Fixed and NOT free: Revisiting the order of the main clausal constituents in Finnish Sign Language from a corpus perspective

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Abstract

This squib investigates the order of the main clausal constituents in verbal-centered clauses in Finnish Sign Language (FinSL). With the help of the frequencies calculated from narratives included in the recently compiled FinSL corpus, the study suggests that the order of the main constituents in FinSL clauses is more fixed than has been claimed in a previous study. With intransitive and transitive clauses with a Type 1 or Type 2 verbal predicate, the study shows that their internal structures strongly favor the orders SV and AVP, respectively, although both S/A and P core arguments are often left lexically unexpressed. Concerning Type 3 verbal predicates, the study shows that they most typically form simple sentences on their own and that if they appear with any additional nominal material, this material tends to precede the verbal.

Keywords: constituent order, intransitive clause, transitive clause, Finnish Sign Language

1 Introduction

Previous work (Jantunen 2008) on the order of the main constituents in Finnish Sign Language (FinSL) clauses has targeted transitive structures and suggested that they are organized according to the "fixed and free" principle: the A argument (the primary core argument of a transitive clause) always precedes the V (the verbal), and the order of all three main constituents is either AVP, APV or PAV (P refers to the secondary core argument). Empirically, this result was mainly based on elicited data which – as the author admitted at the time – was too narrow to allow for any

numerical generalizations about the typicality of the three orders. Now, for the first time, the recently compiled corpus of FinSL makes possible the investigation of the constituent order with reference to frequencies. Consequently, in this squib we will revisit the prevailing "fixed and free" view of FinSL constituent order and specify and, if needed, correct it with the help of numerical information. Moreover, as the corpus now makes possible the investigation of the constituent order in other kinds of structures, we will extend the discussion to cover also intransitive clauses.

2   Research material and its processing

All the results in the present paper concerning the order of the main clausal constituents are based on a sample of video data extracted from a larger body of material constituting the FinSL corpus (Jantunen et al. 2016; Salonen et al. 2016). In practice, this sample refers to the ten signed re-tellings of the stories *Snowman* (5 re-tellings) and *Frog, where are you?* (5 re-tellings) elicited in 2013 from ten native FinSL signers (6 female, 4 male; ages between 20 and 60 years) with the help of text-less picture books by Briggs (1978) and Mayer (1969), respectively. In the recordings, the signers worked in pairs in a dialogue setting in which the recording set-up consisted of 6 cameras directed toward the signers from different angles. The task of the signers was to look at the book, memorize the story, then put the book away and tell the story to the addressee. The combined duration of the signed stories in the sample is 37 minutes and 56 seconds.

The sample has been annotated on various levels (see Jantunen et al. 2016) in ELAN (Crasborn & Sloetjes 2008; Max Planck Institute for Psycholinguistics[1]) by three annotators with native competence in FinSL. Of the different annotations, the most crucial ones for the present study are those that identify the signs and the structures of the verbal-centered clauses. The sample includes altogether 3379 sign tokens and 933 structurally annotated verbal-centered clauses.

Each sign has been annotated for a gloss and a lexico-grammatical category. In terms of the lexico-grammatical category, a sign can be a nominal (marked with the prefix *n* in front of the sign gloss) or a verbal (*v*), or be overtly unspecified in terms of category (*x*). The category has been

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[1] The Language Archive, Nijmegen, the Netherlands: see http://tla.mpi.nl/tools/tla-tools/elan.

indicated with all signs except with those that are glossed as pointings or ad hoc gestures: for the purpose of future research, these have been treated as semantically and formally independent units and annotated without any information prefixed to their glosses. In the sample, the number of nominal signs is 743, the number of verbal signs is 1300 and the number of signs marked as unspecified is 852. Thus, as the total number of signs in the sample marked for some category is 2895, the total number of signs identified as pointings and ad hoc gestures is 484.

In FinSL research, the lexico-grammatical categories nominal and verbal have been defined by semantic and grammatical criteria (Jantunen 2010) and they can both be further divided into subclasses. Of these, the three subclasses of verbal signs – Type 1, 2 and 3 verbals (resembling the plain, indicating and depictive verbs of Liddell 2003, respectively; see Jantunen 2010 for a full discussion of the differences) – are the most researched ones and crucial also for the present study. Type 1 verbals (e.g. THINK, PLAY) are formationally the most fixed type, with a relatively straightforward form–meaning connection. Type 2 and 3 verbals, on the other hand, are groups of signs which include gradient features (i.e. a gestural component) as part of their structure. In Type 2 verbals (e.g. LOOK-AT, TAKE) – as, for example, in pointings – the gestural component is manifested through the directionality of the movement of the hand: in order to understand the meaning of these signs, the addressee must make a semantic association between the morphological content of the sign and the location toward which the sign is directed (see Liddell 2003). In Type 3 verbals (e.g. CL-V-fall-down 'a two-legged animate object falls down from a high place'), the gestural component refers to the gestural properties inherently present in the placement, orientation and movement parameters of the sign structure. Together, these features enable Type 3 verbals to iconically depict events involving autonomous or caused motion taking place in different locations. Type 3 verbals also contain a handshape (e.g. a whole-entity or a handling handshape) that is analyzed as a nominal classifier (CL) morpheme, which refers to the entities present in the event (e.g. V, the two-finger "victory" whole-entity handshape, refers to the animate two-legged objects such as 'the boy'). In the annotation of verbal signs, Type 3 verbals have been distinguished from the other types (with the prefix k in the gloss).

