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A Grammar of Italian Sign Language (LIS)

edited by
Chiara Branchini and Lara Mantovan

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Lingue dei segni e sordità

A series edited by
Anna Cardinaletti, Sabina Fontana

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Parts of speech refer to the classification of different categories of lexical items based on their syntactic or morphological behavior. The two most studied parts of speech are nouns and verbs.

In the lexicon, we can distinguish between functional words, which form a closed class, and lexical/content words, which form an open class. Nouns, verbs, adjectives, and adverbials are lexical words, while pronouns, adpositions, conjunctions, numerals, quantifiers, and interjections are functional words.

In LIS, and many other sign languages as well, it is not always easy to identify different parts of speech, and determining the part of speech that a given sign belongs to can be difficult too. For example, many verbs have a nominal counterpart with the same (or a very similar) phonological form: in these cases, distinguishing the verb and the noun that are semantically related can be challenging.

Another difficulty is the fact that we can find non-manual realisations for certain categories of parts of speech. For example, some adjectives can be expressed with a manual form, but may also be realised non-manually when modifying a noun.

Moreover, there are elements listed as a category of parts of speech that in sign languages may have no manual realisation at all. This is, for example, the case of adpositions. Although in some cases

they can be expressed by a manual sign, very frequently the information conveyed by an independent adposition is expressed by means of relative locations in the signing space.

To determine the class a sign belongs to, it is therefore necessary to consider different aspects, like its position in the sentence, the non-manual markers that accompany its production and if it agrees with other elements.

In LIS, we can identify the following categories: nouns, verbs, determiners, adjectives, pronouns, adverbs, adpositions, and conjunctions.

3.1 Nouns

In a language, the function of a noun is primarily denotative. A noun usually denotes a person, place, entity, animal, idea, concept, etc. Nouns in sign languages may inflect for number, but rarely for case and gender. In LIS, we can distinguish two types of nouns: common nouns and proper nouns, that will be analysed in the following sections.

3.1.1 Common nouns

Common nouns describe (classes of) entities, that can be concrete or abstract, like in the following examples: PAPER and HOPE, where the first name is concrete, while the second is abstract.

Common nouns can also be distinguished between countable and non-countable nouns. Countable nouns, such as CAT, can combine with numerals [LEXICON 3.10.1] and can be pluralised. On the other end, non-countable nouns, such as SUGAR, cannot combine with numerals, nor be pluralised.

In LIS, nouns can be used in a predicative function. LIS, as many other sign languages, does not have copula verbs [SYNTAX 2.1.4.1]. In the following example, we can see a construction in which the noun STUDENT functions as a nominal predicate.

BROTHER POSS$_1$ STUDENT

'My brother is a student.'

It follows that sometimes it can be difficult to understand when a sign is a noun or a verb. This is quite straightforward with signs like STUDENT above, which are semantically easy to identify as nouns because they relate to specific object or entities in the world. In other cases, signs are semantically related to other signs. An example is

the sign for ELECTRICITY, which can be used to express the meanings of 'electricity' and 'electric shock'. As in the case of hyperonymy and hyponymy, the distinction of different meanings is realised by mouth actions, as can be seen below.

<u>'elettricità'</u>
a. ELECTRICITY
'Electricity'

<u>_____[brrr]</u>
b. ELECTRICITY
'Electric shock'

Moreover, the sign ELECTRICITY is productively used to form the compound ELECTRICITY^CL(5): 'type', meaning 'computer'.

ELECTRICITY^CL(5): 'type'
'Computer'

Other nouns can be recognized because they originate from visual metaphors [LEXICON 1.1]. For instance, the articulation of the sign below metaphorically depicts a sharp object trying to penetrate a barrier.

DIFFICULTY

However, common nouns in LIS, as in other sign languages, sometimes are homophonous to verbs, or only slightly different. In these instances, in order to identify the lexical category of the sign, we must consider: i) its syntactic distribution within the sentence; ii) its morphosyntactic properties; iii) its morphophonological features (particularly, movement features, duration of the articulation, or the presence of mouthings or mouth gestures).

For instance, aspectual or adverbial marking is typical of verbs. In (a), we show the verb FLY, marked by lips protrusion (lp) and puffed cheeks (pc) [MORPHOLOGY 2.1.2.1]. This one-handed sign can be modified by adding the non-dominant hand and reduplicating the movement component to convey the repetition of the action, as shown in (b).

<u>pc</u>
<u>lp</u>
a. FLY

$$\frac{\qquad}{\frac{\text{pc}}{\text{lp}}}$$

b. dom: FLY++
   n-dom: FLY++
'(To) fly several times/frequently.'

When functioning as a noun, the same sign can display morphological plural marking, which is typical of nouns. In (a) below we provide the sign PLANE in its citation form, which can be reduplicated to convey plurality, as shown in (b).

a. PLANE

b. dom: PLANE++
   n-dom: PLANE++
'Airplanes'

Moreover, nouns can be distinguished from verbs also considering their morphophonological properties. In the examples below, the noun ROCKET (a) displays a shorter duration and it is accompanied by the labial articulation of the corresponding Italian word *missile*. On the other hand, the corresponding verb CL(G): 'rocket_take_off' (b) displays a longer duration of the articulation and it occurs with the mouth gestures puffed cheeks (pc) and lips protrusion (lp).

'missile'
a. ROCKET

$$\frac{\qquad}{\frac{\text{pc}}{\text{lp}}}$$

b. CL(G): 'rocket_take_off'
'The rocket is taking off.'

Alternatively, nouns can be distinguished from verbs by taking into account movement features. In the examples below, we show that the noun DRINKING_GLASS (a) displays a shorter and repeated movement with respect to the semantically related classifier predicate (b). For further details on noun-verb differences the reader is referred to [MORPHOLOGY 2.1.2.1] and [MORPHOLOGY 2.2.4]

a. DRINKING_GLASS
'Drinking glass'

b. CL(unspread curved open 5): 'drink_from_a_glass'
'(To) drink from a glass'

3.1.2 Proper nouns and name signs

A proper noun is typically used to refer to a specific person, place, or thing. This category includes name signs, i.e. signs used to identify sign language users or famous people, and toponyms, i.e. signs referring to places, brand names, etc. In LIS, proper nouns either have an iconic origin or are influenced by Italian words.

Proper nouns with an iconic origin, also called *descriptive*, have a direct relation to a physical characteristic of the referent, like crooked nose, long hair, and so on. An example is the name sign referring to someone with voluminous and long hair.

ANNA

Sometimes name signs refer to a behavioural characteristic, or they can describe the job or role in society. For instance, the name sign for a person that smiles a lot could be the one illustrated below.

ELENA

In some circumstances, they can also refer to a particular event in the life of a person. For example, someone might be identified by a name sign alluding to a scar that person got when s/he was a child.

MIRKO

Sometimes name signs can have a patronymic origin: they can be the same of the parents and, in this case, they lose their original transparency.

Name signs can also be inherited from homonymous people who, for various reasons, are no longer in the community where the name sign developed. This happens especially in the schools for the Deaf where students leave the school every year.

Moreover, there are name signs that have an iconographic origin: they refer to the characteristics of the representation of the saint with that name. So, PIETRO (Eng. 'Peter') is signed with the sign for 'key' because in the Christian tradition Saint Peter has the keys of the paradise. PAOLO (Eng. 'Paul') is signed with the sign that indicates a beheading, the kind of death Saint Paul suffered. In these cases, the

name sign of the saint may be attributed to a class of persons with the same first name. As in in Deaf schools, where the name sign can be inherited from another person, the name sign loses transparency and becomes opaque.

Some name signs are influenced by Italian [LEXICON 2.2]. For example, there are name signs that are the representation, by fingerspelling, of the first letter of the name or the surname of the person, like M for MARCO [LEXICON 2.2.2.1]. Other name signs use the letters that are visually more salient, like N-N for ANNA [LEXICON 2.2.2.2]. The name sign of Virginia Volterra, one of the linguists who initiated the linguistic studies on LIS [SOCIO-HISTORICAL BACKGROUND 3.2], combines the first letters of the name and surname, with a physical characteristic (thinness) represented by the movement.

VIRGINIA_VOLTERRA

In other cases, the name signs are a translation of the name or the surname of the person [LEXICON 2.2.1]. For example, a person with the surname *Rossi* (that means 'red') could be given the name sign RED, or a person with the name *Angelo* (that means 'angel') could be given the name sign ANGEL.

Other name signs are the re-interpretation of Italian words. For example, a person with the surname *Giovannoni* could be given the name sign YOUNG, because the first part of her/his surname, is similar to the word *giovane*, 'young'.

The same phenomenon applies to toponyms. An interesting example is the sign for Turin, a city in the north of Italy, which is the same sign used for the animal bull because the first part of the word (*Torino*) is similar to the Italian word for 'bull', namely *toro*.

TURIN

Alternatively, signs identifying cities have a direct relation to a monument or something important in that city. For example, MILAN is signed in a way that indicates the spiers of its famous cathedral.

MILAN

Proper nouns are also used to identify brands and companies, as can be seen in the following examples. In all of them, the proper noun iconically derives from the logo of the company. These name signs can either be created among LIS signers, or be borrowed from other sign languages [LEXICON 2.1].

a. NIKE

b. MCDONALD'S

c. MERCEDES

d. PEUGEOT

3.2 Verbs

LIS verbs can be distinguished into three different classes: i) plain verbs, which have an invariable phonological form; ii) agreement verbs, which can be spatially modified to agree with their arguments; and iii) spatial verbs, that can be spatially modified to target the loci associated with locative arguments.

3.2.1 Plain verbs

Plain verbs cannot be spatially modified to agree with their argument(s), although they can usually inflect for aspect [MORPHOLOGY 3.3]. This constraint is due to the phonological specification of the sign: plain verbs are produced on the body of the signer and cannot therefore be separated from the body itself to agree with the arguments. An example of a plain verb is THINK.

THINK

This verb class includes many verbs that express mental or physical states, like emotions, thoughts, feelings, sensations. Plain verbs in LIS are BE_SATISFIED, REMEMBER, SUFFER, WORRY, IMAGINE. Plain verbs also include verbs referring to actions connected with body activities, like EAT and DRINK. In the example below, we can see the verb DRINK.

DRINK

Plain verbs show a homogeneous behaviour with respect to the specification of their arguments: they retain their citation form unchanged, regardless of the person or number of their arguments. For example, the verb REMEMBER is produced in the same way to express the first (a) or third (b) singular person, as we can see below.

a. IX₁ REMEMBER
'I remember.'

b. IX₃ REMEMBER
'S/he remembers.'

Plain verbs can select either one argument or two arguments. This class, therefore, includes transitive (a) [SYNTAX 2.1.1.1] and intransitive (b) [SYNTAX 2.1.1.2] verbs, as can be seen in the examples below.

a. GIANNI MEAT EAT
'Gianni eats meat.'

b. SARA CRY
'Sara cries.'

In the example (a) above, the verb EAT behaves as a transitive verb because it selects two arguments, GIANNI and MEAT, while the verb CRY (b) behaves as an intransitive verb, selecting only one argument (SARA).

3.2.2 Agreement verbs

Agreement verbs are also called *directional* or *indicating* verbs. Differently from plain verbs, agreement verbs can be spatially modified to mark their arguments (see [MORPHOLOGY 3.1.1] for details). They are usually verbs that express (abstract or concrete) transfer, and their phonological form can involve path movement [PHONOLOGY 1.3.1]. This class of verbs includes: i) verbs with two points of articulation in the neutral space connected by path movement, like HELP (a); ii) verbs with one point of articulation in the neutral space, like BREAK (b); and iii) verbs in which the beginning of the path movement is on the body of the signer and the end of the path movement is in a location associated with an argument of the verb, like SAY (c).

a. GIANNIₐ MARIA_b ₐHELP_b
'Gianni helps Maria.'

b. IX₁ DISHₐ BREAKₐ
'I broke a dish.'

c. IX₁ ADDRESS POSS₁ SAY₂
'I told you my address.'

It is instructive to look at the distinction between two transitive verbs that are almost synonymous: LIKE and LOVE. LIKE is a plain verb, so it does not have a path movement, rather, it is produced on the body of the signer, as can be seen in the following example.

SARA PIZZA LIKE
'Sara likes pizza.'

On the other hand, LOVE is an agreement verb: it is initially articulated on the body of the signer, like the verb LIKE, but then it moves towards the location associated with the object, PIZZA.

SARA PIZZA$_a$ LOVE$_a$
'Sara loves pizza.'

Agreement verbs may also show agreement with the object (direct or indirect) through orientation of the palm and direction of the path movement. Some of these are TEACH, SHOW, ASK, TELL, TAKE_CARE.

FATHER$_a$ SON$_b$ IX$_{3a}$ $_a$TAKE_CARE$_b$
'The father takes care of his son.'

Agreement verbs can select one, two, or three arguments. Agreement verbs selecting one argument behave as intransitive verbs. The verbs BREAK (in its intransitive use) and GROW_UP belong to this category.

YOUNG IX(def) GROW_UP
'The boy grew up.'

Agreement verbs selecting two arguments behave as transitive verbs. HELP and LOVE in the sentences reported above are examples of transitive verbs.

Agreement verbs selecting three arguments behave as ditransitive verbs [SYNTAX 2.1.1.1]. Ditransitive verbs involve a notion of (possibly abstract) transfer. They can have: i) two points of articulation in the neutral space expressing agreement with the subject (MARIO) and the recipient/goal indirect object (SARA), like GIVE (a); ii) a path movement which starts from the body of the signer and ends in the location associated with the recipient/goal indirect object (STUDENT), like SAY or EXPLAIN (b) (but see [MORPHOLOGY 3.1] for a different starting point of the verb EXPLAIN when the subject is different from a first person); iii) one point of articulation in the neutral space encoding agreement with the indirect object through both the direction of the path

movement and orientation of the palm, like TEACH (c); iv) they can be articulated on the non-dominant hand and express agreement with the indirect object through direction of the movement, like TELL (d).

a. MARIO$_a$ IX$_a$ ENVELOPE IX$_{3a}$ SARA$_b$ $_{3a}$GIVE$_{3b}$
'Mario gives an envelope to Sara.'

b. TEACHER MATH IX$_b$ STUDENT$_b$ EXPLAIN$_{3b}$
'The teacher explains math to the student.'

c. SISTER$_a$ POSS$_1$ SON$_b$ $_a$TEACH$_b$
'My sister teaches her son.'

d. MOTHER$_a$ SON$_b$ IX$_{3a}$ FAIRY_TALE TELL$_b$
'The mother tells her son a fairy tale.'

