Neg-raising in three sign languages

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The phenomenon. In Neg-raising (NR) constructions, a negation in the main clause is understood as if belonging to the dependent clause. Only some verbs (e.g. *think*; (1a)) allow such interpretations; many others (e.g. *claim*; (1b)) do not (Jespersen 1917; Fillmore 1963). The literature reports on a wealth of diagnostics that disambiguate NR and non-NR constructions (e.g. Bartsch 1973; Horn 1978; Gajewski 2007; Collins & Postal 2014; Zeijlstra 2017), and on the basis of some of them, it has been argued that not all (spoken) languages allow genuine NR-readings (Bošković & Gajewski 2011). Typically, these diagnostics are also used as evidence in support of either a syntactic (Neg-movement) or a pragma-semantic (presupposition) account of NR, although it appears most arguments are not completely watertight (see e.g. Zeijlstra 2017 for a fairly recent discussion). NR in sign languages (SLs) has so far only been addressed briefly in Johnston (2018; Australian SL) and Göksel & Kelepir (2016; Turkish SL), and in some more detail for SL of the Netherlands (NGT; Oomen et al. 2019).

(1)   a. I do**n't** think that Maya will move to Paris.   ≈ I think that Maya will **not** move to Paris.

       b. I do**n't** claim that Maya will move to Paris.   ≠ I claim that Maya will **not** move to Paris.

Goals. We present the most in-depth study on NR-constructions in SL to date, based on newly elicited data from French SL (LSF), Italian SL (LIS), and NGT. We pay particular attention to the potential for cross-linguistic variation in NR-constructions; as SLs combine manual (signs) and non-manual (head-shake) markers to express negation, the scope of variation may be broader in SLs than in spoken ones.

Negation in LIS, LSF, and NGT. The three SLs differ from each other in the way they combine manual and non-manual markers in standard sentential negation (e.g. Geraci 2006 for LIS; Millet 2019 for LSF; Coerts 1992, Oomen & Pfau 2017 for NGT). LSF and LIS require a manual negative sign to negate a proposition, making them 'manual dominant' (cf. Zeshan 2004). NGT is 'non-manual dominant': a manual negator is optional and a headshake can negate a proposition on its own. Headshake also tends to spread over larger parts of the sentence, including at least the predicate. In LSF and LIS, headshake generally only acccompanies the manual negator.

Method. We elicited and recorded constructions with native signers of LIS, LSF, and NGT and subsequently asked for acceptability and felicity judgments on a 7-point scale (using the 'playback method'; Schlenker 2014; Davidson 2020). Informants were also asked to explain the meaning of constructions.

Baseline data. We sought initial verification of the (non-)NR status of target predicates with short constructed dialogues as exemplified in (2) for LSF, where only NR predicates are compatible with answer option A.[1] The results provided first evidence for the NR-status of WANT and BELIEVE/THINK in all three SLs. We additionally found that DESIRE (LSF) and EXPECT (NGT) are compatible with a NR-reading. Constructions with SAY, ANNOUNCE and DECIDE only yielded answer B, suggesting that these are non-NR predicates. After this initial verification stage, we proceeded to more complex constructions.

(2) **Signer 1:** IX₁ BELIEVE-NOT/NOT SAY PIERRE PLAY   'I don't believe/say Pierre left.'

     Signer 2: IX₂ BELIEVE/SAY WHAT   'What is it that you believe/say?'

     A: PIERRE NOT LEAVE   'Pierre didn't leave.' (=NR)

     B: IX₁ BELIEVE/SAY NOTHING   'I believe/say nothing.'

Neg-raising in LIS, LSF & NGT. We found evidence that the three SLs pattern similarly to one another and to many spoken languages (specifically, those that are argued to have genuine syntactic NR; see Bošković & Gajewski 2011) for various sentence construction types. We describe two patterns below.

Firstly, constructions with negative indefinite NOBODY in the matrix clause systematically yield a NR-reading with NR predicates, but not with non-NR predicates, in both NGT and LIS, as shown in (3) for LIS. This is the expected interpretation under the conceived wisdom that *nobody* = NEG ∃-body, and thus has been used as an argument in support of a pragma-semantic analysis of NR constructions (e.g. Gajewski 2007). The LSF sign NOBODY has specific semantic connotations that ruled out replication.

(3) NOBODY THINK GIANNI LEAVE   *vs.*   NOBODY SAY GIANNI LEAVE   LIS

     Reading: 'Everybody thinks / # said Gianni stayed (= didn't leave).'

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[1] Glossing conventions: SIGNS in small capitals; IX$_n$ = pronominal pointing sign; [VERB]-NOT = negative predicate form.

