The grammar of headshake:
Microvariation in sign language negation
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1 Introduction

→ The realization of sentential negation has been described in some detail for a fair number of sign languages (SLs); for cross-linguistic studies see e.g. Pfau (2002), Pfau & Quer (2002), Zeshan (2004, 2006a).

→ Striking similarities: in all SLs investigated to date, a manual Neg element (a Neg sign) is combined with a non-manual marking (a head movement), and in most of them, the manual Neg sign is optional, i.e. the non-manual is sufficient to negate a proposition.

→ On closer inspection, however, it turns out that these similarities are superficial ones. The exact distribution of the non-manual marker as well as the combination of manual and non-manual marker are subject to language-specific constraints.

→ GOAL: Relate language-specific patterns of negative marking in SLs to differences in the phrase structure, more specifically, to the positioning of the manual and non-manual marker in the head and specifier of NegP.

2 Grammatical vs. affective uses of non-manuals

→ As for headshakes (hs), they are also used in the hearing population (McClave 2001; Kendon 2002). Interestingly, they do not only accompany or intensify negated utterances (1a). Rather, headshakes may also signal uncertainty ((1b); McClave 2001:61) or may serve to intensify affirmative sentences ((1c); McClave 2000:873).

hs
(1) a. Oh, no no, I didn’t tell her!

hs
b. Where is he going?

hs
c. what I needed to do was uh to clean it and uh (pause) it was real bad

→ It has been shown that signers use lateral headshakes for similar reasons, that is, for signaling uncertainty ((2a); Vogt-Svendsen 1990, cited in Zeshan 2004:20) and intensification ((2b); McClave 2001:57).

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On the handout, the following abbreviations for sign languages are used:

- **ASL**: American Sign Language
- **CSL**: Chinese Sign Language
- **DGS**: German Sign Language
  - *(Deutsche Gebärdensprache)*
- **GSL**: Greek Sign Language
- **HKSL**: Hong Kong Sign Language
- **LIS**: Italian Sign Language
  - *(Lingua Italiana dei Segni)*
- **LSC**: Catalan Sign Language
  - *(Llengua de Signes Catalana)*
- **TİD**: Turkish Sign Language
  - *(Türk İşaret Dili)*

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(2) a. BEFORE SCHOOL WHERE INDEX
‘Where did you go to school?’

b. WOW SHOW-UP MANY
‘Wow! Many (non-handed signs) showed up.’

→ In addition to these affective uses, in SLs, non-manual markers (NMMs), such as eyebrow position, mouth, head and body movements, serve an important linguistic function (Liddell 1980; Baker-Shenk 1983; Boyes Braem & Sutton-Spence 2001).

→ On the syntactic level, such NMMs serve to distinguish sentence types (e.g. wh-questions, yes/no-questions, imperatives, conditionals, relative clauses), to mark negation and affirmation, and they accompany topicalized and focused constituents. Different NMMs may sequentially and simultaneously combine with each other (Wilbur 2000; Pfau 2006).

→ Crucially, the use, distribution, and acquisition of these syntactic NMMs are clearly distinct from that of affective head movements (Reilly & Anderson 2002).

→ First, the scope and timing of the NMMs is linguistically constrained relative to the manual sign(s) they accompany in a way that gestural/affective markers are not. Second, as far as headshakes are concerned, it is impossible to negate a spoken sentence by headshake only, while the same is possible in many SLs (see below).

→ Moreover, the two types of facial expressions – linguistic vs. affective – are processed differently (Corina 1989; Atkinson et al. 2003) and they can be selectively impaired (Corina et al. 1999).

3 Non-manual dominant sign languages

→ Zeshan (2006b) distinguishes two types of SLs: those with non-manual dominant systems of negation and those with manual dominant systems of negation (see section 4).

→ In non-manual dominant systems, the NMM is obligatory while the manual clause negator is optional; cf. the minimal pair from Flemish SL in (3) (van Herreweghe & Vermeerbergen 2006:242).

(3) a. NOW GAME NOT START
‘The game does not start now.’

b. NOW GAME START
‘The game does not start now.’

→ In the remainder of this section, I will first focus on a comparison of sentential negation in Catalan SL (LSC), German SL (DGS), and ASL, as first reported in Pfau & Quer (2002, in press), before turning to Chinese SL (CSL).

