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The Implicational Complementation Hierarchy and size restructuring in the Sign Language of the Netherlands*

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1. Introduction

This paper is concerned with different complement types and their syntactic marking in the Sign Language of the Netherlands (*Nederlandse Gebarentaal*, NGT). Complementation strategies, i.e., ways in which clauses can function as an argument of the main clause predicate, are subject to intriguing cross-linguistic variation. One such strategy is control clauses, whose embedded subject is phonologically null and referentially controlled by the matrix subject as in the English example in (1a). In such languages as English, control clauses are non-finite as signaled by the infinitival form of the embedded predicate *to publish* in (1a), which lacks tense and agreement markers. A finite complement of a propositional attitude predicate like *think* in (1b), conversely, features an overt subject *linguistics*, a copular *is* inflected for present tense and agreement and a complementizer *that*.

(1) *English*

a. A student$_i$ **wants** [$\varnothing_i$ to publish an article].
b. A student **thinks** [that linguistics is fun].

In other languages, e.g., in Serbo-Croatian (Stjepanović 2004), there is no distinction in finiteness between control and full propositional complement clauses. Thus, both the control clause in (2a) and the propositional complement in (2b) contain a tensed embedded predicate *vidi* featuring third-person subject agreement. Consequently, the two complement clauses are identical. At the same time, Serbo-Croatian differentiates complement types by the availability of clitic climbing. As shown in (2a-b), the object clitic *je* moves to

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the middle-field of the matrix clause in the control but not in the propositional complement clause.

(2) *Serbo-Croatian (Stjepanović 2004)*

a. Petar je$_i$ **mora /zeli** [da vidi $\_\__i$]
Petar her **must/want** that see.PRS.3SG
'Petar wants to see her.'

b. *Petar je$_i$ **kaže/tvrdi** [da vidi $\_\__i$]
Petar her **say /claim** that see.PRS.3SG
'Petar says/claims to see her.'

Similarly to clitic climbing, non-propositional complements in some Slavic and Germanic languages involve object scrambling, where the object DP moves out of the complement clause into the middle-field of the matrix clause (Haider 2021). Typological research reveals that, although languages differ in how they differentiate complementation types (e.g., finiteness distinction in English vs. clitic climbing in Serbo-Croatian), a semantic classes of predicates selecting for the same types of complements remain relatively fixed across languages (Cristofaro 2003, Noonan 2007).This observation has recently been captured by the Implication Complementation Hierarchy (ICH) (Wurmbrand and Lohninger 2023), distinguishing three semantic classes of complements: *Events* (e.g., complements of *try, can, manage*), *Situations* (e.g., *want, decide, demand*) and *Propositions* (e.g., *say, know, think*), where control clauses fall under *Events* or *Situations*, while complements of attitude predicates are classified as *Propositions*.[1] According to Wurmbrand and Lohninger (2023), languages tend to demarcate *Events, Situations* and *Propositions* in a coherent fashion but the marking itself is subject to cross-linguistic variation. The general tendency is that different types of complement clauses in a given language form a hierarchy *Events* $\gg$ *Situations* $\gg$ *Propositions*, where each complement class is more syntactically and semantically integrated and more transparent for extraction than the preceding one. The former property generates the finiteness distinctions in English, while the latter is responsible for clitic climbing in Serbo-Croatian.

Concerning the formal analysis, Wurmbrand and Lohninger (2023) suggest that the ICH is derived by the subset relation between the structures underlying these complement types as illustrated in Figure 1. Thus, *Propositions* are structurally the largest of all three complement types, meaning that their structure necessarily includes an operator domain (i.e., CP). *Situations* minimally contain Tense, Aspect, and Mood projections (TMA), although they can build up a semantically vacuous CP layer, thereby featuring complementizers in some languages. *Events* are the smallest structural units in this hierarchy requiring only a Theta domain, but also potentially capable of building a larger, semantically vacuous structures.

[1] In this paper, we are mostly concerned with the differences in syntactic marking of *Events/Situations* vs. *Propositions* since there is yet no sufficient empirical evidence to identify the morphosyntactic distinctions between *Events* and *Situations* in NGT.