Secondly, we studied Negative Polarity Items (NPIs) licensing in combination with NR predicates. In spoken languages such as English, (strict) NPIs are licensed in NR (but not non-NR) constructions (e.g. Horn 1978). This has been taken as an argument for the syntactic approach toward NR: the negator licenses the NPI in the embedded clause and then moves to the matrix clause (see e.g. Collins & Postal 2014). We independently verified that the sign UNTIL, under a punctual reading (e.g. Karttunen 1974; Condoravdi 2009), behaves as a strict NPI in all three SLs: UNTIL is licensed in basic negated sentences ('The baby wasn't born until 3pm [. . . but at/after 3pm].'), but not in positive sentences (*'The baby was born until 3pm.'). In all three SLs, UNTIL is licensed in NR-constructions only, as demonstrated for LSF in (4a). Licensing is no longer possible after left-dislocation of the embedded clause (4b), in which case the NPI is no longer in the right syntactic domain to be licensed (e.g. Collins & Postal 2014).

(4) a. IX$_1$ { THINK-NOT / * NOT ANNOUNCE } [MARIE LEAVE UNTIL THREE AFTERNOON]
   'I don't think / * announce that Marie left until three in the afternoon.'   LSF

   b. *[PIERRE LEAVE UNTIL FRIDAY] IX$_1$ { THINK-NOT / NOT ANNOUNCE }   LSF
   *'That Pierre left until Friday, I don't think/announce.'

Neg-raising and headshake spreading. In NGT sentences, the headshake tends to spread over larger parts of the sentence. In previous work on NR in NGT, based on a smaller data set (Oomen et al. 2019), it was shown that headshake spreading from matrix to embedded clause is interpreted differently in NR vs non-NR-constructions. Our data corroborate this finding; we consistently find a difference in meaning between construction pairs like in (5): in the case of a NR-predicate (EXPECT), the sentence is interpreted as involving a single negation and gets the expected NR interpretation, while in the case of a non-NR predicate (ANNOUNCE), the construction gets a (degraded) reading in which *both* matrix and embedded clause are negated. The line above the sign glosses indicates headshake ('hs') scope.

(5) a. $\overline{\text{IX}_1 \text{ EXPECT}}^{\text{hs}}$ LUCAS $\overline{\text{LEAVE}}^{\text{hs}}$ *vs.* b. ?? $\overline{\text{IX}_1 \text{ ANNOUNCE}}^{\text{hs}}$ LUCAS $\overline{\text{LEAVE}}^{\text{hs}}$ NGT
   'I don't expect Lucas will leave. (= NR: 'I expect Lucas won't leave).' *vs.* ?? 'I didn't announce Lucas will **not** leave.'

Since there are no other syntactic or semantic effects, we suggest that the break between the two occurrences of headshake in (5)a is prosodic: it tends to be briefly interrupted during the articulation of the embedded clause subject, and headshake resumption in the embedded clause is optional (contra Oomen et al.'s earlier findings). We also added a new data point by eliciting constructions with similar headshake spreading patterns in combination with an UNTIL-phrase. (6) yields the expected NPI-reading, clearly demonstrating that a headshake suffices to license an NPI in NGT.

(6) $\overline{\text{IX}_1 \text{ EXPECT}}^{\text{hs}}$ LUCAS $\overline{\text{LEAVE}}^{\text{hs}}$ UNTIL FIVE-HOUR AFTERNOON   NGT
   'I don't expect Lucas will leave until five pm. (= 'I expect Lucas won't leave before).'

Conclusions. We have reported on the properties of NR-constructions in three SLs, clearly showing that NR is a modality-independent phenomenon. We found that LIS, LSF and NGT pattern similarly to one another as well as to a host of spoken languages in various construction types. As in spoken languages, the patterns provide mixed evidence for syntactic vs. pragma-semantic approaches toward NR, suggesting that a hybrid analysis may be best equipped to capture the phenomenon (cf. Horn 2020). But SLs – at least those which are non-manual dominant – also offer an entirely new dimension to the topic under discussion. We corroborated earlier findings that the same headshake spreading pattern in constructions with NR vs. non-NR predicates in NGT lead to a difference in interpretation, and provided evidence that headshake can license an NPI in NGT.

Selected references. **Bošković & Gajewski**. 2011. Semantic correlates of the NP/DP parameter. In *NELS 39* (pp.121-134). **Fillmore**. 1963. The position of embedding transformations in grammar. *Word* 19, 208-231. **Göksel & Kelepir**. 2016. Observations on clausal complementation in Turkish Sign Language. In *A Matter of Complexity: Subordination in Sign Languages* (pp. 65-94). **Horn**. 1978. Remarks on neg-raising. In *Pragmatics* (pp. 129-220). **Horn**. 2020. Neg-raising. In *The Oxford Handbook of Negation* (pp. 198-215). **Karttunen**. 1974. Until. In *CLS* 10, 284-297. **Oomen, Klomp & Pfau.** 2019. *On the nature of Neg-raising in NGT*. Paper presented at TISLR Hamburg. **Zeshan**. 2004. Hand, head, and face: Negative constructions in sign languages. *Linguistic Typology* 8, 1-58.