2 SL examples are glossed in small caps. The following notational conventions are used.

SIGN
Subscript numbers indicate points in space used in verbal agreement and pronominalization.

SIGN++ indicates reduplication of a sign to express grammatical features such as plural or aspect.

SIGN‘SIGN indicates the combination of two signs, e.g. cliticization or compounding.

SIGN-SIGN indicates that two words are needed to gloss a single sign.

Lines above the glosses indicate the scope (i.e. onset and offset) of a particular non-manual marker, e.g. negation (neg), question (q), and topicalization (t).
3.1 American SL, Catalan SL, and German SL

→ While the underlying word order in ASL is SVO with the manual Neg sign preceding the verb (Liddell 1980; Neidle et al. 2000), LSC and DGS are underlyingly SOV and the manual Neg sign follows the verb (Quer 2002; Pfau & Glück 2000).

→ The examples in (4) illustrate that in all three SLs, it is impossible to negate a sentence by a manual Neg sign only (ASL data are from Neidle et al. (2000:44f)).

(4) a. *JOHN NOT BUY HOUSE [ASL]
   ‘John does not buy a house.’

b. *SANTI MEAT EAT NOT [LSC]
   ‘Santi doesn’t eat meat.’

c. *MOTHER FLOWER BUY NOT [DGS]
   ‘Mother doesn’t buy a flower.’

→ In all three SLs, a side-to-side headshake is obligatory in negative contexts. Its exact distribution, however, differs from SL to SL.

→ When a manual Neg sign is present, it is possible in ASL (5a) and LSC for the headshake to be associated with the Neg sign only (5b) while the same distribution is ungrammatical in DGS (5c) where the NMM must at least accompany the verb.

(5) a. JOHN NOT BUY HOUSE 
   neg
   [ASL]

b. SANTI MEAT EAT NOT 
   neg
   [LSC]

c. *MOTHER FLOWER BUY NOT 
   [DGS]

→ In DGS, such a structure is only possible in case the first part of the sentence is accompanied by a (rhetorical) question NMM; in this case, the manual sign may even be dropped (6a), as is also exemplified by the NZSL example (6b) (McKee 2006:84).

(6) a. INDEX\textsubscript{1} CINEMA\textsubscript{3} GO-TO\textsubscript{3} (NOT) 
   neg
   \textsubscript{q} \textsubscript{rhet-q}
   [DGS]
   ‘I don’t go to the movies.’

b. WORTH GO CONFERENCE 
   neg
   [New Zealand SL]
   ‘Is it worth going to the conference? I don’t think so.’

→ In all three SLs, the manual Neg sign is optional. Still, we observe striking differences: while in LSC and DGS it is possible to have headshake on the verb sign only (7bc), the same pattern is ungrammatical in ASL (7a).

(7) a. *JOHN BUY HOUSE 
   neg
   [ASL]

b. SANTI MEAT EAT 
   neg
   [LSC]

c. POSS\textsubscript{1} FRIEND MEAT EAT 
   [DGS]
In ASL, the headshake must spread onto the object DP when no manual Neg sign is present (8a). In contrast to that, spreading of the NMM is optional in LSC and DGS (8bc).

(8) a. **JOHN** **BUY** **HOUSE** [ASL]
   b. **SANTI** **MEAT** **EAT** [LSC]
   c. **POSS**<sub>1</sub> **MOTHER** **FLOWER** **BUY** ✔ [DGS]

Spreading of the headshake is clearly restricted by the phrase structure in that it must target entire constituents (Pfau 2002); cf. the ungrammaticality of (9).

(9) a. * **POSS**<sub>1</sub> **MOTHER** **RED** **FLOWER** **BUY** ✔ [DGS]
   ‘My mother doesn’t buy a red flower.’
   b. * **YESTERDAY** **INDEX**<sub>1</sub> **POSS**<sub>1</sub> **FRIEND** **MEET** [DGS]
   ‘I didn’t meet my friend yesterday.’

In DGS and LSC, non-pronominal subjects are usually outside of the spreading domain of the headshake.

3.2 Analysis

In this section, I am going to show how the grammaticality patterns can be accounted for by assuming that the manual and non-manual Neg elements occupy different positions within NegP in the three sign languages.

3.2.1 American Sign Language

In (10) I give the relevant part of the ASL clause structure as proposed by Neidle et al. (2000). The authors assume that NOT as well as a syntactic [+neg]-feature which is realized by the headshake occupy the head of NegP.

