Functional markers in sign languages

Sandro Zucchi, Carol Neidle, Carlo Geraci, Quinn Duffy and Carlo Cecchetto

1 Lexical morphemes and grammatical morphemes

It is a common observation that grammatical morphemes often develop gradually from lexical morphemes. Some languages show this fact more transparently than others. For example, Sebba (1997) observes that creoles and pidgins often use lexically contentful elements with the meaning of ‘finish’ or ‘done’ as functional markers signaling that the event described by the sentence occurs before the time of utterance:

(1) mo fin mahze (Mauritian Creole)
    I finish eat
    ‘I ate.’

(2) me waka kba (Sranan Tongo)
    I walk finished
    ‘I had walked.’

(3) mipela I ting osem i mas dai pinis (Tok Pisin)
    we him think anyhow him must die finish
    ‘We think he must have died.’

(4) a don kom (Pidgin of West Africa)
    I done come
    ‘I have come.’

Similar examples from other spoken languages are offered by Pfau and Steinbach (2006). In Rama (a spoken language of Nigeria), the verb aktul meaning ‘finish’ is now used as a completive marker, and in Lhasa (spoken in Tibet), the verb tshaa meaning ‘finish’ marks perfective aspect.

Examples of this sort are also quite common in sign languages. For instance, the signs FINISH and FATTO belonging, respectively, to American Sign Language
(ASL) and Italian Sign Language (LIS), can both occur as lexically contentful main verbs with the meaning of ‘finish’ (or ‘done’) and as aspectual/temporal morphemes. Both signs, when acting as grammatical morphemes, also exhibit a peculiar behavior with negation and negative quantifiers.

Although FATTO and FINISH share many temporal/aspectual properties and interact in a similar way with negative items, they do so in structurally different environments: LIS is an SOV language (at least as far as the variety we are investigating goes), while ASL is SVO; moreover both FATTO and negation are postverbal in LIS, while FINISH and negation regularly occur preverbally in ASL. These similarities and structural differences provide a testing ground for analyses of FATTO and FINISH, which is why it may be interesting to try to pursue a parallel analysis.

In this paper, we propose an account of these morphemes that explains their temporal/aspectual properties, as well as their behavior with negative items. In particular, we will argue that their interaction with negators relates to other properties of ASL and LIS, as well as to a more general crosslinguistic pattern observed in Huang (2003) for negative quantifiers of spoken languages. Our account is based on Huang’s and is spelled out within the theoretical framework provided by Chomsky and Lasnik (1993), Halle and Marantz (1993), Chomsky (1995) and Marantz (1994).

Although our discussion is restricted to LIS and ASL (two languages that are probably historically related through French Sign Language), our analysis may also apply to similar items in other sign languages. Future research may assess the extent to which the analysis applies and, by doing so, may help to determine how sign languages vary with respect to the behavior of their functional markers.

In section 2, we briefly introduce some temporal/aspectual notions we will use in our discussion. In sections 3 to 4, we focus on the temporal and aspectual properties of FINISH and FATTO. The behavior of FINISH and FATTO with negative items is discussed in section 5.

### 2 Some basic notions

Before we proceed to discuss the temporal and aspectual properties of FATTO and FINISH, let us briefly clarify how we will use certain terms.

By “perfective” marker we mean any morphological marker indicating that the event described by the predicate to which it applies is a “complete event.” We explain what we mean by a complete event by providing the following illustration: in the case of a house-building event, a complete event is one that includes both the process through which the house is built and the completion of the process (or its
“culmination,” in Parsons’s 1990 terminology). An “imperfective” form is a predicate form which, from a semantic standpoint, is non-committal as to whether the event it describes is complete or not.

With the term “perfect” (not to be confused with perfective), we refer to a construction in which a tense is combined with some anteriority operator to the effect that the event described by the predicate is placed at a time that precedes the time referred to by the tense. Thus, for instance, the sentence John has built a house, uttered now, means that the event of building a house has occurred before the time referred to by the present tense form has. We take this to follow from the fact that, at the level relevant for semantic interpretation, the present tense has an anteriority operator in its scope which locates the event at a time prior to the time referred to by the present tense.

Notice that, by our characterizations, perfect and perfective are not mutually exclusive categories. In particular, the perfect sentence John has built a house also carries the information that the house-building event is complete, thus it also carries perfective meaning. Following current usage, we call information concerning whether an event is complete or not “aspectual” information. Notice that morphological markers traditionally referred to as tenses, in addition to information of a temporal nature concerning the location of the event with respect to the utterance time, may often carry aspectual information. For instance, Italian passato remoto carries both the information that the event occurs before the utterance time and the information that the event is complete. Thus, the sentence Gianni costrui una casa (Gianni build-passato remoto a house) means that a complete house-building event by Gianni occurs prior to the utterance time.

3 The story about FATTO

3.1 Some basic facts

The sign FATTO in LIS may be used as a main verb with the meaning of ‘finish.’ In this case, it usually occurs alone, without an overt complement, as in (5).

(5) FATTO?
‘Did you finish?’

In (6), however, illustrated in Figure 10.1, FATTO occurs after the verb with the grammatical function of indicating that the action described by the verb was completed before the time of utterance.

(6) GIANNI CASA COMPRARE FATTO
Gianni house buy done
‘Gianni has bought a house.’
In the discussion that follows, we concentrate on the postverbal use of FATTO as a grammatical marker and ignore its use as a main verb.

As (6) shows, LIS is an SOV language. Negation and modals occur postverbally, and determiners and prepositions are naturally found after their complements,\(^7\) as one might expect in a head-final language. Wh-items, when not left in situ (a marked occurrence), occur at the right periphery of the sentence (see Cecchetto, Geraci & Zucchi 2006 for a presentation of LIS syntax).

One interesting fact about FATTO is that it cannot co-occur with sentential negation NON. Thus, (7) cannot be negated as in (8).

\[
\begin{align*}
(7) & \quad \text{GIANNI MANGIARE FATTO} \\
& \quad \text{Gianni eat done} \\
& \quad \text{‘Gianni has eaten.’}
\end{align*}
\]

\[
\begin{align*}
(8) & \quad \text{a. * GIANNI MANGIARE FATTO NON} \\
& \quad \text{b. * GIANNI MANGIARE NON FATTO}
\end{align*}
\]

In section 5 below, we present a more complete paradigm of the behavior of FATTO with negation. First, however, let us try to give a more precise account of the role of FATTO in sentences like (6) and (7).

3.2 Temporal and aspectual properties of FATTO

From a temporal standpoint, FATTO expresses anteriority. Thus, while (9) may be interpreted as describing an event taking place at the time of utterance,\(^8\) (6) locates the house buying event in the past.

\[
\begin{align*}
(6) & \quad \text{GIANNI CASA COMPRARE FATTO} \\
& \quad \text{Gianni house buy done} \\
& \quad \text{‘Gianni has bought a house.’}
\end{align*}
\]
(9) GIANNI CASA COMPRARE
   Gianni house buy
   ‘Gianni is buying a house.’