The 933 verbal-centered clauses that have been annotated for their syntactic structure constitute 63% of all of the clauses produced by the ten signers (n = 1477). In the annotation work, the notion of clause was understood in the basic sense of Van Valin & LaPolla's (1997) *Role and Reference Grammar* (RRG), and all verbal-centered clauses were identified by looking for verbal signs that function as a predicate (V) on the clause level. Once the predicate was identified, its immediate context was then analyzed and annotated in terms of possible core arguments: S, the single core argument of an intransitive clause (with semantically monovalent verbal predicates), and A and P, the primary and secondary core arguments of a transitive clause (predicates with valency more than one), respectively.[2] The analysis also indicated the cases where core arguments were not expressed lexically. This was done by placing the core argument symbol(s) in parentheses (for more on argument ellipsis, see Jantunen 2013).

The prevailing theory of verbal-centered clauses in FinSL, presented first in Jantunen (2008) and followed in this work, treats clauses formed around Type 1 and 2 verbals differently from clauses formed around Type 3 verbals. In the prototype of the clause with a Type 1 or 2 verbal as its predicate, the predicate and the core argument(s) are all free lexical or semi-lexical units (e.g. lexical nominals, pointings). In the prototype of the clause with a Type 3 verbal as its predicate, on the other hand, the core arguments are analyzed as being fused into the predicate (cf. the phenomenon of head-marking; Nichols 1986; Jantunen 2008). In practice, the core arguments are represented by the entity-referring classifier handshape(s) of the Type 3 verbal. A consequence of this analysis is that Type 3 verbals are well-formed clauses – and simple sentences – on their own without any additional lexical material. A Type 3 verbal can concatenate with nominal material in a sentence but this material is not counted as core internal: following the RRG view of the clause, it is analyzed either as a clause-internal periphery (e.g. material with adverbial or oblique function) or clause-external left or right-detached frame-setting material (e.g. a topic) (Jantunen 2013; see §4).

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[2] Practically all transitive clauses in the sample had a bivalent verbal predicate. The total number of trivalent predicates in the sample was 13. The third core argument was annotated with the symbol E.

In the annotation of the verbal-centered clauses, a distinction was made between clauses that have a Type 1 or 2 verbal as their predicate and those that have a Type 3 verbal as their predicate. In the former case, the core argument symbols were written in upper case letters disconnected from the predicate symbol (e.g. *S V*, *A V P*), whereas in the latter case the symbols were written in lower case together with the predicate symbol (e.g. *sV*, *aVp*). Making the distinction is important because the investigation of the main constituent order makes sense only with respect to clauses that have a Type 1 or 2 verbal as their predicate and free units as their core arguments.

A part of the above described data is openly accessible in a slightly reduced format via the LAT online service of the FIN-CLARIN's Language Bank of Finland[3] (*Kielipankki* in Finnish).

3   The order of the main constituents in clauses with a Type 1 and 2 predicate

The sample of 933 verbal-centered clauses comprises 712 clauses (76%) that have a Type 1 or 2 verbal predicate and 221 clauses (24%) that have a Type 3 verbal predicate. In this section (3), we will deal with the clauses with a Type 1 or 2 predicate (for structures built around Type 3 predicates, see §4).

3.1   Intransitive clauses

The sample contains 331 intransitive clauses that have either a Type 1 or Type 2 verbal as their predicate. However, in only 119 of these clauses (36%) is the S argument expressed overtly (i.e. the clauses are structurally full), whereas 212 clauses (64%) have no overtly expressed S (the transitivity status of structurally incomplete clauses has been decided on the basis of context and the semantic valency of the predicate). Consequently, the data suggests a strong trend towards omission of the S argument in intransitive FinSL clauses with a Type 1 or Type 2 predicate (Jantunen 2013).

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[3] See http://urn.fi/urn:nbn:fi:lb-1001100113005.

