

Carlo Geraci

# 19 Italian Sign Language

## 1 Basic facts about the language

**Language name:** *Lingua dei Segni Italiana* ('Italian sign language'). The acronym 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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
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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 Virginia 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](http://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 18<sup>th</sup> 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 20<sup>th</sup> 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](http://www.istitutosordiroma.it)). This school was the first Deaf institute opened in Italy and its existence can be traced back to the 18<sup>th</sup> 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. Interestingly, in this case, the school was formerly a Deaf institute for female held by Suore Canossiane di San Alvisè (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](http://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 losing 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](http://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 initialized 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’.





CHANGE



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.

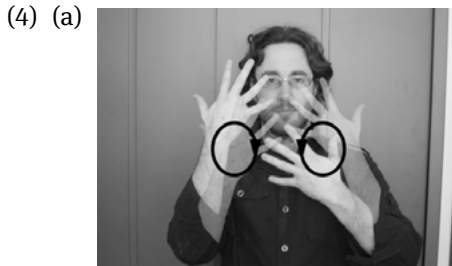


KNOW



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'.



ERROR/MISTAKE



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’.



WORK



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.



NEGATION (roughly equivalent to ‘not-yet’)



READY



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).<sup>1</sup> 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).

<sup>1</sup> 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



JUDGE DECIDE GATHER YARD IX-LOC



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 use of 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



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’.

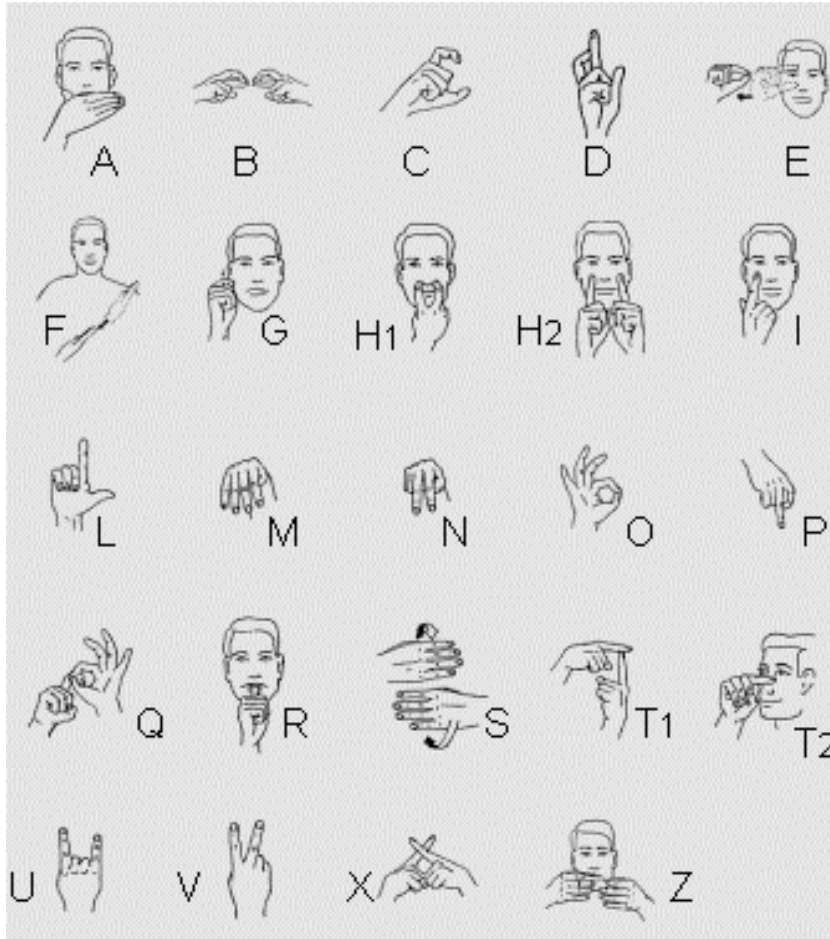
- (10) IX-1 GO (LIS signs)  
       Roma (spoken Italian mouthing)  
       ‘I go to Rome.’

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 19<sup>th</sup> 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).





OPEN (a door)



DOOR



CIGARETTE PAPER



PICK 'a cigarette paper'

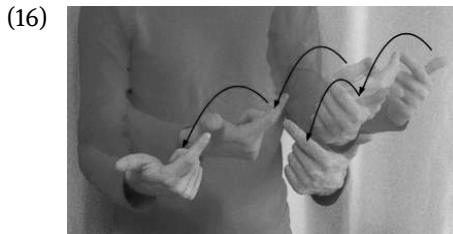
## 7.1 Verb morphology

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).



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).



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).



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<sub>A</sub> MARIA<sub>B</sub> BOOK<sub>A</sub> DONATE<sub>B</sub> (II class)  
 'Gianni will donate a book to Maria.'
- (c) GIANNI BOOK<sub>B</sub> TEAR<sub>B</sub> (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).

body leaning GIANNI

- (19) GIANNI IX-3 MARIA BOOK <sub>A</sub>DONATE<sub>B</sub>  
 ‘Gianni will go to Rome.’

## 7.2 Noun Morphology

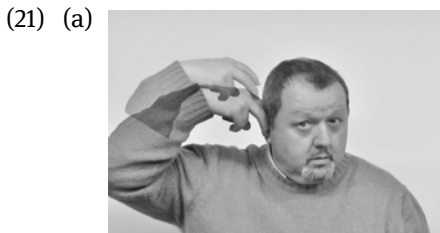
The distinction between signs articulated in the neutral space and signs articulated on some body location is also valid in the nominal category (Pizzuto and Corazza 1996, Pizzuto 2004). Only signs articulated in the neutral space allow reduplicative morphology to mark plurality (among these signs, however, 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).