A peculiar type of ditransitive construction is the one displaying a classifier predicate with two points of articulation in the neutral space connected by path movement. In such constructions, the two points express agreement with the subject argument, encoding the agent/source, and the indirect object, encoding the goal/recipient argument, whereas the hand configuration encodes the theme direct object. In so doing, they show overt manual agreement with the three arguments [SYNTAX 2.1.2.4]. This is illustrated below.

L-U-C-A$_a$ G-I-A-N-N-I$_b$ DRINKING_GLASS $_a$CL(unspread curved open 5): 'give_glass'$_b$
'Luca gives a glass to Gianni.'

Agreement verbs including path movement and two points of articulation usually move from the locus associated with the subject to the locus associated with the object. However, in a subclass of transitive agreement verbs called *backward verbs* the reversed order is observed: in this case, the verb moves from the locus associated with the object towards the locus associated with the subject. Verbs like COPY, RECEIVE, INVITE, EXPLOIT, TAKE and CHOOSE belong to this class.

a. COPY

b. RECEIVE

c. INVITE

d. EXPLOIT

e. TAKE

f. CHOOSE

For further information about agreement verbs, see [MORPHOLOGY 3.1].

3.2.3 Spatial verbs

Spatial verbs, like agreement verbs, are spatially modified to mark their arguments. In contrast to agreement verbs, however, spatial verbs show agreement with locative arguments, rather than with the subject or object. An example is the classifier predicate CL(flat open 5): 'move_book'. In the sentence below, the verb is articulated from one location to another (from *a* to *b*) to indicate from where to where the book is moved.

SARA BOOK $_a$CL(flat open 5): 'move_book'$_b$
'Sara moves the book (from here to there).'

Note that locative arguments can be overtly expressed or can be omitted. In the sentence above, the classifier predicate acts as a transitive verb since it takes an agent (SARA) and a theme (BOOK). The locative arguments, the source and the goal, are implicitly understood from the context.

In the example below, we can observe a spatial verb (PUT) acting as a ditransitive verb since it takes an agent (TEACHER), a theme (BOOK) and a locative argument (SHELF).

TEACHER BOOK SHELF++ $_a$CL(flat open 5): 'put_book'$_b$
'The teacher puts the book on one of the shelves.'

In the two examples above, the handshape of the spatial verbs shows shape properties of the object moved or manipulated. Since they involve the movement of an object in space, there are no cases of intransitive spatial verbs.

3.3 Lexical expressions of inflectional categories

In LIS, morphosyntactic features of tense, aspect, modality and agreement can be conveyed through both manual and non-manual markers [MORPHOLOGY 3] occurring with the lexical verb. The present section provides a description of the lexical manual markers available.

3.3.1 Tense markers

The present section provides a description of the lexical markers employed in LIS to convey temporal information. The other strategies, namely the use of temporal adverbials and inflection of the verb sign by means of suprasegmental (non-manual) features will be explored in [LEXICON 3.5] and [MORPHOLOGY 3.2] respectively.

To anchor an event in the past or in the future, LIS signers may resort to two lexical markers: DONE (a) and TO_BE_DONE (b). These two signs always follow the main verb defining the event.

a. DONE

b. TO_BE_DONE

The sign DONE expresses anteriority and indicates that the event happened before the time of utterance, as exemplified below.

G-I-A-N-N-I HOUSE BUY DONE
'Gianni bought a house.'
(recreated from Zucchi 2009, 101)

The sign DONE can also express anteriority with respect to a reference time specified by a temporal adverbial.

> YESTERDAY TIME THREE AFTERNOON G-I-A-N-N-I EAT DONE
> 'Yesterday at 3, Gianni had already eaten.'
> (based on Zucchi et al. 2010, 201)

The lexical marker TO_BE_DONE indicates that the action or event will take place after the time of utterance, as shown below, or after a reference time.

> G-I-A-N-N-I HOUSE BUY TO_BE_DONE
> 'Gianni will buy a house.'
> (recreated from Zucchi 2009, 101)

The lexical tense markers are not employed when temporal information is conveyed through time adverbials and the information can be gathered by the discourse context. In the example below, the first sentence specifies that the action of going to the movies occurred yesterday and the following sentence is understood as describing a past action as well, although lacking an overt marker specifying the tense. The temporal adverbial YESTERDAY introducing the first sentence marks the whole event as past.

> YESTERDAY G-I-A-N-N-I CINEMA GO$_a$ MARIA MEET$_a$
> 'Yesterday Gianni went to the cinema. Maria met him there.'
> (based on Zucchi 2009, 102)

3.3.2 Aspectual markers

Aspectual markers are employed to indicate whether the event described by the predicate is complete (perfective aspect) or not (imperfective aspect).

Perfective aspect in LIS is conveyed through the articulation of the sign DONE, which may encode both temporal [LEXICON 3.3.1] and aspectual information. When conveying perfective aspectual information, the sign DONE is related to lexical verbs by following them. In the following example, the sign DONE indicates that the action described by the verb was completed before the time of utterance.

> G-I-A-N-N-I HOUSE BUY DONE
> 'Gianni has bought a house.'
> (recreated from Zucchi et al. 2010, 199)

Since DONE acts as a marker of perfectivity, it can only occur with predicates describing events that have an ending point, thus conveying the meaning that the action has been completed and it is not an open process. For this reason, DONE cannot occur with stative predicates (such as STINK) in that they describe a permanent state rather than an event that can be marked as completed.

Moreover, DONE cannot occur with the sign NOT nor with the negative quantifiers NOBODY, NOTHING and NEVER. To convey the meaning that the event described by the predicate has not been completed, LIS employs a simple sentential negation, the sign NOT in example (a), or a negative quantifier, the sign NOTHING in the example (b) [SYNTAX 1.5.1].

a. GIANNI HOUSE BUY NOT
'Gianni has not bought a house.'
(based on Zucchi et al. 2010, 214)

b. G-I-A-N-N-I HOMEWORK NOTHING
'Gianni has not done his homework.'
(based on Zucchi et al. 2010, 212)

The negative counterpart of the completive aspectual marker DONE in LIS is the negative lexical sign NOT_YET (see [MORPHOLOGY 3.5.2] and [SYNTAX 1.5.1.1.1] for further details). The sign NOT_YET includes the presupposition that the event is expected to occur in the future.
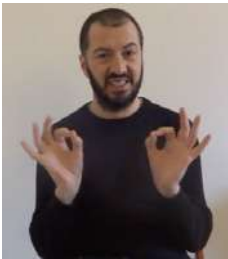
NOT_YET

In the example below, the sign NOT_YET indicates that Gianni has not done his homework yet, but he is going to do so in the future.

G-I-A-N-N-I HOMEWORK NOT_YET
'Gianni has not done his homework yet.'
(based on Zucchi et al. 2010, 212)

It is important to notice that DONE can also be used as lexically contentful main verb meaning 'finish'. In these instances, it is produced in preverbal position, as in the example below.

> GIANNI CAKE DONE EAT
> 'Gianni has finished eating the cake.'
> (based on Zucchi 2009, 124)

In order to deliver the imperfective aspect, LIS employs lexical adverbials such as EVERY_DAY (a), USUALLY (b), ALWAYS (c).

> a. EVERY_DAY CHILD CRY
> 'The child cries every day.'

> b. USUALLY IX₁ SLEEP CL(V): 'go_to_bed' LATE
> 'I usually go to bed late.'

> c. CHILD CRY ALWAYS
> 'The child was always crying.'
> (based on Bertone 2011, 222)

Crucially, imperfective aspect can also be encoded morphologically, namely through modifications of the manual verb sign, whose articulation can be lengthened and repeated to convey that the event is an ongoing process of indefinite duration [MORPHOLOGY 3.3.1.1]. For ease of explanation, we report here one example.

> CHILD CRY++
> 'The child was always crying.'
> (based on Bertone 2011, 222)

3.3.3 Modality markers

Modality markers are linguistic elements encoding the attitude of the signer toward the validity of the content of a proposition, or the necessity/permission of an event to happen. To be more specific, we usually distinguish between markers of deontic modality and markers of epistemic modality. Deontic modality is the semantic category conveying obligation, necessity, recommendation, ability, permission and intention/volition. On the other hand, epistemic modality carries the judgment of the signer with respect to the truth of the utterance and to the probability of the event, based on his/her knowledge or ev-

idences. In other words, epistemic markers yield the signer's estimation of the likelihood of an event or state. The circumstances influencing the event can either be internal or external to the participant(s).

Sign languages can select various markers to encode modality, either lexical, such as manual signs, or morphosyntactic, such as nonmanual markers occurring with modal verbs or morphological modifications of the articulation of the verb.

In LIS, we find lexical markers, i.e. manual signs, dedicated to each modality. We describe them in turn. For the morphological features and syntactic distribution of modality markers, the reader is referred to [MORPHOLOGY 3.4.] and [SYNTAX 2.3.1.3.], respectively.

3.3.3.1 Deontic modality

LIS employs several manual signs to encode obligation, prohibition, necessity, recommendation, ability, permission, intention and volition.

Obligation can be conveyed through the signs MUST and OBLIGATION. The modal MUST is the unmarked marker mainly encoding participant-internal obligation. It can be marked by furrowed eyebrows (fe).

MUST

Below, we provide a couple of examples showing the use of MUST in context.

$$\overline{\qquad\text{cond}\qquad}$$
a. PALM_UP TOOTH HURT EXTRACT MUST 🖐
'Well, if your tooth hurts, it must be extracted.'

$$\overline{\qquad\text{fe}\qquad}$$
b. ROOM POSS(G)$_1$ MESS. MUM IX$_3$ SAY$_1$ ARRANGE MUST 🖐
'My room was a mess. My mother told me: "You must tidy it."'

Obligation imposed by participant-external conditions, such as public policies or laws, is encoded through the marker OBLIGATION, which is likely to be an example of grammaticalisation into modality marker.

OBLIGATION
'It is obligatory/Have to'

The example below shows the use of OBLIGATION in context.

$$\overline{\hspace{4cm}\text{cond}\hspace{3cm}}$$
COMPETITION PARTICIPATE WANT IX$_2$ REGISTRATION OBLIGATION
'If you want to participate in the competition, you have to sign up for it.'

It should be noted that the sign OBLIGATION can also be used as an agreement verb. This is illustrated below.

$$\overline{\hspace{4cm}\text{sq}\hspace{0.5cm}}\overline{\hspace{0.5cm}\text{y/n}\hspace{0.5cm}}$$
IX$_2$ FILM IX$_a$ HORROR$_a$ IX$_a$ FEAR IX$_2$ IX$_1$ $_1$OBLIGATION$_2$ SEE$_a$
'As for horror films, do they scare you? I force you to watch them.'

Prohibition is expressed through the markers MUST^NOT and FORBIDDEN. Both can occur with the typical negative non-manual marker, i.e. headshake (hs). MUST^NOT encodes a general prohibition.

MUST^NOT
'Must not'

The example below shows the use of MUST^NOT in context.

$$\overline{\text{hs}}$$

EARLIER IX₁₊₂ GO_OUT HOUSE FATHER IXₐ SAY₃ₐ MUST^NOT 🖐
'You must not tell dad that we went out earlier.'

FORBIDDEN is used to express prohibitions regulated by public policies that cannot be avoided or changed.

FORBIDDEN

The example below shows the use of FORBIDDEN in context.

FRIARY ENTER CLOTHES T-SHIRT SHORTS FORBIDDEN ABSOLUTELY 🖐
'It is absolutely forbidden to enter a friary with a t-shirt and shorts.'

Necessity is conveyed through the markers MUST and BE_FORCED. MUST can be used to convey a necessity connected to unexpected participant-internal conditions.

MUST

In the example below, the signer expresses the necessity to go to the supermarket since he is having friends for dinner but he finds out that his fridge is empty. As the example shows, MUST is marked by head nod (hn) rather than furrowed eyebrows as is usually the case when MUST encodes obligation.

$$\overline{\text{hn}}$$
IX$_1$ SUPERMARKET GO MUST
'I must go to the supermarket.'

On the other hand, when necessity is imposed by external conditions, and we have no possibility of avoiding it, we use BE_FORCED. This marker is lexically specified for the non-manuals grinding teeth (gt) and head tilt backward (ht-b).

$$\overline{\overline{\text{gt}}\atop\text{ht-b}}$$
BE_FORCED
'(To) be forced to'

Below, we provide an example showing the use of BE_FORCED in context.

$$\overline{\overline{\text{gt}}\atop\text{ht-b}}$$
VENICE IX(loc)$_a$ BE_COMMON IX$_a$ WATER CL(5): 'raise' IX$_1$ BE_FORCED
BOOT BUY
'The high-tide is very common in Venice. I have to buy boots.'

Recommendations can be expressed by employing the sign BETTER, usually accompanied by a head tilt to the side. This is illustrated below.

$$\underline{\text{ht-left}}$$
BETTER

The use of BETTER in recommendations is illustrated below.

<u>   cond   ht-left</u>
TOOTH HURT IX₂ BETTER TOOTH^EXTRACT GO
'If your tooth hurts, you should get it extracted.'

Ability is conveyed through the sign BE_ABLE.

BE_ABLE
'(To) be able to'

BE_ABLE can either occur with the mouthing of the Italian modal *potere* 'can' inflected for the third singular person, i.e. *può* (a), or with the mouthing of the Italian word meaning 'be able', namely *capace* (b). In both instances, the sign expresses ability and can be marked by head nod. We provide two illustrative examples below.

<u>   y/n</u>
<u>   'può'</u>
a. CAR WHEEL CHANGE BE_ABLE IX₂
'Can you change the car wheel?'

<u>   hn</u>
<u>'capace'</u>
b. IX₁ SURF BE_ABLE IX₁
'I can surf.'

The deontic negative counterparts of BE_ABLE are BE_ABLE^NOT and IMPOSSIBLE_PA_PA [SYNTAX 1.5.1.1.2]. Both occur with the typical non-manual for negation, i.e. headshake (hs).

<u>   hs   </u>
BE_ABLE^NOT
'(To) not be able to'

BE_ABLE^NOT is used to express the inability of doing something, as exemplified below.

