

**This is an electronic reprint of the original article.
This reprint *may differ* from the original in pagination and typographic detail.**

Author(s): Jantunen, Tommi

Title: Clausal coordination in Finnish Sign Language

Year: 2016

Version:

Please cite the original version:

Jantunen, T. (2016). Clausal coordination in Finnish Sign Language. *Studies in Language*, 40(1), 204-234. <https://doi.org/10.1075/sl.40.1.07jan>

All material supplied via JYX is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of the repository collections is not permitted, except that material may be duplicated by you for your research use or educational purposes in electronic or print form. You must obtain permission for any other use. Electronic or print copies may not be offered, whether for sale or otherwise to anyone who is not an authorised user.

When citing, please use the published article: Jantunen, Tommi (2016). Clausal coordination in Finnish Sign Language. *Studies in Language* 40:1, 204-234. DOI: 10.1075/sl.40.1.07jan. The published article is under copyright and the publisher should be contacted for permission to re-use or reprint the material in any form.

CLAUSAL COORDINATION IN FINNISH SIGN LANGUAGE

Tommi Jantunen, University of Jyväskylä, tommi.j.jantunen@jyu.fi

Author's contact information:

Tommi Jantunen
University of Jyväskylä
Department of Languages
Sign Language Centre
P.O. Box 35
FI-40014 University of Jyväskylä
Finland

E-mail: tommi.j.jantunen@jyu.fi

1 **Abstract**

2

3 This paper deals with the coordination of clauses in Finnish Sign Language (FinSL).
4 Building on conversational data, the paper first shows that linking in conjunctive
5 coordination in FinSL is primarily asyndetic, whereas in adversative and disjunctive
6 coordination FinSL prefers syndetic linking. Secondly, the paper investigates the
7 nonmanual prosody of coordination: nonmanual activity is shown both to mark the
8 juncture of the coordinand clauses and to draw their contours. Finally, the paper
9 addresses certain forms of clausal coordination in FinSL that are sign language-
10 specific. It is suggested that the sign language-specific properties of coordination are
11 caused both by the fact that signers can use two manual articulators in the production
12 of sentences, and by the pervasive iconicity of sign language structure.

13 **Key words:** coordination, clause, prosody, nonmanual element, modality-difference,
14 Finnish Sign Language

15

16 **1. Introduction**

17

18 This paper deals with **clausal coordination** – the linking of two (or more) clauses of
19 the same rank (Haspelmath 2007) – in the majority sign language of Finland, Finnish
20 Sign Language (FinSL). FinSL has approximately 3000 native users, in addition to
21 which circa 6000-9000 people use FinSL as a second language (Takkinen et al.
22 forthcoming). There is also a small minority sign language in Finland, Finland-
23 Swedish Sign Language (FinSSL). FinSSL is used in the coastal areas of Finland by
24 circa 150 people with mainly Swedish-speaking family and school backgrounds
25 (Hoyer 2012). Historically, both FinSL and FinSSL are related to Swedish Sign

26 Language (SSL), which was brought to Finland in the middle of the 19th century by
27 the founder of Finnish Deaf education, Carl Oscar Malm. Today FinSL and SSL are
28 not mutually intelligible, but due to family background and language contacts,
29 FinSSL and SSL users can in fact understand each other rather easily (Hoyer 2012).

30 Complex sentences of any kind have not been previously investigated in FinSL,
31 in which prior syntactic work has been done on simple equative sentences (Jantunen
32 2007), transitive clauses (Jantunen 2008), topic-comment structures (Jantunen 2009),
33 and clause-internal ellipsis (Jantunen 2013). However, internationally, issues relating
34 to complex sentences in sign languages have been addressed at least since Liddell
35 (1980), and the most recent overviews on the subject are Tang and Lau (2012) and
36 Velupillai (2012: 339-342). A rather salient feature of the international research
37 conducted so far on the complex sentences of sign languages is that it has focused
38 mainly on subordinate structures, particularly on relative clauses. Explicit work on
39 coordinate structures has been relatively marginal, a recent example being Davidson
40 (2013) for American Sign Language (ASL) (see also, for example, Johnston &
41 Schembri 2007 and Hodge & Johnston 2013 for Australian Sign Language, Auslan).
42