Note that in all structures, I neglect the position of TnsP which, according to Zanuttini (1997) and Cinque (1999), may sit above or below NegP. The former has been argued for for ASL, the latter for DGS, LSC, and LIS.
In ASL, the verb never raises to Neg°. When NOT is present, the headshake can associate with NOT and therefore headshake on NOT only is grammatical (11a).

In the absence of NOT, the feature [+neg] has no manual material to be articulated with and is therefore forced to spread over its entire c-command domain; cf. the contrast between (11b) and (11c).

\[(11)\]
\[
\begin{align*}
\text{a. } & \text{JOHN } [\text{NegP} [\text{Neg NOT}] [\text{VP BUY HOUSE}]] \\
\text{b. } & \text{"JOHN } [\text{NegP} [\text{Neg } +\text{neg}]] [\text{VP BUY HOUSE}]] \\
\text{c. } & \text{JOHN } [\text{NegP} [\text{Neg } +\text{neg}]] [\text{VP BUY HOUSE}]]
\end{align*}
\]

In compliance with the NEG-criterion (Haegeman & Zanuttini 1991; Haegeman 1995), the head Neg° hosting [+neg] must be in a Spec-head configuration with a negative operator. Consequently, I assume the presence of an empty negative operator in SpecNegP.

According to Wood (1999:19ff), movement of the entire VP to SpecNegP is possible in ASL, leading to a structure with the manual element NOT in sentence-final position (12).

\[(12)\]
\[
\text{MARY } [\text{NegP} [\text{SpecNegP BREAK FAN}] [\text{Neg NOT}] \text{ tVP}]
\]

For further discussion of negation in ASL (e.g. negative modals) see Veinberg & Wilbur (1990), Wood (1999), Shaffer (2002), Fischer (2006).

### 3.2.2 Catalan Sign Language

Things are quite similar in LSC: as in ASL, Neg° hosts the negative sign NOT as well as the feature [+neg]. The LSC clause structure is given in (13) (Quer 2002).

\[(13)\]
\[
\begin{align*}
\text{NegP} & \quad \text{Spec} \\
\quad \text{Neg’} & \quad \text{Spec} \\
\quad \text{VP} & \quad \text{Neg} \\
\quad \text{DP } \quad \text{(NOT)+[+neg]}_{\text{aff}} & \quad \text{V’} \\
\quad \text{DP } \quad \text{V} & \quad \text{---}
\end{align*}
\]

A crucial difference, however, concerns the status of [+neg]. In LSC, [+neg] is a featural affix (Akinlabi 1996). When NOT is present, [+neg] will be affixed to NOT (14a).

In the absence of NOT, V-to-Neg raising is triggered due to the Stray Affix Filter. The featural affix attaches to the verb and consequently, headshake on the verb sign only is grammatical in LSC (14b).
Consequently, ASL and LSC are similar to each other with respect to the positioning of the manual and non-manual negative element within NegP, but they differ with respect to the character of the [+neg]-feature which is syntactic in ASL but morphological in LSC.

In LSC, SpecNegP may be occupied by an overt negative operator such as NO-RES or NEVER (15ab); these negative XPs must follow the verb (15c). Furthermore, LSC allows for negative concord (15d), with the negative XP following NOT (note that the headshake associated with adjacent manual signs is realized continuously).

3.2.3 German Sign Language

DGS differs from both ASL and LSC with respect to the positioning of the negative elements within NegP, but it patterns with LSC as far as the morphological-affixal nature of [+neg] is concerned; cf. the structure in (16) (Pfau 2002).

In contrast to ASL and LSC, the manual Neg sign NOT occupies SpecNegP in DGS; this sign is lexically specified for a headshake.

Just as in LSC, [+neg] is affixal in nature. But since the manual sign occupies SpecNegP in DGS, the verb must always raise to Neg in order to pick up the Neg-affix. Consequently, (17a) where verb raising has not applied is ungrammatical.

In (17bc) verb movement to Neg has applied and [+neg] has been affixed. Note that when NOT is signed (17b), the headshake on the verb and the Neg sign is continuous.
(17) a. * MOTHER [NegP [VP FLOWER BUY] [Neg +Neg] [SpecNegP NOT]] [DGS]
b. MOTHER [NegP [VP FLOWER tv] [Neg BUY] [SpecNegP NOT]]
c. MOTHER [NegP [VP BLUME tv] [Neg BUY] [SpecNegP Ø]]

→ In other words: DGS is the only one of the three SLs which shows split negation, i.e. the only one where the two Neg elements involved occupy different positions within NegP.