<u>   hs   </u>
<u>   'capace' </u>
IX$_1$ SWIM BE_ABLE^NOT
'I cannot swim.'

The sign IMPOSSIBLE_PA_PA is glossed this way because it is obligatory accompanied by the mouth gesture [pa pa].

<u>   hs   </u>
<u>   [pa pa] </u>
IMPOSSIBLE_PA_PA
'(To) not be able to'

This sign conveys the inability of doing something despite having tried hard to succeed in it. In other words, it implies various attempts, which eventually failed.

<u>   hs   </u>
IX$_3$ MIRKO $_3$TEACH$_1$ CHESS RULE IX$_1$ UNDERSTAND IMPOSSIBLE_PA_PA
'Mirko tried hard to teach me the rules of chess, but I cannot understand them.'

Permission in LIS involves three different markers: BE_ABLE, CAN and FEEL_FREE. BE_ABLE is used to grant permission to do something, with respect to external conditions. It can be marked by furrowed eyebrows and/or head nod. Since its articulation is homophonous to the marker employed to encode ability, it is only the context that allows to disambiguate its function.

BE_ABLE
'(To) be allowed to'

For instance, in (a) it is used to convey that the daughter is now allowed to return home later since she is older. In (b), the permission conveyed by the sign BE_ABLE depends on the time allotted to visitors in the hospital.

$$\frac{\overline{}\text{hn}}{\overline{}\text{fe}}$$

a. TODAY IX$_2$ HOUSE COME_BACK TIME LATE BE_ABLE
'Today, you are allowed to come home later.'

$$\frac{\overline{}\text{hn}}{\overline{}\text{fe}}$$

b. HOSPITAL $_2$COME$_1$ BE_ABLE TIME AT_EIGHT CLOSE
'You are allowed to come to the hospital until 8.'

CAN is employed to ask or give permission to do something, depending on personal (i.e. participant-internal) conditions.

CAN

The use of CAN in context is shown in the two examples below.

a. IX$_2$ HOSPITAL COME CAN. IX$_1$ HAPPY IX$_1$
'You can come to visit me at the hospital. I am glad if you do.'

b. SUITCASE IX$_2$ STAY CAN
'You can leave your luggage (here).'

FEEL_FREE yields a more general sense of permission.

FEEL_FREE
'(To) feel free to'

Below, we provide an example showing the use of FEEL_FREE in interaction.

$$\overline{\text{y/n}}$$

A: IX$_1$ $_1$ASK$_2$ COMPUTER TOUCH IX$_1$ TYPE
B: FEEL_FREE IX
'I ask you if I can use that computer?' 'Yes, feel free to do so.'

The deontic negative counterpart of BE_ABLE encoding permission is BE_ABLE^NOT, which conveys the general impossibility for a state of affairs to occur. In other words, it encodes that the event is not al-

lowed due to external conditions. It is usually marked by headshake on the negation NOT.

$$\overline{\quad\text{hs}\quad}$$
BE_ABLE^NOT
'(To) not be allowed'

The example below shows the use of BE_ABLE^NOT in context.

$$\overline{\qquad\text{hs}\qquad}$$
GIANNI SMOKE BE_ABLE^NOT
'Gianni is not allowed to smoke.'

The deontic negative counterpart of CAN is CAN^NOT (marked by headshake), which is used to deny the permission to do something, depending on participant-internal conditions. This is illustrated in the example below.

$$\overline{\qquad\text{hs}\qquad}$$
CAN^NOT
'Cannot'

Below, we provide an example showing the use of CAN^NOT in context.

$$\overline{\qquad\text{hs}\qquad}$$
IX$_3$ HOSPITAL COME CAN^NOT REASON IX$_{1+3}$ ARGUE
'He cannot come to the hospital because we had a quarrel.'

Intention/volition is conveyed in LIS through the modal WANT, which can be accompanied by head nod.

WANT

The example below shows the use of WANT to convey the intention to buy a house.

$$\overline{\text{hn}}$$
IX$_1$ HOUSE BUY WANT IX$_1$
'I want to buy a house.'

Crucially, when the signer wants to express a desire, rather than a true intention of doing something, the modal WANT displays a reduplicated and reduced articulation. Moreover, the verb is marked by the non-manual consisting in head tilting left and right, to encode the wish which is being expressed.

$$\underline{\text{ht-right-left}}$$
IX$_1$ HOUSE BUY WANT++
'I would like to buy a house.'

The negative counterpart is WANT^NOT marked by headshake, as in the example below.

$$\overline{\text{hs}}$$
IX$_1$ FILM IX$_1$ SEE WANT^NOT
'I don't want to watch a film.'

3.3.3.2 Epistemic modality

Epistemic modality markers convey the signer's evaluation or judgment about the possibility or impossibility that an event has occurred, is occurring or will occur. The signer can be more or less cer-

tain about his/her evaluation, which is formulated considering direct evidences or personal knowledge or belief. LIS employs several manual signs yielding epistemic modality, some of which also function as deontic markers [LEXICON 3.3.3.1]. In these instances, it is only the context that allows to disambiguate the function of the modality marker.

In this section, we list the lexical markers of epistemic modality and their semantics. For details about the morphological properties of the corresponding non-manual markers, as well as the syntactic distribution of the epistemic markers, the reader is referred to [MORPHOLOGY 3.4] and [SYNTAX 2.3.1.3], respectively.

Epistemic certainty, namely certainty about the likelihood of the event in the utterance, is encoded through the modal BE_ABLE, and the signs OBLIGATION and SURE. These yield slightly different semantics but share the certainty the signer has of the likelihood of the event described in the utterance, which is based on his/her knowledge or available evidences. We describe each in turn.

BE_ABLE encodes a strong degree of certainty, and it is used when the signer knows that the event is possible based on his/her knowledge of the external conditions. This is further specified by the articulation of the non-manuals head nod (hn) and furrowed eyebrows (fe) which in general express certainty [MORPHOLOGY 3.4.2].

| fe |
| hn |
BE_ABLE
'Can'

In the example below, the signer implies that he has the possibility of checking the luggage because he knows that the situation allows him to do that (for instance, he does not have anything else to do).

| fe |
| hn |
SUITCASE POSS$_3$ IX$_1$ CONTROL BE_ABLE IX$_1$
'I can watch her luggage.'

BE_ABLE also functions as epistemic marker when it conveys the certainty of the signer about the ability of someone/something else. In other words, it can be used when the signer is sure that the event is possible because he knows that the agent is capable of fulfilling it. In so doing, the marker has a double function in that it conveys both the ability of the interlocutor and the certainty of the signer about it. This holds both when the agent is human, in (a) below the signer is saying that he is sure that Gianni is able to win the competition, and when the agent is non-human, in (b) the signer knows that the electric car can drive for 400 km. In so doing, epistemic certainty is conveyed. In both instances, BE_ABLE is reduplicated and marked by furrowed eyebrows (fe), repeated head nod (hn) and puffed cheeks (pc), as to underline the certainty.

<div align="center">

              pc
              hn
              fe

</div>

a. GIANNI WIN BE_ABLE++

'I am sure that Gianni is able to win (the competition).'

<div align="center">

              pc
              hn
              fe

</div>

b. FOUR^HUNDRED KILOMETRE BE_ABLE++

'(The electric car) has a driving range of 400 km.'

OBLIGATION is used when the signer describes an event that is inevitably going to happen due to the present conditions. In these instances, the sign occurs with the mouthing of the Italian word for 'necessarily', namely *per forza*.

OBLIGATION
'Necessarily'

The example below shows the use of OBLIGATION to express that eating all chocolate cream is definitely going to happen.

Context: you and your girlfriend love chocolate cream. She bought a jar and hid it. You find it while she is not at home.

<u>'per forza'</u>
IX₁ EAT ALL OBLIGATION
'I eat it all, I can't resist.'

One further possibility of expressing epistemic certainty is to employ the sign SURE.

SURE
'(To) be sure'
'Surely'

This sign can either function as a predicative adjective (a), or sentential adverb (b). It can be accompanied by head nod and furrowed eyebrows.

a. IX₁ SURE IX₂ CHESS UNDERSTAND IMPOSSIBLE_PA_PA
'I am sure that you will never understand how to play chess.'

<u>   hn   </u>
<u>   fe   </u>
b. SURE GIANNI COME
'Gianni is coming surely.'
(based on Lerose 2012, 344)

The sign OBVIOUS, sometimes marked by head nod, can be employed as well. Interestingly, this could be an example of grammaticalisation of the adjective BRIGHT into a modal encoding epistemic certainty.

OBVIOUS

Below, we provide an example showing the use of OBVIOUS as lexical marker of epistemic modality.

LUCA_a IX_a EXAM PASS OBVIOUS
'It is obvious that Luca will pass the exam.'

On the other hand, epistemic certainty that the event is surely not going to happen is conveyed in LIS through CAN^NOT and IMPOSSIBLE_NO_WAY.

CAN^NOT is used to convey that the event cannot happen because of the lack of favourable conditions. It implies that if the conditions change, the event may become possible. It can be accompanied by headshake.

CAN^NOT
'(To) not be possible'

Below, we provide a couple of examples showing the use of CAN^NOT as lexical marker of epistemic modality.

                                                          cond
a. SEA SASS(flat open 4): 'flat' WAVE EXIST.NOT LEAVE SURF
                                                    CAN^NOT
'If the sea is flat with no waves, it is not possible to surf.'

b. CAR WHEEL HOLE CL(flat open 5): 'deflate'. IX JACK EXIST.NOT.

<u>   hs   </u>
WHEEL CHANGE CAN^NOT

'You have a punctured tyre. You do not have the jack. It is impossible to change the wheel.'

The sign IMPOSSIBLE_NO_WAY is the strongest negative epistemic marker. It is lexically specified for the non-manual puffed cheeks (pc) and can be accompanied by headshake.

<u>   hs </u>
<u>   pc </u>
IMPOSSIBLE_NO_WAY
'(To) be absolutely unlikely to happen'

This marker yields the knowledge of the signer that the event is surely not going to happen due to the absolute absence of favourable conditions.

a. WHEEL CAR IX$_1$ CHANGE IMPOSSIBLE_NO_WAY
'I cannot change the (car) wheel.'

b. IX$_1$ SURF IMPOSSIBLE_NO_WAY BECAUSE SHARK EXIST IX(loc) IX$_1$ NOT IMPOSSIBLE_NO_WAY
'I am definitely not going to surf because there are sharks, I really can't.'

When the signer is expressing his/her judgment about the likelihood of an event, (s)he uses BE_POSSIBLE(1) or BE_POSSIBLE(2). These manual signs only differ in their movement: BE_POSSIBLE(1) displays an arc-shaped downward path movement (a), whereas BE_POSSIBLE(2) shows a double downward short movement (b).

a. BE_POSSIBLE(1)
'(To) be possible'

b. BE_POSSIBLE(2)
'(To) be possible'

These epistemic markers can either be used if the signer has some evidence for the likelihood of the event, or to express his/her hypotheses and suppositions. The different degrees of certainty and possibility are encoded through non-manual markers (see [MORPHOLOGY 3.4.] for their possibility of spreading). Specifically, squinted eyes usually convey the signer uncertainty about the likelihood of the event (a); raised eyebrows and mouth corners down (md), sometimes combined with a head tilt backwards, express that the event could be possible but the signer is not sure due to lack of evidence. In other words, they express a presupposition (b). Head nod encodes a higher probability that the event can happen considering the circumstances (c-d), despite the lack of evidences. Signers can add a further manual marker, glossed PALM_BACK in (d), to state that they do not have evidence for it at the time of the utterance.

<div align="right">

_____ sq
</div>

a. FRIEND IX$_1$ LOOK_FOR FIND BE_POSSIBLE(1)
'I (think) I can find the friend I am looking for.'

$$\begin{array}{c} \underline{\hspace{2cm}\text{md}\hspace{0.5cm}} \\ \underline{\hspace{2cm}\text{re}\hspace{0.5cm}} \end{array}$$

b. HEADACHE BE_POSSIBLE(1) REASON SLEEP LITTLE ✋

'Maybe you have a headache because you did not sleep enough.'

$$\underline{\hspace{3cm}\text{hn}\hspace{0.5cm}}$$

c. IX$_a$ DAUGHTER IX$_a$ FUTURE QUEEN BE_POSSIBLE(2) ✋

'In the future, the daughter could become queen.'

d. DATE TWO^FIVE DECEMBER TRAIN IX(LOC) SEAT EMPTY

$$\underline{\hspace{4cm}\text{hn}\hspace{1cm}}$$

BE_POSSIBLE(2) PALM_BACK ✋

'It is possible to find free seats on the train on December 25th.'

When the signer has no knowledge or evidence about the likelihood of the event, (s)he can use the sentence adverbial MAYBE (a) [LEXICON 3.5], the modal SEEM (b), or the verb KNOW^NOT (c) occurring with the typical non-manual for negation, i.e. headshake.

a. MAYBE

b. SEEM

c. KNOW^NOT
'Do not know'

We provide one example for each marker below.

a. MAYBE IX BROTHER POSS₁ ACCIDENT
'Maybe my brother had a (car) accident.'

b. SEEM IX BROTHER POSS₁ FORGET
'It seems that my brother forgot (our appointment).'

$$\overline{}\text{hs}$$
c. IX BROTHER POSS₁ WHERE IX₁ KNOW^NOT
'I do not know where my brother is.'

3.3.4 Agreement markers

In LIS, plain verbs [LEXICON 3.2.1], namely verbs articulated on the body, can realise agreement with their arguments through an agreement marker that can be considered an auxiliary (glossed AUX). This is a semantically empty deictic sign that can be used to express agreement relation only when animate arguments are involved. AUX is phonologically similar to a pronoun, thus it could be an instance of grammaticalisation of a pronominal element into an auxiliary. It displays a path movement from the subject to the object of the predicate. As we can see in the following example, the agreement marker AUX follows the verb.

GIANNI$_a$ PIETRO$_b$ BE_FAMILIAR $_a$AUX$_b$
'Gianni knows Pietro.'
(based on Bertone 2011, 159)

AUX can express all person combinations. We provide three illustrative examples: in (a) it realises agreement between a first person sin-

gular subject and a third person singular object; in (b) agreement is between a second person singular subject and a first person singular object; in (c) AUX connects a second person singular subject with a third person plural object.

a. IX_1 IX_3 BE_FAMILIAR $_1AUX_3$
'I know him/her.'

b. IX_2 IX_1 BE_FAMILIAR $_2AUX_1$ SURE
'You know me for sure.'

c. IX_2 IX_{3pl} IX_2 BE_FAMILIAR $_2AUX_{3pl}$
'You know them.'

