3 Verbal inflection

Summary   3.1 Agreement. – 3.2 Tense. – 3.3 Aspect. – 3.4 Modality. – 3.5 Negation.

In [LEXICON 3.2], a preliminary description of the three categories of verbs (plain verbs, agreement verbs and spatial verbs) detected in LIS has been provided, focussing on their articulation and possibility to show overt morphological agreement with their arguments.

The present chapter improves the description of the three verb classes by considering the inflectional morphological processes involved to convey not only agreement (of person, location and number) [MORPHOLOGY 3.1], but also tense [MORPHOLOGY 3.2] and aspect [MORPHOLOGY 3.3]. Notice that these morphosyntactic features are mainly encoded through i) spatial relations among loci, which are specific points of the signing space associated to the argument(s) of the verb, ii) reduplication of the verb sign and/or iii) modification of the point(s) of articulation, path-movement (if any) and/or orientation of the verb sign.

3.1   Agreement

In LIS, we can distinguish three types of agreement: person, number and spatial agreement. Person and number agreement refer to the phonological modifications that verbs display to encode person

and number features, whereas spatial agreement defines the locative source and/or locative goal of an event. As shown in [LEXICON 3.2], only agreement and spatial verbs can convey agreement through modification of some of the phonological features of the verb root: point of articulation, direction of the path-movement, orientation of the palm. The following sections describe how each verb class marks agreement of person, number and location with its arguments. We will see that also dedicated non-manual markers play a crucial role in verbal inflection, in that they can occur with the verb sign to disambiguate arguments in space.

3.1.1 Person and locative markers

The present section describes how person agreement is phonologically marked on the three verb classes described in [LEXICON 3.2]. Person agreement differs from locative agreement, explored in [MORPHOLOGY 3.1.1.3], in that it defines morphosyntactic relations between the predicate and its arguments. Locative agreement, instead, defines locative relations in spatial verbs.

To convey both person and locative agreement, it is common to associate arguments to specific loci of the signing space. Arguments and locations can also be marked through classifiers [MORPHOLOGY 5.1], or role shift [SYNTAX 3.3.3].

3.1.1.1 Subject markers

As in other sign languages, persons in LIS correspond to specific points of the signing space called *loci*. Specifically, i) first person coincides with a point of articulation which is close to or on the signer's body, ii) second person is marked by a locus in the direction of the interlocutor, whereas iii) third person corresponds to a point of the signing space which is distant from both the signer and the interlocutor. This point expresses the absolute position of the referent (if present in the extra-linguistic context) or the locus associated to the referent in previous discourse. Usually, non-present third person subjects are associated to a locus at the ipsilateral side of the signing space, but this is not obligatory.

Person markers can consist in manual signs such as pronouns, i.e. pointing signs towards dedicated loci [LEXICON 3.7.2.1], or they can be conveyed through modifications of some phonological features of the verb sign, which can be articulated in the locus associated to the ar-

gument and/or modify its path movement to show overt manual morphological agreement. The morphological strategies adopted by LIS verbs are illustrated below. For further information about argument realisation see [SYNTAX 2.2].

Plain verbs [LEXICON 3.2.1], both transitive and intransitive, are articulated near or on the signer's body in their citation form, thus they cannot be inflected in space to show overt agreement with their argument(s). Nevertheless, the subject position can optionally be marked non-manually by means of head tilt (ht) or a slight body lean (bl-left/right) occurring with the articulation of the verb sign, thus realising non-manual agreement [SYNTAX 2.1.2.3.2]. In the example below, we see that the signer non-manually marks the position dedicated to the subject GIANNI through a slight body lean towards the position of the signing space in which the subject GIANNI was previously articulated.

| | | ___bl-left: a |
| GIANNI_a | PIETRO | BE_FAMILIAR |

'Gianni knows Pietro.'

Alternatively, plain verbs can be followed by an auxiliary AUX which allows to show overt manual agreement between the subject and the object (see [LEXICON 3.3.4] for details).

Differently from plain verbs, agreement verbs [LEXICON 3.2.2] can display overt manual morphological agreement with the arguments.

In transitive and ditransitive agreement verbs displaying two points of articulation in the neutral space connected by path movement, the subject argument is usually associated to the starting point of the movement, which can be on the signer's body to mark first person (a) or dislocated in the signing space for second and third person (b).

a. $_1$DONATE$_2$
'I donate you this.'

b. GIANNI$_a$ MARIA$_b$ $_a$HELP$_b$
'Gianni helps Maria.'

The position of third person subjects is optionally non-manually marked by head tilt and a slight body lean towards the starting point of the movement, corresponding to the subject position. Notice that eye gaze (eg), instead, is directed towards the location of the object argument [SYNTAX 2.1.2.3.2]. Non-manual markers are produced simultaneously to the articulation of the verbal sign.

<u>ht: a</u>
<u>bl-left: a</u>
<u>eg: b</u>
L-U-C-A$_a$ P-A-O-L-O$_b$ $_a$HATE$_b$
'Luca hates Paolo.'

Transitive and ditransitive agreement verbs whose starting point is on the signer's body, like SEE and SAY, show overt manual morphological agreement with the subject when they select for a first person subject, since its locus corresponds to the starting point of the path movement of the verb. This is illustrated below.