43 *1.1 Theoretical background and the organization of the paper*

44

45 As there has been no previous work on clausal coordination in FinSL, this paper first
46 discusses (Section 4) the basic structure of the three most recognized types of
47 coordinated clauses: **conjunctively** ('and'), **adversatively** ('but'), and **disjunctively**
48 ('or') coordinated clauses (Haspelmath 2004, 2007). The prototypes of these
49 constructions are highly **symmetric**, that is, the clauses combined are, in the standard
50 case, both autonomous and isolated. Consequently, the main discussion on coordinate

51 clauses concerns the explicitness of their linkage. In traditional terms, this
52 corresponds to answering the question whether the coordination is manifested
53 **syndetically** (i.e. with a coordinator) or **asyndetically** (i.e. without a coordinator)
54 (Gast & Diessel 2012).

55 Work on clause linkage has proposed that coordination may be considered to
56 manifest itself also **asymmetrically**, that is, so that only one of the coordinands can
57 stand alone as an independent unit (e.g. Bril 2010; Reintges 2010). On the level of
58 clauses, the notion of asymmetric coordination refers, in practice, to the clause chain
59 construction found, for instance, in the languages of Papua New Guinea, Australia,
60 and the Americas (Velupillai 2012). In **clause chaining**, typically more than two
61 clauses are combined without any overt syntactic marker, and typically only the last
62 clause in the string is inflected for TMA (Velupillai 2012). However, clause chaining
63 as an instance of asymmetric coordination is still the subject of some theoretical
64 debate (Van Valin 2005; Bickel 2010; Foley 2010; Gast & Diessel 2012), mainly
65 because the phenomenon can also be seen as a manifestation of **cosubordination**, an
66 intermediate linking strategy between coordination and subordination (Van Valin &
67 LaPolla 1997; Butler 2003; Van Valin 2005; Velupillai 2012; Gast & Diessel 2012),
68 or even as a **complementation strategy**, an alternative way of building subordinate-
69 like complement constructions (e.g. Dixon 2006). Due to this theoretical ambiguity,
70 and because the present work is the first attempt to address coordination in FinSL,
71 possible clause chains and, more generally, also other forms of asymmetric
72 coordination will not be explicitly discussed in the present paper.

73 Concerning sign languages, **nonmanual prosody** – the features in signing
74 manifested by the activity of the body, head, and the parts of the face (Sandler 2012)
75 – has been argued to play an important role in the formation of complex sentences.

76 Most notably, it has been argued that nonmanual prosody marks especially the
77 boundary between linked clauses (e.g. Tang & Lau 2012). However, the exact nature
78 of this marking in coordination is not fully known and will be discussed for FinSL in
79 Section 5. The discussion in this section will also address the role that nonmanual
80 elements – the head in particular – have in marking the prosodic **contours**, the
81 domains from the perspective of their shape, of coordinated clauses.

82 The present study operates on the principle that the core phenomena concerning
83 clausal coordination in FinSL can be described and analyzed using general notions
84 developed and employed in the analysis of spoken languages (for a slightly alternative
85 view, see Hodge & Johnston 2013). However, sign languages are different from
86 spoken languages in terms of their physical manifestation and this fact brings up, by
87 necessity, certain **modality differences** between the two types of languages. Some of
88 these will be addressed in Section 6 from the perspective of coordination in FinSL. In
89 general, we believe that the discussion of coordinate constructions that are not
90 detectable on the basis of research into spoken languages only adds positively to our
91 understanding of the cross-linguistic nature of clausal coordination.