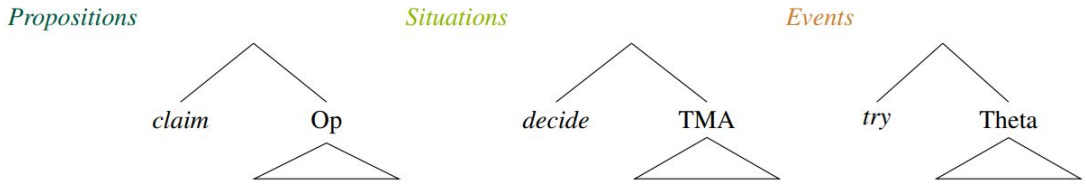


Figure 1: The minimal structures of *Proposition*, *Situation* and *Event* complement classes in the ICH (Wurmbrand and Lohninger 2023:33).

Wurmbrand and Lohninger (2023) postulate that the clause size asymmetry illustrated in Figure 1 is exactly what surfaces as distinctive language-specific marking of complement types. While being supported by extensive typological research of spoken languages, the ICH has never been systematically addressed for sign languages (SL). Given that SLs operate in a visual modality, while also exhibiting sentential complexity (see (Pfau et al. 2016)), they offer a perfect testbed for evaluating the predictions of the ICH. The aim of this study is to make the first steps in this direction by zooming in on complementation in NGT and putting it into the perspective of the ICH.

2. Typology of complementation in sign languages

One of the main challenges of studying complementation in SLs arises from the absence of morphosyntactic marking of tense, inconsistent agreement marking, and the scarcity of overt functional elements such as complementizers. Hence, the finiteness diagnostics illustrated for English above can hardly be applied to SLs. However, recent studies show that complement clauses in SLs can be analyzed with respect to different complement types. Thus, two types of complement clauses have been identified in Italian SL (LIS), where two different word orders in complement clauses are distinguished: control clauses can be centrally embedded (3a), while propositional complements are exclusively sentence-final (3b,3c).

(3) *Italian SL (LIS) (Geraci and Aristodemo 2016:103-105)*

a. GIANNI [COW MILK] TRY [2]
'Gianni tried to milk the cow.'

b. GIANNI TELL [PIERO BIKE FALL]

c. *GIANNI [PIERO BIKE FALL] TELL
'Gianni said that Piero fell off the bike. '

[2]Glossing conventions: signs are glossed in SMALL CAPS; INDEX refers to a pointing sign, with numbers referring to the person and, occasionally, letters contrasting ipsi- and contralateral directions of the pointing. In verbs, number/letter indices specify subject/object agreement: the first subscript indicates the person of the subject, and the second subscript – the person of the object.

A similar pattern has been observed in Turkish SL (TİD) (Göksel and Kelepir 2016), thereby suggesting that LIS and TİD adhere to the ICH in that they mark *Events/Situations* as more syntactically integrated by allowing central-embedding.

The present study expands the typology of SL complementation by adding novel empirical data from NGT. Previously, complement clauses in NGT have been investigated with respect to their status as syntactically subordinate (van Gijn 2004). van Gijn (2004) applied various well-known syntactic tests, including wh extraction and topicalization, to test the syntactic embedding of different types of complements. Interestingly, the syntactic tests applied by van Gijn (2004) yield conflicting results. Thus, wh-extraction appears to be grammatical in control clauses and factive complements but not in propositional complements. Meanwhile, topicalization is judged as perfectly grammatical across all complement types, which is unexpected since both wh-extraction and topicalization are often found to be subject to the same set of locality constraints. Nevertheless, van Gijn (2004) concludes that all complement-taking predicates in her sample involve syntactic subordination, but some seem to be less transparent and integrated than others, which, again, is in line with the ICH.

Inspired by previous studies on NGT, LIS and TİD as well as by the research on spoken language complementation, the present study aims at enriching the typology and theory of complement clauses in spoken and signed languages by conducting a systematic in-depth investigation of such word orders as center-embedding and object scrambling, which have previously been described as markers of syntactic integration and transparency in control clauses across modalities but have not yet been specifically examined for NGT complement clauses.

3. Methodology

This study applies the method of acceptability judgments, that is, an evaluation of the stimuli in terms of their acceptability on a 5-point Likert scale. The data collection consisted of two phases, where phase I was dedicated to control clauses introduced by TRY, WANT or CAN and included judgments from 9 deaf native NGT signers (27 - 71 y.o., 4 males) from central and southern regions of the Netherlands (Amsterdam, Utrecht, Voorburg, Zoetemeer). Phase II features an analogous experiment targeting full propositional complements of THINK, FORGET and SAY and also involved 9 participants (26 - 58 y.o., 3 males) from the same regions. Three participants took part in both phases I and II thus making it 15 participants in total.

For both groups, the questionnaire included stimuli signed by a deaf native NGT consultant featuring three different word orders outlined below.