FATTO may also express anteriority with respect to a time specified by a time adverb, as in (10).

(10) IERI ALLE-3 GIANNI MANGIARE FATTO
    yesterday at-3 Gianni eat done
    ‘Gianni had already eaten yesterday at 3.’

From an aspectual standpoint, FATTO expresses perfectivity; namely it indicates that the event described by the verb has reached its completion and is not an open process. Thus, for instance, sentence (11) cannot be used to report that Gianni’s house building was going on at a past time, but conveys the information that the house building was completed.

(11) GIANNI CASA COSTRUIRE FATTO
    Gianni house build done
    ‘Gianni has built a house.’

The fact that FATTO carries aspectual information of this kind may also explain why it cannot co-occur with stative predicates. For instance, FATTO is anomalous with a verb like PUZZARE (‘stink’):

(12) ?? GIANNI PUZZARE FATTO
    Gianni stink done

The restriction here is really about stativity and not agentivity, as indicated by the fact that, while (12) is deviant, (13) is acceptable:

(13) FOGLIE AVVIZZIRE FATTO
    leaves wither done
    ‘The leaves have withered.’

FATTO’s restriction to nonstative predicates is expected if FATTO requires the event described by the predicate to be a culminated event: the restriction follows from the fact that states, unlike events, do not have culmination parts and thus cannot be required to culminate.

Summing up, the data presented so far suggest that FATTO carries both temporal information telling us that an event of the type described by the predicate occurs at a time preceding the utterance time (or some time referred to by a time adverb) and aspectual information telling us that the event in question is a culminated event.
In principle, these facts are compatible with different hypotheses concerning the function of FATTO. One hypothesis is that FATTO is a past tense marker which also carries perfective meaning.9 Another hypothesis is that sentences with FATTO are present tense sentences and FATTO, besides carrying perfective meaning, is an anteriority marker indicating that the event described by the predicate takes place at a time preceding the time referred to by the present tense. According to this second hypothesis, sentences with FATTO should be analyzed on a par with Italian present perfect sentences like *Gianni ha comprato una casa* (‘Gianni has bought a house’). A third possibility is that FATTO is an anteriority marker with perfective meaning, but, contrary to what the second hypothesis claims, LIS sentences with FATTO have no tense at all.

In Zucchi (2009), it is argued that LIS sentences are tensed and that, in particular, LIS sentences with FATTO, like those that have been presented above, are present perfect sentences. Let us see how the argument goes. The hypothesis that LIS sentences like (6) above are tenseless is problematic, since it fails to account for the assignment of (abstract) nominative case to the subject. Under the assumption that case is either assigned by tense or by agreement (or by both),10 if sentences like (6) are tenseless, the only possibility is that case is assigned by agreement in LIS. Indeed, in LIS, as in many other sign languages, there is evidence that agreement is present, since for some verbs it seems to be overtly marked by spatial orientation.11 However, in this case, we should also conclude that agreement is unable to assign nominative case in LIS, because of examples like (14), where the subject of the agreeing predicate PARTIRE raises out of the subordinate clause, presumably in order to receive case:

\[(14) \text{LUI SEMBRA PARTIRE}^{3p.} \text{ FATTO} \]
\[\text{he seems leave done}\]

‘He seems to have left.’

Thus, the hypothesis that LIS sentences like (6) are untensed fails to account for how nominative case is assigned to the subject.

Moreover, at least in the variety of LIS spoken in the Napoli-Salerno area, tense is explicitly signaled by nonmanual marking on the verb: the shoulder’s position is tilted back for past tense, tilted forward for future tense and straight (aligned with the rest of the body) for present tense. If this is correct, since in the elicited sentences with FATTO the shoulder is straight, we should conclude that these sentences are best analyzed as present tense sentences, thus favoring a present perfect analysis over a past tense analysis.

Finally, additional evidence favoring the present perfect hypothesis comes from the co-occurrence of FATTO with time adverbs like ORA (‘now’):
(15) ORA CAFFE` BERE FATTO
now coffee drink done
‘Now I have drunk the coffee.’

As Zucchi shows, sentences of this sort are expected if they are analyzed as present perfect sentences with ORA under the scope of tense and with FATTO in its scope (possibly in AspP), while they are not expected if FATTO is analyzed as a past tense. Summing up, our final conclusion is then that postverbal FATTO, from a semantic standpoint, carries perfective meaning and is also a marker of anteriority indicating that the event described by the predicate takes place at a time preceding the time referred to by the tense.

Crosslinguistically, items similar to FATTO have been independently analyzed as perfect markers. Meir (1999) describes a sign of Israeli Sign Language (ISL) which she glosses as ALREADY and which seems to be the ISL counterpart of FATTO. She proposes to analyze ALREADY as a perfect marker because, among other things, it can co-occur with adverbs like NOW and future adverbials.12 Similar claims have been made about one usage of the sign FINISH in ASL.13 Rathmann (2005) offers a detailed proposal analyzing some occurrences of FINISH in ASL as perfect markers, an issue to which we now turn.

4 The story about FINISH

The sign FINISH in ASL, illustrated in Figure 10.2, has a wide range of distinct functions described in the literature (e.g., Fischer & Gough 1999, Rathmann 2005).14

Among its many possible meanings, FINISH can be used in constructions very much like those described for FATTO: (a) as a main verb with the meaning of

Figure 10.2 Illustration of ASL sign FINISH.
‘finish’ (in which case it frequently precedes an NP or VP complement), (b) as a perfect marker (in pre-VP position), and (c) as an adverbial with the meaning of ‘already.’ ASL differs from LIS in that the ASL versions of these three distinct constructions frequently contain FINISH in the same linear order relative to the relevant VP, resulting in sequences of signs that can be potentially ambiguous. However, there are often prosodic cues, differences in the articulation of FINISH, and semantic/pragmatic considerations to distinguish these constructions.

For example, in the sequence FINISH READ BOOK, as shown in (17) below, FINISH can function as a main verb followed by a VP complement. This would be appropriate in a context where one is relating that John started reading the book on Monday and that he finished reading the book on Saturday. Assuming that same scenario, the following Monday, it would then be appropriate to declare that John has now read the book, which could be done with the construction illustrated in (22) below, containing the same linear sequence of signs.

The examples included in this section are taken from the National Center for Sign Language and Gesture Resources (NCSLGR) database of video examples of ASL sentences and narratives collected at Boston University, annotated with SignStream™ (Neidle & MacLaughlin 1998, Neidle, Sclaroff & Athitsos 2001) and are accessible on the Internet and on CD-ROM (Neidle 2003, 2004, 2007). The volume number, database file and utterance number from which each example has been taken are listed in parentheses. Glosses are conventional English (rough) translations of the ASL signs. The lines above the glosses, as in (19), show the scope of facial expressions and head gestures that occur in parallel with phrasal groupings of manual signs to convey grammatical information, in this example marking the question status of a wh-question. The symbol # at the beginning of a gloss signals a fingerspelled loan sign.