→ In contrast to LSC, negative concord, i.e. doubling of manual Neg elements, is impossible in DGS, irrespective of order (18).

(18) * ROLAND BEER DRINK NOT NEVER [DGS]

‘Roland never drinks beer.’

→ Note that I assume that, at least in LSC and DGS, headshake, just like other NMMs (Sandler 1999), is a prosodic phenomenon and that spreading of headshake is confined to prosodic domains.

3.3 Chinese Sign Language

→ Although CLS also appears to have a non-manual dominant system, the realization of sentential negation looks quite different from ASL, DGS, and LSC.

→ The most frequent NMM in CSL negation is not a headshake but a negative facial expression (nfe) (19a); this NMM is capable of spreading (19b) (Yang & Fischer 2002).

(19) a. LEAVES SHAPES COMPLEX MATTER [CSL]

‘No matter how complex these leaves appear …’

b. INDEX3 DISLIKE SEE BU [CSL]

‘I don’t like to watch it.’

→ Headshake is attested but it never co-occurs with manual signs (20a). Rather, it follows the manual signs (20b). Moreover, the headshake is in complementary distribution with the manual negator, a negative handwave glossed as BU (20c).

(20) a. *INDEX3 LIKE [CSL]

‘I don’t like it.’

b. LOOK-AFTER DEAF^STUDENTS A-LOT, HEARING TEACHER [CSL]

‘(Deaf teachers) take care of deaf students a lot, hearing teachers don’t.’

c. UNDERSTAND vs. UNDERSTAND^BU [CSL]

‘I don’t understand.’
Based on this distribution, I suggest that the negative facial expression is the realization of [+neg] in Neg\(^\circ\). In contrast to the SLs discussed above, in CSL, the headshake is an independent lexical item which competes with BU for the position SpecNegP (21). In any case, [+neg] associates with material in SpecNegP (and optionally spreads).

(21)  
\[
\begin{array}{c}
\text{NegP} \\
\text{Neg}' \\
\text{VP} \\
\text{DP} \\
\text{V'} \\
\text{DP} \\
\text{V}
\end{array}
\]

3.4 Summary

- In all the above SLs, sentential negation is expressed by the combination of an optional manual Neg sign with an obligatory NMM. However, the syntactic position of the manual sign as well as the nature and the distribution of the NMM differ from SL to SL.
- In ASL, LSC & DGS the NMM is a headshake. Only in ASL and LSC can the headshake be associated with the Neg sign only, only in LSC and DGS can it be associated with the verb sign only. In CSL, the NMM is a negative facial expression while the headshake is optional and in complementary distribution with the manual negator.
- The observed differences can be accounted for by assuming (i) that the manual Neg elements occupy different positions within NegP and (ii) that the feature [+neg] which is realized by a NMM may have different phonological and morphological characteristics.

4 Manual dominant sign languages

- Generally, in manual dominant SLs, the manual negative sign is not optional, i.e. a sentence cannot be negated by headshake only, and the NMM tends to accompany the manual sign only (Zeshan 2006b).
- In this section, I will consider sentential negation in Italian SL (LIS), Hong Kong SL (HKSL), and Turkish SL (TİD).

4.1 Italian Sign Language

- Just like DGS and LSC, LIS is a SOV-language with manual negative signs usually following the verb. In contrast to DGS and LSC, however, sentential negation cannot be expressed by a NMM only, irrespective of spreading domain (22a). Moreover, the NMM occurs only with the sentence-final negative sign (22b) (Geraci 2005).
(22) a. * PAOLO CONTRACT SIGN $\overline{neg}$
    b. PAOLO CONTRACT SIGN NON
       ‘Paolo didn’t sign the contract.’

→ Geraci (2005) assumes that the manual Neg sign occupies SpecNegP, while [+neg] occupies the head of NegP – this situation is reminiscent of the one in DGS.

→ What distinguishes LIS from DGS is (i) that the manual sign is not optional, i.e. SpecNegP must be filled, and (ii) that [+neg] is not affixal, i.e. does not trigger verb movement. The NMM attaches to the manual Neg sign under Spec-head agreement (23).

