

## Neg-raising in three sign languages

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**The phenomenon.** Empirically, a negative marker in the main clause is understood as if belonging to the dependent clause in Neg-raising (NR) constructions. The low interpretation of negation is possible only with some verbs (e.g. *think*; (1a) vs. *claim*; (1b), i.a. Jespersen 1917).

- (1) a. I don't **think** Maya will move to Paris.  $\approx$  I think Maya will **not** move to Paris.  
b. I don't **claim** Maya will move to Paris.  $\neq$  I claim Maya will **not** move to Paris.

Theoretically, two explanations have been offered: Some argue that it is a syntactic phenomenon involving movement of the negation from the dependent to the main clause (i.a. Fillmore 1963, Collin & Postal 2014), while others claim that NR predicates come with an inference of the type  $p \vee \neg p$  which leads to an interpretation of 'I don't think that p' as 'I think that not-p' (i.a. Bartsch 1973, Gajewski 2007). More recently, some have suggested that NR is best captured by a hybrid approach (e.g. Horn 2020).

In *sign languages* (SLs), NR is attested in AUSLAN (Johnston 2018) and TID (Göksel & Keleşir 2016) and partially described for NGT (Oomen et al. 2019).

**Objectives.** We present here the most in-depth study on the properties of NR constructions in SL to date, based on newly elicited data from LSF, LIS, and NGT. We apply syntactic and semantic diagnostics to probe the properties of NR in SL. In addition, SLs offer an entirely new perspective on NR: in (some) SLs, non-manual markers of negation like headshake can 'spread' over larger parts of a sentence, marking syntactic and scopal domains (Neidle et al. 2000). Building on Oomen et al. (2019), we investigate headshake patterns in NR constructions in NGT, which allows such wide spreading.

**Negation in LSF, LIS & NGT.** LSF (Millet 2019) and LIS (Geraci 2006) 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 (Coerts 1992). Headshake also usually spreads over at least the predicate in NGT, while it generally accompanies the manual negator only in LIS and LSF.

**Methods.** Acceptability and felicity judgments on a 7-point scale have been collected from native signers of LIS, LSF, and NGT using the playback method (Schlenker 2014 & Davidson 2020)

**Baseline data.** We used mini-dialogues like (2) as a first diagnostic for NR-predicates: The answer in **A** is only compatible if Signer 1 is using a NR-predicate at the beginning of the exchange. The answer in **B** is only accessible if non-neg-raising readings are targeted.

- (2) **Signer 1:** IX<sub>1</sub> BELIEVE-NOT/NOT SAY PIERRE PLAY 'I don't believe/say Pierre left.'  
**Signer 2:** IX<sub>2</sub> BELIEVE/SAY WHAT 'What is it that you believe/say?'  
**Signer 1 A:** PIERRE NOT LEAVE 'Pierre didn't leave.' (=NR)  
**Signer 1 B:** IX<sub>1</sub> BELIEVE/SAY NOTHING 'I believe/say nothing.'

**Neg-raising in LIS, LSF & NGT.** The three SLs pattern similarly to one another and to spoken languages for two key NR-constructions: negative quantifiers and strict Negative Polarity Items (NPI). Negative quantifiers in subject position (e.g. NOBODY) license neg-raising reading. This is true for both NGT and LIS, as shown in (3) (the test cannot be applied for LSF for independent reasons).

- (3) NOBODY THINK GIANNI LEAVE vs. NOBODY SAY GIANNI LEAVE LIS  
Reading: 'Everybody thinks / # said Gianni stayed (= didn't leave).'

NPIs are grammatical words that require a 'negative' environment in order to be licensed (e.g. English *any*). Certain NPIs like English *until* require the negative environment to be syntactically local. Typically, a negation in the matrix clause can license a weak NPI like *any* (cf. (4a)), but not a strict one like *until* (cf. (4b)), unless the main clause contains a NR-predicate (cf. (4c)).

- (4) a. I don't claim that Mary saw anyone.  
 b. \* I don't claim that Mary will arrive until 5pm.  
 c. \* I don't think that Mary will arrive until 5pm.

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 (5a). In addition, licensing is no longer possible after left-dislocation of the embedded clause (5b), in which case the NPI is no longer in the right syntactic domain (e.g. Collins & Postal 2014).

- (5) a. IX<sub>1</sub> { 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<sub>1</sub> { THINK-NOT / NOT ANNOUNCE } LSF  
 \*'That Pierre left until Friday, I don't think/announce.'

**Neg-raising and headshake spreading in NGT.** Oomen et al. (2019) showed that headshake spreading from matrix to embedded clause is interpreted differently in NR vs non-NR-constructions. Our data corroborate this finding: in the case of a NR-predicate (EXPECT), the sentence is interpreted as involving a single negation and gets the expected NR interpretation (cf. (6a)), 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 (cf. (6b)).

- (6) a.  $\overline{\text{IX}_1 \text{ EXPECT}}^{\text{hs}} \text{ LUCAS } \overline{\text{LEAVE}}^{\text{hs}}$   
 'I don't expect Lucas will leave.' (= NR: 'I expect Lucas won't leave.)  
 b. ??  $\overline{\text{IX}_1 \text{ ANNOUNCE}}^{\text{hs}} \text{ LUCAS } \overline{\text{LEAVE}}^{\text{hs}}$   
 '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 (6) 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 add a new data point: constructions with similar headshake spreading patterns in combination with an UNTIL-phrase. (7) yields the expected NPI-reading, clearly showing that a headshake suffices to license an NPI in NGT.

- (7)  $\overline{\text{IX}_1 \text{ EXPECT}}^{\text{hs}} \text{ LUCAS } \overline{\text{LEAVE}}^{\text{hs}} \text{ UNTIL FIVE-HOUR AFTERNOON}$  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 & Keleşir. 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.