Main verb

(16) MUST FINISH #ALL BEFORE SUNSET (NCSLGRv4, Accident, U 9) ‘We must finish everything before sunset.’

(17) JOHN FINISH READ BOOK (NCSLGRv1, ncslgr10a, U 1) ‘John finished reading the book.’

Perfect marker

(18) JOHN FINISH VISIT MARY (NCSLGRv2, ncslgr10l, U 74) ‘John has visited Mary.’
The focus for the rest of this section will be on the construction in which FINISH precedes VP and functions in ASL as a perfect marker. As in LIS, the FINISH in examples (18) and (19) marks culmination of an event, but not past tense. This is shown by ASL examples similar to (15), such as (22).

**Context:** Last week, John was asked a question in class, and he didn’t know the answer, because he hadn’t read the book that had been assigned. But now he does know the answer. Why?
NOW JOHN FINISH READ BOOK
‘Now John has read the book.’

Furthermore, ASL FINISH in this usage is compatible with eventualities that have not yet happened, as illustrated in (23), as it can co-occur with the tense marker glossed here as FUTURE (sometimes glossed as WILL), which has a function comparable to that of ‘will’ in English (Aarons et al. 1995, Neidle et al. 2000).

JOHN FUTURE FINISH SEE MARY
(NCSLGRv2, ncs1gr10l, U 77, 78)
‘John will have seen Mary.’

Thus, the perfect construction not only does not mark past tense, but also is not restricted to present tense sentences in ASL. As in LIS, FINISH can be argued to occur under the scope of Tense (perhaps in AspP) and similarly carries the information that the event culminated prior to the reference time signaled by Tense.

As in LIS, FINISH in the perfect construction is consistent only with terminated events and thus is not used with predicates that are inherently incompatible with culmination, including most states and imperfective aspectual inflections, as reported in Duffy (2007), from which the ungrammatical examples in (24)–(29) are taken.

* IX-1p FINISH HUNGRY
(on the reading where it means ‘I have/had been hungry.’
Acceptable, in an appropriate context, with the reading ‘I was already hungry.’)

* IX-1p FINISH WANT CAR
‘I have/had wanted that car.’

* IX-1p FINISH LIKE CHOCOLATE
‘I have/had liked chocolate.’

* IX-1p FINISH ASK[iterative] (UP-TO-NOW 4-WEEK)
‘I have been asking, over and over (for four weeks).’

* IX-3p FINISH WORK[incessant] (UP-TO-NOW 20 HOUR)
‘He has been working, incessantly (for twenty hours).’

* IX-1p FINISH LOOK[durational] (1-HOUR)
‘I have been looking at it (for an hour).’
ASL does not make use of the perfect construction for events that necessarily continue into the present (the so-called universal perfect, or U-Perfect construction), despite Rathmann’s claim that it does, which was based on an example of his, presented here as (30).

(30) IX-1p FINISH LIVE HAMBURG 10 YEAR

According to our consultants, (30) would most naturally be translated by the English sentence in (31).

(31) I have (or had) lived in Hamburg for 10 years.

Although that terminated eventuality may – but need not – extend to the present time, it does not continue. To express an ongoing, temporally unbounded event, FINISH cannot be used, as shown in (32).

(32) IX-1p (*FINISH) LIVE BOSTON UP-TO-NOW 5 YEAR.

IX-1p STILL LIVE THERE

‘I’ve been living in Boston for 5 years. I still live there.’

Thus, ASL FINISH, like LIS FATTO, has a usage on which it simultaneously conveys perfect and perfective. FINISH in ASL can mark anteriority of event culmination with respect to present, past or future reference time.

5 Interaction of FATTO and FINISH with negation

5.1 Negation in LIS and ASL

Before we turn to the interaction of FATTO and FINISH with negation, let us briefly review some differences between LIS and ASL with respect to negation. In LIS negation occurs only after the verb, while in ASL negation occurs preverbally:

(33) neg

GIANNI CASA COMPRARE NON

Gianni house buy not

‘John is not buying a house.’

(34) neg

JOHN NOT BUY HOUSE

‘John is not buying HOUSE.’

Besides differing for the position of negation, ASL and LIS also differ with respect to the nonmanual marking of negation, which in LIS is usually confined to the
negation sign, while in ASL it can optionally spread on the c-command domain of negation when negation is expressed by a manual sign. Negative quantifiers in LIS do not normally occur in argument position (i.e., preverbally, since LIS is an SOV language), but are placed postverbally, where negation occurs:

(35) \[ \text{neg} \] CONTRATTO FIRMARNE NESSUNO
contract sign no one
‘No one is signing the contract.’

(36) \[ \text{neg} \] GIANNI FIRMARME NIENTE
John sign nothing
‘Gianni is signing nothing.’

In ASL, on the other hand, negative quantifiers occur in argument position (recall that ASL is an SVO language):

(37) \[ \text{neg} \] JOHN VISIT NONE/NO-ONE
‘John visits nobody.’

(38) \[ \text{neg} \] NONE/NO-ONE VISIT JOHN
‘Nobody visits John.’

For more detailed analyses of negation in ASL and LIS, we refer the reader to Neidle et al. (2000) and Geraci (2006), respectively.

5.2 Distributional restrictions

The sign FATTO, when it occurs postverbally and not as a main verb, never occurs with the sign NON (‘not’) or with negative quantifiers like NESSUNO (‘no one’), NIENTE (‘nothing’), MAI (‘never’):

(7) GIANNI MANGIARE FATTO
Gianni eat done
‘Gianni has eaten.’

(8) a. *GIANNI MANGIARE FATTO NON
b. *GIANNI MANGIARE NON FATTO
There is a similar restriction on the use of negation with FINISH when used to mark aspect in ASL. To negate a sentence such as (18), to express the idea that John has not visited Mary, or that John has never visited Mary, or that John has visited no one, the standard ASL negators cannot be used in conjunction with FINISH (on its aspectual usage). A sentence like (42) could not be used to contradict a claim made by a sentence like (18).

(18) JOHN FINISH VISIT MARY [NCSLGRv2, ncslgr10l, U 74] ‘John has visited Mary.’

(42) * JOHN NOT FINISH VISIT MARY

(43) * JOHN NEVER FINISH VISIT MARY

(44) * JOHN FINISH VISIT NONE/NO-ONE

Note that no such restriction is found when FINISH or FATTO is used as a main verb. Compare the above ungrammatical examples with the following:

(45) neg JOHN NOT-YET FINISH READ BOOK

(NCSLGRv1, ncslgr10a, U 4) ‘John has not yet finished reading the book.’