Interestingly, AUX can also be employed with agreement verbs showing two points of articulation, such as GIVE. In such instances, the occurrence of the auxiliary is to reinforce the semantics of the verb, so it is not obligatory since the verb is already marking the agreement between the subject and the indirect object. See the example below.

$GIANNI_a$ $PIETRO_b$ BOOK $_aGIVE_b$ $_aAUX_b$
'Gianni gives the book to Pietro.'

A further auxiliary marker is GIVE_AUX, which is a causative auxiliary marker employed in causative psychological predicates to show overt morphological agreement with the subject (EARTHQUAKE) and the experiencer object (first person singular) [SYNTAX 2.1.1.3].

EARTHQUAKE GIVE_AUX$_1$ FEAR
'Earthquakes scare me.'

3.4 Adjectives

Adjectives are typically used to describe, qualify, or specify a nominal element. Note that the same sign may be used as an adjective or an adverbial, as exemplified below with the sign QUICK [LEXICON 3.5].

FAST
'Quick'
'Quickly'

Some adjectives in LIS must co-occur with specific non-manuals, usually connected with the semantic meaning of the sign. To illustrate, the adjective THIN must be simultaneously articulated with tongue protrusion (tp), which typically indicates small amount or thinness.


```
     tp
```
THIN

A functional distinction that it is important to keep in mind is that between attributive and predicative adjectives. On the one hand, attributive adjectives occur within the noun phrase and modify the noun. For a discussion of the syntactic distribution of adjectives within the nominal phrase see [SYNTAX 4.5]. On the other hand, predicative adjectives function as verbs: they do not directly combine with the noun, but predicate something about it.

The distinction between attributive and predicative adjectives might not be straightforward in LIS since both types of adjectives usually follow the noun they refer to. So, for instance, in a sequence of manual signs like FURNITURE OLD, the adjective OLD can function both as attributive and predicative adjective (*the old furniture* vs. *the furniture is old*). So, word order cannot be used as diagnostic test. How the two functions can be distinguished is discussed in the next sections with concrete examples.

3.4.1 Attributive adjectives

Attributive adjectives combine with a noun within the noun phrase. We provide below a couple of adjectives that can be used attributively: BEAUTIFUL and BIG.

a. BEAUTIFUL

b. BIG

Looking at the articulation of these adjectives, we can see that BEAUTIFUL is body anchored (a), whereas BIG is produced in the neutral space (b). The distinction between body-anchored and non-body-anchored adjectives is relevant in terms of agreement [SYNTAX 4.5].

The lexical category of adjectives also includes Size-and-Shape-Specifiers (SASS) [MORPHOLOGY 5.2], signs denoting the shape of the referent. For example, the SASS illustrated below can be used to describe a round shape, and hence fulfils an adjectival function.

SASS(curved open L): 'round'
'Round'

The fact that an attributive adjective and the related noun belong to the same noun phrase is signalled non-manually and prosodically. In the example below, the adjective OLD is an attribute of the noun FURNITURE. These two signs are marked by the same non-manuals, which generally consist in raised eyebrows (re), although variation across signers is documented in terms of intensity and kind of facial expression.

> _____ re
> FURNITURE_a OLD IX_a CHANGE NEED   🖐
> 'The old furniture must be replaced.'
> (adapted from Bertone 2007, 166)

The pointing sign (IX) occurring at the end of the noun phrase is optional. On the optionality of pointing signs, the reader is referred to the section on definite determiners [LEXICON 3.6.1].

> _____ re
> FURNITURE OLD CHANGE NEED   🖐
> 'The old furniture must be replaced.'
> (adapted from Bertone 2007, 166)

The distinction between the noun phrase (containing noun and attributive adjective) FURNITURE OLD (IX) and the verb phrase CHANGE NEED is usually signalled by: i) the use of different non-manuals, ii) the presence of an (optional) pointing sign (IX), which generally is the last element of noun phrase, and iii) an in-between prosodic break, which is typically combined with a head nod.

Most adjectives in LIS are independent manual signs (like BIG above). However, some adjectival meanings can be conveyed through non-manuals simultaneously combined with the noun they modify. We provide below a couple of examples to clarify this possibility.

$$\overline{\quad\text{tp}\quad}$$
a. STREET
'Narrow street'
(recreated from Petitta, Di Renzo, Chiari 2015, 161)

$$\overline{\quad\text{md}\quad}$$
$$\overline{\quad\text{fe}\quad}$$
b. YELLOW
'Disgusting yellow'
(inspired by Fornasiero 2015, 89)

$$\overline{\quad\text{fe}\quad}$$
c. RED
'Dark red'
(recreated from Bertone 2011, 29)

In (a), tongue protrusion (tp) simultaneously layered on the manual sign STREET expresses the meaning of 'narrow'. Furrowed eyebrows

(fe) together with tensed mouth-corners down (md) can be used to express contempt, as exemplified in (b). Furrowed brows co-occurring with a colour sign like RED indicates a dark tint, as in (c).

3.4.2 Predicative adjectives

As the label suggests, predicative adjectives function as predicates, hence are used to state something about the noun. Contrary to their attributive counterpart, predicative adjectives are not included in the noun phrase. An illustrative example is reported below.

$$\overline{\text{}\text{re}}$$
FURNITURE$_a$ IX(B)$_a$ OLD
'The furniture is old.' (adapted from Bertone 2011, 8)

The predicative nature of the adjective OLD can be recognised through the following cues: i) absence of the non-manuals characterising noun phrases, ii) presence of an (optional) localising pointing sign between noun and adjective, and iii) a prosodic break combined with a head nod signalling the boundary between noun phrase and verb phrase.

The pointing sign IX can be expressed by the dominant hand after the noun or, alternatively, it can be expressed by the non-dominant hand while the dominant hand articulates the noun FURNITURE.

Some predicative adjectives might allow for aspectual inflection. This is discussed in [MORPHOLOGY 3.3]. Syntactic characteristics of nonverbal predication are addressed in [SYNTAX 2.1.4].

3.5 Adverbials

Adverbials, like adjectives, are modifying elements: they can modify sentences, verbs, adjectives or other adverbials.

In some languages, adverbials are usually marked by derivational affixes. For instance, in Italian the suffix -*mente* identifies a kind of adverbial (e.g. *lenta-mente*, 'slow-ly').

In the sign languages studied to date, LIS included, there seems to be no morphological systematic distinction between adjectives (a) and the corresponding adverbial (b), as shown by the following examples.

a. YOUNG$_a$ IX$_a$ FAST
'The boy is quick.'

b. YOUNG_a IX_a RUN FAST
'The boy runs quickly.'

As shown in the (b) example above, adverbial modification in LIS may be realised with a specific sign. However, adverbial modification can also be simultaneous. This happens when modification is expressed by specific non-manuals that convey the meaning of the adverb or by the modification of a manual parameter, like movement. The following two examples illustrate these two possibilities.

<u>ce we</u>
<u>blow</u>
a. SARA BOOK READ_[fast]
'Sara reads quickly a book.'
(based on Lerose 2012, 328)

<u>fe</u>
<u>sq</u>
b. YOUNG_a IX_a RUN_[fast]
'The boy runs fast.'

In (a) the verb READ is performed with a quick and sharp movement and it is accompanied by a specific mouth gesture. In (b) a mouth gesture indicates the way in which the action described by the verb takes place and the verb is performed with a more rapid and repeated movement.

When overtly expressed by a specific sign, adverbials behave in different ways depending on the type of adverb. It is possible to identify different types of classification. The classification we propose considers the semantic aspect of adverbials.

Manner adverbs indicate the way an action takes place. They are mostly expressed by non-manuals, as in (a) and (b) above, but if they are expressed by a sign, it usually follows the verb. Examples of this phenomenon are reported below.

a. YOUNG_a IX_a RUN FAST
'The boy runs fast.'

b. SARA READ FAST
'Sara reads quickly.'
(based on Lerose 2012, 327)

Locative adverbs indicate where an action takes place. They are usually expressed by a specific lexical sign or by a deictic form pointing toward a location in the signing space. Here we can find an example.

DAVIDE EAT OUTSIDE
'Davide eats out.'
(based on Lerose 2012, 333)

Temporal adverbs indicate the time in which an action takes place. They are usually expressed by a specific lexical sign.

TODAY DAVIDE COME
'Today Davide is coming.'
(based on Lerose 2012, 336)

The unmarked position of temporal adverbs is at the beginning of the sentence, even if other positions are possible.

In some circumstances, it is not necessary to use a specific sign, but the adverb is expressed by the repetition of the verb. For example, the adverb ALWAYS can be expressed by a lexical sign (a) or by the reduplication of the movement of the verb (b).

a. SARA READ ALWAYS
'Sara always reads.'

b. SARA READ++
'Sara always reads.'

Quantitative adverbs indicate an indefinite quantity that refers to the action performed by the verb. They are usually expressed by non-manuals (prolonged mouthing and squint), and by modifying the parameter of movement within the verb sign, as in the following example.

$$\overline{\text{sq}}$$
'st[uuu]dia'
DAVIDE STUDY++
'Davide studies a lot.' (based on Lerose 2012, 341)

However, the same meaning can be conveyed by a specific sign, like in the following examples:

a. DAVIDE STUDY MANY
'Davide studies a lot.'

b. DAVIDE STUDY VERY

'Davide studies a lot.'

In this last example, the status of VERY is not very clear. Some signers do not consider it a sign but a gesture, also used by hearing people in the Italian culture.

Speaker-oriented adverbs express a judgment or an evaluation. In this case, the adverb is usually expressed by a specific sign and its corresponding non-manual marking.

SURE GIANNI COME

'Gianni is surely coming.'

(based on Lerose 2012, 344)

In this case, the position of the adverb in the sentence does not change the meaning of the sentence itself.

a. GIANNI COME SURE

'Gianni is surely coming.'

b. GIANNI SURE COME

'Gianni is surely coming.'

It is also possible to convey the meaning of speaker-oriented adverbs by modifying the movement component of the verb and adding a specific non-manual marking. As illustrated below, certainty can be conveyed by articulating the verb with a sharp and quick movement and a simultaneously head nod (a). To express doubt, the verb is usually executed in a less tense way with sideward head tilt and downward mouth-corners (b).

$$\overline{\qquad\quad \text{hn}\qquad}$$

a. DANIELE COME$_{[fast]}$

'Daniele is surely coming.'

$$\overline{\quad\text{ht-left}\quad}$$
$$\overline{\quad\ \text{md}\quad\ }$$

b. DANIELE COME

'Daniele is coming probably.'

For adverbs of negation see [MORPHOLOGY 3.5] and [SYNTAX 1.5]. For more details on the distribution of adverbs, see [SYNTAX 2.3.1.6].

3.5.1 Verb-oriented adverbials
To be developed.

3.5.2 Sentence adverbials
To be developed.

3.6 Determiners

A determiner is an item that combines with the noun and specifies its referentiality, i.e. the relation between the noun and what the noun refers to [PRAGMATICS 1]. Specifically, it indicates whether the noun refers to a definite or indefinite element of a class. For this reason, determiners are usually categorised into two classes: definite [LEXICON 3.6.1] and indefinite [LEXICON 3.6.2].

The term *determiners* is intended here to include both articles and demonstratives. The syntactic distribution of determiners in LIS is addressed in [SYNTAX 4.1].

3.6.1 Definite determiners

Generally speaking, definite determiners are used when the addressee can identify who or what is being talked about.

In LIS, they are realised through pointing signs directed toward a spatial location. They are usually articulated with a G handshape. Bear in mind that pointing signs are polyfunctional elements in that they can fulfil several grammatical functions: determiners, demonstratives, personal pronouns [LEXICON 3.7.2], locatives [LEXICON 3.7.1], and (in some varieties) possessives [LEXICON 3.7.3]. Determining the function of a given pointing sign solely on the basis of its phonological articulation is not always straightforward. The syntactic distribution and the phrasal context may help shed further light on its nature.

Definite determiners can function either as articles or demonstratives. This functional distinction is reflected in differences in articulation and usage. Definite articles are usually pointing signs with a relaxed position realised quickly and not directed toward a specific point. Their movement cannot undergo path variation (near vs. far).

IX(def)

The referent associated with the definite article must be clearly iden-
tifiable to the addressee. To illustrate this point, we provide below
three concrete examples in which definite articles can be found. It
is important to note that, in all three cases, the use of the definite
article is not compulsory [SYNTAX 4.1.1.4]. This optionality is shown in
the pairs of sentences below, which differ for the presence/absence
of the pointing sign, IX(def).

A first purpose for using a definite determiner is to refer back to
someone (or something) that has been previously mentioned in the
discourse. In (a) below, a man is first introduced in the discourse and
then he is mentioned again. At the second mentioning, the address-
ee is already familiar with the referent (MAN) and identifies it on the
basis of the linguistic context.

a. MAN UMBRELLA TAKE
'The man took the umbrella.'

b. MAN IX(def) UMBRELLA TAKE
'The man took the umbrella.'

Definite determiners may also refer to to something or someone that
is easily identifiable in the extra-linguistic context. In the following
examples, two friends are doing some handwork together and there
are several tools on the table. One asks the other to pass him the ham-
mer. The referent (HAMMER) is identified through the extra-linguis-
tic context. Indeed, it is visible both to the signer and the addressee.

a. HAMMER ₂GIVE₁
'Give me the hammer!'

b. HAMMERₐ IX(def)ₐ ₂GIVE₁
'Give me the hammer!'

Finally, definite determiners may also be used to refer to a referent which is unique in its genre. In the following examples, the Pope was in Rome and visited the Italian Parliament. The addressee identifies the referent (POPE) because it is unique in its genre (similarly to the moon, the engine of a car, and the bride when talking about a wedding).

> a. POPE PARLIAMENT GO
> 'The Pope went to the Parliament.'

> b. POPE$_a$ IX(def)$_a$ PARLIAMENT GO
> 'The Pope went to the Parliament.'

Like in some other languages, LIS allows for proper nouns to occur with definite articles. As illustrated in the example below, the name sign MARIA is followed by the article.

