

Signing NOT (or not): A corpus-based study on negation in Sign Language of the Netherlands

Marloes Oomen & Roland Pfau



1. Sign language negation

- Background:** Sign languages (SLs) display complex grammatical structures and show considerable variation.
- SL typology:** charts the attested variation in different grammatical domains (e.g. agreement, word order, relative clauses) and relates it to typological variation attested in spoken languages.
- All SLs studied to date employ manual elements and non-manual markers (mostly a headshake) to express sentential negation (Zeshan 2004; Quer 2012).

1.1 A typological dichotomy

- Manual dominant** SLs: (i) use of a manual negator is obligatory; (ii) typically the non-manual marker only accompanies the negative particle – e.g. Italian SL [1], Hong Kong SL.
- Non-manual dominant** SLs: (i) sentences are commonly negated by only a non-manual marker; (ii) the non-manual may spread over part of the sentence – e.g. German SL [2], Catalan SL.
- Within both groups, variation exists w.r.t. (i) position of NOT; (ii) scope properties of headshake; (iii) possibility of Negative Concord.

Italian SL (Geraci 2005)

- [1] a. PAOLO CONTRACT SIGN ^{hs} NOT
b. * PAOLO CONTRACT SIGN
'Paolo didn't sign the contract.'

German SL (Pfau 2002)

- [2] a. WOMAN FLOWER BUY ^{hs} NOT
b. WOMAN FLOWER BUY
'The woman doesn't buy a flower.'

1.2 Sign Language of the Netherlands

- Coerts (1992): 62/100 negative clauses are negated by headshake only.
- Van Gijn (2004): claims, based on a grammaticality judgment task, that manual particle NOT is never used; its presence reflects use of Sign Supported Dutch.

GOALS: (i) describe and classify sentential negation in NGT based on naturalistic corpus data; (ii) put NGT data in typological perspective.



Figure 1. Screenshot of the annotations in ELAN for example [3], with the right signer producing the sign NOT (NIET). Annotation tiers: (a) glosses for left signer; (b) glosses for right signer; (c) translation tier for left signer; (d) translation tier for right signer; (e) (scope of) the headshake.

2. Methodology

- Naturalistic corpus data:** 35 discussion dialogues (1h 35min) from the Corpus NGT (Crasborn et al. 2008).
- 22 signers of the Groningen region of different ages and sex.
- Steps taken in the identification of negated sentences:
 - Keyword (e.g. NIET 'not') search and manual search to identify clauses negated by means of manual and/or non-manual (= headshake) negation markers.
 - Annotation with ELAN linguistic annotator:
New tier added ((e) in **Figure 1**) for annotation of scope of the non-manual negator. Headshake (hs) was observed in *every* negated clause in the analyzed part of the corpus.

3. Results

3.1 Quantitative overview

- 120 negated clauses: 49 with manual negator NOT and headshake; 71 negated by headshake only.
- Subject drop** and **subject pronoun copy** (Bos 1995; [5]) commonly occur; relatively few examples include an object argument.

3.2 Constituent order

- (i) Clauses with NOT (**Table 1**):
- NOT most often in **clause-final** position (63%; [3] & [6]), followed by preverbal position (27%; [4]).
 - Subject** usually in **sentence-initial** position; **verb** occurs **before** NOT (N=34; 69%), alternatively after NOT (N=15; 31%).
 - S-V-Neg most common (N=18, 37%; [6]); few examples with object.
 - Most examples compatible with both S-O-V (N=43, [3]) and S-V-O (N=42) order.
 - Table 1** is biased towards compatibility with S-O-V, argued previously to be basic constituent order (Coerts 1994; Pfau & Bos 2008).

Table 1 Constituent order of negated clauses with NOT (N=49).