(46) neg JOHN START READ BOOK, BUT NOT-YET FINISH

‘John started reading the book, but has not yet finished.’

(47) neg JOHN NOT FINISH READ BOOK

(NCSLGRv9, ncslgr10s, U 193) ‘John did not finish reading the book.’

(48) neg GIANNI UOVO-ROTTURA FATTO NON Gianni egg-break done not

‘Gianni has not finished breaking eggs.’
Why are negative items barred from co-occurring with FATTO in LIS and with FINISH in ASL when they are used to convey aspectual information? Some hypotheses are considered below.

5.3 Negation and aspect

Semantically, in simple sentences like (7) and (18) above, FATTO and FINISH convey the information that the event described by the verb has culminated by the time the sentence is uttered. In this sense, FATTO and FINISH act, among other things, as markers of perfectivity (complete action). It is well known that in some languages negation is incompatible, or dispreferred, with perfective markers. For example, Stevenson (1969) reports that in Bagirmi, a Nilo-Saharan language, the marker of completion $ga$ cannot co-occur with negation.

(49) ma m-’de ga
    1SG 1SG-come CMPL.
    ‘I have come.’

(50) ma m-’de li
    1SG 1SG-come CMPL.
    ‘I did/have not come.’

In Russian negative sentences, imperfective aspect is preferred to perfective aspect. Thus, for example, Matthews (1990) reports that (51) is preferred to (52) in actual discourse:17

(51) pro-chital stat’ju
    Pfv-read paper
    ‘I read the paper.’

(52) ne pro-chital stat’ju
    NEG Pfv-read paper
    ‘I did not read the paper.’

These cases may suggest that the ungrammaticality of (8) and (39)–(41) in LIS, and of (42)-(44) in ASL, is an instance of a more general crosslinguistic phenomenon by which markers of complete action (perfective aspect) are reluctant to occur with negation. Some authors have tried to account for this phenomenon by suggesting that that there is some incompatibility between the meaning of negation and the meaning of perfective aspect. For example, Schmid (1980) suggests that perfective aspect and negation are incompatible because negation is aspectually stative and
thus is incompatible with perfective predicates, which are eventive in nature. Matthews (1990) seems to attribute the incompatibility of perfective aspect and negation to the fact that there is no such thing as a negative event (while there are negative states). Hagman (1977), in discussing Khoekhoe (a Khoisan language), suggests that perfective aspect marks the event described by the predicate as punctual and that negation is barred with this aspect because the non-occurrence of a punctual event cannot be located in time. If some account of the meanings of negation and perfective aspect can be worked out to derive their alleged incompatibility, then the same account may also be applied to the LIS and ASL facts in (8) and (39)–(41) and in (42)–(44).

There are at least two reasons, however, to doubt that this strategy will deliver the desired results. First, as Miestamo and van der Auwera (2006) have pointed out, by examining an extensive sample of 297 languages (and an areally balanced subsample of 179 languages), imperfective-type categories are as likely to be affected by the presence of negation as perfective-type ones: in both the larger and the balanced sample, the number of languages in which a perfective-type category, but not an imperfective-type category, is barred with negation is identical to the number of languages in which an imperfective-type category, but not a perfective type category, is barred with negation. Moreover, there are languages, like Italian, in which both perfective and imperfective forms are acceptable under negation:

(53) Gianni non si muoveva
    Gianni not refl. move-Impfv.
    ‘Gianni was not moving.’

(54) Gianni non si mosse
    Gianni not refl. move-Pfv.
    ‘Gianni did not move.’

(55) Gianni non si è mosso
    Gianni not refl. is move-Perf.
    ‘Gianni has not moved.’

These facts do not show that the ungrammaticality of (8) and (39)–(41) in LIS and of (42)–(44) in ASL is unrelated to aspect. They show, however, that attempts to derive that ungrammaticality from some semantic incompatibility between negation and perfective aspect is unlikely to succeed.

The second reason why appeal to incompatibility of negation and perfective aspect is unlikely to account for the LIS and ASL facts is that characterizing (8), (39)–(41) and (42)–(44) as instances of this incompatibility is, to some extent, a
misdescription of the data. While, as we saw, FATTO cannot co-occur with the negation sign NON, LIS does have some signs that, while carrying some additional presuppositions, serve the purpose of denying that a complete event of the kind denoted by the predicate has taken place. For example, if Gianni has not done his homework yet, we may report this fact in LIS with sentence (56).\(^\text{18}\)

\[(56) \quad \text{GIANNI} \quad \text{FARE-COMPITI} \quad \text{NON-ANCORA}
\]

Gianni do-homework not-yet

‘Gianni has not done his homework yet.’

If Gianni has not done his homework and will not do it, this fact may be reported by uttering (57).\(^\text{19}\)

\[(57) \quad \text{GIANNI} \quad \text{FARE-COMPITI} \quad \text{NIENTE}
\]

Gianni do-homework nothing

‘Gianni has not done his homework (and won’t do it).’

Note that the sign glossed as NON-ANCORA, while it carries the presupposition associated with Italian *non ancora* (‘not yet’), unlike its Italian counterpart cannot be used to state that the event described by the verb is not yet going on but conveys the information that no event of that type has been completed yet. Thus, for instance, while Italian (58) can be used to deny that Gianni is doing his homework and (59) to deny that Gianni has done his homework, LIS sentence (56) above corresponds only to (59); i.e., it can only mean that Gianni has not done his homework yet.

\[(58) \quad \text{Gianni non sta ancora facendo i compiti}
\]

‘Gianni is not doing his homework yet.’

\[(59) \quad \text{Gianni non ha ancora fatto i compiti}
\]

‘Gianni has not done his homework yet.’

Indeed, in a situation in which Gianni is doing his homework but has not finished yet, one cannot reject (56) as false. This means that (56) is the negation of (60) (in contexts in which the relevant presupposition associated with ‘not yet’ is satisfied):

\[(60) \quad \text{GIANNI} \quad \text{FARE-COMPITI} \quad \text{FATTO}
\]

Gianni do-homework done

‘Gianni has done his homework.’

Similar considerations apply to (57), where the sign NIENTE is used to deny that Gianni has done his homework (with the additional implication that he won’t do it).
The facts for FINISH in ASL are very much the same. To deny an assertion as in (18), options include (61) or (62), depending on whether or not there is an expectation that this visit will occur in the future.

(18) JOHN FINISH VISIT MARY [NCSLGRv2, ncsgr10l, U 74]
    ‘John has visited Mary.’

(61) JOHN NOT-YET VISIT MARY
    ‘John has not yet visited Mary.’

(62) JOHN NOT VISIT MARY
    ‘John didn’t visit Mary.’