> <u>   wh   </u>
> MARIA IX(def) BRING Q$_{artichoke}$
> 'What did Maria bring?'

Demonstratives are intrinsically definite, so they do not have an in-definite counterpart. Like articles, demonstratives are realised as pointing signs. Unlike articles, they usually point toward a specific point in the signing space and are articulated with a tense movement.

IX(dem)

To illustrate, we provide below a sentence including a pointing sign functioning as demonstrative, here glossed as IX(dem).

> BOOK IX(dem) IX$_1$ BUY WANT IX$_1$
> 'I want to buy this book.' (adapted from Brunelli 2011, 56)

The plural form of demonstratives is usually realised moving the pointing sign through an arc-shaped path on the horizontal plane.

This sign is glossed as IX(dem)_{arc}.

> BOOK IX(dem)_{arc} IX₁ BUY WANT
> 'I want to buy these books.' (adapted from Brunelli 2011, 50)

Demonstratives in LIS can be marked for emphasis through movement reduplication. This form is glossed as IX(dem)++.

> BOOK IX(dem)++ IX₁ BUY WANT IX₁
> 'I want to buy this very book.' (adapted from Brunelli 2011, 50)

Unlike articles, demonstratives are obligatory in their contexts. They signal that the referent is directly accessible to the addressee. The relationship between demonstrative and referent can be of two types: deictic or anaphoric. Deictic demonstratives are used to refer to entities present in the extra-linguistic context. For example, Gianni is looking for a chair in the classroom and Maria suggests that he should take the chair located close to her.

> CHAIR IX(dem) TAKE
> 'Take this chair!'

Since deictic demonstratives rely on the surrounding extra-linguistic context, they might refer to entities more or less distant from the signer. The distance between signer and referent is signalled by the extension of the movement of the arm in the signing space. For example, if the chair is close to the signer's body, the movement of the demonstrative is short (proximal demonstrative). On the contrary, if the chair is in a distant location, the demonstrative reflects this distance with a longer movement (distal demonstrative). Proximal (a) and distal (b) demonstratives are exemplified below.

a. CHAIR   IX(dem)_[proximal]
'This chair'

b. CHAIR   IX(dem)_[distal]

'That chair'

Unlike deictic demonstratives, anaphoric demonstratives are used to refer to entities that are not present in the extra-linguistic context, but have been previously mentioned in the discourse. In the example below, the signer tells a friend that he usually builds lots of different chairs in his lab and that the previous week he built a chair with fire-resistant materials. Later in the discourse, he anaphorically refers back to the fire-resistant chair to specify its value.

CHAIR$_a$ PE$_a$ IX$_1$ SELL THREE$^\wedge$HUNDRED EURO

'I sold this chair for three hundred euros.'

When the demonstrative anaphorically refers to a previously mentioned referent, signers typically use the sign PE. This sign is realised with G handshape and wrist rotation, from supine to prone. PE is shown in isolation below.

PE

Another difference that distinguishes demonstratives from articles is that they can also be produced in isolation, namely without the noun. The pronominal use of demonstratives is addressed in [LEXICON 3.7.1].

3.6.2 Indefinite determiners

Indefinite determiners are used when the addressee is not supposed to know who or what is being talked about. LIS has a singular indefinite article realised with a G or S handshape. The fingertip is oriented upward and the palm usually has a slightly contralateral orientation.

a. ONE(indef)(G)

b. ONE(indef)(S)

It is usually produced in a steady position in an unmarked spatial location. Alternatively, it can be accompanied with a slightly tremoring motion. This articulation correlates with the degree of identifiability of the nominal expression: the more unidentifiable the referent, the broader the tremoring motion. The indefinite article usually co-occurs with facial expression denoting uncertainty, which consists in pulling the corners of the mouth down and slightly raising the eyebrows.

In LIS, the indefinite article ONE(indef) is used to introduce a new referent in the discourse. An example is provided below.

ONE(indef) DEAF IX$_1$ MEET
'I met a deaf guy.'

Like the definite article, the indefinite article ONE(indef) is not obligatory in its contexts. Indeed, the example below is also acceptable without ONE(indef).

DEAF IX$_1$ MEET
'I met a deaf guy.'

It has been observed that the indefinite article is more frequently produced by the middle-aged and older population of LIS signers. On

the other hands, young signers tend to omit the manual sign and express indefiniteness by means of non-manuals (see [SOCIO-HISTORICAL BACKGROUND 4.4] and [SYNTAX 4.1.1.4]).

3.7 Pronouns

A pronoun is a linguistic element that replaces a noun or a noun phrase in a sentence. As in other languages, pronouns in LIS can be classified into different categories according to their use and semantic contribution. These categories are discussed in detail in the following sections.

3.7.1 Locative and demonstrative pronouns

Locative pronouns are used to denote a position in space. In LIS, they are typically realised as pointing signs directed toward the actual (absolute) location in real space or, alternatively, toward a spatial point previously established in the discourse.

IX$_1$ EAT IX(loc)
'I'll eat there.'

The most frequent realisation of locative pointing signs is with G handshape and downward palm orientation. The extension of the movement of the arm indicates how far the location is from the perspective of the signer. The screenshots below show locative pronouns with different degrees of extension.

a. IX(loc)$_{[proximal]}$
'Here'

b. IX(loc)_[contra−distal]
'There'

c. IX(loc)_[ipsi−distal]
'There'

If special emphasis is needed, for instance to contrast two different locations, a repeated movement can be added to the pointing sign. This is shown in the example below.

$$\overline{\text{om}}$$

IX(loc)_a PERSON++   CL(5): 'be_many_at_a'.

$$\overline{\text{tp}}$$

IX(loc)_b PERSON++   CL(5): 'be_few_at_b'   🖐

'There are many people there (location *a*) and few people there (location *b*).'

Demonstratives [LEXICON 3.6.1] are typically used to indicate a referent by using an act of demonstration (i.e. 'this' in English, associated to a pointing in a position close to the speaker). These elements can combine with nouns, thus behaving as nominal modifiers [SYNTAX 4.1.2], or they can be used pronominally, without a noun. In this section, we focus on this second usage. To illustrate, we present below an example containing a demonstrative pronoun.

IX(dem) IX$_1$ WANT

'I want this.'

Because of their definite nature, demonstrative pronouns in LIS are always headed toward a specific point in the signing space. Non-manually, proximity (i.e. nearness in space) may be marked by wide-open eyes (we), whereas distality (i.e. farness in space) may be signalled by squint eyes (sq). As for the articulation of demonstrative pronouns, there are three possible realisations, which also reflect differences in usage. The most common form is a pointing sign with a straight path movement. Below, we show both the proximal (a) and distal (b) realisation.

a. $\overline{\text{IX(dem)}_{\text{straight[proximal]}}}^{\text{we}}$

b. $\overline{\text{IX(dem)}_{\text{straight[distal]}}}^{\text{sq}}$

Pointing signs with straight path movement realise canonical deictic demonstratives, thus referring to entities present in the surrounding extra-linguistic context.

Another possibility is to articulate the pointing sign with wrist pivoting from radial to ulnar and a co-occurring implosive mouth gesture, which is traditionally identified by the gloss PE.

a. $\overline{\text{IX(dem)}_{\text{pivoting[proximal]}}}^{\text{[p]}}$

b. $\overline{\text{IX(dem)}_{\text{pivoting[distal]}}}^{\text{[p]}}$

Pointing signs with wrist pivoting realise anaphoric demonstratives, thus referring to entities previously mentioned in the discourse. Demonstratives can be used anaphorically when they point to a location in the neutral space, so they have a deictic component, but by doing so they pick up a position previously associated to a given referent.

The last type of demonstrative pronoun is a pointing sign with wrist rotation either from prone to supine (a) or vice versa (b).

a. IX(dem)$_{\text{rotating[ipsi]}}$

b. IX(dem)$_{\text{rotating[contra]}}$

Pointing signs with wrist rotation are typically used to select a referent between two alternatives. Indeed, they rotate moving from the non-selected to the selected option.

As previously observed with locative pronouns, the extension of the movement of the arm used to articulate demonstrative pronouns show the distance between signer and target. As discussed before, another strategy that signals distance is represented by the non-manuals which can co-occur with the demonstrative pronouns: wide-open eyes and in some cases also tongue protrusion signal proximity (a), while squinted eyes signal distality (b).

$$\underline{\overline{\underline{\text{tp}}\text{we}}}$$

a. IX(dem)$_{[proximal]}$

$$\overline{\text{sq}}$$

b. IX(dem)$_{[distal]}$

Moreover, demonstrative pointing signs may be accompanied by the eye-gaze pointing toward the same direction. This is a further cue that helps the addressee to identify the relevant referent(s) in space.

3.7.2 Personal pronouns

Personal pronouns are used in place of nouns to refer to animate or inanimate entities. In LIS, they are typically realised as pointing signs articulated with G handshape. Such signs can be pointed toward present referents (deictic use) or toward loci in the signing space that have previously been associated with absent referents (anaphoric use).

Personal pronouns in LIS can incorporate grammatical features, such as person, number, clusivity, case, and logophoricity.

In some cases, LIS admits the possibility to omit personal pronouns. For more details, the reader is referred to the section on null arguments [SYNTAX 2.4].

3.7.2.1 Person

Personal pronouns encode the person feature, and hence distinguish between different participant roles in the discourse, such as signer, addressee, and non-addressed participant.

The signer (i.e. first person) is typically referred to by heading the pointing sign realised with ipsilateral palm orientation toward the centre of the chest. Differently from other personal pronouns, first-person pronouns have a constant and stable form, which does not vary according from context to context.

IX_1

The addressee (i.e. second person) is typically referred to by pointing toward the locus associated with the addressee. The articulation of this pronoun displays palm sideways orientation and requires the alignment of the pointing sign and the eye-gaze: both elements must point toward the same direction. Note that second-person pronoun does not point toward a fixed direction, rather it depends on the absolute position of the addressee, who is not necessarily in front of the signer, but could be in different positions as well.

IX$_2$

A non-addressed participant (i.e. third person) is typically referred to by pointing toward a locus different from that of the signer and the addressee. Again, this direction is not fixed, rather it depends on the absolute position of the referent (if present in the extra-linguistic context) or the locus associated to the referent in previous discourse. Generally speaking, third-person pronouns are realised with the palm facing sideways and do not display alignment of pointing sign and eye-gaze. This misalignment is shown below.

IX$_3$

However, in deictic uses, signers might sometimes direct a quick eye-gaze toward the present referent, especially in those contexts in which identification is particularly challenging.

<u>eg</u>
IX$_3$

3.7.2.2 Number

Personal pronouns in LIS take on different forms if more than one referent is involved.

Plural marking is realised by modifying the movement associated with the pointing signs. Two different plural forms are attested: i) a collective one, characterised by straight or circular movement, and ii) a distributive one, realised by heading the pointing sign toward multiple space points lying along a line. These options are illustrated below for each plural pronoun.

The first-person plural pronoun, in its collective form (a), starts and ends in correspondence with the signer's locus and typically displays a circular movement.

a. $IX_{1pl\text{-}coll}$

b. $IX_{1pl\text{-}distr}$

The second-person plural pronoun, in its collective form, may be articulated: with sideways palm orientation and ipsilateral straight movement (a), with downward palm orientation and ipsilateral straight movement (b), or with a circular movement (c).

a. $IX_{2pl\text{-}coll}$ (sideways palm + straight movement)

b. $IX_{2pl\text{-}coll}$ (downward palm + straight movement)

c. $IX_{2pl\text{-}coll}$ (circular movement)

d. $IX_{2pl\text{-}distr}$

The third-person plural pronoun, in its collective form, may be articulated: with sideways palm orientation and ipsilateral straight movement (a), with downward palm orientation and ipsilateral straight movement (b), or with a circular movement (c).

a. $IX_{3pl\text{-}coll}$ (sideways palm + straight movement)

b. $IX_{3pl\text{-}coll}$ (downward palm + straight movement)

c. $IX_{3pl\text{-}coll}$ (circular movement)

d. $IX_{3pl\text{-}distr}$

Another form of number marking is realised by changing the handshape of the pointing sign according to the number of participants involved. The dual form (i.e. when the pronoun refers to two entities) displays some phonological peculiarities, since it is realised with a repeated path movement and incorporates different handshapes according to the type of participants involved: handshape L with sideways palm orientation is used for first person plus non-first person (a), whereas handshape V with upward palm orientation is used for two non-first persons (b).

a. IX$_{1+3}$
'The two of us'

b. IX$_{2a+2b}$
'The two of you'

When the pronoun refers to three, four, or five referents, numeral incorporation [LEXICON 3.10] occurs with no distinction for participant type with palm facing upward. Some examples are provided below.

a. IX$_{2pl}$^THREE
'The three of you'

b. IX$_{1pl}$^FOUR
'The four of us'

c. IX$_{3pl}$^FIVE
'The five of them'

Numeral incorporation within the personal pronoun is attested in LIS from two to five. If more than five participants are involved, signers tend to sequentially combine the plural form of the pronoun and the relevant numeral.

IX$_{2pl}$ SIX
'The six of us'

3.7.2.3 Clusivity

Plural personal pronouns can encode clusivity distinction, thus signalling the inclusion or the exclusion of the addressee or any other referent salient in the discourse. Inclusive and exclusive forms differ mainly in terms of location and non-manuals.

Inclusive pronouns are typically characterised by unmarked location and neutral shoulder position. The movement produced in these signs is at some point directed toward the locus associated with the included referent. A couple of examples of inclusive pronouns are shown below.

> a. IX$_{1pl-incl}$
> 'We all' (the addressee is included)

> b. IX$_{1+2-incl}$
> 'We two' (the addressee is included)

Exclusive pronouns highlight the non-involvement of the addressee or a salient referent. They are typically articulated in a marked location, such as on the left/right side of the signing space, which crucially is far from the locus associated with the excluded referent. The shoulders are directed toward the opposite direction of this marked location.

> a. IX$_{1pl-excl[left]}$
> 'We all' (the addressee is not included)

> b. IX$_{1+2-excl[right]}$
> 'We two' (the addressee is not included)

3.7.2.4 Case

Some LIS signers acknowledge the possibility to use a pronoun which is phonologically homophonous to the sign PERSON. It is realised with a curved open L handshape combined with downward movement. From a semantic point of view, this sign (glossed here as IX_PERSON) is compatible only with single entities and, in particular, with human referents.