- ***Sentence-final***: the complement clause follows the matrix predicate; all embedded constituents remain inside the complement clause as in (4a, 5a).
- ***Center-embedding***: the complement clause precedes the matrix predicate and follows the subject as in (4b, 5b)

- ***Object scrambling***: the internal argument of the complement clause follows the subject and precedes the matrix verb, while the embedded predicate follows the matrix verb as in (4c, 5). This word order resembles the object scrambling pattern found in spoken languages (e.g., example (2) from Serbo-Croatian above), hence the name.

For each testing condition, three lexical variants per predicate were included + fillers.

The stimuli for propositional complements were specifically designed in such a way that the embedded clauses in both propositional and control clauses would contain only one nominal sign and one predicative sign. This is to ensure that the stimuli featuring control and propositional complements would be maximally comparable with respect to their lexical length and prosodic weight. In a similar vein, the propositional complements involve unaccusative predicates, so that both the embedded subject in propositional complements and the embedded object in control complements function as an internal argument.

(4) ***Control complements involving*** TRY, WANT, CAN, FORGET[3]

a. BOY WANT [APPLE EAT] *sentence-final*
b. BOY [APPLE EAT] WANT *center-embedding*
c. BOY APPLE$_i$ [WANT $\_\__i$ EAT] *object scrambling*
'The boy wants to eat an apple.'

(5) ***Propositional complements involving*** THINK, FORGET, SAY

a. MOTHER THINK [DAUGHTER SICK] *sentence-final*
b. MOTHER [DAUGHTER SICK] THINK *center-embedding*
c. MOTHER DAUGHTER$_i$ THINK [$\_\__i$ SICK] *object scrambling*
'The mother thinks that the daughter is sick.'

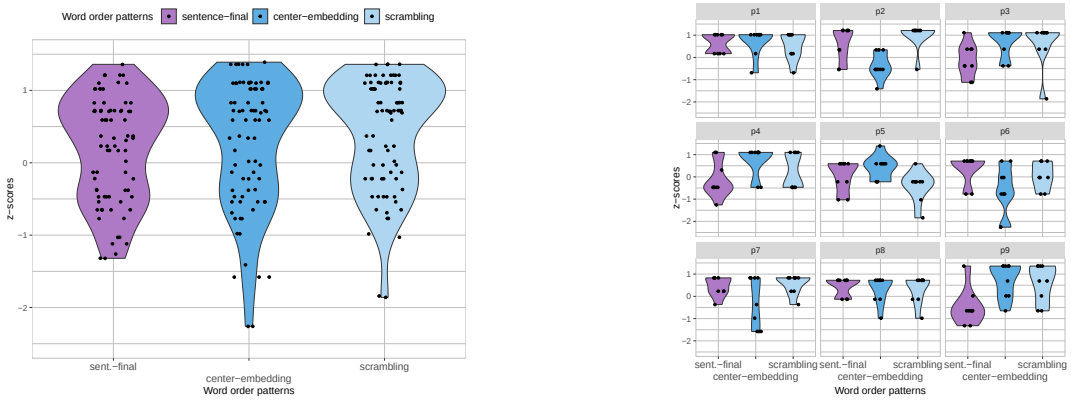
4. Results

4.1 Control clauses

All three word orders under discussion – sentence-final, center-embedding and object scrambling – appeared to be generally acceptable in control clauses introduced by TRY, CAN and WANT (results for FORGET are presented in section 4.3). However, the judgments display a high degree of variation. Thus, as illustrated in Figure 2a, the overall distribution of scores for different word orders ranges from the highest to the lowest possible score and thus, no conclusive generalizations can be made.[4]

[3]The word order labels and the brackets in (4, 5) presuppose a particular underlying structure of the sentences. For instance, they presume (4a) as an underlying structure for (4c), while alternative derivations are conceivable. The structures in (4, 5) serve the purpose of the formal analysis outlined in section 5, while the discussion of the alternative solutions is beyond the scope of this paper.

