchic policy, great territorial stability and geographical isolation, slow cultural change, high information stability and homogeneity – and thus a high rate of shared knowledge, both cultural-generic and episodic-specific. (Givón 2005: 235)

Most San of the younger generation have received formal education, and no longer live the way their grandparents did. For that reason, communication patterns differ significantly among the generations, and what has been stated to characterize "societies of intimates" no longer applies to young San. Gesture use is changing because the communication settings and contexts have changed.

Documenting special gestures used while hunting and gathering in natural conversation settings has become increasingly difficult. Only very few communities still reside in their heritage land and young San people, for that reason, are no longer familiar with the mode of life and the traditional practices of hunting and gathering. They generally acquire Western-type formal education, reside in solid houses and permanent settlements, and are part of the market economy. Not only have they lost the knowledge and skills which are necessary to survive, but also those to communicate in the bush. As has been shown by Lewis (2009), for the Mbendjee language spoken among the hunter-gatherer pygmies in Congo, the interdependence between the speakers' environment and their communicative behaviour is perceivable on many levels, one of them being gesture. In consequence, changing modes of life and living in a new environment has lead to loss of gestures.

As the hunting sign systems of the San groups of Southern Africa have not so far been described linguistically, it remains unclear if and to what extent tshaukak'ui is related to other sign systems in the area. Preliminary studies such as Mohr and Fehn (2012, 2013a, b) have shown that tshaukak'ui and |'uen, the hunting signs used by the ||Ani of Shakawe, show considerable phonological and morphological differences. However, the systems seem to be mutually intelligible to a certain extent, as could be observed during fieldwork in the area. Further research is necessary to clarify the exact relations between the languages.

Moreover, tshaukak'ui seems to show similarities with the home sign system used by the deaf population of Mababe (four people, who mostly turned deaf in early childhood). Similar to the relation to other hunting sign systems of neighbouring villages, this situation requires further research.

3 Data and methodology

As mentioned in Section 1, the animal signs analysed in this paper were collected from four participants in the Kalahari-Okavango area. All participants are originally from Mababe, although one data set was collected in Khwai, a Khwe village to the west of Mababe (cf. Figure 1). They are all male and have learnt the language from other male relatives. Although their exact birth dates are not known,[3] the age of the first three participants is estimated around their mid 30s to mid 40s, the fourth participant is much older, roughly 60 years of age. They use the signs for poaching[4] and as guides for tourists.

Altogether, roughly 60 minutes of video data and a couple of photographs were collected. Most of the signs refer to animals of the Kalahari, a few others are demonstratives and verbs collected as whole sentences. The demonstratives and verbs were all provided by one informant. The animal signs were collected in 2012, using a list of local animals compiled for the Kalahari Basin Area Project (Humboldt University Berlin). This list provided pictures of the animals and their English and Latin names. The sentences and the photographs were collected in 2011 as an addition to a documentation project on spoken Ts'ixa.

Subsequent to the recording, the videos were annotated using the ELAN software tool developed by the Max Planck Institute in Nijmegen (http://www.lat-mpi.eu/tools/elan). Several tiers, including information on phonological parameters of the signs such as handshape or location, and English glosses were annotated. Moreover, all signs were transcribed using HamNoSys, a sign language annotation system developed at the Institute for German Sign Language and Communication of the Deaf at the University of Hamburg.

In total, 48 animal sign types were collected (95 tokens).[5] Apart from that, three demonstrative sign types could be found (cf. 5.4) and two verbs (WALK-AROUND and KILL). A data collection session on pronouns was also conducted in 2012. As these stem from one informant only and could not be tested in context, they have been left out of the discussion here.

Finally, common gestures by one woman and two children were collected. However, these gestures are also used in other parts of Botswana by the Batswana. They seem not to belong to the sign inventory of tshaukak'ui. One of them is shown in Figure 5. It is noteworthy however that this woman also claimed to understand

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3 They are not in possession of a birth certificate.

4 As poaching is illegal under the law of Botswana, the signers' faces have been made unrecognizable by a black bar in front of their faces in this article.

5 This odd number is due to the fact that for some signs only one informant was able to provide a sign, while for others several different sign versions could be elicited. Lexical variation is further elaborated in 5.1.

the animal signs although they are usually only used by men (Fehn, p.c.). This fact is rather interesting and is further elaborated in the following section.