IX$_1$ ADDRESS POSS$_1$ $_1$SAY$_2$
'I told you my address.'

When they select for a second or third person subject, no manual morphological agreement is displayed by the verb due to articulatory reasons. The subject is localised in the signing space through a noun phrase or pronoun (see [SYNTAX 2.1.2] for details), and the verb sign can optionally be marked by head tilt and a slight body lean towards the position in the signing space associated with the subject,

as to realise non-manual subject agreement. This is illustrated below.

$$\underline{\text{ht: a}}$$
$$\underline{\text{bl-left: a}}$$
L-U-C-A$_a$ P-A-O-L-O$_b$ LIE SAY$_b$
'Luca tells a lie to Paolo.'

It is important to notice that the final location of the path movement of these verbs realises morphological manual agreement with the object argument (direct or indirect) [MORPHOLOGY 3.1.1.2].

Crucially, in transitive *backward verbs* [LEXICON 3.2.2] subject marking corresponds to the final location of the verb movement. For first and second person subject, as in (a) below, the verbal sign retains its citation form. On the other hand, when the verb selects for a third person subject, the verb movement can be slightly modified as to spatially agree with the subject, as shown in (b).

a. IX$_2$ T-SHIRT TAKE
'You take the t-shirt.'

b. L-U-C-A KEY TAKE
'Luca takes the keys.'

Intransitive agreement verbs displaying one point of articulation in the signing space optionally agree with the subject when it has the thematic role of agent (in unergative verbs, like PLAY (a)), while they must show spatial agreement with the subject when it has the thematic role of theme (in unaccusative verbs, like GROW_UP (b)) [SYNTAX 2.1.1.2; 2.1.2.3.1].

a. CHILD$_a$ PLAY$_a$
'The child plays.'

b. CHILD$_a$ GROW_UP$_a$
'The child grows.'

Unaccusative agreement verbs are usually articulated in their citation form, namely in front of the signer, for first person; for second or third person, they display overt morphological agreement with their only argument being articulated in the same locus of the signing space, as in (b) above. If the subject is an invariable nominal sign (i.e. it is articulated on the signer's body), it is assigned a locus in the signing space through a pointing sign, and the verb shows spatial agreement with it, as illustrated below.

WOMAN^CHILD IX$_a$ GROW_UP$_a$
'The girl grows.'

3.1.1.2 Object markers

Overt manual morphological agreement with the object is displayed only by agreement verbs [LEXICON 3.2.2]. The phonological realisation of agreement depends on the verb type.

In transitive agreement verbs displaying two points of articulation in the neutral space connected by path movement, the object is marked by the ending point of the path movement. If the verb selects for a first person object, the path movement ends on the signer's body (or in a position close to it). Optionally, the verb sign can be marked by eye-gaze (eg) directed towards the locus associated with the object, thus realising non-manual object agreement.

$$\begin{array}{c}\underline{\text{ht: a}}\\\underline{\text{bl-left: a}}\\\underline{\text{eg: b}}\end{array}$$

L-U-C-A$_a$ P-A-O-L-O$_b$ $_a$HATE$_b$
'Luca hates Paolo.'

In transitive agreement verbs whose starting point is on the body of the signer, second and third person object is marked by the final position in the neutral space of the verbal path movement. Optionally, agreement can also be marked non-manually, by means of eye-gaze and shoulders of the signer directed towards the object position. Some of these verbs are SEE, KISS, LOVE.

a. G-I-A-N-N-I M-A-R-I-A$_a$ SEE$_a$
'Gianni sees Maria.'

b. G-I-A-N-N-I M-A-R-I-A$_a$ LOVE$_a$
'Gianni loves Maria.'

With a first person object, the verb sign retains its citation form and agreement is encoded through pronouns. We provide an example with the verb LOVE below.

IX$_2$ IX$_1$ LOVE
'You love me.'

Transitive verbs such as TAKE_CARE express agreement with the object through both orientation of the palm and direction of the path movement. Compare the two examples below: in (a) the verb selects for a third person object, whereas in (b) it selects a first person object. Crucially, in this instance the object does not need to be lexically realised through a noun phrase or pronoun: the direction and orientation of the verbal sign are enough to mark the object, thus showing overt manual agreement.

$$\overline{\underline{\text{ht: a}}}$$
$$\overline{\text{bl-left: a}}$$
a. FATHER$_a$ SON$_b$ IX$_{3a}$ $_a$TAKE_CARE$_b$
'The father takes care of his son.'

b. IX$_2$ TAKE_CARE
'You take care of me.'

Notice that agreement between subject and object can optionally be marked non-manually by means of head tilt and body lean towards the position associated to the subject, and shoulder of the signer directed towards the locus in space associated with the object.

Transitive verbs (or verbs used transitively, like BREAK) displaying one point of articulation in the signing space must agree with the direct object.

CHILD COMPUTER$_a$ BREAK$_a$
'The child breaks the computer.'

Ditransitive agreement verbs with two points of articulation in the signing space can: i) show overt manual morphological agreement with the subject [MORPHOLOGY 3.1.1.1] and the indirect object, which corresponds to the final location of the path movement (a); ii) show agreement with the three arguments, namely the subject, the direct object and the indirect object. In these instances, the direct object is marked by the hand configuration, whereas the final location of the movement agrees with the indirect object, as in (b). Notice that in (b) it is the classifier predicate that allows to incorporate the direct object.