There is also a construction similar to the one illustrated in (57), with a sign traditionally glossed as DON’T (both hands palms down, initially crossing in front of the body and then moving outward) occurring sentence-finally (at least as used by some signers; one of our signers does not use this sign at all):

(63) JOHN READ BOOK DON’T
    ‘John hasn’t read the book (and there’s no expectation that he will).’

Looking at these data, it becomes clear that while FATTO and FINISH are barred from occurring with the sign NON/NOT and with negative quantifiers, this fact is not correctly described as an instance of incompatibility between negation and perfectivity. Indeed, as we just saw, LIS and ASL do have a way of negating perfective sentences. What is peculiar to these languages is not that perfective sentences cannot be negated, but that the negation of a perfective sentence like (60) or (18), instead of being obtained via the co-occurrence of the sign NON/NOT with the completion marker FATTO/FINISH, is expressed by single lexical signs whose function is to indicate that no complete event of the kind denoted by the predicate occurred (plus the presupposition that such an event is expected to occur in the case of NON-ANCORA or NOT-YET and the implication that it is no longer expected to occur in the case of NIENTE).

If this assessment is correct, notice that the data described so far seem to show a gap in the LIS and ASL paradigms to express the negation of a perfective sentence with FATTO or FINISH. Indeed, while, as we just saw, LIS provides a specialized form for asserting that a complete event of a certain kind has not occurred yet or that it has not occurred and it will not occur, there seems to be no specialized form to convey the negation of a sentence with FATTO without some additional meaning. Thus, for instance, while it is appropriate to use a sentence like (64) also in a
case in which there is no particular expectation that Gianni should call, negative sentence (65) cannot be used appropriately in the same situation and requires instead that, in the context of utterance, Gianni was supposed to call. Similarly, (66) says that Gianni has not called and implicates he will not, and cannot be used simply to convey the information that Gianni has not called.

\[(64)\] GIANNI CHIAMARE FATTO
\begin{align*}
\text{Gianni} & \quad \text{call} \\
\text{done} & \\
\text{‘Gianni called.’}
\end{align*}

\[(65)\] GIANNI CHIAMARE NON-ANCORA
\begin{align*}
\text{Gianni} & \quad \text{call} \\
\text{not-yet} & \\
\text{‘Gianni hasn’t called yet.’}
\end{align*}

\[(66)\] GIANNI CHIAMARE NIENTE
\begin{align*}
\text{Gianni} & \quad \text{call} \\
\text{nothing} & \\
\text{‘Gianni hasn’t called (and he won’t).’}
\end{align*}

When asked to negate a sentence with FATTO in a context that neither allows NON-ANCORA nor justifies use of NIENTE, our informants simply produced pairs like (67)–(68a) where the negative counterpart of the sentence with FATTO is the sentence with the simple sentential negation NON: 20

\[(67)\] GIANNI CASA COMPRARE FATTO
\begin{align*}
\text{Gianni} & \quad \text{house} \\
\text{buy} & \quad \text{done} \\
\text{‘Gianni has bought a house.’}
\end{align*}

\[(68)\] a. GIANNI CASA COMPRARE NON
\begin{align*}
\text{Gianni} & \quad \text{house} \\
\text{buy} & \quad \text{not} \\
\text{‘Gianni has not bought a house.’}
\end{align*}

b. * GIANNI CASA COMPRARE FATTO NON-ANCORA
c. * GIANNI CASA COMPRARE NON FATTO

Since NON, unlike NON-ANCORA, may be used to deny the occurrence of an ongoing process, as in (69), one possibility is that NON in (68) simply expresses sentential negation and that the denial of the past occurrence of the event of buying a house in (68) is inferred contextually (as is often the case in LIS).

\[(69)\] GIANNI FARE-COMPITI NON
\begin{align*}
\text{Gianni} & \quad \text{do-homework} \\
\text{not} & \\
\text{‘Gianni is not doing his homework.’}
\end{align*}

Another possibility, suggested by the fact that our informants naturally produced pairs like (67)–(68) when asked to provide the negation of sentences with FATTO
in the absence of additional contextual information, is that NON is ambiguous between simple sentential negation and the lexical realization of FATTO + NON. Here, we leave open the question as to which hypothesis is correct.

Aside from the issue of a possible lexical gap in denying sentences with FATTO, the facts we described suggest that the relevant question in investigating the behavior of FATTO and FINISH with negation is not why FATTO and FINISH cannot be negated, but rather why negation of FATTO and FINISH can be expressed only by means of negative forms like NOT-YET or NOTHING or DON’T, and not by the co-occurrence of FATTO/FINISH with NON/NOT as in (8) and (39)–(41) and (42)–(44). A clue to answering this question is provided by the behavior of negative indefinites in spoken languages, the issue to which we next turn.

### 5.4 Negated existentials and adjacency

Huang (2003) observes that, while in English one has the option of using negative quantifiers like nobody, no book, etc. to express negated existentials, in Japanese no counterparts of negative quantifiers exist and one must use sentential negation with a separate indefinite (negative polarity item) at a distance. Thus, for instance, while in English we can use (70) to express the same meaning as (71), in Japanese only the “discontinuous strategy” corresponding to (71) is allowed, as shown in (72)–(73):

(70) a. I saw nobody.
    b. Hanako read no book.

(71) a. I didn’t see anybody.
    b. Hanako didn’t read any book.

(72) boku-wa dare-mo mi-nak-atta
    I-Top anybody see-Not-Past
    ‘I didn’t see anybody.’

(73) Hanako-wa dono hon-mo yoma-nak-atta
    Hanako-Top any book read-Not-Past
    ‘I did not read any book.’

An intermediate case between English and Japanese is provided by Mandarin Chinese, in which negative NPs can occur only in preverbal position (as subjects, or as objects that have been placed in preverbal topic or adjunct positions). Thus, for instance, while a negative quantifier is acceptable in subject position in (74), it is barred in (postverbal) object position in (75)–(76).
In order to express negated existential meaning with an object in Mandarin Chinese, one must either prepose the object, as in (77), or use the discontinuous strategy, as in (78)–(79):

(77) meiyou yiben shu ta kanguo
    not one book he read
    ‘No book has he read.’

(78) ta meiyou kanjian renhe ren
    he not see any person
    ‘He did not see anybody.’

(79) ta meiyou tidao renhe yiben shu
    he not mention any one book
    ‘He has not mentioned any book.’

Huang claims that the crosslinguistic pattern exhibited by Mandarin Chinese and Japanese is explained by the theory proposed in Christensen (1986) to account for the distribution of negative NPs in Norwegian, which exhibits a pattern strongly similar to Mandarin Chinese. In short, according to this theory the occurrence of a negative NP is made possible by the fact that, at some stage in the syntactic derivation, there exists an adjacent string consisting of negation immediately followed by the existential NP with which negation is construed. When they are adjacent, negation and the existential NP are reanalyzed as a single constituent and negation is “conflated” with the existential NP to yield the negative quantifier.