4 Bilingualism and language contact

This section describes the sociolinguistics of tshaukak'ui, especially the close relationship and mutual influence of both language systems. For some secondary sign languages, a considerable influence of the ambient spoken on the sign language has been reported (e.g. Barakat 1975). Sign languages influencing the ambient spoken language have been reported as well. Studies on African sign languages mention the more frequent use of gestures in African speech communities leading to a close relation between sign and spoken languages (Creider 1977; Schmaling 2000; Nyst 2010). Thus, it proved interesting to look at similar relations for the speech community under investigation here. The main topic to be discussed in the following is influences of spoken Ts'ixa on tshaukak'ui and vice versa.

As described above, tshaukak'ui is a secondary sign language so that its users are hearing[6] and are naturally also fluent in the ambient spoken language, Ts'ixa. Similar to tshaukak'ui, Ts'ixa is a scarcely described language. The only comprehensive study is Fehn (2014). The influence of Ts'ixa on tshaukak'ui cannot be clearly determined. However, a few particularities concerning lexical items should be mentioned here.

First of all, there seem to be concepts for which a sign in tshaukak'ui can be found while no lexeme in Ts'ixa exists. One example is the sign SNAKE, referring to the class of snakes, not picking out a particular exemplar such as a cobra or the like. In Ts'ixa, no lexeme referring to snakes in general exists (Fehn, p.c.). The sign SNAKE is shown in Figure 2a, in comparison the sign CÚRÚ ('cobra') is shown in Figure 2b.

Generally, tshaukak'ui displays a number of signs that refer to the hypernym of related lexical items, while a number of hyponyms exists. Examples of these are the signs BIG-ANIMAL, MEDIUM-ANIMAL, SMALL-ANIMAL, BIRD, and SMALL-BIRD. The signs BIRD and SMALL-BIRD are shown in Figures 3a and 3b respectively.

These signs are very often used in combination with other, more specified signs. In this respect, they are reminiscent of noun classes in some spoken languages (like the Bantu languages, for instance) of the world (Aikhenvald 2003). An example would be classes I and II of Swahili, comprising humans and animals. The prefixes *m-/mw-* and *w(a)-* are used to classify all lexemes in this class. As the classificatory signs of tshaukak'ui similarly refer to the semantics of the sign they

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6 At least one of the deaf people in Mababe is also able to use tshaukak'ui (Fehn, p.c.). It is very likely that the other (male) deaf people also use and understand the signs.

Fig. 2a: SNAKE.

Fig. 2b: CÚRÚ ('cobra').

Fig. 3a: BIRD.

Fig. 3b: SMALL-BIRD.

are combined with and the features attributed to its referent, the term "noun class" could be applied to this context.

It is not yet known whether the signs function like sign language classifiers which refer to certain semantic classes of items as well, but are generally used in verb constructions (Emmorey 2003). While the signs can be used in compounding, as in the sign M̀BÍRÌ 'honey badger', consisting of a sign for 'small animal' and 'angry', no evidence for their relevance in relation to verb constructions could yet be found. The sign M̀BÍRÌ 'honey-badger' is shown in Figure 4.

An example of the close connection between tshaukak'ui and Ts'ixa is the use of gestures in order to indicate the size of objects and human beings. In the community, the height of a person cannot be indicated as is often done in Europe, measuring from the ground with the palm facing downwards. The downwards facing palm is claimed to prevent a person from growing any further (especially children), thus, a person's height is indicated with the palm facing upwards. This convention holds true for tshaukak'ui as well as for Ts'ixa. It cannot be determined

a. SMALL-ANIMAL.
Fig. 4: m̀bírì ('honey badger').

b. ANGRY.

Fig. 5: Indicator of a person's height.

whether the gesture (which is often used as a co-speech gesture in spoken Ts'ixa) originated in Ts'ixa or tshaukak'ui. This illustrates the mutual influence of the two speech systems. A woman indicating the height of a child is shown in Figure 5.

Further research on both languages might reveal more relations between tshaukak'ui and Ts'ixa. However, the existence of noun class-like structures in tshaukak'ui as opposed to Ts'ixa and the shared use of certain co-speech gestures in tshaukak'ui and Ts'ixa are the only issues that can be mentioned here at the moment.