92 In terms of the general theoretical underpinning, the present study is tied, like
93 previous work on FinSL syntax, to the typologically motivated **functional** framework.
94 More specifically, the study is grounded on the principles of the Basic Linguistic
95 Theory (Dryer 2001, 2006; Dixon 2010), which is an informal (as opposed to formal)
96 **descriptive** framework widely used by linguists to describe and compare the
97 grammars of individual languages. Concerning typological theory in particular, the
98 study approaches clausal coordination from a superficially non-parametric, traditional
99 perspective (e.g. Haspelmath 2004, 2007; Velupillai 2012). However, this is not to
100 say that recent advances in parameter-based approaches to clause-linking have been

101 neglected. On the contrary, the influence of the parameter-approach on the present
102 study is seen most clearly in the way the whole notion of clausal coordination is
103 conceptualized: the paper assumes that clausal coordination is not a holistic and easily
104 categorizable phenomenon, but a gradual one (Gast & Diessel 2012).

105

106 *1.2 On the data and methodology*

107

108 The present study uses the widest collection of annotated video material and other
109 data so far available for FinSL. The main video material comprises circa 45 minutes
110 of edited video recordings and includes **continuous signing** from altogether 5 native
111 FinSL signers (2 male, 3 female; ages between 20 and 60 years). The material was
112 recorded in a studio with multiple cameras and in a dialogue-like setting in which
113 each signer either told the other signer a story about a cartoon (*The Snowman*, or
114 *Frog, Where Are You?*), or told the other signer about his/her hobby or other interests
115 (e.g. ice hockey, languages, their studies etc.) (for more details, see Jantunen et al.
116 2012 and Puupponen et al. 2014). All of the material has been appended with
117 annotations for signs and with sentence-level translations in ELAN (Crasborn &
118 Sloetjes 2008). In order to identify instances of clausal coordination, a team of
119 researchers went through the material several times and picked out a representative
120 selection of coordinate examples (n=50). These examples were then discussed for
121 their grammaticality and variability with native signers. However, no systematic
122 elicitation was conducted.

123 An important feature of the main video material is that numerical data on the
124 head movements of the signers has been added to a 40 minute stretch of it. This has
125 been achieved with the help of **computer-vision** technology, implemented in the

126 *SLMotion* software specifically developed for the purpose of analyzing the motion of
127 different articulators in sign language videos (Karppa et. al 2014). In particular, the
128 computer vision technology was used to calculate the yaw (the turning movements of
129 the head), pitch (the nodding movements of the head), and roll (the tilting movements
130 of the head) angles of the heads of the signers appearing on the video (Luzardo et al.
131 2013). The same technology has also been used to estimate the amount of horizontal
132 (x-axis) and vertical (y-axis) motion of the centroids of the signers' heads.

133 The computer-vision based data on head movements is used to support the
134 investigation of the prosody of coordinated clauses in FinSL (Section 5). To
135 strengthen the analysis of nonmanual prosody even further, the computer-vision
136 processed material has also been annotated for linguistically significant head
137 movements by an experienced research assistant. The types of head movement
138 identified in this task were the nod, thrust, pull, turn, and tilt together, with their
139 reduced (cf. chin-up, chin-down) and repetitive variants (cf. nodding, headshake,
140 tilting).

141 Concerning the data, two notes are in order. First, a small portion of the main
142 video material (ca. 5 minutes) was recorded with Motion Capture (mocap) technology
143 (Jantunen et al. 2012). However, although some examples and figures in this paper
144 show mocap related labels and equipment, the numerical mocap data has not been
145 exploited in the present study. Second, due to its relatively small quantity, all of the
146 data in this paper (also the computer-vision based *SLMotion* data) has been
147 approached qualitatively. Consequently, the present study does not include, for
148 example, any statistical or number-based generalizations.

149 As stated in Section 1.1, the discussion on clausal coordination in FinSL begins
150 in Section 4. Before that, Sections 2 and 3 introduce the notion of clausal coordination
151 and some basics of FinSL syntax in more detail.

152

153 **2. Clausal coordination from the typological perspective**

154

155 *2.1 The basics of clausal coordination*

156

157 Haspelmath (2007: 1) defines **coordination** generally as a term that "refers to
158 syntactic constructions in which two or more units of the same type are combined into
159 a larger unit and still have the same semantic relations with other surrounding
160 elements." He continues that these units – **coordinands** – may be words (e.g. verbs),
161 phrases (e.g. noun phrases) or full clauses or sentences. In this paper, coordination is
162 understood in the sense of Haspelmath and discussed explicitly only on the sentential
163 level.