This hypothesis accounts for the Mandarin Chinese facts. Indeed, since in Mandarin negation is preverbal, when the existential object is postverbal, as in (78)–(79), negation is not adjacent to it, thus the process that reanalyzes negation and the existential NP as a single constituent cannot occur, barring
the presence of a negative NP. When the existential NP is in subject position or is a preverbal object, it is adjacent to negation, thus yielding the negative NPs in (74) and (77). Japanese, on the other hand, is an SOV language and negation is postverbal (it occupies the head of NegP to the right). As a result, again, negation is not adjacent to the subject or object; thus we should expect negative NPs, whether in subject or in object position, to be barred and only the discontinuous strategy to be available, as shown in (72)–(73). The rescue strategy adopted in Mandarin, which brings the existential NP adjacent to negation and thus licenses the negative NP, is unavailable in Japanese, since negation is to the right of the VP; in order to move to a position adjacent to negation, the NP would have to move rightward, something that is not possible in Japanese.

This account does not explain the occurrence of English negative NPs in (70) above, since in English the verb intervenes between the object NP, which is postverbal, and the preverbal negation. Huang suggests that the English facts can be made consistent with the proposed analysis of Mandarin, Japanese and Norwegian by supposing that, initially, in the syntactic derivation of (70), the object NPs anybody and any book are preposed, thus conflating with preverbal negation and yielding the negative NPs nobody and no book. Then, the VP out of which the object has been moved is also preposed (an instance of remnant movement, independently proposed by Kayne 1996, 1998), as shown in (80):

(80)  a. John not [VP saw anybody] (underlying source)
     b. John not [ anybody, [VP saw t]] (QP-movement)
     c. John nobody, [VP saw t]] (not + any => no)
     d. John [VP saw t] nobody, t
t (VP remnant movement)

Assuming that some account along these lines is essentially correct, let us see how it works for LIS. In LIS, as we saw, negative NPs are available and negation is postverbal. The “discontinuous strategy” is also available, as shown by (68), where the indefinite NP CASA is under the scope of the negation NON:

(68)  GIANNI CASA COMPRARE NON
       Gianni house buy not
       ‘Gianni has not bought a house.’

In the present context, it is significant that when a negative NP occurs, as in (81)–(82), its canonical position is not preverbal, as we should expect if it occupied an argument position (recall that LIS is SOV), but is postverbal:
On Huang’s account, this surprising position of negative NPs is expected. Assuming that, as in Mandarin and Norwegian, LIS negative NPs are derived by conflation of negation with an existential NP under syntactic adjacency, we expect that, in order for this process to be triggered, the existential NP should move rightward to become adjacent to negation (which is postverbal in LIS), where we do indeed find the negative NP. In particular, we may assume that the existential NP moves to Spec, NegP, where it is adjacent to negation, thus yielding the negative NP by conflating with negation, as shown in (83):

Let us now come back to our question concerning why negation of FATTO can be expressed only by means of negative forms like NON-ANCORA or NIENTE (or NON) and not by the co-occurrence of FATTO with NON. We will assume
that existential items – whether NPs or items of a functional kind – when adjacent to negation must trigger reanalysis, namely, that they must combine with negation to yield a constituent with negative existential meaning (\(\neg \exists\)). This assumption, although not explicitly adopted by Huang, is consistent with the data he presents in his paper. Moreover, there is evidence that this is indeed what happens in LIS. Thus, for instance, while negative NPs, as we saw, do not follow the canonical SOV order but occur postverbally, positive indefinites do not occur postverbally in negated sentences but follow the standard SOV order as in (68) above.

(84) *GIANNI COMPRARE CASA NON
Gianni buy house not
‘Gianni has not bought a house.’

(85) *GIANNI COMPRARE NON CASA
Gianni buy not house
‘Gianni has not bought a house.’

Moreover, both LIS possibility operator POSSIBILE (arguably, an existential quantifier over possible situations) and LIS existential predicate C’È (‘there is’), which occur adjacent to negation, cannot co-occur with negation but must be expressed by specialized forms with negative existential meanings. Thus, for instance, in order to negate (86) and (90), we must use the specialized negative forms NON-C’È and IMPOSSIBILE, as in (87) and (91), and we cannot use NON and C’È or NON and POSSIBILE:

(86) CASA MIA GIARDINO C’È
house my garden there-is
‘My house has a garden.’

(87) CASA MIA GIARDINO NON-C’È
house my garden there-isn’t
‘My house doesn’t have a garden.’

(88) *CASA MIA GIARDINO NON C’È
house my garden not there-is
‘My house doesn’t have a garden.’

(89) *CASA MIA GIARDINO C’È NON
house my garden there-is not
‘My house doesn’t have a garden.’
These data indicate that LIS existential items adjacent to negation *must* reanalyze to yield a constituent with negative existential meaning. Now, consider that FATTO, under the interpretation we suggested, introduces an existential quantifier: it says that there is a complete event of the kind described by the predicate that occurs before the time of evaluation. Given that it is structurally adjacent to negation, we should expect that the presence of negation should trigger reanalysis by causing the selection of a specialized form that negates the existence of a complete event of the relevant kind. Thus, we should expect (8) to be anomalous for the same reason (84)-(85), (88)-(89), (92)-(93) are: syntactic adjacency of existential items with negation fails to trigger reanalysis.

(8)  
| a.   | * GIANNI MANGIARE FATTO NON |
| b.   | * GIANNI MANGIARE NON FATTO  |

The fact that FATTO cannot co-occur with negative NPs like NESSUNO, etc., may be accounted for along similar lines. Presumably, (40) should be derived by an underlying source in which negation is both adjacent to FATTO and to the existential NP moved into SpecNegP. If the existential NP conflates with negation to yield NESSUNO, FATTO cannot conflate with negation, thus, again, violating the requirement that syntactic adjacency with negation should trigger reanalysis.

(40)  
| a.   | * MANGIARE FATTO NESSUNO     |
| b.   | * MANGIARE NESSUNO FATTO     |

On the other hand, (87), (91), (65)–(66) are, respectively, the outcome of conflating the negation NON with C’È, POSSIBILE and FATTO, respectively:
If this proposal is on the right track, there is a further issue that needs to be addressed concerning the way conflation works. Recall that, for NON-ANCORA and NIENTE, the semantic contribution of these forms is not simply derivable from the meaning of NON and the meaning of FATTO, since NON-ANCORA and NIENTE, respectively, add the additional information that the event described by the predicate was supposed to occur and that it will not occur. Moreover, the phonological forms of NON-ANCORA and NIENTE are not derivable from the phonological form of FATTO and NON. How is this possible if NON-ANCORA and NIENTE are derived from negation and FATTO by syntactic reanalysis under adjacency?