Interestingly, IX_PERSON appears as a case-marked pronoun since it can mark the object only. It is compatible with first, second, and third person objects. Another restriction is that it is typically used in combination with plain verbs [LEXICON 3.2.1], such as BE_FAMILIAR (a)

and REMEMBER, and with adjectives selecting argument(s) [SYNTAX 5.2], such as PROUD (b).

a. IX$_1$ IX$_2$_PERSON BE_FAMILIAR
'I know you.'

b. IX$_2$ IX$_1$_PERSON PROUD
'You are proud of me.'

3.7.2.5 Gender

Personal pronouns in LIS do not mark gender distinctions. The same linguistic element (i.e. pointing signs) is used to refer to male and female human referents.

Also, pointing signs do not mark distinctions based on animacy, so they do not differ if the referent is animate, such as a person or a cat, or inanimate, such as a laptop or a chair.

3.7.2.6 Honorific pronouns

The possibility to encode social distinctions in LIS pronouns seems to be subject to some variation [PRAGMATICS 1.1.2].

Some LIS signers tend to articulate personal pronouns with the extended index finger regardless of the status of the referent. This is shown in the two examples below: a regular pointing pronoun is used to refer to a high-status addressee in (a) and a high-status non-addressed referent in (b).

$\overline{\hspace{3cm}\text{y/n}}$
a. TOMORROW PRESENT IX$_2$
'Will you be here tomorrow?' (to the boss)

b. IX$_3$ BOSS POSS$_1$
'He is my boss.'

As we can observe, the particular communicative setting does not trigger any modification in the articulation of the personal pronoun. Indeed, no change occurs in the handshape or location of the sign.

However, according to other LIS signers, it is possible to mark the high social status of a referent by articulating the personal pronoun with unspread 5 handshape (shown below), rather than G handshape.

Figure 1 Unspread 5 handshape used as honorific form

3.7.2.7 Logophoric pronouns

Logophoric pronouns are used to mark co-referentiality with an individual whose point of view is being adopted. LIS does not have a specific set of pronouns conveying logophoricity.

However, singular pronouns can function as logophoric pronouns in the context of role shift [SYNTAX 3.3.3]. When role shift is not produced, IX_1 functions as a regular first-person pronoun referring to the signer. In the example below, the person who bought the house is the signer himself.

MARIA REVEAL IX_1 HOUSE BUY DONE
'Maria revealed that I bought a house.'

On the contrary, when IX_1 is used under role shift, it is interpreted as referring to a different referent, mentioned in the discourse. This shift of reference is signalled by non-manuals co-articulated with the pronoun (here glossed as 'rs'), such as change in the direction of eye gaze, body shift, and altered facial expressions. In the example below, IX_1 does not refer to the signer, rather it is co-referential with the individual whose perspective is adopted. Therefore, the house was not bought by the signer, rather by the referent of the matrix subject.

<u>   rs</u>
IX_3 SAY IX_1 HOUSE BUY DONE
'She said: "I did buy the house."'

From an articulatory point of view, it is worth noting that the first-person pronoun referring to the signer and the one used logophorically have the same phonological shape.

3.7.3 Possessive pronouns

Possessive pronouns can be used in two ways: i) as proform for the possessor or ii) as proform for both the possessor and the thing possessed. In the former case, so-called attributive possessives accompany and modify a noun; in the latter, so-called substantival possessives function as independent nominal elements. Note that the two usages do not correspond to two distinct sets of lexical forms in LIS. Therefore, this distinction is not relevant to the present section. To read more about the distribution of attributive and substantival possessives, see [SYNTAX 4.2].

Possessive pronouns in LIS can be realised with two different handshapes: POSS(G) and POSS(5). In some contexts, some LIS signers may express possession by means of regular personal pronouns [LEXICON 3.7.2] as well. In this section, we focus on POSS(G) and POSS(5), which differ both phonologically and semantically.

POSS(G) is articulated with G handshape and repeated movement directed toward the locus associated with the possessor. The example below shows a first-person possessive.

POSS(G)$_1$
'Mine'

Two semantically equivalent variant forms are available for second-person and third-person possessor. The first option is characterised by downward palm orientation and wrist pivoting from radial to ulnar, as shown below.

a. POSS(G)$_{\text{2-pivoting}}$
'Yours'

b. POSS(G)$_{\text{3-pivoting}}$
'His/hers'

The second possibility is characterised by upward metacarpus orientation, does not involve any wrist movement, and heads the ulnar part of the hand toward the possessor, as shown below.

a. POSS(G)$_{\text{2-non-pivoting}}$
'Yours'

b. POSS(G)$_{\text{3-non-pivoting}}$
'His/hers'

The possessive realised with 5 handshape, POSS(5), is usually perceived by signers as a more marked type of possessive and it is used to remark the concept of ownership. For more details on the usage of the two types of possessives in context, the reader is referred to [SYNTAX 4.2]. The sign POSS(5) is realised with unspread 5 handshape articulated with abducted thumb and repeated movement directed toward the locus associated with the possessor. The palm of the hand is oriented toward the same locus. The three examples below show POSS(5) referring to a first-person (a), a second-person (b), and a third-person possessor (c).

a. POSS(5)$_1$
'Mine'

b. POSS(5)$_2$
'Yours'

c. POSS(5)$_3$
'His/hers'

Both POSS(G) and POSS(5) are defective possessives since they lack plural forms. The meanings of *ours*, *yours*, and *theirs* are conveyed by suppletive forms, such as the first-person, second-person, and third person plural pronouns [LEXICON 3.7.2.2]. Alternatively, the movement component of the possessive can be reduplicated at distinct locations lying along an arc. This articulation conveys not only numerousness, but also distributivity. An illustrative example is provided below.

POSS(5)$_{\text{2pl-distr}}$

3.7.4 Reflexive and reciprocal pronouns

A reflexive relation and a reciprocal relation both involve co-referentiality.

On the one hand, reflexive pronouns are used to indicate that the object in a sentence refers to the same person or thing denoted by the subject of the same sentence. In LIS, reflexive meaning can have two different realisations, which are equivalent from a semantic point of view.

The first realisation, glossed here as IX_PERSON, is a sign phonologically similar to the sign PERSON. It consists in a personal pronoun articulated in the locus associated with the antecedent. If referring to the first person (IX$_1$_PERSON), it is realised on the signer's body with inward palm orientation.

IX$_1$_PERSON
'Myself'

If referring to the second or third person, it is articulated with out-ward/sideward palm orientation and in correspondence with the locus associated with the second or third person. To illustrate, we show below the articulation of IX$_2$_PERSON.

IX$_2$_PERSON
'Yourself'

For the sake of clarity, in the example below, we show the use of the reflexive pronoun IX$_3$_PERSON in context.

WOMAN IX$_a$ PAINT IX$_{3a}$_PERSON   🖐
'The woman is painting herself.'

For the reflexive reading to emerge, it is important that the pronoun IX_PERSON is realised in the same locus of the antecedent, i.e. the locus associated with the pointing sign accompanying the body-anchored noun WOMAN. If the two elements, pronoun and antecedent, are not produced in the same location in space, then a non-reflexive interpretation emerges ('the girl is painting her/him').

The second strategy that can be used to convey reflexive meaning in LIS consists in a body-anchored reflexive pronoun, here glossed as SELF.

SELF
'Myself/yourself/himself/herself'

We show below the use of the reflexive pronoun SELF in context.

IX_a WOMAN PAINT SELF
'The woman is painting herself.'

The reflexive pronoun, here glossed as SELF, is articulated with a V handshape performing a single or repeated movement toward the signer's chest. Note that SELF does not change its phonological form depending on the person or number features. This is shown in the examples below: SELF is compatible with first-person (a), non-first person (b), and distributive plural referents (c).

a. IX₁ LOVE SELF
'I love myself.'

b. IX₃ LOVE SELF
'She loves herself.'

c. EACH PAINT SELF
'Each of them is painting himself.'

The reflexive pronoun SELF cannot be used as emphatic pronoun to put emphasis on the relevant referent.

Reciprocity, on the other hand, requires a plural referent (i.e. two or more entities). A reciprocal relation signals that the individuals in the relation are at the same time the agent and the undergoer of the action (e.g. 'we visit each other'). When possible, in LIS, reciprocity is marked on the verb. For a discussion of reciprocal markers, see [MORPHOLOGY 3.1.3]. However, not all verbs behave alike: the class of plain verbs [LEXICON 3.2.1] shows particular articulatory restrictions and is not likely to mark reciprocity morphologically [SYNTAX 2.1.3.4].

For this reason, these verbs can be combined with a reciprocal pronoun, here glossed as EACH_OTHER. It is a two-handed sign realised with curved open L handshape and an alternating back-and-forth movement in the neutral space.

IX$_{1+2}$ UNDERSTAND EACH_OTHER
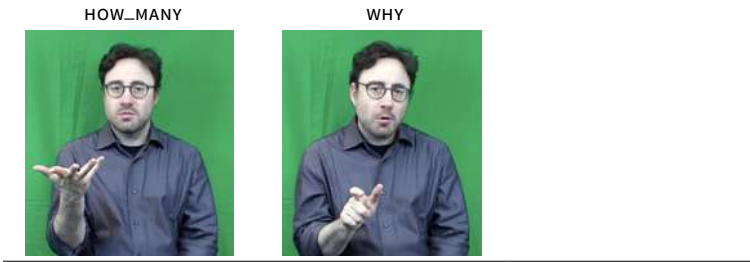
'You and I understand each other.'

3.7.5 Interrogative pronouns

Interrogative pronouns are used in *wh-* questions [SYNTAX 1.2.3]. They are proforms that replace the information we are asking about.

LIS displays a large repertory of interrogative pronouns. Although some of them show geographical variation, this section includes the most common interrogative signs.

Table 1 Interrogative pronouns

WHO	WHAT/HOW	HOW
WHERE	WHEN	WHICH

HOW_MANY	WHY

Because of their interrogative nature, these signs are usually accompanied by furrowed eyebrows. It is interesting to observe that if some of these signs are not combined with these special non-manuals they display a change in meaning. For instance, if the last sign of the table above (WHY) is associated with neutral facial expressions, it does not mean 'why', rather 'because'. It is worth noting the special status of the sign glossed above as WHEN. In the literature, this sign is often known as $Q_{artichoke}$. From an articulatory point of view, it is produced with a flat closed 5 handshape combined with a downward repeated movement of the forearm or, in its distalised form, a repeated wrist nodding from palm to back. $Q_{artichoke}$ is a particular interrogative pronoun in that it can be used as a lexical variant for all *wh-* signs. To illustrate, it can replace WHO (a), WHAT (b), and WHY (c).

a. ARRIVE $Q_{artichoke}$
'Who arrived?'
 (Branchini et al. 2013, 180)

b. HAPPEN $Q_{artichoke}$
'What happened?'
(Branchini et al. 2013, 180)

c. URGENT $Q_{artichoke}$
'Why was it urgent?'
(Branchini et al. 2013, 180)

Given this polysemy of $Q_{artichoke,}$ LIS signers usually combine this sign with partial or total mouthing [PHONOLOGY 1.5.2], namely the voiceless reproduction of the corresponding Italian *wh-* words. For example, when $Q_{artichoke}$ replaces WHY, it might co-occur with the mouthing [p] (initial consonant included in *perché*, 'why').

3.7.6 Relative pronouns

Although, no relative pronoun in a strict sense can be found in LIS, a sign is typically used to mark relative clauses. It is traditionally glossed PE.

PE

This sign functions as a determiner [LEXICON 3.6.1]. PE can appear in restrictive relative clauses [SYNTAX 3.4.2.1] to univocally mark the referent that the relative clause predicate something about. In this syntactic construction, PE agrees with the head of the relative construction by being produced in the locus in space associated with it.

3.7.7 Indefinite pronouns

Indefinite pronouns are typically used when the identity of the referent is unknown to the signer. For more details on indefiniteness, see [PRAGMATICS 1.3].

In LIS, three indefinite pronouns are available: SOMETHING, SOMEONE, and the sign PERSON accompanied by particular non-manuals. The sign SOMETHING is used for non-human unknown referents. It is a balanced two-handed sign that can undergo weak hand drop [PHONOLOGY 3.1.4].

SOMETHING

The indefinite pronoun SOMEONE is compatible with human unknown referents. Phonologically, this sign is similar to cardinal ONE since it is articulated with extended index finger. This handshape is combined with an additional circular movement, which is the same observed in the articulation of SOMETHING.

SOMEONE

Another sign that can be used to refer to a human unknown referent is PERSON accompanied by special non-manuals conveying low referentiality, such as raised eyebrows, chin up ('cu'), and mouth corners down ('md').

```
      re
      md
      cu
```
PERSON
'Someone'

For more details on the use of this sign, the reader is referred to [PRAGMATICS 1.5].

3.8 Adpositions
To be developed.

3.8.1 Manual adpositions
To be developed.

3.8.2 Adpositions and spatial relations
To be developed.

3.9 Conjunctions

Conjunctions are parts of speech that connect two or more elements, such as single signs, phrases, and clauses.

This section describes how LIS connects signs within a clause and how clauses are conjoined through manual and non-manual markers. In the following sections, three types of conjunctions are illustrated: coordinating conjunctions [SYNTAX 3.9.1], subordinating conjunctions [SYNTAX 3.9.2], and correlative conjunctions [SYNTAX 3.9.3]. For more information on how clauses are conjoined, the reader is referred to the section on coordination and subordination [SYNTAX 3].

3.9.1 Coordinating conjunctions

Coordinating conjunctions paratactically join signs and main clauses. LIS has two strategies to conjoin signs and clauses: i) through the use of coordinating conjunctions and ii) through non-manual markings and the use of signing space. In this section, both strategies will be described. The equivalent of the English coordinating conjunction 'and' in LIS is the manual item glossed PLUS.

PLUS

In the example below, the signs PASTA and CAKE are conjoined through the manual sign PLUS.

MARIA PASTA PLUS CAKE PREPARE
'Maria prepares pasta and a cake.'

The marker used in (adversative) coordination is the sign BUT.

BUT

In the following example, the sign BUT conjoins two clauses.

IX$_2$ DECISION POSS$_2$ IX$_1$ ACCEPT BUT REASON $_2$EXPLAIN$_1$ MUST
'I accept your decision, but you must explain me the reason.'