164 The three main semantically based types of coordination found in the world's
165 languages are conjunctive ('and'; cf. the semantic notion of adding), disjunctive ('or';
166 cf. the semantic notion of alternation) and adversative ('but'; cf. the semantic notion of
167 contrast) coordination (Haspelmath 2004, 2007; Velupillai 2012). These are
168 exemplified for English in (1a), (1b) and (1c), respectively.

169

- 170 (1) a. [John likes Mary] and [Mary likes John].
171 b. [Should John stay at home] or [should he go to Mary's]?
172 c. [Mary went to a store] but [John stayed at home].

173

174 Some frameworks also list **causal** coordination ('for'; cf. the semantic notion of
175 reason) as a major semantically based type of coordination (e.g. *Mary was unhappy to*
176 *see that it was raining for she had no umbrella with her*). However, cross-
177 linguistically, causal coordination is not as fixed a coordination type as the other three
178 (Haspelmath 2004, 2007; Velupillai 2012) and it is thus not discussed in the present
179 paper.

180 Formally, as introduced in Section 1, coordination may be asyndetic or syndetic
181 (Haspelmath 2004, 2007; Velupillai 2012). In asyndetic coordination there is no overt
182 linker and the coordinands are simply juxtaposed (cf. A B). Syndetic coordination, on
183 the other hand, involves an overt linking device (coordinator, coordinating
184 **conjunction**), such as the *and*, *or*, and *but* found in Example (1). Cross-linguistically,
185 the coordinator may either precede the unit it is coordinating (e.g. A and B), or follow
186 it (e.g. A B and). In the former case, the coordinator is labeled **prepositive** while in
187 the latter case it is called **postpositive**. The coordinators may be free words or bound
188 clitics.

189 In syndetic coordination, there may be either one (e.g. A and B) or two
190 coordinators (e.g. and A and B), that is, the coordination may be either **monosyndetic**
191 or **bisyndetic**. In monosyndetic coordination, distinguishing between prepositive and
192 postpositive coordination may not be straightforward (i.e. is it A and B or A and B).
193 Clisis and prosodic information are typically used as evidence (Haspelmath 2004).

194 More than two units can also be coordinated and this is referred to as **multiple**
195 **coordination**. In multiple coordination, many languages allow coordinator omission,
196 but often the last coordinator has to be expressed. Overtly expressing the coordinator
197 in other cases may indicate emphasis or be otherwise overtly marked (Haspelmath
198 2004; Velupillai 2012).

199 Clausal coordination often involves ellipsis. A typical example of ellipsis is
200 **zero anaphora**, in which the referent mentioned in the first clause is referred back to
201 by means of zero in the second clause. Languages differ in the degree to which they
202 allow zero anaphora. In English, for example, the phenomenon is restricted in such a
203 way that it is possible to say *The man came in and saw the woman* but not *The man*
204 *came in and the woman saw* (i.e. English has an S/A pivot constraint). In Dyirbal,
205 however, the latter sentence is accepted but not the former (i.e. Dyirbal has an S/P
206 pivot) (Dixon 1994). On the other hand, in Mandarin Chinese, it is possible to use
207 both types of sentences (i.e. there is no pivot constraint), as the primary recovery
208 method of the unexpressed argument in Mandarin is, ultimately, world and contextual
209 knowledge (see Huang 2000).

210

211 ***2.2 Remarks on clausal coordination in sign languages***

212

213 According to Velupillai (2012), coordination in sign languages tends to be asyndetic,
214 that is, the coordinated units are typically simply juxtaposed without an overt linker.
215 However, some syndetic coordinated constructions can be found. For example, ASL
216 has at least two lexical items (fingerspelled o-r and the sign OR-WHICH) for the
217 expression of disjunctive coordination and, in addition to these, ASL also has a
218 general use coordinator COORD that conveys both disjunctive and conjunctive
219 linking (Davidson 2013) (for the notational conventions of sign language examples,
220 see Appendix 1; unless otherwise explicitly stated, all of the examples in the paper
221 follow these guidelines). On the other hand, in SSL, the sign PLUS (cf. Figure 2 in
222 Section 4) can be used to coordinate units conjunctively, although in general SSL
223 prefers asyndetic conjunctive linking. Overall, there seems to be a tendency that if a

224 sign language uses conjunctions, they occur most often in disjunctive and in
225 adversative coordination. Example (2) demonstrates syndetic adversative coordination
226 with the sign BUT in Auslan (Johnston & Schembri 2007: 213; original notation).