(23)

→ The N-word nobody may occur sentence-finally (24a) or in sentence-initial position (24b). Crucially, in the latter case, the NMM must spread over the entire sentence; cf. the ungrammaticality of (24c).

→ Geraci (2005) assumes that nobody in (24b) moves to SpecNegP at LF, the spreading of the NMM being an alternative way to establish the feature checking relation.

→ Similarly, the object N-word nothing may appear in pre-verbal position. As predicted, in this case, the subject is outside the scope of the NMM (24d).

(24) a. CONTRACT SIGN nobody [LIS]
    b. nobody CONTRACT SIGN
    c. * nobody CONTRACT SIGN
    d. GIANNI nothing SIGN

→ Since SpecNegP is occupied by a manual Neg sign, negative concord is impossible in LIS (just as in DGS); neither can the two negative signs non and neg co-occur (25a) nor can one of these negative signs co-occur with an N-word (25bc), irrespective of order.
4.2 Hong Kong SL and Turkish SL

→ It appears that HKSL, a SVO-language, patterns with LIS: a sentence cannot be negated by a NMM only (26a), the manual negators (e.g. NOT, NOT^HAVE) appear sentence-finally, and the NMM is associated with the Neg sign only (26bc) (Tang 2006:217f).

(26) a. * YESTERDAY NIGHT FATHER FAX FRIEND [HKSL]
   ‘Father didn’t fax his friend last night.’

   b. INDEX3 TOMORROW FLY NOT [HKSL]
   ‘It is not true that he is flying tomorrow.’

   c. YESTERDAY FATHER GO SHOP NOT^HAVE [HKSL]
   ‘Father didn’t go to the shop yesterday.’

→ Due to lack of information on the possibility of negative concord in HKSL, it cannot be decided whether the manual NEG signs occupy Negº (as in ASL/LSC) or SpecNegP (as in DGS/LIS).

→ In TİD, too, the NMM is tied to manual negative signs all of which appear in sentence-final position; the NMM does not spread except on pronouns and some verbs (e.g. KNOW, UNDERSTAND) to which the manual negator may cliticize (Zeshan 2006c).

→ In contrast to all SLs discussed above, TİD uses a headshake with some Neg signs (e.g. NO-NO (27a), NONE) but a backward head tilt with others (e.g. NOT (27b), NOT-EXIST). The latter is clearly a culture-specific phenomenon (see Hendriks (in press) for Jordanian SL; Antzakas (2006) for Greek SL).

(27) a. CHILD++ BEAT INDEX1 NO-NO [TİD]
   ‘I don’t beat (my) children.’

   b. INDEX1 SPEAK KNOW^NOT [TİD]
   ‘I cannot speak.’

→ In TİD, negative concord is attested (28). This seems to suggest that the manual Neg signs in (27) are heads – in contrast to what has been claimed for LIS.

(28) NONE APPEAR NO-NO [TİD]
   ‘(Absolutely) no-one appeared.’

→ As far as the NMMs are concerned, we can either assume that the manual signs are lexically specified for the respective NMM or that the NMM harmonizes with the manual negator it attaches to with respect to its movement feature.

→ Note finally that GSL also makes frequent use of head tilts but does not belong to the group of manual dominant SLs. In GSL, headshake and head tilt can negate a clause by themselves (29a) and they can spread (29b) (Antzakas 2006:265ff).
5 Conclusion

→ Although the use of manual and non-manual markers in the expression of sentential negation has been observed in all SLs investigated to date, the patterns of distribution and co-occurrence of these markers clearly differ from SL to SL.

→ Broadly, two systems have to be distinguished: non-manual dominant systems and manual dominant systems. In the former, it is possible to negate a clause by means of a NMM only while in the latter, the use of a manual negator is obligatory.

→ But even within the two systems, SLs differ from each other. ASL, LSC, DGS, and CSL all have non-manual dominant systems but differ with respect to what manual elements (if any) the headshake can/must accompany and the possibility of negative concord.

→ LIS, HKSL, and TİD have manual dominant systems. It appears that these SLs are more similar to each other with respect to the distribution of the NMM; still, they differ when it comes to the possibility of negative concord.

→ I have suggested that the observed differences can be accounted for when we assume that the manual and non-manual elements occupy different positions within NegP and that the (non)affixal status of the NMM is subject to parametrization.

References