[4]Here and below, violin plots are used to visualize the distribution of the z-scores, which are implemented to eliminate the scale bias that often occurs in the acceptability judgment task using a Likert-scale (Schütze and Sprouse 2013). Wider sections of the plot represent the higher amount of scores within the respective range of z-scores on the y-axis. Different word order conditions are categorically distributed on the x-axis



(a) Distribution of z-scores collapsed across all signers

(b) Distribution of z-scores per participant

Figure 2: Distribution of z-scores (a) collapsed for all participants and (b) separately per participant for three word orders in control clauses in NGT – *sentence-final* (4a), *center-embedding* (4b) and *object scrambling* (4c)

However, if the scores are plotted for each individual participant separately, as in Figure 2b, it becomes evident that signers do have individual preferences for particular word orders but often do not align with each other. Thus, the same constructions are judged as acceptable by some signers but as unacceptable by others, which ultimately explains the wide distribution of scores in Figure 2a. A post-hoc informal analysis of the data suggests that one can tentatively identify four different patterns of preferences with respect to word orders, further coded as Patterns 1-4 and summarized in Table 1:

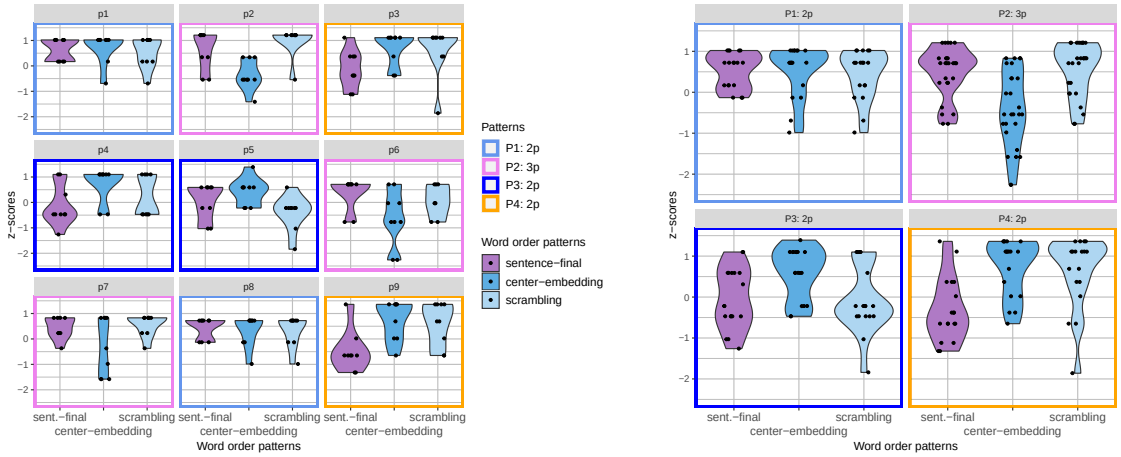
Pattern 1: sentence-final	**Pattern 2: sentence-final + scrambling**
Slight preference for sentence-final word order; center-embedding and scrambling are marginally degraded: ***p(articipant)1, p8***	Preference for sentence-final word order or scrambling; degraded judgment for center-embedding: ***p2, p6, p7***
Pattern 3: center-embedding	**Pattern 4: center-embedding + scrambling**
Preference for center-embedding: ***p4, p5***	Preference for center-embedding and scrambling: ***p3, p9***

Table 1: Description of word order preferences in control clauses across Patterns 1- 4

The distribution of patterns across signers is marked by differentially-colored frames in Figure 3a. Figure 3b illustrates cumulative scores summarized by Patterns 1-4.

Note that no sociolinguistic factors (e.g., age, gender, region, etc.) were observed to reliably predict the word order preference, although a proper sociolinguistic analysis would require a larger number of participants balanced by their sociolinguistic characteristics. The

and are color-coded according to the legend. The raw data and the plots can be found on the OSF platform: https://osf.io/ebj4h/



(a) Distribution of z-scores per participant

(b) Distribution of z-scores per Pattern

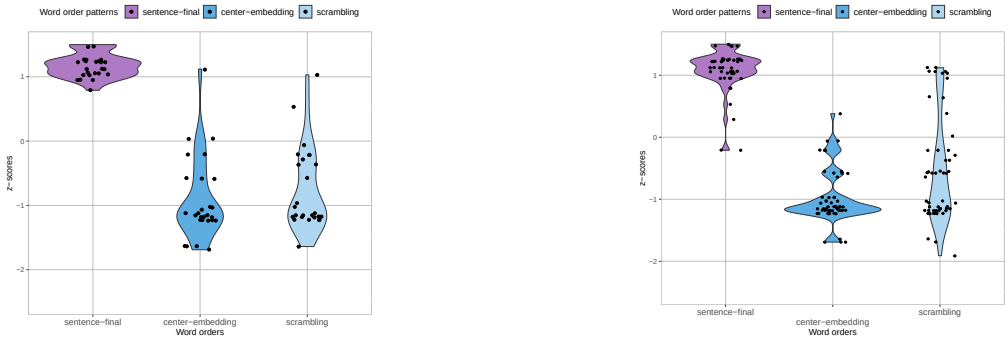
Figure 3: Distribution of z-scores (a) per participant and (b) per pattern for three word orders in control clauses in NGT – *sentence-final* (4a), *center-embedding* (4b) and *object scrambling* (4c); different colors of the frames correspond to P(atterns) 1-4.