227

228 (2) k-i-m LIKE CAT BUT p-a-t PREFER DOG

229 'Kim likes cats but Pat prefers dogs.'

230

231 No properly supported claims have been made as to whether syndetic
232 coordination in sign languages is prepositive or postpositive, or (primarily)
233 monosyndetic or bisyndetic. However, the data found in the literature seems to speak
234 for prepositive monosyndetic coordination.

235 Multiple coordination is possible also in sign languages and it is primarily
236 asyndetic. However, according to Velupillai (2012), multiple items can also be
237 coordinated in a syndetic fashion with the so-called **list buoy** construction (Liddell
238 2003). In the list buoy construction, the fingers of the non-dominant hand serve as the
239 "numerical base" to which the index finger of the dominant hand points in between
240 the coordinated items/events. As each of the coordinands is preceded by a numerical
241 index, the list buoy strategy can be treated as a sign language-specific example of
242 prepositive (bi- or) **multisyndetic** coordination (cf. first A, second B, third C). An
243 example of a non-coordinatively used list buoy from FinSL is given in Figure 1.

244

245 {Figure 1 approximately here.}

246

247 An important feature of clause linking in sign languages is the use of non-
248 manual activity, usually equated with prosody (e.g. Sandler 2012; for nonmanuality in

249 general, see Pfau & Quer 2010). Concerning coordination, Davidson (2013), for
250 example, has described how items in ASL may be coordinated disjunctively and
251 conjunctively only by shifting the body slightly for each coordinated element, and
252 thus signing each of the coordinated items in a separate location in the signing space.
253 On the other hand, Tang and Lau (2012) have argued that nonmanuality is used to
254 mark especially the juncture of the coordinated clauses: according to them, the
255 boundary between linked clauses is often the domain of an extended head nod or a
256 body turn/position change, for instance, in Hong Kong Sign Language (HKSL) and in
257 ASL.

258 In general, it has been argued that the significance of nonmanual
259 activity/prosody is higher if manual markers of coordination are absent (Tang & Lau
260 2012). Interestingly, however, although an important role has been attributed to
261 nonmanuality in clause linking in sign languages, no in-depth investigations of its role
262 in clausal coordination exist in the literature.

263

264 **3. Background on simple sentences in FinSL**

265

266 ***3.1 Word classes***

267

268 On a general level, the FinSL lexicon contains four types of signs: word-like signs,
269 signs including gestural components (in the sense of Liddell 2003), emblems, and
270 pantomimic gestures. Of these, the first two can be further divided into word classes
271 while the latter two are types of gestures (Jantunen 2010). The major word classes in
272 FinSL are **nominals** and **verbals**, defined by semantic and grammatical criteria. The
273 adjective is not treated as an independent word class in FinSL research. Signs

274 denoting property are analyzed semantically and grammatically either as marginal
275 nominals or marginal verbals (Jantunen 2010).

276 The typology of FinSL verbals is relevant in a discussion of clausal structure
277 and coordination. In general, FinSL verbals are analyzed as belonging to one of three
278 main subcategories: **Type 1**, **Type 2**, and **Type 3 verbals** (Jantunen 2008, 2010,
279 2013; see also Rissanen 1998, and Liddell 2003). Type 1 verbals consist of only a
280 morphological component and are formationally the most fixed type of FinSL verbals.
281 Type 2 verbals include both a morphological and a gestural component, the latter of
282 which allows the verbals to be directed meaningfully in space in order to indicate, for
283 example, discourse participants. Morphological and gestural components are present
284 also in Type 3 verbals. In these verbals, the morphological component is a classifier
285 handshape morpheme while the gestural component functions to depict mainly
286 topographic locations.