Notice that the Norwegian negative quantifier *ingens* (‘no’) that results from conflation of *ikke* (‘not’) and *noen* (‘any’), like the LIS forms NON-ANCORA, IMPOSSIBILE, NON-C’È, etc., is not phonologically predictable from the phonological form of negation (*ikke*) and of the item negation conflates with (*noen*). If Christensen’s proposal is correct for Norwegian, one way to make sense of forms like *ingens* is provided by the idea, proposed in Halle and Marantz (1993, 1994), that assignment of phonological features takes place after the syntax. According to this approach (Distributed Morphology, DM), terminal nodes of syntactic trees are bundles of abstract features lacking phonological interpretations. Assignment of phonological features to morphosyntactic feature bundles takes place when syntactic structure is mapped into phonological structure. In the case of Norwegian negative NPs, this means that phonological features are assigned after syntactic reanalysis occurs, thus what gets phonologically interpreted is the bundle of morphosyntactic features that corresponds to the negative quantifier.
Assuming that the phonological realization of this feature bundle specified in the vocabulary is *ingen*, we expect that the result of the syntactic reanalysis process, when it is spelled out, should yield forms like *ingen bøker* (‘no books’) as in (iii) from note 21:

(iii) Jon har ingen bøker kjøpt
    John has no books bought
    ‘Jon has bought no books.’

The syntactic morpheme (feature bundle) corresponding to the negative quantifier in the syntactic structure of (iii) may have a unique phonological realization, namely *ingen*. However, in the DM approach, a syntactic feature bundle, in general, may be realized by different phonological expressions belonging to different vocabulary items. This is the case for those expressions whose meaning is not fully predictable from their morphosyntactic description. For example, nouns like *cat*, *dog*, *pig* have the same morphosyntactic representation (root), which may thus be spelled out by any of these forms or by other forms with the same morphosyntactic representation made available in the vocabulary of the language. Semantic interpretation is then computed from both LF and PF structures (on the basis of the meanings assigned to each form in the *encyclopedia of the language*). In a similar way, we may suppose that the morphosyntactic representation of the form resulting from the syntactic reanalysis of FATTO and negation is represented by the abstract morphological feature bundle { pfv, perf, neg }, which may then be spelled out by any form matching this description made available by the vocabulary of the language, namely by NON-ANCORA, NIENTE and, perhaps, NON in LIS. In short, then, the answer to the question of how it is possible that phonologically idiosyncratic forms with idiosyncratic meanings, like NON-ANCORA and NIENTE, are derived from negation and FATTO by syntactic reanalysis under adjacency is that what is derived in the syntax are not these forms but rather an abstract morphosyntactic feature bundle which may then be spelled by any form in the vocabulary of the language that shares this morphosyntactic description. Since NON-ANCORA and NIENTE share the features { pfv, perf, neg }, they can be late-inserted at PF and contribute their idiosyncratic meanings to the meanings carried by the features { pfv, perf, neg } that they spell out.

The account may also be extended to ASL. A form like NOT-YET, for example, would express a comparable bundle of features to those proposed for NON-ANCORA. Sentence (61) is a case in which syntactic adjacency of FINISH with negation has triggered reanalysis to yield NOT-YET; sentence (42), on the other
hand, is out, on a par with LIS sentences in (8) above, because syntactic adjacency of FINISH with negation fails to trigger reanalysis:

(61) \[ \text{neg} \quad \text{JOHN} \quad \text{NOT-YET} \quad \text{VISIT} \quad \text{MARY} \]
    ‘John has not yet visited Mary.’

(42) * \text{JOHN} \quad \text{NOT} \quad \text{FINISH} \quad \text{VISIT} \quad \text{MARY}

What is left to explain is why ASL sentence (44) is out, where FINISH is barred by the presence of the negative quantifier NONE/NO-ONE in postverbal position:

(44) * \text{JOHN} \quad \text{FINISH} \quad \text{VISIT} \quad \text{NONE/NO-ONE}

Recall that, according to Huang’s proposal, English sentence (70a) is derived from an intermediate form like John not anybody saw, where negation is adjacent to an existential NP and this triggers reanalysis to yield nobody:

(70) a. I saw nobody.

If this account is correct, then, assuming that the negative quantifier NONE/NO-ONE in ASL sentence (37) is derived along similar lines, we can account for (44) above on a par with LIS (40).

(37) \[ \text{neg} \quad \text{JOHN} \quad \text{VISIT} \quad \text{NONE/NO-ONE} \]

According to this analysis, the quantifier NONE/NO-ONE in (44) must be derived from an intermediate form in which preverbal negation NOT is adjacent to the existential NP ONE and this triggers reanalysis to yield NONE/NO-ONE. In this case, however, preverbal negation in this intermediate form is also adjacent to FINISH, which is competing with the existential NP to trigger reanalysis. It follows that, like FATTO in (40), in the derivation of (44) FINISH cannot conflate with negation, thus violating the requirement that adjacency with negation should trigger reanalysis.

It is interesting to note, by the way, that the use of distinct lexical items in LIS and ASL to spell out combinations of the morphological features of negation and perfect when they occur in adjacent strings is not found for Italian or English, as seen in (94) or (95).

(94) Gianni non ha telefonato
    ‘Gianni has not called.’

(95) John has not left.
The lack of adjacency effects between negation and perfect would follow trivially from the non-adjacency of these features. Iatridou, Anagnostopoulou and Izvorski (2001) argue that in perfect constructions involving auxiliary plus participle (found in many spoken languages), the perfect semantics is contributed by the participial morphology rather than by the auxiliary (based on the fact that the perfect meaning is retained by the participle in constructions where it can be separated from the auxiliary). If this is correct, then in Italian and English sentences such as (88) and (89), where neg and perf features are not adjacent – separated either by the auxiliary or its trace – such effects are not found: there is no incompatibility between the lexical negator and the morphological marking of perfect that occurs in VP.

6 Summary

A grammaticalization process from a homophonous lexical verb meaning ‘finish’ has yielded functional elements, glossed as FATTO, occurring postverbally in Italian Sign Language, and FINISH, which precedes the VP in American Sign Language. We argued that FATTO and FINISH occur under the scope of tense (possibly in AspP) and semantically carry the information that a culminated event of the type denoted by the VP occurs at a time preceding the time indicated by the tense. We argued, moreover, that this accounts for very similar semantic restrictions in LIS and ASL on the usage of FATTO and FINISH, as well as for their occurrence with time adverbs like ORA and NOW. Finally, we argued that the behavior of FATTO and FINISH with negation is explained by the fact that existential items and negation must be reanalyzed as a single constituent under adjacency. We suggested that the phonological realization of this reanalysis is best accounted for under a distributive morphology approach of the kind proposed by Halle and Marantz.
However, once such a system is mastered, each symbol will eventually start functioning as an arbitrary sign for a specific speech sound. This will lead to iconicity, if present initially, “wearing off,” even though when people design new notation systems they find it irresistible to come up with iconic symbols.