small number of data-points per participant also does not allow for a fine-grained statistical analysis of the judgments within grammatical patterns, hence it is not entirely clear where to put a threshold between Patterns 1-4. Both of these methodological issues are due to the fact that the observed variation came as a surprise. Notwithstanding the above-mentioned caveats, it seems to be at least visually apparent, that, despite an informal grouping, the individual grammatical patterns notably diverge from each. Note also that not all logically possible word order combinations were observed in the results. For instance, there is no participant who would prefer the scrambling alone over all other word orders, or who would accept both center-embedding and sentence-final word order but not scrambling. This asymmetry suggests that the variation is not random but, as we claim in the analysis below, stems from a microparametric variation between grammatical patterns of individual signers of NGT.

4.2 Full propositional complements

In full propositional complements introduced by THINK or SAY, the picture is completely different: only sentence-final word order was accepted as grammatical by all participants as illustrated in Figure 4 and exemplified in (6a) for SAY. Center-embedding (6b) and object scrambling (6c) were unanimously rejected.

(6) a. SALESMAN SAY [SHOP CLOSED] *sentence-final*
b. *SALESMAN [SHOP CLOSED] SAY *center-embedding*
c. *SALESMAN SHOP$_i$ SAY [$\_\__i$ CLOSED] *object scrambling*
'The salesman says that the shop is closed.'



(a) Distribution of z-scores for complement clauses with THINK

(b) Distribution of z-scores for complement clauses with SAY

Figure 4: Distribution of z-scores for three word orders in propositional complements with (a) THINK and (b) SAY in NGT – *sentence-final* (5a, 6a), *center-embedding* (5b, 6b) and *object scrambling* (5c, 6c)

The stimuli with SAY were examined with respect to yet another condition, i.e. the presence or absence of the role-shift non-manual markers, which are defined as the combination of eye gaze shift, body and head leans and head signaling the perspective shift in signed reports (Lillo-Martin 2012). The inclusion of this condition was initially inspired by the study on LIS (Geraci and Aristodemo 2016), where the presence of the role-shift non-manuals was observed to lift the ban on center-embedding in full propositional complements. However, our results did not reveal a similar effect for NGT – there appeared to be no difference in judgments of the stimuli with or without role-shift non-manuals.

4.3 The case of FORGET

The preceding subsections illustrate the contrast between control and propositional complements: the former exhibit a flexible word order with a noticeable variation in judgments, whereas the latter display a fixed order generally accepted by all participants. So far, different complement types were introduced by different matrix predicates. To probe deeper into the structural properties of the complement types, we also examined complements of FORGET, that can be either control clauses (*implicative* FORGET in 7) or full propositional complements (*factive* FORGET in 8).

(7) ***Implicative***

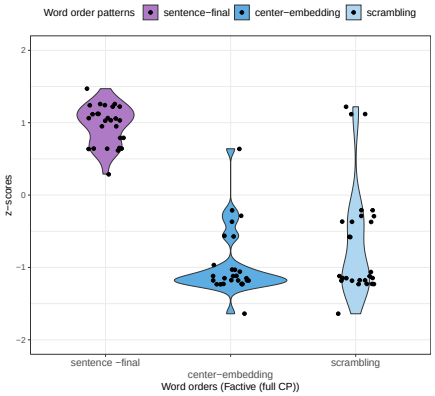
a. MAN FORGET [DOOR LOCK] *sentence-final*
b. MAN [DOOR LOCK] FORGET *center-embedding*
c. MAN DOOR$_i$ FORGET [$\_\__i$ LOCK] *object scrambling*
'The man forgot to lock the door. (He has to come back)'