287

288 *3.2 The structure of simple sentences*

289

290 FinSL (declarative) clauses with a Type 1 or Type 2 verbal predicate are organized in
291 such a way that the most important core argument always comes before the verbal
292 (V). With respect to **intransitive** clauses, this yields the basic clausal structure SV.
293 For **transitive** clauses, this produces the basic clausal structures AVP and APV
294 (Jantunen 2008).

295 The syntactic status and behavior of Type 3 verbals are different from those of
296 Type 1 and 2 verbals. First, Type 3 verbals are considered to be full, well formed
297 clauses on their own (Jantunen 2008, 2013). This analysis stems partly from the fact
298 that these verbals include a fused classifier handshape or handshapes that can be

299 analyzed as nominal core arguments of the predicate (Van Valin & LaPolla 1997;
300 Dixon & Aikhenvald 2000; Van Valin 2005). Another reason for the clausal
301 interpretation is the fact that the meaning of these verbals is typically very clause-like,
302 that is, it covers the whole event. Due to the semantics of classifiers, however, there is
303 often some vagueness in the meaning of such verbals/clauses.

304 Second, as Type 3 verbals are inherently fully fledged clauses, they are typically
305 involved in constructions that rank above the level of the clause; in practice, this
306 means in FinSL the **topic-comment structure**. In these structures, Type 3
307 verbals/clauses are always (the final part of) the comment, expressing the main
308 predication. Topics of topic-comment structures are clause-external, prosodically left-
309 detached NPs whose function is to set an interpretative framework for the comment.
310 Formationally, topics in FinSL are marked nonmanually (the eyes are widened and
311 eyebrows are raised). The structural schema of topic-comment structures is $TOP_{NP} +$
312 COM_{clause} .

313 Clauses with a **nominal predicate** (e.g. identifying clauses, various
314 characterizing, locative etc. clauses) are typically formed by simply juxtaposing two
315 NPs (Jantunen 2007, 2013). In other words, FinSL does not have a copula between
316 the (first) non-predicating and the (second) predicating NP. Often identifications and
317 predications about location etc. are expressed with the topic-comment structure. One
318 practical reason for this is that this structure makes the syntactic inter-connectedness
319 of the NPs more salient than a simple clause-internal parataxis of the elements.

320 In FinSL, the basic means of making a declarative sentence negative or
321 interrogative is by adding to it a nonmanual operator. The **negative operator** in
322 FinSL is a headshake (Rissanen 1985), the scope of which is the whole sentence
323 (excluding the possible topic). The nonmanual negative operator can be accompanied

324 by manual negative signs, but there is no single manual negator in FinSL (Zeshan
325 2004). The **interrogative operator** in FinSL has two main forms, one for **polar**
326 (yes/no) questions and the other for **content** (*wh-*) questions. In the main polar
327 question marker, the eyebrows are raised and the head tilts forward. In the main
328 content question marker, the brow is furrowed and the head tilts forward. The scope
329 of the nonmanual interrogative operator is conditioned similarly to that of the negative
330 operator (Rissanen 1985; Savolainen 2006). Question words are used with content
331 questions and they can occur in various positions, but the clause-initial (after the
332 topic) and clause-final positions are the most typical.

333

334 *3.3 Clauses in discourse*

335

336 The appearance of FinSL clauses and sentences in natural discourse is somewhat
337 different from their appearance in isolated examples (Jantunen 2008). The differences
338 lie mainly in the meaningful use of signing space, blending, and frequent ellipsis. As
339 these phenomena are important for the understanding of FinSL examples in the
340 following sections, they are briefly illustrated here with the following short text from
341 *Suvi*, the Online Dictionary of FinSL (article 4, example 2):

342

343 (3) line 1: COMPUTER / ME blend:(TO-TYPE-KEYBOARD-2_{low}) /
344 line 2: ME blend:(TO-LOOK-AT-2_{up}-2_{down} /
345 line 3: polar:[BETTER _{both_hands}CL-C-"change-places"-2_{up}|2_{down}]) /
346 line 4: ME blend:(TO-PUNCH-KEYBOARD-2_{low} /
347 line 5: _{both_hands}CL-C-"change-places"-2_{up}|2_{down} /
348 line 6: FINE)

349 I was typing with the computer. When I was reading the text I started to
350 wonder whether the order of the two paragraphs should be changed. I
351 typed in the command and the order changed. Now the text was fine.'