CITY



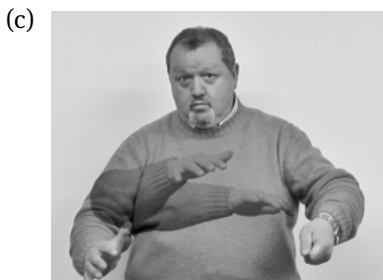
CITY-PL



CHERRY



MANY



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 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> 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 1<sup>st</sup> person. The signs illustrated in (22) single out a first plural (‘we’) entity made by two people.

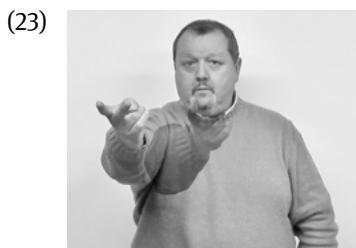


TWO-OF-US (handshape L)



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 result of the combination of the number ‘two’ and the locations for 2<sup>nd</sup> and 3<sup>rd</sup> person together. When non-first person uses are considered, however, only the V handshape is possible, as illustrated in (23).



TWO-OF-YOU

In the same vein, it is even possible to construct pronouns referring to three individuals (or groups of individuals): a 1<sup>st</sup>, a 2<sup>nd</sup> and a 3<sup>rd</sup> person. This can be done

with a '3' handshape and a combination of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> 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

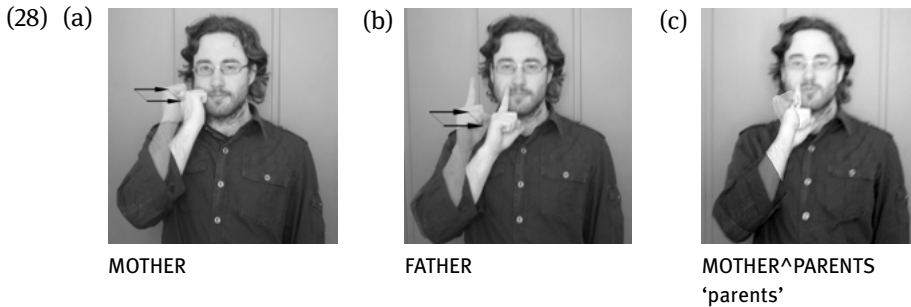
Cecchetto and Zucchi (2006) propose a formal analysis of the semantic properties of classifier predicates in LIS (and potentially for other sign languages as well). In a nutshell, the handshape is analyzed as a pronominal element, while the movement (i.e. the predicate) is taken to be a demonstration 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).

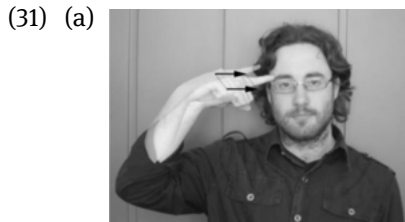
## 7.5 Morphological phenomena

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).



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).



HEAD



POUND



HEAD^POUND 'smart'



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



CIGARETTE PAPER



PICK

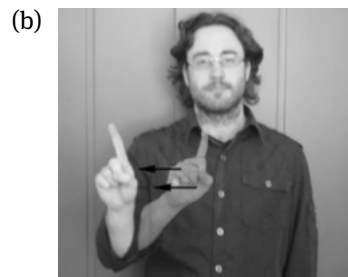


PICK (a cigarette paper)

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).



CAN



NOT



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)



EMILIANO MEREGHETTI

(b)



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

\_\_\_\_\_ re

(b) GIANNI ORDER COFFEE

\_\_\_\_\_ re

(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 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 NOTHING  
'Gianni didn't sign anything.'

\_\_\_\_\_ neg

(b) CONTRACT SIGN 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<sup>wh</sup>  
 ‘What did Gianni buy?’

(b) HOUSE BUY WHO<sup>wh</sup>  
 ‘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).

- (44) (a)  $\overbrace{\text{PIERO BIKE FALL}}^{\text{re}}$  ] GIANNI TELL  
 ‘Gianni said that Piero fell from the bike.’
- (b)  $\overbrace{\text{PIERO CAR STEAL}}^{\text{re}}$  ] 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<sub>GIANNI</sub> 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<sub>a</sub> [ PIERO BEAN EAT ]<sub>a</sub> WARN  
 ‘Gianni warned (someone) that Piero ate beans.’
- (b)  $\overbrace{\text{PIERO ARRIVE LATE}}^{\text{body lean}}$  ]  $\overbrace{\text{SAY}}^{\text{body lean}}$   
 ‘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)  $\frac{\text{re}}{\text{-----}}$  [ BOY CALL PE ] LEAVE DONE  
 ‘A boy that called left.’
- (b)  $\frac{\text{re}}{\text{-----}}$  [ MARIA BOY KISS PE ] LEAVE DONE  
 ‘Maria kissed a boy that left.’
- (c)  $\frac{\text{re}}{\text{-----}}$  [ BOY MARIA KISS PE ] LEAVE  
 ‘A boy that Maria kissed left.’
- (d)  $\frac{\text{re}}{\text{-----}}$  [ 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)  $\frac{\text{re}}{\text{-----}}$  RAIN UMBRELLA TAKE



- re
- (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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National Deaf association – [www.ens.it](http://www.ens.it)

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