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

b. 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/the glass to Gianni.'

It is important to consider that classifier predicates also allow some plain verbs, which usually do not display overt morphological agreement with their arguments, to show overt morphological agreement with their object in transitive constructions. As we can see in the example below, when a plain verb is realised through a classifier predicate, the handshape defines the theme argument, thus it shows overt morphological agreement with the object.

L-U-C-A SANDWICH CL(flat open 5): 'eat_sandwich'
'Luca eats a sandwich.'

Ditransitive agreement verbs whose starting point is on the body, like SAY, show overt manual agreement with the indirect object, whose position in the space corresponds to the final location of the path movement (a). Crucially, if the verb selects for a first person object, the verb path ends on the signer's body rather than in the neutral space, as in (b).

$$\frac{\text{ht: a}}{\text{bl-left: a}}$$

a. L-U-C-A$_a$ P-A-O-L-O$_b$ LIE SAY$_b$
'Luca tells a lie to Paolo.'

b. IX$_2$ CRY $_2$SAY$_1$
'You are crying, tell me (why).'

Alternatively, this class of verbs can overtly mark manual agreement through the addition of a path movement connecting their point of articulation to the position in the signing space corresponding to the indirect object. This is illustrated below.

IX$_{3a}$ SAY IX$_{3b}$
'He tells him.' (recreated from Pizzuto 2004, 194)

It is worth mentioning the case of the verb EXPLAIN, which is articulated close to the mouth and displays a repeated alternating circle movement directed outward [PHONOLOGY 1.3]. The direction of the movement marks the indirect object. For second and third person indirect object, the movement is directed towards the dedicated location in the neutral space (a), whereas to mark a first person indirect object the verb sign modifies the direction of the movement and thus starts its articulation in the neutral space, rather than from the mouth, and moves inward (b). Again, in these instances the indirect object does

not need to be lexically specified since the verb movement address-es the signer's body, which corresponds to the first person. Option-ally, agreement can be marked non-manually through head tilt and body lean towards the subject position, and eye gaze directed to-wards the indirect object.

ht: a
bl-right: a
eg: 3pl-coll

a. IX$_{3a}$ TEACHER IX$_{3pl\text{-}coll}$ STUDENT IX$_{3a}$ EXPLAIN$_{3pl\text{-}coll}$
'The teacher explains to the students.'

b. IX$_2$ MATHEMATICS $_2$EXPLAIN$_1$
'You explain mathematics to me.'

Ditransitive verbs such as TEACH, SHOW, ASK, show overt morphologi-cal agreement with the indirect object through both path movement and orientation of the palm. This holds either with a first person ob-ject (a), or with second and third person objects (b).

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

hs

b. 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 un-derstand them.'

A peculiar example is the verb TELL, a two-handed asymmetrical sign [PHONOLOGY 1.4.2] in which the dominant hand displays a repeat-ed movement outward. The direction of the movement marks agree-ment with the indirect object, be it a second or third person indi-rect object (a). Crucially, this verb can be morphologically modified to show overt manual agreement with a first person indirect object by changing the starting point of the movement and moving inward, as illustrated in (b). Once again, the first person indirect object does not need to be lexically specified since the verb movement address-es the signer body, which corresponds to the first person.

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

b. IX$_2$ FAIRY_TALE $_2$TELL$_1$
'(You) tell me a fairy tale.'

In backward verbs [LEXICON 3.2.2], the object (or the source) marker corresponds to the starting point of the movement in the neutral space, whereas the ending point marks the subject (or the goal). Some verbs belonging to this class are: COPY, TAKE_ADVANTAGE_OF, INVITE, TAKE, RECEIVE, CHOOSE.

BLACKBOARD$_a$ TEXT$_a$ STUDENT $_a$COPY
'The student copies the text from the blackboard.'

3.1.1.3 Locative markers

Sometimes the starting and end point of the verb agree with spatial locations, rather than with the verbal arguments. We refer to these verbs as spatial verbs [LEXICON 3.2.3]. In these constructions, the path movement connecting the two points of articulation conveys the movement or spatial location of the subject or object (animate or inanimate) of the event. Verbs that can convey locative agreement are GO, BRING_SOMEONE, ARRIVE, COME, GET_UP, GET_DOWN, WALK, GO_IN, GO_OUT.

IX$_3$ HOUSE$_a$ SCHOOL$_b$ $_a$GO$_b$
'He goes from home to school.'

Therefore, the starting and end points of the path movement of the verb correspond to source and goal locative arguments, respectively. Alternatively, only one location may be specified, as in the following example.

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

The example above is also interesting because it shows how the two hands can be employed to localise two entities simultaneously. We illustrate this *Figure-Ground relationship* in the figure below for sake of clarity: the non-dominant (left) hand represents the shelf, thus functions as *ground*, namely the position in which the *figure* represented by the dominant right hand, i.e. the book, it's being located by means of the classifier predicate [MORPHOLOGY 5.1], which carries the locative marker.

dom: CL(flat open 5): 'put_book'$_a$
n-dom: CL(unspread 5): 'shelf'$_a$
'(To) put a book on a shelf'

The two hands can also be used to locate entities with respect to each other, thus both hands carry a locative marker.
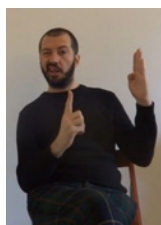
dom: CL(G): 'lamp_be_located'
n-dom: CL(unspread 5): 'library_be_located'
'The lamp is next to the library.'