(8) ***Factive*** FORGET *(full propositional complements)*

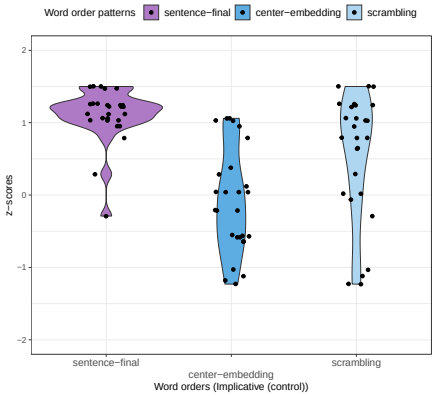
a. BOY FORGET [SHOP CLOSED] *sentence-final*

b. BOY [SHOP CLOSED] FORGET *center-embedding*
c. BOY SHOP$_i$ FORGET [$\_\__i$ CLOSED] *object scrambling*
'The boy forgot that the shop is closed. (He will have to come on Monday)'

Despite their lexical similarity, the different word orders in (8) and (7) elicit contrasting judgments. As expected, control clauses introduced by FORGET exhibit flexible word order alongside with substantial variation across participants (Figure 5b). Full factive complements of FORGET, however, allow only for the sentence-final word order thus patterning together with propositional complements of SAY and THINK (Figure 5a).



(a) Distribution of z-scores for full factive complement clauses with FORGET



(b) Distribution of z-scores for implicative control complement clauses with FORGET

Figure 5: Distribution of z-scores for three word orders in (a) implicative control (7) and (b) full factive (8) complement clauses with FORGET in NGT – *sentence-final* (7a, 8a), *center-embedding* (7b, 8b) and *object scrambling* (7c, 8c)

The diverging judgments of two types of complements introduced by the same lexical predicate suggest distinctive underlying structures. The following section proposes a formal analysis of these structural differences within the framework of the ICH and size restructuring.

5. Analysis

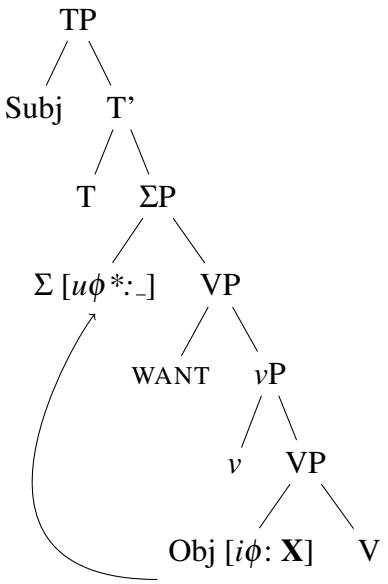
5.1 Deriving word order configurations

The different word order properties described above for two types of complements not only indicate their underlying structural distinctions but also suggest a hierarchical relationship between these structures, which can be captured in the framework of size restructuring (Rizzi 1976, Wurmbrand 2015). This approach suggests that in a language showing restructuring phenomena such as clitic climbing or object scrambling, the clausal spine contains an abstract projection ΣP. Depending on where in the sentence the effects of the restructuring surface, ΣP can be positioned in the extended projection of CP, TP or *v*P. Recall the Serbo-Croatian example (2), where clitic climbing was possible in *Situations* and *Events*

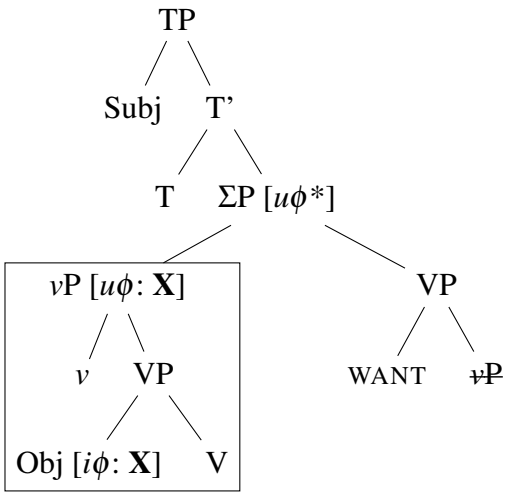
but not in *Propositions*. In terms of size restructuring, this can be derived by assuming that ΣP is the landing site for the dislocated clitic and that it is located above TP in the clausal spine. Consequently, according to the structures proposed in Figure 1, only *Propositions* are large enough to host the embedded clitic, while *Situations* and *Events* lack embedded ΣP thus allowing and even forcing a clitic to cross the clause boundary.