Clauses with NOT	N	%
• NOT in clause-final position		
(S)-(O)-V-Neg	29	59%
(S)-V-O-Neg	2	4%
Subtotal	31	63%
• NOT preceding V(P)		
(S)-Neg-(O)-V	13	27%
Other patterns	5	10%
TOTAL	49	100%

(ii) Clauses without NOT (**Table 2**):

- Verb** in **final** position in 80% of clauses [5], [7].
- Subject** in **clause-initial** position; **object** either **pre-verbal** (12 cases) or **post-verbal** (13), excl. example with V-S-O order.
- Classification in **Table 3** according to S-O-V compatibility [5], [7].

Table 2 Constituent order of negated clauses without NOT (N=71).

Clauses without NOT	N	%
(S)-(O)-V	57	80%
(S)-V-O	13	18%
V-S-O	1	2%
TOTAL	71	100%

Conclusion: most common constituent order is S-O-V(-Neg) or S-V-O(-Neg). NOT occurs in preverbal position in 27% of clauses that have a manual negator. NGT is clearly **non-manual dominant**, i.e. with optional use of the manual negator NOT.

3.3 Spreading patterns of the headshake

Note: scope of the headshake has been analyzed only for examples that show one of the most common constituent orders, that is (S)-(O)-V-Neg, (S)-Neg-(O)-V, (S)-(O)-V, and (S)-V-O.

- NOT** always accompanied by hs → part of lexical form [3], [4], [6].
- Verb** usually under scope of hs (95%), independent of presence of NOT or relative position to NOT [3]-[7].
- Object** under scope of hs if occurring postverbally in 92% of cases, and preverbally in 53% of cases ([3] & [5] have preverbal objects not accompanied by hs).
- Subject** usually not under scope of hs (29%; [3]-[6] are all examples without spreading). In case of spreading, subjects are usually pronominal (87%; [7]).

Conclusion: NOT is lexically marked by a headshake. The headshake additionally spreads over the verb, independent of position, and the postverbal object, but there is optional spreading over the preverbal object. The subject generally falls outside the spreading domain, although pronominal subjects may be accompanied by a headshake.

[3] INDEX ₁ POINT UNDERSTAND ^{hs} NOT 'I don't understand / get the point.'	[6] MANY DOCTOR DO ^{hs} NOT 'Many doctors don't do that.'
[4] INDEX ₁ ACTUALLY ^{hs} NOT LEARN 'I'm not going to learn (it).'	[7] INDEX ₂ MATCH PU 'You didn't match (with him).'
[5] INDEX ₁ INDEX REACT INDEX ₁ ^{hs} 'I don't react to it / reply to it.'	[8] BUT ^{hs} NOT MUCH INDEX ₁ NOT '... but not a lot.'

4. NGT in typological perspective

Table 3. Typological comparison of negation patterns in six sign languages ('hs' = headshake).

	DGS	LSC	ASL	LIS	TiD	NGT
(i) word order	SOV	SOV	SVO	SOV	SOV	SOV
(ii) manual dominant?	-	-	-	+	+	-
(iii) NOT clause-final?	+	+	+/-	+	+	+/-
(iv) hs only on NOT?	-	+	+	+	+	?
(v) hs only on predicate (in the absence of NOT)?	+	+	-	-	-	+
(vi) hs spread onto object?	+	+	+	-	-	+
(vii) hs spread onto subject?	-	-	+/-	-	-	-
(viii) Negative Concord?	-	+	+	-	+	+

- (i) & (ii): Just like e.g. DGS and LSC, NGT is an S-O-V **non-manual dominant** SL.
- (iii): In contrast to DGS & LSC, NGT displays variation w.r.t. to the **position of the manual negator** (cf. Wood (1999) for ASL) → effect of data type.
- (iv): scarcity of the pattern (3 instances) does not allow for safe conclusions.
- (v)-(vii): w.r.t. **spreading options**, NGT patterns with DGS and LSC: it is possible for hs to only accompany the verb [5], non-pronominal subjects are almost never accompanied by hs [6] vs. [7].
- (viii): **Negative Concord** is rare but attested in NGT [8], just as in LSC, ASL & TiD.

TAKE-HOME MESSAGE: While all features identified for NGT are attested in other SLs, the combination of features appears to be typologically unique; NGT thus adds a new piece to the typological puzzle.