5 Basic structure of signs

As previously mentioned, tshaukak'ui has not been linguistically described in detail. While the San people of Southern Africa have received considerable attention from both anthropologists and linguists, their hunting sign systems have not been systematically investigated. Sands and Güldemann (2009) mention them briefly, Sands et al. (forthcoming) provide a more detailed account of the hunting signs used among the ǂHoan of Botswana, and Brenzinger (2008) analyses orientational signs used during hunts among the Khwe. The data collected in Mababe in 2012 have been analysed with respect to phonology and morphology. So far, Mohr and Fehn (2012, 2013a, 2013b), Fehn and Mohr (2012); remain the only available linguistic descriptions of tshaukak'ui. In the following sections, the main results of the analyses are summarized. They relate to the phonology of the signs, compounding and briefly elaborate on general features of secondary sign systems, as well as select syntactical features of tshaukak'ui.

5.1 Phonology and lexical variation

A phonological analysis of the collected signs reveals 16 contrastive handshapes (Mohr and Fehn 2013a, b). Of those, three were found to be unmarked, since they occurred in more than 10 % of all the signs in the data set. The term "markedness" is used in several different ways in linguistics. Here, it is meant to refer to Jakobson's theory of markedness, stating unmarked features to be frequent cross-linguistically, easier to produce than others, acquired early by children and resistant to loss in aphasia (Jakobson 1968).

The unmarked handshapes of Ts'ixa are 1, 1-crooked and B-curved. These handshapes are shown in Figure 6.

Fig. 6: Unmarked handshapes in tshaukak'ui – 1, 1-crooked and B-curved.

The 1-handshape is almost twice as frequent as all the other unmarked handshapes (19 % frequency for the 1-handshape). This might be due to the fact that it is commonly used in the signs for the different bucks, of which there are many different types in the Kalahari-Okavango region. Two select examples are shown in Figures 7a and b.

In these signs the handshape is used in order to refer to the horns of the bucks, which are iconically represented in all signs for bucks. The same handshape is also

Fig. 7a. The sign ɢɪ̀ɪ́ ('duiker').

Fig. 7b. The sign ᴋᴀ́ʙᴜ́ʀᴇ ('tsessebe').

Fig. 8a. ǀxóò ('gemsbok').

Fig. 8b. The sign ᴋᴀ́ʙᴜ́ʀᴇ ǁxɔ̃́ɑ́ ('antelope').

used in other signs such the sign ꜱɴᴀᴋᴇ (cf. Figure 2a). The second handshape type that is very frequent referring to bucks (and their horns) is V and V-curved. These are exemplified in Figures 8a and b respectively.

An issue that is noteworthy in this context is the importance of laxness as a phonological feature. At this moment, it is not clear in how far it is actually meaning distinguishing or not. While a distinction between V and V-curved is definitely contrastive, laxness of articulation seemed to be salient in some speakers but not in others. Upon asking and re-elicitation, one informant clearly stated that a threefold distinction into tense, lax and curved articulation should be made but this would have to be checked with other speakers and probably reassessed in perception tasks. For the moment, it seems most reasonable not to distinguish between tense and lax articulation, which reduces the inventory of contrastive handshapes to 13.

One last short remark with regard to tshaukak'ui phonology seems in order. Another handshape that is often mentioned as unmarked for sign languages because it is one of the earliest handshapes acquired, is the A-handshape (Sutton-Spence and Woll 1999). Strikingly, this is not found at all in the language.

a. The sign ʤìʀí ('baboon')
Fig. 9: Minimal pair distinguished by location.

b. The sign ɲúɲí ('mouse').

a. The sign |xóò ('gemsbok').
Fig. 10: Minimal pair distinguished by palm orientation.

b. The sign ɗúú ('eland').

According to the common phonological parameters in sign language linguistics, hand configuration, palm orientation, location, movement and non-manuals, minimal pairs for tshaukak'ui were established. While the first three parameters were easily applicable to the signs, movement is rarely meaning distinguishing as most of the signs are held at their signing location, and non-manuals were not meaning-distinguishing at all. An example of two signs that are distinguished by handshape was shown in Figures 8a and b above. Below, examples of minimal pairs distinguished by location and palm orientation are depicted in Figures 9 and 10 respectively. The sign ʤìʀí is especially noteworthy, as it is formed behind the signer, a location that is rarely used.

The signs |xóò and ɗúú are both formed with a V-handshape but while the palm orientation of the first is towards the signer's face, the palm orientation of the second is downwards.

As mentioned before, there were very few minimal pairs distinguished by movement. Examples would be the signs ɗúù ('eland') and ɗóà ('kudu') which are

Fig. 11a: ŊGÁBÈ 1 ('giraffe').