352

353 Syntactically, the text in (3) consists of six sentences or clauses, each presented
354 on its own line. The sentence in line 1 is a topic-comment structure in which the sign
355 COMPUTER is the topic and the subsequent SV-ordered intransitive clause is the
356 comment. The sentence in line 2 is a structurally incomplete AV-ordered transitive
357 clause in which the P-argument (cf. 'screen' or 'text') is not expressed lexically. The
358 sentence in line 3 is an interrogative intransitive sentence (i.e. a polar question); it is
359 an example of a type of intransitive structure in which the precise meaning of the
360 fused classificatory core argument of the Type 3 verbal is inferred only from the
361 context. The sentence in line 4 is a minimal structurally full intransitive clause with
362 the order SV. The sentence in line 5 is also a minimal intransitive clause, this time,
363 however, expressed by a single Type 3 verbal. The sentence in line 6 is a nominal
364 characterizing clause with an omitted clause-initial thematic NP.

365 With respect to **the meaningful use of space**, the text in (3) includes two
366 examples. The first concerns the production of the signs TO-TYPE-KEYBOARD
367 (line 1) and TO-PUNCH-KEYBOARD (line 4) and the second concerns the
368 production of the signs TO-LOOK-AT (line 2) and both_handsCL-C-"change-places"
369 (lines 3 and 5). In both cases, the signs involved are produced in iconically motivated
370 locations, of which one (indicated with the index 2_{low}) corresponds to the assumed
371 location of a computer keyboard (in front of the signer, low) and the other (indicated
372 with the index 2) the assumed location of the computer screen (in front of the signer,

373 on the level of the eyes). These locations remain the same throughout the text, which
374 indicates that locations of space are used as a reference-tracking device.

375 Concerning **blends** – the pantomimic aspects of signing whose semantic
376 deciphering requires the mental construction of meaning (see Liddell 2003) – the text
377 in (3) contains several examples as well. For example, it is not the clause in line 2, or
378 any other syntactic unit (in the traditional sense) directly linked to it, which expresses
379 the thematic information 'text or paragraphs on the computer screen'; the P-argument
380 that could be supposed to express this meaning is omitted from the clause. Instead, the
381 meaning is constructed mentally on the basis of both the text-initial topic 'computer' –
382 limiting the typing process to the domain of computers and not, for example, to the
383 domain of typewriters – and the blend in which the signer imagines and, accordingly,
384 pantomimically creates the computer screen in front of her. Blends are also an
385 important means of indicating and increasing textual cohesion. For example, the final
386 nominal clause in line 6 does not need any additional lexical or morphosyntactic
387 material to express the information that it is the 'text' or 'paragraphs' that are fine,
388 because the continuity of the theme expressed by the clause in line 5 is made explicit
389 by the continuity of the blend. In other words, it is the blend that ties the themes of the
390 two clauses together.

391 The use of space and blending contribute positively to the construction of
392 meaning, so that a lot of syntactically important material can be left out of FinSL
393 sentences. For example, in (3), only two (in lines 1 and 4) of the total of six clauses
394 can be analyzed as being syntactically full. It has been argued that this type of
395 frequent **ellipsis** – the optional non-expression of syntactic material (McShane 2005)
396 – is very frequent in FinSL. For example, Ala-Sippola (2012) calculates that over half
397 of transitive clauses in her data were produced elliptically without their S/A argument.

398 According to Jantunen (2013), FinSL tends to elide especially the thematic nominal
399 elements, and this is the case also in (3). The frequent omission of thematic elements
400 has been used as evidence for the interpretation that FinSL is inherently a discourse-
401 oriented language (Jantunen 2013). In such languages, ellipsis ultimately serves to
402 add discourse coherence (McShane 2005).

403 Concerning the elliptical process of zero anaphora, introduced in Section 2.1,
404 FinSL behaves similarly to Mandarin. In other words, FinSL has no S/A or S/P pivot
405 that could be referred to in the discussion of clausal coordination (Jantunen 2013).