The sign glossed OR is commonly used to connect signs and clauses in disjunctive coordination.

OR

In the examples below, two signs are connected through the sign OR. The manual sign OR can be produced between the two conjuncts (a), at the end of the two conjuncts (b), or before each conjunct (c).

a. IX$_2$ TOY CL(unspread curved open 5): 'move_toy' OR VIDEOGAME
CHOOSE

'Choose a toy car or a videogame.'

b. LAURA MATTEO PAOLO OR++ INVITE
'Laura invites Matteo or Paolo.'

c. SON POSS$_1$ OR CAR CL(unspread curved open 5): 'move_toy' OR TOY
VIDEOGAME CHOOSE MUST

'My son has to choose a toy car or a videogame.'

Alternatively, coordination of constituents and clauses in LIS can also be carried out through juxtaposition of coordinated signs and clauses without the use of manual conjunctions. Very often, non-manual markings such as a change in body and head posture, rhythmic pauses, oral components, eye blink and raised eyebrows are the only means used in coordination.

In the following example, the signs SALAD and PASTA are conjoined within the clause only through prosodic means: a change in body lean (bl-left, bl-right) during the production of the two conjoined signs that are produced in different locations of the signing space, a signing pause and eye blink occurring between the two conjoined signs, and a head nod (hn) produced after each conjoined sign is realised.

	bl-right	bl-left	
	hn	hn	
MARIA	SALAD$_a$	PASTA$_b$	PREPARE

'Maria prepares salad and pasta.'

In the example below, two clauses are conjoined without the manual marker BUT, solely through the following prosodic means occurring between the two clauses: a pause in the signing stream, backward head tilt (ht-b), and raised eyebrows (re).

$$\overline{\text{re}}$$
$$\overline{\text{ht-b}}$$

L-U-C-A_a IX_{3a} PARTY GO DANCE LIKE NOT

'Luca goes to the party, but he doesn't like to dance.'

The following example shows the possibility of connecting two signs without the manual conjunction OR. Coordinating conjunctions are produced non-manually: the conjoined signs MATTEO and PAOLO are produced in two different locations within the signing space (signalled in the glosses by different indexes), following their production, a slight backward head tilt (ht-b) and small head shakes (hs) between the two referential locations are produced.

LAURA MATTEO PAOLO INVITE MUST

'As for Laura, she must invite Matteo or Paolo.'

Summing up, LIS displays manual signs of conjunction to paratactically conjoin signs and clauses, but it can also do so only through the use of non-manual markings. For more information on coordination at the clausal level, see [SYNTAX 3.1].

3.9.2 Subordinating conjunctions

Subordinating conjunctions may be employed to link the main clause to the embedded clause in a complex sentence. LIS has manual elements that are used as subordinators, but frequently realises subordination by means of non-manual markers and prosodic structure only.

Not all embedded clauses are introduced by subordinating conjunctions. Complement clauses [SYNTAX 3.3.2] are simply juxtaposed to the main clause, as illustrated below.

GIANNI HOPE MARIA LEAVE

'Gianni hopes Maria will leave.'

Some adverbial clauses in LIS are introduced by manual markers. Below we report some examples.

Temporal clauses [SYNTAX 3.5.2] are introduced by the *manual marker* WHEN:

$$\overline{\underline{\text{cd}}}$$
$$\overline{\text{re}}$$
WHEN IX$_1$ PADUA ARRIVE IX$_1$ $_1$TEXT$_2$
'When I arrive in Padua, I will send you a message.'

Conditional clauses [SYNTAX 3.5.1] are introduced by the manual marker IF.

$$\underline{\text{cd}}$$
$$\overline{\text{re}}$$
IF RAIN IX$_1$ GO_OUT NOT
'If it rains, I don't go out.'

Manner clauses [SYNTAX 3.5.4] are introduced by the manual marker IDENTICAL.

IX$_2$ HOUSE BUILD IDENTICAL TIME PAST
'You built the house as they used to do in the past.'

Concessive clauses [SYNTAX 3.5.7] are introduced by the *manual marker* SAME.

$$\overline{\underline{\text{sq}}}$$
$$\overline{\text{re}}$$
MAN BLIND SAME PASTA COOK BE_ABLE
'Although the man is blind, he can cook pasta.'

Reason clauses [SYNTAX 3.5.5] are introduced by the manual marker REASON:

TRAM ARRIVE LATE REASON SNOW++ CL(spread 5):
'snow_accumulate'
'The tram arrived late because it continued to snow, and the snow accumulated.'

Purpose clauses [SYNTAX 3.5.6] are introduced by the manual marker GOAL.

MARIA STORE GO GOAL FOOD BUY++
'Maria goes to the store in order to buy food.'

However, some adverbial subordinate clauses in LIS may also be marked by non-manual markers only. This is the case of conditional clauses (a) temporal clauses (b) and concessive clauses (c).

$$\overline{\qquad\quad\text{re}\qquad\quad}$$
a. TOMORROW RAIN THEATRE CANCEL
'If it rains tomorrow, the performance will be cancelled.'

$$\overline{\quad\text{cd}\quad}$$
$$\overline{\quad\text{re}\quad}$$
b. $\text{IX}_2\ _2\text{TEXT}_1\ \text{IX}_1$ DRIVE
'When you sent me the text message, I was driving.'

$$\overline{\qquad\qquad\qquad\qquad\qquad\qquad\text{re}\qquad\qquad}$$
c. IX_a GABRIELE IX_a MONTH MARCH IX_{3a} ENGAGED $\text{WEDDING}_b\ \text{POSS}_1$
$_a\text{COME}_b$
'Although Gabriele is busy in March, he will come to my wedding.'

For more information on clausal subordination, the reader is referred to subordination [SYNTAX 3].

3.9.3 Correlative conjunctions

Correlative conjunctions establish a relation between two equal grammatical units, by conjoining similar words or phrases in a sentence.

In LIS, both manual and non-manual markers are employed to realise correlative conjunctions.

In order to exclude two alternatives, signers produce the first conjoined phrase at one side of the signing space, the second conjoined phrase on the opposite side of the signing space and a negation marker at the end of the sentence, as in (a) and (b).

$$\overline{\qquad\quad\text{neg}\qquad\quad}$$
a. $\text{CAR}_a\ \text{MOTORBIKE}_b\ \text{IX}_1$ BUY NOTHING
'I won't buy neither a car nor a motorbike.'

$$\overline{\quad\text{top}\quad}\qquad\qquad\overline{\quad\text{neg}\quad}$$
b. SUMMER NEXT L-U-C-A_a IX_a SEA_b MOUNTAIN_c IX_{3a} GO NOT
'Next summer, Luca won't go neither to the sea nor to the mountain.'

Alternatively, the two conjoined phrases are negated by two negative markers at the end of the sentence, each one referring to each conjoined phrase and produced in the corresponding area of the signing space, as shown below.

$\underline{\text{bl-left}}$ $\underline{\text{bl-right}}$ $\underline{\text{neg}}$ $\underline{\text{neg}}$

IX$_1$ COURSE SWIMMING$_a$ FRENCH$_b$ NEG_O$_b$ NEG_O$_a$ 🖐

'I'm attending neither the French nor the swimming course.'

The English equivalent of the correlative conjunctions *not only… but* is produced in LIS by manual markers, as shown below.

$\underline{\text{neg}}$

A-N-N-A SWEATER ONLY NOT ALSO TROUSERS BUY DONE 🖐

'Anna hasn't bought only a sweater, but also a pair of trousers.'

When presenting two alternative options, LIS has at least two possibilities. The first option is the repetition of the manual sign OR before each conjoined phrase, together with the non-manual marking of lips down at the corners and/or the oral production [o], corresponding to 'or' in Italian. Within this option, each conjunct is produced in a different area of the signing space with the body leaning on each side of the signing space, as shown below:

$\underline{\text{bl-left}}$ $\underline{\text{bl-right}}$

EVENING IX$_1$ OR$_a$THEATRE$_a$ OR$_b$ RESTAURANT$_b$ IX$_1$ GO 🖐

'Tonight, I will go either to the theatre or to the restaurant.'

In the second option, each conjunct is produced in a different signing space separated by the manual sign OR. The manual sign OR is repeated twice at the end of the sentence each one referring to each conjunct, thus produced in the same signing space, with the body leaning down at each side, as shown in the following example.

$\underline{\text{bl-right}}$ $\underline{\text{bl-left}}$

IX$_1$ PRINTER$_a$ COLOUR$_a$ IX$_a$ OR IX$_b$ COMPUTER$_b$ IX$_1$ $_a$CHOOSE$_1$ 🖐

OR IX$_{3b}$ OR IX$_{3a}$

'I choose either the colour printer or the computer.'

Lastly, to produce the equivalent of the English correlative conjunctions *both… and*, LIS connects the two conjuncts through the manual marker IX$_{3a+3b}$ accompanying each conjunct with a side body lean towards opposite directions, as shown in the following example.

<u>bl-left</u> <u>bl-rigth</u>
IX$_1$ PHONE$_a$ CAMERA$_b$ IX$_{3a+3b}$ EXIST

'I have both the mobile and the camera.'

3.10 Numerals and quantifiers

Numerals and quantifiers are used to express the number or amount of the set denoted by the noun. While numerals indicate the precise number, quantifiers are non-numeric items that provide a relative or indefinite indication of quantity.

3.10.1 Numerals

Numerals can be classified into three categories: cardinal, ordinal, and distributive numerals. LIS exhibits all the three categories.

Cardinals are used to specify the number of entities referred to and answer the question 'How many?'. In the example below, the cardinal numeral THREE is used to specify the exact number of suitcases the signer noticed.

AIRPORT INSIDE SUITCASE THREE IX$_1$ SEE

'At the airport, I noticed three suitcases.'

Ordinals combine a numerical quantity with order. They are employed to rank entities according to a certain order and answer the question 'Which in order?'. In the example below, the ordinal numeral THIRD is used to identify one particular suitcase in an ordered set.

SUITCASE THIRD IX$_1$ TAKE

'I grabbed the third suitcase.'

Distributives combine a numerical quantity with distribution. They indicate how a certain quantity is distributed over some entities and answer the question 'How many each?'. In the example below, the distributive numeral THREE$_{distr}$ indicates how many suitcases each person is allowed to bring on the airplane.

SUITCASE THREE$_{distr}$ MAXIMUM BRING BE_ABLE

'You can bring up to three suitcases each.'

For a discussion about the syntactic distribution of numerals within the nominal phrase see [SYNTAX 4.3].

3.10.1.1 Cardinal numerals

Cardinal numerals in LIS represent a two-handed system. This means that both manual articulators can be employed to express cardinals. The numerical base of this system is 10, therefore cardinals higher than 10 are built combining the handshapes of numerals from 1 to 10 with special movement patterns. In this section, we provide a general description of the cardinal system in LIS. It is worth pointing out that a certain degree of variation is attested. For the sake of simplicity, we report the most frequent patterns observed.

In cardinals from 1 to 10, LIS signers extend the corresponding number of fingers with outward palm, as shown below. Contrary to cardinals from 11 to 19, these signs are static in that they lack movement. Cardinals from 1 to 5 are articulated with the dominant hand facing the signer's body, whereas cardinals from 6 to 10 require the use of both hands (the non-dominant hand always realises the 5 handshape) and outward palm orientation.

Table 2 Cardinals from 1 to 10

ONE	TWO	THREE	FOUR
FIVE	SIX	SEVEN	EIGHT
NINE	TEN		

Variation is attested at some degree. For cardinals from 1 to 5, some signers use an outward palm orientation.

Table 3 Cardinals from 1 to 5 (variant forms)

ONE	TWO	THREE	FOUR	FIVE

Moreover, some signers produce the cardinal ONE extending the thumb (handshape S), rather than the index finger (handshape G), and articulate the cardinal TWO extending thumb and index finger (handshape L), rather than index and middle finger (handshape V).

Cardinal 0 is usually realised with handshape F, as shown below.

ZERO

Cardinals from 11 to 19 display different realisations, which vary according to the geographical area. One of the most widespread patterns consists in the combination of the handshapes from 1 to 9 with a particular type of orientation change, pivoting [PHONOLOGY 1.3.2]. Specifically, finger orientation repeatedly changes from radial to ulnar. Two examples are provided below.

a. THIRTEEN

b. SEVENTEEN

Notice that in cardinals from 11 to 15 the palm has contralateral orientation, as in (a), whereas in cardinals from 16 to 19 the palm is oriented toward the signer's body, as in (b).

Tens (20, 30, etc.) are obtained combining handshapes from 2 to 9 with finger bending. In some cases, two options are available: bending all fingers (a) or bending the index finger only (b).

a. FORTY (all fingers bent)

b. FORTY (index finger bent)

In tens from 60 onwards, finger bending involve the dominant hand only.

SIXTY

In the specific case of 60, another possible realisation is attested: the dominant hand can articulate the two digits sequentially (i.e. 6 and 0) with a change in palm orientation.

SIX^ZERO
'Sixty'

In cardinals from 21 to 99 (with the exclusion of tens), LIS signers articulate the individual digits in a sequential way, as they appear in writing. For example, in the cardinal 24 signers produce TWO first, followed by FOUR with a very short transition.

TWO^FOUR
'Twenty-four'

The transitional movement from one digit to the other may involve a slight ipsilateral shift in the signing space (especially when the two digits are identical, as in 33).

THREE^THREE
'Thirty-three'

Note that in cardinals from 61 to 65, from 71 to 75, from 81 to 85, and from 91 to 95, signers usually realise an orientation change between the two digits, namely wrist rotation from prone to supine [PHONOL-OGY 1.3.2]. To illustrate, in cardinal 62 the dominant hand exhibits a prone orientation in SIX and a supine orientation in TWO.

SIX^TWO
'Sixty-two'

In hundreds (100, 200, etc.), the numeral handshape is combined with an ipsilateral shift in the signing space and simultaneous finger bending.

THREE^HUNDRED
'Three hundred'

In hundreds involving two hands (600, 700, 800, and 900), the ipsilateral shift affects both hands, whereas finger bending affects the dominant hand only.

EIGHT^HUNDRED
'Eight hundred'

In thousands (1000, 2000, etc.), the relevant handshape is combined with an orientation change, namely nodding from back to palm [PHONOLOGY 1.3.2]. This secondary movement can be either single or repeated.