Dedicated classifier constructions can also be employed to define the static location of referents in space, defining real-word locations. In these instances, the classifier predicate displays a short movement downward as to place the referent. See the example below.

CHAIR^SOFT CL(unspread 5): 'be_located'
'The sofa is located there.'

In LIS, we also find some spatial verbs that have no movement, thus they convey agreement simply by localising the sign for the verb in the position dedicated to the location argument, as in the example below.

S-A-R-A THREE^YEAR ROME$_a$ STAY$_a$
'Sara stayed in Rome for three years.'

3.1.2 Number markers

LIS verbs can display further modifications to convey number agreement. Specifically, the verb can be reduplicated or displaced to mark the number of arguments involved in the event. Note that in LIS, the verb usually inflects to mark object number. To express subject number, LIS mostly employs quantifiers and numerals [LEXICON 3.10]. As for person and locative agreement, plain verbs do not inflect for number because they are articulated on the signer's body.

3.1.2.1 Dual

Agreement verbs [LEXICON 3.2.2] mark duality through i) addition of the non-dominant hand in one-handed signs or ii) reduplication of the verb, whose starting and ending point of articulation can be changed in order to convey duality of the subject or object. Example (a) shows that the verb agrees with the dual object by being articulated as a two-handed sign; (b) displays the same strategy employed to mark duality of the subject, whereas (c) is an example of reduplication of the verb to convey duality of the object.

a. dom: G-I-U-L-I-A$_a$ M-A-R-I-A$_b$ G-I-A-N-N-I$_c$ BOOK $_c$GIVE$_b$
   n-dom: $_c$GIVE$_a$
'Gianni gives one book to Giulia and Maria respectively.'

b. dom: G-I-U-L-I-A$_a$ M-A-R-I-A$_b$ $_b$PHONE_CALL$_1$
     n-dom: $_a$PHONE_CALL$_1$
'Giulia and Maria call me.'

c. IX$_1$ G-I-U-L-I-A$_a$ M-A-R-I-A$_b$ $_1$PHONE_CALL$_a$ $_1$PHONE_CALL$_b$
'I call Giulia and Maria on the phone.'

In the same vein, backward verbs can mark duality of the source/object which is being copied, chosen or invited. The example below shows the reduplication of the backward verb sign COPY to convey duality of the source.

BOOK TWO CL(unspread 5): 'book'$_a$ CL(unspread 5): 'book'$_b$
STUDENT $_a$COPY $_b$COPY
'The student copies (a text) from two books.'

The same strategies are employed by that subclass of agreeing verbs which display only one point of articulation in the signing space corresponding to their single argument. The example below shows that the one-handed verb GROW_UP becomes a two-handed symmetrical sign in order to convey duality of the subject.

dom: CHILD$_a$ CHILD$_b$ TWO GROW_UP$_b$
n-dom: GROW_UP$_a$
'The two children are growing up.'

3.1.2.2 Multiple

LIS agreement verbs mainly inflect to mark plurality of the object. In contrast, a plural subject is marked by numerals and quantifiers. To convey plurality of the object, agreeing and spatial verbs can display specific morphological modifications: i) they can incorporate an arc movement from the contralateral to the ipsilateral side of the signing space to convey the meaning 'all', as exemplified in (a); ii) one hand-ed-signs can be realised as two-handed signs, as in (b); and iii) they can be reduplicated in different locations in space, as exemplified in (c), to convey distributivity features. Reduplication applies to the articulation of the verb an indefinite number of times (usually three).

a. GIVE$_{arc}$
'Give to all.'

b. dom: GIVE$_{arc}$
   n-dom: GIVE$_{arc}$
'Give to all.'

c. GIVE$_{distr}$
'Give to each one.'

When the object is a sign articulated in the signing space, which can be reduplicated to convey plurality, the verb can show overt agreement with it by being reduplicated in the same loci dedicated to the plural object, as in the example below.

MAN MANY HOUSE$_a$++ BURN$_a$++
'Many men burnt many houses.'

3.1.2.3 Exhaustive

Exhaustivity refers to number information, but it also specifies the position of members of a set within the signing space. Exhaustivity can be encoded in agreement and spatial verbs. It is conveyed through a distributive morpheme, which is expressed by a repetition of the verbal root and is always interpreted on the internal argument (the theme) in a transitive construction. In the example below, the repetition of the verb (EXAMINE++) marks numerosity and distribution of the object.

> PROFESSOR IX STUDENT EACH++ CONTROL++
> 'The professor examines each of the students.'
> (recreated from Mazzoni 2008, 164)

As for intransitive constructions, the distributive morpheme is admitted only with unaccusative verbs, such as MELT. In the example below, exhaustivity is marked by repetition of the verb.

> PIECE$_a$ PIECE$_b$ PIECE$_c$ BUTTER MELT$_a$ MELT$_b$ MELT$_c$
> 'Each piece of butter has melted.'
> (recreated from Mazzoni 2008, 164)

3.1.3 Reciprocal markers

LIS verbs behave differently in expressing a reciprocal relation between their arguments depending on the class they belong to (plain verbs, agreement verbs, spatial verbs).