The lack of iconic order does make the HamNoSys representation harder to read, but this may not be a serious drawback, since anyone trained in the system will be able to read it with adequate speed.

For a comprehensive overview of sign notation systems, we refer to Miller 2001.

There are many written speech systems that do not have a clear one-to-one relationship between the written form and the spoken form. But all sign writing systems do, although they vary to one degree or another in what is omitted. It is possible that this is a result of the relative youthfulness of all written sign systems, and that over time, historical “garbage” may accumulate. Intuitively, this seems unlikely, especially with SignWriting, and it also seems that the reasons for this are connected not with its age, but with its iconic and featural nature. While writing systems for speech can lag behind phonological change, we find it difficult to imagine a situation where, for example, a SignWriting symbol which represented the hand at the forehead was accepted as a good symbol for a sign made on the cheek (although there should be no difficulty in accepting that something is written in citation form without regard to a specific performance). This question must be left for future investigation, but we mention it as a possible significant difference between written speech and sign.

We propose a closed vocabulary of English words simply because at the present time, English is the de facto language of science, and therefore a database using English will have the largest number of scientists who will not require translation before use. Because it is a closed set of words, translation into various other languages should be relatively straightforward.

SignTyp can also be seen as an attribute-value structure in which a value can itself be an attribute (Scobbie 1997).

9 Verb agreement in sign language morphology

As suggested in recent literature, e.g., Pfau and Glueck 1999, Zwitserlood 2003 and Mathur and Rathmann 2007, these constructions may involve agreement between a classifier predicate and a noun phrase in its class feature, such as person, animal or vehicle.

Owing to space limitation, this type of agreement is not discussed in detail here.

10 Functional markers in sign languages

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1. See, for example, Bybee, Perkins and Pagliuca (1994).
2. A “perfective” form describes a complete event. “Completives,” according to Dahl and Velupillai (2008), “are used of completed events but only if some additional nuance of meaning is intended, for instance if emphasis is put on the result being complete or affecting the object totally.” For the notion of complete event, see section 2 of this chapter.
3. Similarities between sign languages and creoles were first noted in Fischer 1978.
4. This informal characterization of perfectivity is widely adopted in descriptive studies of aspect. For example, according to Dahl and Velupillai (2008), “To be interpreted as a perfective, … a form should be the default way of referring to a completed event in the language in question.” According to Jakobson (1957), “perfective [is] … concerned with the absolute completion of the [narrated event].”
5. See, for example, Heim 1997 for a way of representing the present perfect along these lines.
6. Some of our informants also produced sentences like (i), in which FATTO is possibly analyzed as taking MANGIARE (‘eat’) as a complement:

   (i) GIANNI DOLCE FATTO MANGIARE
   Gianni cake done eat
   ‘Gianni finished eating the cake.’

7. Determiners may also occur before the noun.
8. Depending on the context, a sentence like (9) may also describe past or future events. For a discussion of how temporal information may be conveyed in LIS, see Zucchi 2009.
9. If this hypothesis is correct, the example sentences with FATTO would be best translated by the English simple past rather than, as we do in the text, by the English perfect.
12. Similar aspectual markers have developed from the adverb meaning ‘already’ or an adjective meaning ‘ready’ in German Sign Language (DGS) and in the Sign Language of the Netherlands (NGT) as well (Pfau & Steinbach 2006).
13. Recognized for its perfective meaning by Aarons et al. (1992), ASL FINISH, on the usage in question, is analyzed by Neidle and MacLaughlin (2002) as a perfect marker occurring structurally in an Aspect projection under the scope of Tense. Here it is proposed to mark both perfect and perfective.
16. For discussion of apparent exceptions, see Duffy 2007.
17. Perfective aspect, however, is not ungrammatical with negation in Russian, as shown by the following example from Comrie 1976:

   (i) On dolgo ugovarival (Impf.) menja, no ne ugovoril (Pfv.)
   ‘He was trying to persuade me for a long time, but he didn’t persuade me.’

18. Despite what the gloss suggests, NON-ANCORA is not phonologically derived by incorporating negation with ANCORA.
19. Here, we leave open the issue of how the inference that John won’t do his homework is generated for (57), whether it simply follows from the grammatical meaning of (57) or from the interaction of the semantics of (57) with additional pragmatic principles.

20. Similarly, ASL sentence (62) may be used as the negative counterpart of the sentence with FINISH in (18).

21. Thus, for example, the Norwegian negative NP *ingen bøker* (‘no book’) cannot appear in postverbal object position, as in (ii), while it can appear preverbally, as in (iii). If the object remains postverbal, the discontinuous strategy must be used as in (iv), with the postverbal NP *noen bøker* (‘any books’) licensed by preverbal negation, *ikke* (‘not’):

   (i) Jon har kjøpt en bok
       ‘Jon has bought a book.’

   (ii) *Jon har kjøpt ingen bøker
        ‘Jon has bought no books’

   (iii) Jon har ingen bøker kjøpt
        ‘Jon has bought no books.’

   (iv) Jon har ikke kjøpt noen bøker
        ‘Jon has not bought any books’

22. Christensen’s theory develops an idea originally proposed for English *nobody* by Klima (1964), according to which *nobody* is derived from conflation of *not* and *anybody* under syntactic adjacency.

23. Since LIS lacks articles, the indefiniteness of the NP CASA in (68) is not marked overtly, but is inferred from the context.

24. See Geraci (2006) for this observation and for discussion of N-words in LIS.

25. The question why in some cases the discontinuous strategy is chosen, as in (68), and in other cases negative NPs are used, as in (81)–(82), is one for which we do not have an answer at the moment. What is crucial for our point, however, is that in LIS the canonical position of negative NPs is postverbal, and so is the position of negation.

26. Geraci assumes that negation is also located in SpecNegP to account for the fact that negative NPs and negation cannot co-occur. Notice that, on this account, this fact may be explained also under the assumption that negation heads NegP, since the negative NP arises from conflating negation with the existential NP, and thus we should not expect them to co-occur.

27. The sign FATTO, as it appears from Figure 10.1, starts with open hands and palms facing the chest of the signer, then the hands move downwards and the palms end up facing the ground. In the sign for NON, the index finger moves repeatedly to the right and to the left with the palm facing the addressee. In the sign for NON-ANCORA, the palms face the addressee, the thumb and the index finger form a ring while the other fingers are extended, and the hands alternatively move close and far. In the sign for NIENTE, hands and palms are configured in the same way as for NON-ANCORA, but they move apart once and with a wider movement.

28. According to this proposal, LF structures carry information only about the structural components of meaning (quantifier scope, etc.), and not about the lexical meaning of individual nouns and verbs. See Marantz (1994) on how semantic interpretation is determined in a DM approach.
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