THREE.THOUSAND
'Three thousand'

In thousands articulated with two hands (6000, 7000, 8000, and 9000), the orientation change applies to both hands.

EIGHT.THOUSAND
'Eight thousand'

Thousands higher than 10,000 usually require the articulation of a sign expressing the thousand amount in the end. The THOUSAND sign is realised with a bent 5 handshape moving downward. To illustrate, we show 100,000 below.

HUNDRED THOUSAND
'One hundred thousand'

To express millions, LIS employs the sign MILLION, which is an asymmetric two-handed sign. To illustrate, we show 1,000,000 below.

ONE MILLION
'One million'

In the end, we illustrate how billions are expressed in LIS. The sign BILLION is realised through the 5 handshape displaying downward palm orientation, and forward linear movement. The fingers can ei-

ther lack secondary movement, as in (a), or display a wiggling movement, as in (b).

a. ONE BILLION (no secondary movement)
'One billion'

b. ONE BILLION (wiggling movement)
'One billion'

The position of numerals vis-à-vis the noun is described in [SYNTAX 4.3.1].

Like other sign languages, LIS allows for numeral incorporation. This means that a cardinal handshape (usually from 1 to 5, in some cases from 1 to 10) can be incorporated into a sign. This sign can belong to different categories: i) pronouns, ii) nouns referring to time or iii) classifiers.

As for pronouns [LEXICON 3.7], numeral incorporation can apply to first-, second- and third-person plural pronominal forms. In the sign IX$_{1pl}$^THREE, the dominant hand moves in a circular fashion and the path movement is close to the signer's body: this indicates that the pronoun includes the signer and two addressees.

IX$_{1pl}$^THREE
'The three of us'

In IX$_{2pl}$^THREE, the hand moves in a location far from the signer's body and is aligned with the direction of the eye-gaze: this indicates that the pronoun includes three addressees and excludes the signer.

IX$_{2pl}$^THREE
'The three of you'

In IX$_{3pl}$^THREE, the dominant hand moves in a location far from both the signer's body and the trajectory of the eye-gaze: this indicates that the pronoun includes three individuals that are neither the signer nor the addressees.

IX$_{3pl}$^THREE
'The three of them'

The upper limit of numeral incorporation with pronoun signs is 5.

As for nouns referring to time, numerals can be incorporated into the signs HOUR, DAY, MONTH, and YEAR. To illustrate, we show below

the sign MONTH (a) and the sign MONTH^TWO (b), which incorporates the cardinal handshape for 2 into the sign MONTH.

a. MONTH

b. MONTH^TWO
'Two months'

Numeral incorporation with the sign MONTH is possible up to 10. Note that up to 5, incorporation affects the dominant hand only, which performs an inward arc movement. In these forms, the non-dominant hand does not move and is used as in the citation form of MONTH. On the contrary, from 6 to 10, both hands are used to articulate the numeral handshape and they both move in an inward arc.

MONTH.EIGHT
'Eight months'

In the case of the sign DAY, the upper limit of numeral incorporation is 5. We show below the base form of the sign (a) and an example of numeral incorporation, DAY^THREE (b). In the incorporated sign, the upward movement does not change, while the handshape reflects the relevant numeral.

a. DAY

b. DAY^THREE
'Three days'

One of the variant forms for 'year' is realised with S handshape displaying an ipsilateralward arc movement in the neutral space (a). This sign allows for numeral incorporation from 1 to 10, as exemplified in (b) and (c).

a. YEAR

b. YEAR^THREE
'Three years'

c. YEAR^EIGHT
'Eight years'

Another possibility is to incorporate the numeral handshape into a classifier [MORPHOLOGY 5]. For example, THREE can be incorporated into a whole-entity classifier for upright person.

CL(3): 'upright_individuals_come'
'Three people came to me.'

In this case, the upper limit of numeral incorporation is 5.

3.10.1.2 Ordinal numerals

Ordinal numerals in LIS employ the same handshapes selected by cardinal numerals. The two classes are distinguished by absence or presence of movement: cardinals from 1 to 10 do not display any particular movement, whereas ordinals from 1st to 10th require a wrist rotation from prone to supine (see the section on secondary movement [PHONOLOGY 1.3.2]). To illustrate, we show a one-hand ordinal, SECOND (a), and a two-hand ordinal, EIGHTH (b).

a. SECOND

b. EIGHTH

The phonological form (movement, location, and absolute orientation) of ordinals might slightly vary according to the kind of the ranked entity (e.g. sequences, winning positions, railway platforms, etc.). For example, if SECOND is used to refer to the second floor of a building, the palm is usually oriented outward and the movement is upward.

SECOND$_{up}$
'Second floor'

If SECOND is used to refer to the second row in a theatre, it is usually signed with upward palm orientation and inward repeated movement.

SECOND$_{back}$
'Second row (in a theatre)'

Differently from the previous cases, SECOND in competition ranking is usually articulated with inward palm orientation and with a downward repeated movement.

RANKING IX$_1$ SECOND$_{down}$ ✋
'In the ranking, I am in second position.'

Moreover, cardinals constitute a potentially unlimited class of items, whereas ordinals constitute a defective class since it is limited to ten items, from FIRST to TENTH. Ordinals higher than 10th are expressed in LIS with the equivalent cardinals together with the ranked entity. For example, in a competition, the eleventh position is expressed through the cardinal ELEVEN and the sign PLACE.

RANKING IX$_1$ ELEVEN PLACE ✋
'In the ranking, I hold the eleventh position.'

Another common strategy to keep track of ordinal numbering in signed discourse is represented by list buoys (see [LEXICON 1.2.3] and [PRAGMATICS 2.2.3]). For example, a signer is talking about his last summer trip and lists the cities he visited (in order, Paris, Madrid, and Barcelona). The ordinal numbering (first, second, third) can be indicated by the non-dominant hand, as shown below.

a. dom: IX$_{[thumb]}$
   n-dom: ONE
'First, ...'

b. dom: IX$_{[index]}$
   n-dom: TWO
'Second, ...'

c. dom: IX$_{[middle]}$
   n-dom: THREE
'Third, …'

List buoys usually range from first to fifth.

3.10.1.3 Distributive numerals

Like ordinals, distributive numerals in LIS make use of the same hand-shapes selected by cardinal numerals. These handshapes are associated with reduplicated movement in the signing space: the numeral is repeated in different locations and each instance corresponds to a set of entities. In the example below, TWO$_{distr}$ associated with the noun SAND-WICH indicates that there are multiple sets of two sandwiches. From an articulatory perspective, there are two semantically equivalent possibilities: each reduplication can either be marked by a slight forward movement, as in (a), or be unmarked for movement, as in (b). In both cases transition movements are produced between reduplications.

    a. SANDWICH TWO$_{distr}$ EXIST (with repeated forward movement)
    '(They) have two sandwiches each.'

    b. SANDWICH TWO$_{distr}$ EXIST (without repeated forward movement)
    '(They) have two sandwiches each.'

3.10.2   Quantifiers

Quantifiers are lexical signs expressing different types of non-numerical quantities. In this section, we describe some of the quantifiers attested in LIS.

    It is important to note that they co-occur with a noun, but some of them can also be used pronominally. For example, the sign ALL

can modify the plural noun PERSON++, as in (a), or function as pronoun, as in (b).

a. PERSON++ ALL ORIGIN SICILY
'All the people come from Sicily.'

b. ALL ORIGIN SICILY
'Everyone comes from Sicily.'

The universal quantifier selects all the entities referred to by the noun. In LIS, there are several signs that can be used with this function. For the sake of simplicity, we only show two of them: ALL(G) and ALL(5). Both are one-handed signs articulated in the neutral space. In ALL(G), the G handshape produces a circular movement on the horizontal plane. A variant form of this sign is almost identical except for the handshape (curved open 5 rather than G).

ALL(G)

Quantifier ALL(G) is not usually spatialised, i.e. the movement component is quite fixed.

In ALL(5), the flat open 5 handshape closes while the hand moves on a linear path.

ALL(5)

The sign ALL(5) can modify the direction of the path movement according to the position and arrangement of the referents associated with the quantified noun (along vertical, horizontal, and deictic axes).

While the handshape of ALL(5) cannot be modified, the quantifier ALL(G) is compatible with numeral incorporation. This means that the G handshape can be replaced by a cardinal handshape (from 2 to 5). To illustrate, cardinal TWO incorporated into ALL(G) is shown in (a). A very similar meaning is obtained with the pronoun IX_{3a+3b} (b), which is produced with the same handshape associated with a repeated linear movement on the horizontal plane.

a. ALL(G)^TWO
'The two of them'

b. IX_{3a+3b}
'Both of them'

Like ALL(G) and ALL(5), EACH applies to all the members of a set, and hence it is compatible with count nouns only. The peculiarity of EACH is its distributive reading: indeed, it selects the members of the set individually, rather than collectively. From an articulatory perspective, this sign is realised reduplicating cardinal ONE with extended thumb in several spatial locations on the horizontal plane (from left to right for a right-handed signer), which are associated to the different members of the set. Each reduplication is usually marked by a slight downward movement.

EACH

Large quantities are usually indicated by quantifiers MANY and NUMEROUS, which are usually compatible with count nouns. Both are two-handed signs, but occasionally they can be articulated with the dominant hand only. MANY involves repeated closing and opening of flat closed 5 handshape displayed on the horizontal plane.

MANY

In NUMEROUS, the fingers open one after the other while the hands move outward on the horizontal plane.

NUMEROUS

The sign SOME selects an unspecified amount of entities and is compatible with count nouns. Two variant forms are quite widespread: SOME(F), a one-handed sign realised with F handshape and repeated forward movements (a), and SOME(G), a two-handed sign realised with G handshape and alternating movement on the vertical plane (b).

a. SOME(F)

b. SOME(G)

Small quantities are indicated by the quantifier FEW. This is a one-handed sign making the tip of the thumb come into contact with the tip of the flexed index finger. It is compatible both with count and mass nouns.

FEW

Some quantifiers do not express absolute quantities, rather relative quantities, namely quantities in relation or in proportion to something

else. We present here three quantifiers of this type: ENOUGH, TOO_MANY (or TOO_MUCH), and MOST. The sign ENOUGH is used when the referents are as many as needed, required, or expected. This is a one-handed sign articulated with unspread 5 repeatedly moving toward the signer's chin.

ENOUGH

The sign TOO_MANY is used when the referents are exceedingly more than needed, required, or expected. This is a two-handed sign: both hands have a curved open L handshape and move outward on the horizontal plane.

TOO_MANY

Both ENOUGH and TOO_MANY are compatible with count and mass nouns. The sign MOST indicates the majority of a set of entities. It is a two-handed sign: both hands have a spread 5 handshape facing one another and the dominant hand moves away from the non-dominant one with an upward linear movement.

MOST

A quantifier with a free choice meaning is ANY. This quantifier is used to express lack of restriction of amount. ANY is a two-handed sign realised with unspread 5 handshape. Both hands undergo repeated nodding (palm/back repeatedly) in mirror fashion.

ANY

In LIS, we also find negative quantifiers, such as ZERO, NOBODY, BARE, and EMPTY. The sign ZERO is derived from the corresponding cardinal numeral [LEXICON 3.10.1.1]. It is articulated with a F handshape moving forward in the signing space. This particular handshape is iconically related to the digit 0. ZERO can be produced with either one or two hands. It is compatible with both count and mass nouns and with both animate and inanimate referents.

ZERO

The sign NOBODY occurs only with animate referents. It is a symmetric two-handed sign realised with G handshape and diverging linear path movement on the horizontal plane. NOBODY shows a particu-

lar distributional pattern, which is addressed in [SYNTAX 1.5.1.2.1] and [SYNTAX 4.4.2].

NOBODY

The signs EMPTY and BARE usually indicate absence of something. EMPTY is produced in the neutral space with flat closed hand and wrist rotation. It can be produced with either one or both hands.

EMPTY

The sign BARE, on the other hand, is articulated with 3/5 handshape and linear movement.

BARE

While in the sign EMPTY the movement component looks quite fixed, the sign BARE can modify the direction of the movement according to the location in space in which the referent is absent. For example, to convey that there are no books in a wardrobe, the direction of the sign BARE can specify whether this lack of books applies to a single shelf from left to right, as in (a), or to the whole wardrobe from top to bottom, as in (b).

a. WARDROBE INSIDE BOOK BARE$_{ipsi}$
'In the wardrobe (from left to right) there are no books.'

b. WARDROBE INSIDE BOOK BARE$_{down}$
'In the wardrobe (from top to bottom) there are no books.'

The quantity expressed by the quantifier can be modified through non-manuals (e.g. wide-open eyes, mouth-corners pulled downward, tensed lips, etc.). For more details, see [MORPHOLOGY 2.2].

Quantification can also be expressed by means of a particular classifier category, namely Size-And-Shape Specifiers (SASS) [MOR-PHOLOGY 5.2]. This strategy is especially used with mass nouns, such as FLOUR, HONEY, and SALT.

JAM   SASS(5): 'big_amount'
'A considerable amount of jam'

For a discussion of the syntactic distribution of quantifiers within the nominal phrase see [SYNTAX 4.4].

3.11. Particles
To be developed.

3.11.1   Negative particles
To be developed.

3.11.2   Question particles
To be developed.

3.11.3   Discourse particles
To be developed.

3.12. Interjections
To be developed.

Information on Data and Consultants

The descriptions in these sections are based on the references below. For information on data and consultants see the references. The video clips and images exemplifying the linguistic data have been produced by LIS native signers involved in the SIGN-HUB Project.
In [LEXICON 3.2], we decided to use Carol Padden's classification (Padden 1988), rather than the alternative classification based on Pizzuto (1986).

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A Grammar of Italian Sign Language (LIS)

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A Grammar of Italian Sign Language (LIS) is a comprehensive presentation of the grammatical properties of LIS. It has been conceived as a tool for students, teachers, interpreters, the Deaf community, researchers, linguists and whoever is interested in the study of LIS. It is one output of the Horizon 2020 SIGN-HUB project. It is composed of six Parts: Part 1 devoted to the social and historical background in which the language has developed, and five Parts covering the main properties of Phonology, Lexicon, Morphology, Syntax and Pragmatics. Thanks to the electronic format of the grammar, text and videos are highly interconnected and are designed to fit the description of a visual language.

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