LIS has a reciprocal marker glossed EACH_OTHER [LEXICON 3.7.4] that can be employed to express reciprocity with plain verbs that, due to articulatory restrictions, don't mark reciprocity on the verb [SYNTAX 2.1.3.4].

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

Alternatively, plain verbs express reciprocity through *zero marking*, namely, the object slot of a transitive verb is left empty, as shown below:

> IX$_{1+3}$ LOVE
> 'We love each other.'

As opposed to plain verbs, agreement and spatial verbs can inflect to convey reciprocity:

i) One-handed signs, such as GIVE, are produced as two-handed signs in which the two hands move alternatively as independent signs, thus marking the two members of the reciprocal relation through *simultaneous reduplication*.

> dom: $_1$GIVE$_2$ $_2$GIVE$_1$
> n-dom: $_2$GIVE$_1$ $_1$GIVE$_2$
> 'We give (something) to each other.'

ii) Two-handed signs, such as DONATE, can realise reciprocity through *sequential reduplication*, namely the two-handed sign moves from the subject to the object and backwards.

> EVERY_YEAR CHRISTMAS IX$_{3a+3b}$ $_a$DONATE$_b$ $_b$DONATE$_a$
> 'Every year at Christmas they give each other a present.'

Alternatively, the two-handed sign is produced as if the two hands functioned as independent articulators, moving alternatively between the positions of the two arguments of the predicate.

> dom: $_1$DONATE$_2$ $_2$DONATE$_1$
> n-dom: $_2$DONATE$_1$ $_1$DONATE$_2$
> '(To) donate to each other.'

The reader is referred to [SYNTAX 2.1.3.4] for a more detailed description of reciprocity in LIS.

3.2 Tense

The previous sections have described how LIS verbs can inflect to mark agreement with their arguments. Here, we explore the morphological processes that LIS verbs can undergo in order to convey tense, besides employing lexical markers [LEXICON 3.3.1] and temporal adverbials.

3.2.1 Time lines

Temporal information is expressed in LIS through a spatial metaphor which visualizes time as a line with respect to the signer's body.

More specifically, the space in front of the signer represents the future, the space in which the signer is located, or the positions very close to the signer's body, represents the present, the space behind the signer represents the past. Therefore, points of the signing space can be considered abstract morphemes which combine with temporal adverbials or verbs in order to convey temporal information and are used as references to locate events in time. In general, in LIS this visual metaphor can be conveyed through non-manual markers occurring with the lexical sign for the verb [MORPHOLOGY 3.2.2], or it can be encoded into temporal adverbials.

Temporal adverbials referring to the past display a movement and orientation of the palm towards the space behind the signer; temporal adverbials referring to the present are produced in front of the signer in a position very close to his/her body; temporal adverbials referring to the future are directed towards an indefinite point of the space in front of the signer. Being articulated more or less close to the body of the signer, temporal adverbials can locate events in the far past, near past, present, near future, future and far future. The time adverbials reported below show the realisation of the time line in LIS moving from the back to the front of the signer.
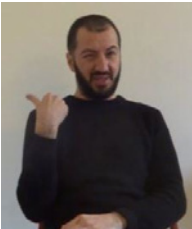

PAST

YESTERDAY

BEFORE

RECENTLY

TODAY

TOMORROW

FUTURE

3.2.2 Tense inflection

Tense inflection refers to the morphological processes able to modify the articulation of the verb sign in order to convey temporal information about the event.

LIS realises tense inflection by changing the position of the shoulders during the articulation of the verb sign: when the shoulders are aligned with the rest of the body, the action is taking place at the time of utterance (a); if the shoulders are tilted backwards, the action took place before the time of utterance, namely in the past (b); if the shoulders are tilted forward, the predicate defines a future event which will take place after the time of utterance (c). Therefore, tense inflection in LIS can be conveyed non-manually and, when it does, it displays the visual metaphor of the 'time as a line'. It is important to notice that the possibility of inflecting the verb to carry temporal information is restricted to the variety of LIS used in the Napoli-Salerno area.

<u>shoulders-straight</u>
a. G-I-A-N-N-I HOUSE BUY
'Gianni is buying a house.'
(recreated from Zucchi 2009, 101)

<u>shoulders-backward</u>
b. G-I-A-N-N-I HOUSE BUY
 'Gianni bought a house.'
(recreated from Zucchi 2009, 101)

<u>shoulders-forward</u>
c. G-I-A-N-N-I HOUSE BUY
'Gianni will buy a house.'
(recreated from Zucchi 2009, 101)

When the sentence contains past and future temporal adverbials as independent lexical signs, non-manual inflection on the verb is absent, because tense in conveyed through the temporal adverbial.

> PAST G-I-A-N-N-I HOUSE BUY
> 'Some time ago Gianni bought a house.'
> (based on Zucchi 2009, 103)

3.3 Aspect

Aspectual information in LIS can be conveyed through lexical markers [LEXICON 3.3.2], adverbials or morphological modification of the verb sign, which specify whether the action is completed (perfective aspect) or not completed (imperfective aspect). The following sections describe the morphological processes LIS employs to express aspectual information, mainly consisting in movement manipulations, repetition and lengthening of the verb sign.