Fig. 11b: ŊGÁBÈ 2 ('giraffe').

both formed with the 1-handshape above the head. The first sign does not involve movement, while in the sign for 'kudu', the hands are moved upwards in a spiraling movement.

Besides the purely phonological features that are discussed above, there was also a morphophonological feature that seemed interesting, especially viewed linguistic features of other secondary sign languages. This feature is handedness of the signs. The great majority of signs in tshaukak'ui are one-handed. Thus, 78 % of all signs were one-handed, while only 21 % were two-handed. These were signs for 'elephant' (ᴛˠxoà), 'crocodile' (ǂ'ònà), 'hippo' (!xao) or some of the bucks, for instance. Most of the signs do not involve movement but if they do, as in the sign for 'kudu', both hands execute the same movement, using the same handshape with the same palm orientation. With this structure, they adhere to the symmetry constraint formulated by Battison (1978: 34):[7]

> a) If both hands of a sign move independently during its articulation, then b) both hands must be specified for the same handshape, the same movement (whether performed simultaneously or in alternation), and the specifications for orientation must be either symmetrical or identical.

The overall rather low frequency of two-handed signs in the language seems to be linked to practicality. As the main context in which the signs are used, i.e. hunting, requires the carrying or firing of weapons (be it an arrow, a sling, a gun or rifle), it would be very unpractical and probably not feasible to communicate with many

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[7] While in primary sign languages some two-handed signs might show differences in the dominant and non-dominant hand according to the dominance constraint (Battison 1978: 5), this was not found in tshaukak'ui.

two-handed signs. One-handed signs are better suited for the context of hunting and thus more abundant in tshaukak'ui.

A final issue that can be seen from the signs displayed so far is lexical variation. Sometimes the signs for certain animals varied between informants, a feature that seems especially frequent with respect to bucks. Other signs varied as well, such as ᵑGÁBÈ ('giraffe'). The two variants are shown in Figures 11a and 11b.

A reason for this might be practicality: while it may be life-threatening to confuse the signs for predators like lions and leopards or signs of predators with signs for harmless animals like bucks, it is of less importance to exactly determine which kind of buck one is stalking.

5.2 Basic morphology: practicality and compounds

The analysis of the morphology of the tshaukak'ui signs remains preliminary. These preliminary results are presented in the following section. An especially interesting issue is the relationship between the morphological structure of the signs and practicality. This is the main topic of the discussion in this section.

A structural feature strongly relating to the practicality of signs is their morphological setup in terms of their complexity. Hence, distinctions between compound signs and monomorphemic lexemes were investigated. Meir (2012: 97 ff.) mentions four criteria that are useful for the identification of compounds in sign languages. These are 1) one word stress, i.e. the sign phonologically appears as one unit, 2) semantic non-compositionality, 3) syntactic unity, i.e. the sign syntactically appears as one unit, and 4) compounds are usually exocentric or dvandva compounds. Exocentricity here refers to constructions like *scarecrow,* which does not have a clear head like endocentric compounds of the type *highchair*. Further, the meaning of the compound cannot be inferred from the individual parts of the construction (a *scarecrow* is neither a type of 'scare' nor a type of 'crow'). The other compound type, dvandva[8] or coordinate compounds, is relatively rare in Indo-European languages but abundant in most sign languages. Examples are the terms *hunter-gatherer* in English or BANANA^APPLE^CHERRY^[...] referring to 'fruit' in American Sign Language (Meir 2012). The components of the compound are usually hyponyms of a superordinate term, the compound has the meaning of the superordinate term. For the morphological analysis, these characteristics were taken into consideration; especially the four features for the identification of compounds played a role. However, the third feature (syntactic unity) and the first feature, one word stress, were hard to judge because of the lack of conclusive data. However, signs consisting of many parts referring to a single semantic concept according to the informants, were generally judged to be compounds as well.

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8 The term is derived from Sanskrit and literally means 'pair, couple'.