Coming back to the complementation in NGT, we begin with deriving all three word order possibilities for control clauses and then turn to modeling the variation across Patterns 1-4 in section 5.2. We assume ΣP to be positioned between TP and *v*P given that the control predicates in the experiment belong to *Events*.[5] The analysis for object scrambling is thus parallel to the one suggested for clitic climbing in Serbo-Croatian: due to the lack of an embedded ΣP, the matrix ΣP attracts the embedded object. Given that the center-embedding word order is found in exactly the same syntactic environment as object scrambling, we postulate that the centrally-embedded clause is also hosted by the matrix ΣP. The derivations for object scrambling and center-embedding in NGT are illustrated in (9) and (10), respectively (we will come back to the ϕ probes on Σ and *v*P later in the analysis).

(9) *Derivation of object scrambling in NGT*



(10) *Derivation of center-embedding in NGT*



Neither object scrambling nor center-embedding are allowed in propositional complements. In the current analysis, this is a direct consequence of the embedded clause being large enough to project its own ΣP. The embedded object is thus stranded inside the embedded clause because its features get checked against the embedded ΣP, hence no object scrambling in the propositional complements.

[5] Wurmbrand and Lohninger (2023) categorize complements of *want* as *Situations* rather than *Events* on the semantic ground, i.e., *want*-complements featuring their own time and world parameters. Yet, in our data, WANT in NGT seems to pattern together with *Event*-introducing predicates TRY, CAN and FORGET and therefore is analyzed here as being as small as *v*P.

Technically, nothing in the analysis so far excludes the center-embedding in the propositional complement.The propositional matrix clause is also expected to contain ΣP with a ϕ probe on it. Yet, it fails to license the center-embedding. Following Geraci and Aristodemo (2016), we suggest that proportional complements are too "heavy" processing-wise to occupy the middle-field of the clause, hence the unacceptability of such constructions. Note that the high processing cost of the centrally embedded clauses relates to the purely structural complexity of *Propositions* vis-à-vis *Situations/Events* since lexicon-wise the respective stimuli are of the same length.

While adopting the notion of structural weight as a solution for the lack of center-embedding in propositional complements, the present account diverges from the analysis of center-embedding in control clauses in LIS in Geraci and Aristodemo (2016), where the rigid SOV basic word order in LIS is taken as a starting point. Geraci and Aristodemo (2016) further suggest that all complement clauses in LIS are base-generated in the preverbal object position but propositional complements are too heavy with respect to the processing and hence are extraposed to the sentence-final position. While working for LIS, this line of analysis does not appear to be a viable solution for NGT, since simple sentences in NGT, unlike LIS, are reported to have a flexible SOV/SVO word order (Klomp 2021). In fact, we hypothesize that at least in NGT complement clauses, the sentential objects merge in postverbal position. The justification for this comes from object scrambling, which, unless SVO order is assumed, would not allow for a unified account of all three word orders.

5.2 Untangling variation

So far, we uniformly derived three examined word order configurations in control clause and suggested a mechanism reducing the word order possibilities in propositional complements to only one. Now, we return to the variation in word order preferences across signers in control clauses and lack thereof in propositional complements. In so doing, we postulate that the observed idiolectal variation can be accounted for within a microparametric approach (Borer 1984). We thus treat Pattern 1-4 as individual grammars, whose differences can be derived my calibrating the parametric values. Starting from the variation in control clauses, the first parameter relates to the notion of *feature strength* (Chomsky and Lasnik 1993, Roberts and Roussou 2003). Let us postulate that ΣP has a ϕ probe as already illustrated in (9) and (10) above. At this point, the ϕ nature of the probe does not seem to be sufficiently motivated, but we will come back to this later in the analysis. In terms of feature strength, we stipulate that the ϕ probe on ΣP can either be *strong* (coded as $u\phi$*) and, therefore, require locality for feature checking, or it can be weak ($u\phi$ without a star), meaning that it can check its features at a distance. The weak ϕ probe on ΣP is then responsible for the acceptability of sentence-final word order for signers in Pattern 1 and Pattern 2 as outlined in Table 1. In Patterns 3 and 4, the strong probe triggers the movement of the nominal object or of the object clause.

The next step is to identify the parameter that brings about the opposition between object scrambling and center-embedding. Here, we operate on the ϕ probe on the embedded *v*P. Recall that the embedded predicates in our experiment are non-agreeing, hence no overt subject or object agreement is involved. Yet, we suggest that the ϕ probe on *v*P may still

interact with the features of the object with no consequence for the morphological form of the verb (see Oomen (2020) for covert verbal agreement in SLs). Thus *v*P can either value its probe against the embedded object (*v*P[*uϕ*: **X**]) or it can assume a default feature value (*v*P[*uϕ*: DFLT]). As far as non-agreeing predicates are concerned, none of these options would induce a derivation clash since the phonological form of the sign remains the same. However, the value of *uϕ* on *v*P does influence the word order. If the embedded *v*P[*uϕ*:_] is properly valued, it becomes a goal for the matrix ΣP[*uϕ*:_] inducing center-embedding and preventing object scrambling due to an intervention effect. Following the same logic, if the embedded *v*P assumes the default value (i.e., *v*P[*uϕ*: DFLT]), it neither acts as an intervener for the matrix ΣP[*uϕ*:_] nor it can satisfy the matrix ΣP[*uϕ*:_], ergo object scrambling.