3.3.1 Imperfective

Imperfective aspect refers to events or activities which are not completed or that are still going on at the time of utterance. It can also refer to events which are habitual or that are repeated, irrespective of the event time (past, present, future). LIS can convey imperfective aspect through morpho-phonological modifications of the verb sign.

3.3.1.1 Habitual

Habitual aspect relates to events which are usual and happen repeatedly. In LIS, habitual aspect is conveyed through adverbials or rapid repetition and lengthening of the verb sign. Below, we provide an example for each strategy respectively.

> a. EVERY_DAY CHILD CRY
> 'The child cries every day.'
> (based on Bertone 2011, 222)

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

3.3.1.2 Continuative/durative

In LIS, continuative aspect is conveyed through morphological modifications consisting in a longer duration of the articulation of the verb sign or in its repetition. The longer articulation indicates that an event lasts indefinitely in time, without precise information about when it starts/started and ends/ended (a). Repetition, instead, indicates that the same event is repeated for an indefinite time. The verb is repeated at least three times (b). Furthermore, the verb sign can be marked by specific non-manual markers consisting of furrowed eyebrows (fe) and puffed cheeks (pc) (b), or open mouth (om) conveying the indefinite duration of the event, as in (a).

<div>

                  <u>   om   </u>

a. G-I-A-N-N-I WINDOW LOOK_AT

'Gianni is looking out of the window.'
</div>

<div>

              <u>   fe   </u>

              <u>   pc   </u>

b. STUDY++

'(S/he) studies/studied for an indefinite period of time.'
</div>

3.3.1.3 Conative

Conative aspect is a type of imperfective aspect which refers to the unfinished status of an event that was about to start. LIS can encode conative aspect morphologically, by modifying the articulation of the verb. To illustrate, compare the articulation of the verb FIGHT in (a), with the articulation in (b), which displays morphological modifications to encode conative aspect, glossed FIGHT.CON.

a. IX_1 IX_3 FRIEND IX_{1+3} FIGHT

'I had a fight with my friend.'

Context: You are having a drink with your girlfriend at the bar. A man hits you, and the two of you start arguing. You are about to have a fight when your girlfriend asks you to leave.

b. dom: MAN IX_a IX_1 $_1$COMMUNICATE$_{3a}$ $_1$FIGHT.CON$_{3a}$ GIRLFRIEND $_{3b}$ASK$_1$

                    NEG_O

   n-dom: $_3$CL(G): 'move'$_1$

'A man hit me. We started arguing and we were about to have a fight when my girlfriend called me, thus we did not fight.'

As example (b) clearly shows, conative aspect can be realised in LIS by interrupting the articulation of the verb, which displays a reduced and unfinished movement.

3.3.2 Perfective

Perfective aspect refers to a closed and completed event. LIS can convey perfective aspect through morpho-phonological marking on the sign for the verb, or through lexical markers [LEXICON 3.3.2].

3.3.2.1 Iterative

Iterative perfective aspect refers to those events that, despite being repeated many times, are single completed events. Besides employing adverbs, LIS conveys the iterative nature of an event, action or situation through morpho-phonological modifications of the verbal sign. When expressing iterative perfective aspect, the movement of the verb is lengthened, repeated and wider with respect to the movement of the verb in its citation form. Despite their similarity, iterative aspect differs from habitual aspect [MORPHOLOGY 3.3.1.1] in displaying a slower articulation of the verb sign, marking the repetition of the event. The typical non-manual markers conveying iterative perfective aspect are furrowed eyebrows (fe) and squinted eyes (sq) produced simultaneously to the verbal sign.

```
        fe
        sq
MEET++
```
'(He/she) has met (him/her) several times.'

3.3.2.2 Inceptive/inchoative

As a type of perfective aspect, inceptive/inchoative aspect encodes the starting point of an action or state, which in the end is realised. To be more specific, inceptive aspect describes the beginning of an action, whereas inchoative aspect refers to the beginning of a state.

LIS does not encode these aspects through morphological modifications of the verb. It rather employs the aspectual marker DONE occurring with the mouthing of the Italian word corresponding to 'already' (i.e. *già*) to express inceptive aspect (a), and the verb BEGIN to

express inchoative aspect (b). An example for each strategy is provided below.

a. FILM BEGIN DONE
'The film is beginning.'

b. EXAM APPROACH IX$_1$ BEGIN FEEL_PANIC
'The exam is approaching, and I am starting to panic.'

3.3.2.3 Completive

Completive aspect is marked in LIS through the lexical manual sign DONE [LEXICON 3.3.2], which defines that the event is completed.

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

3.4 Modality

In [LEXICON 3.3.3], we listed the manual markers of deontic and epistemic modality. Generally speaking, deontic modality conveys obligation, prohibition, necessity, recommendation, ability, permission, intention and volition. On the other hand, epistemic modality refers to the expression of the signer's judgment or evaluation about the likelihood of the event of the utterance. Signers can express their absolute certainty about the happening or not of an event (either past, present or future) based on their knowledge and evidences, or they can express their evaluations and hypotheses.