Given the criteria outlined above, the overwhelming majority of signs in tshau-kak'ui are monomorphemic (97 %), while only a small number of signs are com-pounds (2 %). An example of a compound sign is m̀BÍRÌ ('honey badger') mentioned in Section 4, consisting of the classificatory sign for small animals and the sign for 'angry', thus representing an exocentric compound (cf. Figure 4). Polymorphemic signs are more unwieldy and require more time for articulation as compared to monomorphemic signs. Consequently, they are less practical for use during hunt-ing, especially in dangerous situations when information has to be conveyed quick-ly. From preliminary comparisons with the hunting signs of the ||Ani mentioned in Section 2, it can be stated that this feature does not exist in |'uen. Those signs display a much larger frequency of polymorphemic signs, consisting of two or even three morphemes, the latter not even existing in tshaukak'ui (Mohr and Fehn 2013a, b). This difference might be due to the different use of |'uen among the ||Ani, as the language has been transferred to performance contexts in which practicality is no longer the central characteristic of the language. It can thus be inferred that the circumstances of use of the language have an influence on its structure as well.

5.3 Interesting or unusual features: iconicity in secondary sign systems

As mentioned in Section 1, tshaukak'ui is functionally similar[9] to secondary sign languages such as Sawmill Sign Language in North America, monastic sign lan-guages used by orders following a vow of silence and sign languages used by Aus-tralian Aboriginal groups. Additionally, the sign language varieties used by North American Indian tribes should be mentioned here. These sign language varieties were used for intertribal and intratribal communication in the Great Plains region and are highly endangered today. They are only used by elderly people and some deaf individuals (Davis, this volume). Davis (2006, 2007) reports its usage in seven distinct spoken language groups belonging to four different language families: Al-gonquian (Blackfoot = Piegan, Northern Cheyenne), Athabaskan (Navajo = Diné), Siouan (Assiniboine, Crow, Sioux = Lak(h)ota = Dakota = Nakota), New Mexican Pueblo Isolates (Keresan = Keres). They are mainly used for storytelling, rituals, legends and prayers (Davis 2007: 88).

Monastic sign languages like Cistercian Sign Language as it is used in St. Jo-seph's Abbey in Spencer, MA, home to a Trappist order founded in the 11th century, developed in the Middle Ages. They were used as a means of communication dur-ing silent times which prohibited the monks from using any kind of speech for extended periods of time (Barakat 1975). While the core vocabulary of the lan-

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9 This does not in any way refer to the linguistic structure of the languages. Especially the sign languages of Australia are far more developed than the hunting signs described in this paper.

guages was the same due to authorized lists that were provided by the order, varieties of the language developed in individual monasteries.

The Aboriginal sign languages of Australia originated due to speech taboos in contexts of male initiation rites and mourning periods of women. There seems to be a general split between the sign languages used in the Northern Desert, which are highly developed in structure and use and also more abundant than the sign languages used in the rest of the continent. Thus, the sign languages of the Warumungu and Warlpiri, and those used in the North Central Desert in general, are structurally more complex than other systems (Kendon 1988). Recently though, the sign languages used in Arnhemland have been found to show very elaborate structures as well (Bauer 2013).

General features that have been reported for the sign languages of North America, monastic sign languages and Australian Aboriginal sign languages are wideness of signs, actions of the face that are rarely used for grammatical purposes, frequent use of both hands for signing, geographically close sign languages being also close in linguistic structure and limited structure and vocabulary. A characteristic that all secondary sign languages seem to have in common is the relatively high degree of iconicity of signs. Fehn and Mohr (2012) also commented briefly on this issue with respect to hunting signs among the Ts'ixa. Iconicity (referring to the reflection of the extra-linguistic world in linguistic structures) has been a rather controversial topic since the beginning of signed language research. While early publications generally tried to explain the phenomenon away, more recent publications acknowledged its importance for the linguistic system: Kutscher (2010) introduces new categories to the semiotic model by Peirce, van der Kooij (2002), Brentari (2007) and Wilbur (2010) discuss the importance of iconicity in phonology. An important issue with respect to tshaukak'ui is lexical iconicity. Lexical similarity is higher in sign languages than in spoken languages (Wilkinson 2009) which is due to a "shared symbolism" (Guerra Curie et al. 2002). Generally, sign languages seem to exploit iconicity as an extremely productive process for which the visual modality is especially well suited. In tshaukak'ui, lexical iconicity is abundant.

The most striking instance of iconicity is the signs for the different bucks which all relate to the shape and size of their horns. Examples of these were shown in Figures 7a/b, 8a/b and 10b, showing the signs for 'duiker', 'tsessebe', 'gemsbok', 'antelope' and 'eland' respectively. Another example is shown in Figure 12.