Thus far, we established two binary microparameters that derive the word order variation in control clauses: (i) feature strength on the ΣP and (ii) probe valuation on the embedded *v*P. We now turn to Patterns 1-4. The weak ΣP[*uϕ*:_] straightforwardly derives the sentence-final word order regardless of the *ϕ* value on *v*P – in either case no movement is necessary, which surfaces as a light preference for the sentence-final word order in Pattern 1. The strong ΣP[*uϕ**:_] in combination with *v*P[*uϕ*: **X**] derives a strong preference for center-embedding, i.e., Pattern 3. However, Patterns 2 and 4 call for additional stipulations since these patterns equally allow for multiple word orders. Note also that the pattern is either sentence-final + object scrambling or object scrambling + center-embedding but never sentence-final + center-embedding. In order to capture this, we suggest that both binary parameter can be optional within one individual grammatical pattern. Thus the optionally strong ΣP[*uϕ*$^{(*)}$:_] in combination with the embedded *v*P[*uϕ*: DFLT] derives an alternating sentence-final / object scrambling word order, while strong matrix ΣP[*uϕ**:_] + optionally valued *v*P[*uϕ*: **X**/DFLT] derive the combination of the center-embedding and object scrambling. The lattice for the microparametric variation is thus schematised in Table 2:

Pattern 1: sentence-final	**Pattern 2: sentence-final + scrambling**
ΣP [*uϕ:*_]	ΣP[*uϕ*$^{(*)}$*:*_]
*v*P[*uϕ:* **X** /DFLT]	*v*P[*uϕ:* DFLT]
Pattern 3: center-embedding	**Pattern 4: center-embedding + scrambling**
ΣP[*uϕ*:*_]	ΣP[*uϕ*:*_]
*v*P[*uϕ:***X**]	*v*P[*uϕ:* **X** / DFLT]

Table 2: Microparametric variation in control clauses in NGT

We are now left with the task of relating the suggested parameters to the propositional complements, where no variation in judgments is observed. Assuming that propositional complements have their own embedded ΣP, any combination of parametric values discussed above is obscured. Thus, regardless of the feature strength in ΣP or the value of the *v*P[*uϕ*:_], neither can the object move out of the embedded clause nor can the embedded clause move for the reasons explained in the preceding section.

6. Conclusion

The results suggest that NGT patterns together with LIS and TİD in differentiating control clauses (*Events* and *Situations*) from full complements of attitude predicates (*Propositions*). All three SLs mark *Propositions* as less integrated/transparent, thereby supporting the predictions of the ICH and thus demonstrating its modality-independent nature. What makes NGT stand out is yet another word order available in control clauses, i.e., object scrambling.[6] This difference between complementation in NGT on one side and LIS and TİD on the other highlights the urgency of typological research into SL complementation, while also drawing an interesting parallel with spoken languages that mark control in a similar way, e.g., Serbo-Croation and other Balkan, Slavic and Germanic languages.

In addition, this study foregrounds the role of language-internal variation by identifying four coexisting patterns in control clauses in NGT. The formal analysis suggested above is capable of deriving all four patterns by adjusting two microparameters: the feature strength in the matrix ΣP and feature valuation in the embedded *v*P. Unlike most contemporary literature on microparametric variation, however, this study is concerned with a specific type of variation, namely one which does not seem to be conditioned by any sociolinguistic factors. Such idiolectal variation seems not to be uncommon in SLs (Napoli and Sutton-Spence 2014, Lucas and Bayley 2011) as well as in spoken languages with similar sociolinguistic profiles, i.e. young and contact languages (Aboh 2020). Taking into account this type of variation in studying SLs (and spoken languages for that matter) is critical from the perspective of research methods (i.e., experimental design and recruitment) but also from the theoretical point of view, thus spotlighting the question of how different language systems interact across languages and on the level of individual language users.

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[6] Loos (2017) observed a similar word order configuration in resultative control and raising constructions in German SL alongside with center-embedding word order.

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