LIS encodes deontic and epistemic modality through lexical markers occurring with dedicated non-manuals, which can also spread on the entire sentence. Nevertheless, sometimes lexical signs can be dropped, and modality is encoded through non-manual markers alone. Crucially, the different non-manual markers employed specify the degree of certainty the signer has about his/her proposition. We describe the morphological strategies for deontic and epistemic modality, respectively, in the following sections.

3.4.1 Deontic modality

Deontic markers [LEXICON 3.3.3.1] in LIS can be accompanied by fur-
rowed eyebrows (fe) and/or head nod (hn). Sometimes, the manual de-
ontic marker can be dropped, and the non-manual markers spread on
the verbal sign. In the example below, permission is encoded through
head nod produced over the verb, in the absence of a manual deon-
tic marker.

> Context: you are driving, at the signal STOP you must stop the car.
> What do you do next?
>
>   <u>cond   </u>   <u>   hn   </u>
> LOOK_RIGHT LOOK_LEFT bare CL(unspread 5): 'car_move' 🖐
> 'You look to the right and to the left. If the road is empty, you are
> allowed to move ahead.'

Often, morphological modifications concern the deontic marker itself.
In the example below, the modal MUST displays a slower and repeat-
ed articulation in order to emphasise the obligation being conveyed.

> NO TODAY MUST++ 🖐
> 'No, you have to do it today!'

3.4.2 Epistemic modality

The manual signs encoding epistemic modality in LIS [LEXICON 3.3.3.2]
can display different non-manual markers, yielding different seman-
tics. In general, we can distinguish between epistemic certainty and
epistemic possibility. Certainty is mainly associated to furrowed eye-
brows (fe) and head nod (hn). On the other hand, possibility can ei-
ther involve squinted eyes (sq) or raised eyebrows (re) and head nod,
sometimes associated to mouth corners down (md), depending on the
confidence the signer has about the truth of the utterance and/or the
likelihood of the event. Non-manual markers are mainly produced in
correspondence to the epistemic manual markers, though they can
sometimes spread on nearby signs.

Epistemic certainty is encoded through furrowed eyebrows and a
strong head nod simultaneously articulated over the manual sign BE_
ABLE. In so doing, the signer expresses his certainty about the likeli-
hood of the event, since he knows that the external conditions allow
its realisation. This is illustrated below.

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

IX$_1$ FRIEND POSS$_1$ IX$_1$ LOOK_FOR IX$_1$ FIND BE_ABLE

'I can find the friend I have been looking for.'

In order to emphasise the certainty about the ability of someone/ something to perform an action, due to favourable external conditions, the sign BE_ABLE can be reduplicated and marked by repeated head nod, furrowed eyebrows and slightly puffed cheeks (pc). In the example below, we see that head nod and furrowed eyebrows are spread on the whole utterance, yielding the signer's certainty that the friend is able to come because he already knows the way.

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

FRIEND COME BE_ABLE++

'I am sure my friend is able to come.'

Crucially, epistemic certainty can also be encoded by means of non-manual markers alone modifying the verb sign. In the example below, we see that the verb PASS is marked by a strong head nod and furrowed eyebrows.

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

LUCA EXAM PASS

'Luca will surely pass the exam.'

On the other hand, epistemic possibility encoding the judgment or evaluation about the likelihood of the event is expressed through different clusters of non-manual markers, yielding different degrees of feasibility.

Squinted eyes usually encode the doubts of the signer about the possible realisation of the event in the utterance. In the example below, these non-manuals spread on the entire sentence, conveying the signer's uncertainty.

$$\frac{\text{sq}}{}$$

FRIEND IX$_1$ LOOK_FOR FIND BE_POSSIBLE(1)

'I (think) I can find the friend I am looking for.'

Raised eyebrows and mouth corners down, usually combined with a head tilt backwards (ht-b) are used to express that the event is possible but the signer is not sure about that due to lack of information. The non-manuals can occur with the epistemic markers BE_POSSIBLE(1) and BE_POSSIBLE(2) and spread on the whole sentence.

	ht-b
	re
	md

FRIEND POSS$_1$ COME BE_POSSIBLE(1)
'I think my friend can come.'

Head nod, sometimes associated to raised eyebrows, yields a higher degree of possibility of the event due to the circumstances. The head nod usually occurs with the epistemic marker, but it can also spread on the preceding or following signs, as in the examples below.

	hn
	re

a. dom: LETTER IX(dem)$_a$ MOTHER WRITE BE_POSSIBLE(1)
    n-dom: LETTER$_a$----------------------------
'It is possible that my mother wrote this letter.'

	hn

b. DATE TWO^FIVE DECEMBER TRAIN IX PLACE EMPTY BE_POSSIBLE(2)

hn

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

Note that in (b) the signer articulates a final manual marker, glossed PALM_BACK, encoding that the event is possible due to the circumstances, but the signer has no evidence for it at the time of the utterance.

3.5 Negation

Negation in LIS is mainly conveyed through negative markers and n-words [SYNTAX 1.5.1.1], whose syntactic features are analysed in [SYNTAX 1.5.1.2]. However, there are some instances of negation as inflectional category, which will be explored in the next sections. Negation as inflectional category refers to the morphological modifications that predicates or sentences can undergo in order to convey negation,

besides employing lexical negative markers. Specifically, LIS verbs can i) incorporate negative elements, ii) be marked by specific non-manual markers or iii) display a completely different form to convey their negative counterpart.