According to the annotated data, the preferred constituent order of FinSL intransitive clauses is SV. In clauses that consisted only of S and V and no other material (n = 34), the order was SV in all cases. Two examples of such clauses are given in (1). In all of the numbered examples that follow, the first row always presents the glosses, the second row the syntactic annotation and the third row the translation into English.

(1)   a. n_BOY   v_SLEEP
           S   V
           'The boy sleeps.'

     b. n_SNOWMAN v_WAKE-UP
           S   V
           'The snowman wakes up.'

In clauses that also had other material before, between or after the main constituents, the order was SV in 116 cases, that is, in 97% of the analyzable clauses. Two examples of these are given in (2).

(2)   a. n_MORNING   n_BOY   v_WAKE-UP
                     S   V
           'The boy woke up in the morning.'

     b. x_BECAUSE   n_SNOWMAN x_SELF   v_MELT-DOWN
                     S   V
           '...because the snowman himself would melt down.'

The three clauses with VS order in the data were all existential or locative intransitive expressions (e.g. x_THERE [v_EXIST n_BOY] 'The boy is there'; for existential and locative expressions in FinSL, see De Weerdt 2016).

3.2 Transitive clauses

The total number of transitive clauses with a Type 1 or Type 2 verbal predicate in the syntactically annotated sample is 381. However, as was the case with intransitive clauses, only in a small subset of transitive clauses were all the nominal main constituents (A and P) expressed overtly: the number of such clauses was 56 (15%). Conversely, altogether 325

transitive clauses (85%) had no overtly expressed A and/or P core argument(s). Consequently, the omission of the lexical core argument(s) is a strong trend also in transitive FinSL clauses with a Type 1 and 2 predicate (Jantunen 2013).[4]

A closer inspection of argument omission in transitive clauses reveals that the phenomenon has most effect on the A argument: 79% of A arguments (n = 299) were omitted in the data. However, 39% of P arguments (n = 150) were omitted too. It is also important to note that 33% of the transitive clauses (n = 126) consisted only of a verbal predicate without any major nominal elements.

Concerning the order of A, P and V in the 56 syntactically complete transitive clauses, the preferred order in the sample was clearly AVP: 48 instances (86%) of the clauses had this particular order. The orders APV and PAV were also identified in the data (Jantunen 2008). However, the total number of APV orders was five and that of PAV orders only three. Examples of all three orders are given in (3).

(3)   a. n_BOY   v_MAKE   n_SNOWMAN
          A   V   P
          'The boy makes a snowman.'

    b. n_BOY   n_SNOWMAN v_WAVE
          A   P   V
          'The boy waves to the snowman.'

    c. POINT:that   n_BOY   v_REMEMBER
          P   A   V
          'That (is what) the boy remembers.'

The dominance of the order AVP over the two other orders (APV and PAV) is further strengthened when we look at the relative order of V and P in clauses in which they are present. For this purpose, in order to guarantee comparability, we used a reduced sample of 216 clauses from the total of 231 clauses with V and P. In this comparison, V precedes P in 186 cases (86%; see 4a–b) while P comes before V in only 30 cases (14%; see 4c). For example (in 4b, the slash marks a pause that detaches the frame-setting topic from the rest of the comment clause from which the A argument has

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[4] Of the 13 clauses with a trivalent predicate, only 6 had an overt third argument (E).

been omitted; the clause in 4c is also structurally incomplete in terms of its A argument):

(4) a. POINT:you   v_SEE   n_MY-OWN   n_WORLD
         A   V   [P   ]
         'You (will) see my world.'

     b. n_WINDOW / v_LOOK-AT   n_SNOWMAN
                      V   P
         'In the window, [the boy] looks at the snowman.'

     c. n_FRONT-DOOR   v_OPEN-DOOR
         P   V
         '[The boy] opens the front door.'

In the data, A always precedes V, which is in accordance with the original claim made by Jantunen (2008) that the VA order is not found in declarative FinSL clauses. It should be emphasized that the annotators of the data were instructed not to respect this claim and to use the order VA if they encountered it in the data.[5]

3.3 Interim discussion

Previous work on FinSL has argued (Jantunen 2013) that, because of the frequent omission of core arguments (attested also in other sign languages, e.g. Wulf et al. 2002), FinSL can be considered a discourse-oriented language. The essence of the argument is based on McShane (2005), according to whom ellipsis is very frequent in discourse-oriented languages. The numbers presented in the present work provide further evidence for the argument concerning FinSL: of all the clauses with a Type 1 or 2 verbal predicate, the clear majority (n = 537; 75%) are syntactically incomplete.