It is important to note that location is a contrastive feature distinguishing between |xóò ('gemsbok') and STEENBOK, in which the handshape refers to the horns of the animal.

Some other signs also iconically depict their referent. Another example is the sign ᵀˠxóà ('elephant') shown in Figure 13, depicting the tusks of the elephant.

Just as in primary sign languages, the iconicity of the signs does not make them semantically transparent to people not acquainted with the language. More-

Fig. 12: ꜱᴛᴇᴇɴʙᴏᴋ.[10]

Fig. 13: ᴛᵞxóà ('elephant').

Fig. 14: |'uen sign for 'elephant'.

over, the individual hunting sign systems seem to choose different features of the referents that are represented in the signs. While the tshaukak'ui sign for 'elephant' refers to the animal's tusks, the |'uen sign refers to its trunk (cf. Figure 14).

Given the difference in lexical repertoires, mutual intelligibility between tshaukak'ui and |'uen might not necessarily be given. Further, the high degree of iconicity in the lexicon does not reduce the language to a system of pantomime, as was often claimed for sign languages in the early days of sign linguistic research.

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10 No Ts'ixa lexeme could be recorded for 'steenbok'.

5.4 Basic syntax: a brief note

As was elaborated in the previous sections, most of the elicited data of tshaukak'ui consists of animal signs. However, a few other signs could be collected as well.[11] These include a few demonstrative signs and verbs. A couple of sentences including these signs will be discussed in the following.

Three different demonstrative signs could be found: a proximal sign (Figure 15a), a distal sign for visible entities (Figure 15b) and a distal sign for non-visible entities (Figure 15c).

Fig. 15a: Proximal.

Fig. 15b: Distal (visible).

Fig. 15c: Distal (non-visible).

The meaning distinguishing feature here seems to be the height of the outstretched arm, i.e. the farther away an object is, the higher up the arm is. Moreover, eye gaze seems to be important as well, because the signer's gaze is always directed towards the location he is pointing at.[12]

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11 Thanks to Anne Fehn for sharing her data from a fieldtrip in 2011.

12 This is not clearly visible due to the black bars over the signers' eyes.

Finally, the few sentences that were elicited should be mentioned. Generally, all sentences seem to start with a sign that catches the attention of the fellow hunters or warns them. Thus, the following sentences were elicited:

(1) SILENCE BABOON distal (visible)
    'Silence, there is a baboon over there.'

(2) LOOK KUDU distal (visible) KUDU distal (visible) MOVE-AROUND KILL
    'Look, there's a kudu over there, [let's] move around and kill it.'

As can be seen, repetition is used in Example 2. This does not seem to be used as a pluralization device which has been reported for many other sign languages, but rather as a marker of emphasis that it is a kudu and not another animal the speaker is pointing out here. This makes sense, considering that the species of the animal is the most important part of the message. It provides important information on the behaviour of the hunter towards the animal (run away from a predator or kill prey) as well as on the kind of weapon he might use for the different kinds of prey.

6 Conclusion and outlook

As has been shown here, tshaukak'ui is a secondary sign language that has existed for many years among the Ts'ixa of north-eastern Botswana. However, linguists have not been interested in its sociolinguistic setting and structure until recently. From what little data is available, it seems to adhere to some common sign linguistic structures (e.g. minimal pairs showing contrasting handshape, location and palm orientation), while others are not applicable (e.g. use of non-manuals). In function, such as avoiding noise and speech, and features, for example iconicity, it seems to be identifiable as a secondary sign system. Given changes of lifestyle in hunter-gatherer groups within the past few decades, old customs, beliefs and the Khoisan languages of the groups are in danger. Tshaukak'ui forms part of this cultural heritage and it is imperative that it be documented before its last speakers pass away.

At this point, it is crucial to collect more data, especially whole sentences, to be able to further analyse the system and structures of the language. This would shed light on the sparsely described morphology and syntax of the language. It would also give us a more detailed idea of the actual size of the lexicon and the semantic fields that are covered apart from animals.

On the sociolinguistic level, it would be interesting to investigate whether the signs are known to more people in Mababe and whether there are also younger people and women among the language users. In this regard, the way of transmission would be very interesting as women and children usually do not go hunting.

Further, it has been reported that the signs are also used in non-hunting related contexts such as performance, dance and storytelling. This would be another issue that seems worth investigating. It would give us an impression of not only linguistic changes in the Ts'ixa community but also of social developments in a changing Botswana.

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