3.5.1 Regular negation

The present section concerns those processes modifying the morphology of verb signs in order to convey negation. These processes are considered instances of regular negation in that the negative features incorporated remain visible. We will see that these processes can be conveyed through both manual and non-manual markers.

3.5.1.1 Manual markers

Manual markers of negation refer to instances of incorporation of a negative element within the articulation of the verb sign, which however remains identifiable. Incorporation can be either a sequential or simultaneous process. In sequential incorporation, the negative morpheme NOT combines with the verb stem. This is illustrated for the verbs KNOW (a), BE_ABLE (b) and WANT (c). The typical negative headshake (hs) occurring with the marker NOT can spread on the preceding verb stem.

$$\overline{\text{}\text{hs}}$$
a. KNOW^NOT
'Do not know'

$$\overline{\text{}\text{hs}}$$
b. BE_ABLE^NOT
'(To) not be able'

$$\overline{\text{}\text{hs}}$$
c. WANT^NOT
'Do not want'

On the other hand, the modal CAN (see [SYNTAX 1.5.1.1.2] for details) allows the simultaneous incorporation of the negative element NOT. As we can see from the example below, the sign for the modal CAN (a) is a symmetrical two-handed sign articulated with both hands closed in the neutral space, displaying a short movement downward. To con-

vey the negative meaning, a left-to-right rapid movement is added, together with the typical negative non-manual marker. The resulting sign is CAN^NOT (b).

a. CAN

$$\overline{\quad\quad\text{hs}\quad\quad}$$
b. CAN^NOT
'Cannot'

3.5.1.2 Non-manual markers

In general, in LIS negative non-manual markers alone cannot negate a predicate or a whole sentence, they must be articulated with a manual negative marker or n-words [SYNTAX 1.5]. However, in some central and southern varieties of LIS, we can find negation conveyed through the typical negative non-manual marker, namely headshaking (hs) alone, occurring with the sign for the verb.

$$\overline{\quad\quad\text{hs}\quad\quad}$$
CAT$_a$ DOG$_b$ $_b$CHASE$_a$
'The dog does not chase the cat.'

3.5.2 Irregular negation

Irregular negation refers to those instances in which verbs display a completely different form for their negative counterpart. In such signs, the negative element cannot be identified and distinguished from the lexical verb. For these reasons, they are also referred to as opaque irregular negatives [SYNTAX 1.5.1.1.2]. In LIS, we find several examples. The negative counterpart of the positive existential glossed EXIST (a), which in LIS also corresponds to the verb 'have' [SYNTAX 2.1.5], is a manual sign that is completely different from its positive counterpart. This sign, EXIST.NOT (b), is marked by the specific non-manual marker for negation, i.e. headshaking (hs).

a. EXIST
'There is'
'(To) have'
'(To) exist'

$\overline{\qquad\text{hs}}$
b. EXIST.NOT
'There is not'
'(To) not have'

To realise the negative counterpart of WANT (a), LIS employs the sign
WANT.NOT, occurring with the non-manual marker for negation (b).
See how they differ in the examples below.

a. WANT

$\overline{\qquad\text{hs}}$
b. WANT.NOT
'Do not want'

Note that this negative irregular form (b) is a variant of the regular
negative modal WANT⌃NOT illustrated in [MORPHOLOGY 3.5.1.1].

One further example is provided by the verb LIKE (a), whose nega-
tive counterpart is the sign LIKE.NOT, which is lexically specified for
furrowed eyebrows (fe) and tongue protrusion (tp) (b). Notice that
LIS employs the same sign for the verb WANT and the verb LIKE, but
LIKE displays a slower articulation.

a. LIKE

$\overline{\qquad\text{fe}}$
$\overline{\qquad\text{tp}}$
b. LIKE.NOT
'(To) dislike'

To convey that an event has not taken place or it has not been com-
pleted, LIS employs a specific manual marker NOT_YET (b), which is
considered a negative completive/perfective marker [LEXICON 3.3.2],
namely it is the negative counterpart of the aspectual marker DONE
in (a), (which cannot co-occur with negation).

a. DONE

b. NOT_YET

The deontic negative counterpart of the sign BE_ABLE (a) conveying abil-
ity [LEXICON 3.3.3.1] is IMPOSSIBLE_PA_PA (b), which refers to a situation in
which the desired result cannot be achieved despite several attempts.

a. BE_ABLE
'(To) be able'

$$\overline{\qquad\qquad\quad\text{hs}}$$
b. IMPOSSIBLE_PA_PA
'(To) not be able'

The negative counterpart of the sign BE_ABLE (a) encoding epistemic certainty [LEXICON 3.3.3.2] is IMPOSSIBLE_NO_WAY (b). This indicates that there is no possibility at all that the event can happen due to absence of favourable conditions.

a. BE_ABLE
'Can'

$$\overline{\qquad\qquad\quad\text{hs}}$$
b. IMPOSSIBLE_NO_WAY
'(To) be absolutely unlikely to happen'

Information on Data and Consultants

The descriptions in this chapter are based partially on the references below and on the elicitation of new data. The linguistic data illustrated as images and video clips have been checked through acceptability judgments and have been reproduced by Deaf native-signing consultants involved in the SIGN-HUB Project.

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Elena Fornasiero

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