The most frequent and unmarked constituent order of simple declarative transitive clauses has been used to identify the so-called basic order of elements in the world's languages. From the present data, this

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[5] In clauses with a trivalent predicate, E came after V. The order between P and E could not be determined because of the very low number of tokens.

order in FinSL would be AVP. In general, the order AVP or equivalent has been found to have a fairly dominant role in all sign languages, though the order APV has been shown to exist as well (e.g. Liddell 2003 for American Sign Language; Johnston & Schembri 2007 for Australian Sign Language; and Kimmelman 2012 for Russian Sign Language, to name just a few). The order AVP, together with APV, dominates also outside the domain of sign languages: according to the *WALS* data provided by Dryer & Haspelmath (2013), these two orders are the ones most commonly found in the world's spoken languages.

4 The structure of simple sentences forming around a Type 3 verbal predicate

As explained in §2, Type 3 verbals are here treated as well-formed clauses on their own. The analysis derives on the one hand from the fact that the classifier handshape or handshapes included in these verbals can be analyzed as nominal core arguments of the predicate in the same way as certain bound morphemes fused into the predicates can be analyzed as core arguments in strong head-marking languages such as Navajo and Trotzil (Nichols 1986; Jantunen 2008). On the other hand, the analysis of Type 3 verbals as full clauses derives from the fact that the meaning of Type 3 verbals is typically very clause-like, that is, it covers the whole event. Due to the semantics of classifiers, however, there is often some vagueness in the meaning of such verbals/clauses. For this reason, Type 3 verbals may be preceded by a nominal phrase whose function is to set an interpretative framework for the main predication (here, the Type 3 verbal). In such structures, the Type 3 verbal is always sentence final (Jantunen 2008). However, although sentence-internal material typically precedes Type 3 verbals, these verbals may also be followed by peripheral (e.g. adverbial or oblique-like) material that describes the location or even the goal of the depicted motion event. Such material is counted as clause-internal in the present framework.

The two examples in (5) demonstrate two different structures involving Type 3 verbals. In (5a), the Type 3 verbal forms the clause (and, consequently, a simple sentence) on its own. In (5b), the same Type 3 verbal occurs with additional clause-external material (a frame-setting topic on the left) and peripheral material (the goal setting oblique nominal on the

right) which, together with the verbal, constitute a simple sentence. In (5b), the single quotation mark (') indicates a non-durational break in prosody (typically involving at least an eye blink).

(5)   a. v_k_CL-V-fall-downwards
          sV
          'A two-legged animate object falls down from a high place.'

        b. n_BOY /   v_k_CL-V-fall-downwards   '   n_RIVER
           TOP   sV   periphery
           'The boy falls down from a high place into the river.'

Table 1 summarizes the statistics concerning the order of elements in simple sentences containing a clausal Type 3 verbal predicate (n = 221) in the sample data.

Table 1. The order of elements in simple sentences formed around a Type 3 verbal predicate in the data

Sentence structure	n	%
only a Type-3-verbal	139	63
element + Type-3-verbal	71	32
Type-3-verbal + element	11	5
element + Type-3-verbal + element	9	4

Table 1 shows that, in the data, Type 3 verbals most typically form a sentence on their own, without any additional lexical material (63%). If a Type 3 verbal is combined with lexical material within a sentence, then this material precedes the verbal (32%). Material following the verbal is very infrequent in the data, as are structurally full manifestations of simple sentences with Type 3 verbal predicates.

Prototypically, an element or elements surrounding Type 3 verbals are separated from the verbal by prosodic breaks. In general, breaks before the Type 3 verbal tend to be more prominent (e.g. a pause) than breaks after the verbal (e.g. often only an eye blink). However, in the data, there are also constituent borders inside the sentences containing Type 3 verbals which cannot be assigned any prosodic break. This is at least partly due to coarticulation and to the fact that prosody is constantly used to bind together larger bits of discourse in FinSL (Jantunen 2016).

Of the 221 Type 3 verbals, 54% have been annotated as intransitive and 46% as transitive. However, it must be noted that the analysis of Type

3 verbals in terms of their transitivity was considered to be very difficult by the annotators: the verbals were not easily categorized in these terms. This, it is assumed, is because of the gestural component of the verbals, which causes both their structure and meaning to appear as highly gradient. More work on the transitivity of Type 3 verbals is called for.

5 Conclusions

The study reported in this squib has investigated, for the first time with the help of corpus frequencies, the order of the main clausal constituents in verbal-centered clauses in FinSL. In terms of intransitive and transitive clauses with a Type 1 and 2 verbal predicate, the study has shown that their internal structures strongly favor the orders SV and AVP, respectively, although other structures do exist and core arguments are often left lexically unexpressed. Concerning Type 3 verbal predicates, the study has shown that they normally form simple sentences on their own and that if they appear with any additional nominal material, this material tends to precede the verbal. We conclude that, on the basis of the frequencies drawn from the present data, the order of the main constituents in FinSL clauses appears to be more fixed than was previously thought and *not* as "free" as was characterized by Jantunen (2008).

Acknowledgments

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