406

407 **4. Coordinating clauses in FinSL**

408

409 ***4.1 Conjunctive, adversative, and disjunctive coordination***

410

411 The data from FinSL (see Section 1.2) shows that, like other sign languages
412 researched for coordination (see Section 2.2), also FinSL can conjoin clauses by
413 simply signing them one after the other. Let us begin by considering Examples (4)-
414 (6).

415

416 (4) BOY LOOK-AT ' REALLY NOTIFY DOG PALM-UP / PALM-DOWN

417 blend:([SEARCH:durative] ' [DOG HELP SEARCH STUDY])

418 'The boy looked at the jar and then turned to the dog like "what now".

419 Well, the boy looked for the frog intensively and the dog helped him in
420 the search.'

421

(cfinsl2013-005-05, signer 2, coo-2)

422 (5) [HOME+GO] ' [INDEX SNOWMAN GO]
423 'They went home and the snowman left.'
424 (cfinsl2013-005-05, signer 1, coo-7)

425 (6) [BE-PRESENT HELSINKI] ' [RETURN RECENTLY]
426 'We were there in Helsinki and came back only recently.'
427 (mocap data 2, signer 1, example 21)

428
429 The sentences marked in square brackets in (4), (5), and (6) all represent
430 conjunctive coordination of two FinSL clauses (of which at least one has always
431 undergone ellipsis of a thematic element; the sentence in 4 also involves the blending
432 of the signer into the boy). None of the examples involve any overt linking device in
433 between the clauses and, according to the data and the intuitions of native informants,
434 this is indeed the most typical way to express conjunctive coordination in FinSL.
435 What is always present in the construction is the prosodic break between the clauses.
436 In (4)-(6), this break manifests most notably as a change in the head and body position
437 (see Section 5 for more discussion).

438 In FinSL – as, for example, in ASL and in SSL (see Section 2.2) – it is possible
439 to express conjunctive coordination also with a syndetic strategy. In such cases, the
440 primary coordinators are the sign ALSO and (as in SSL) the sign PLUS, both used in
441 between the coordinated clauses (see Figure 2). One should note, however, that in
442 conjunctive coordination the syndetic strategy is always a marked option. This is
443 reflected also by the fact that the signs ALSO and PLUS have other, non-coordinative
444 functions in FinSL (cf. the meaning 'too' of the sign ALSO; the sign PLUS, on the
445 other hand, is used primarily in mathematical settings).
446

447 {Figure 2 approximately here}

448

449 It should be noted that in FinSL there is a sign AND that can be inserted in
450 between clauses to mark conjunctive coordination. This sign is produced by
451 "hooking" c-shaped hands together in the vertical dimension. However, the sign AND
452 belongs to the register very close to Finnish and is therefore not used by native FinSL
453 signers in everyday conversation.

454 Other semantically based types of coordination are also found in FinSL. The
455 following are examples of adversative clausal coordination:

456

457 (7) ...[NICE] ' [TIRED EXHAUSTED]

458 (The boy was happy and he waved farewell to the snowman.) He had had
459 fun but now he was totally exhausted.

460 (cfinsl2013-008-05, signer 1, coo-8)

461 (8) ...MAYBE STILL PRACTICE ICE-HOCKEY SURE INDEX ' **BUT**

462 NEVERTHELESS FAVOR DECREASE

463 '...people still practice ice hockey but its popularity has diminished.'

464 (cfinsl2013-008-06, signer 1, coo-4)

465 (9) HELP YES ' **BUT** NOW INDEX NO-MORE ZERO

466 'It helped at the time but now I don't have an interpreter with me
467 anymore.'

468 (cfinsl2013-008-06, signer 1, coo-6)

469

470 In (7), two characterizing clauses are coordinated adversatively without an overt

471 linker and with a break in prosody between the clauses, just like in conjunctive

472 coordination (for more, see Section 5). In (8) and (9), in addition to a break in
473 prosody, there is also a linking sign BUT between the clauses (see Figure 2). On the
474 basis of the present data and native intuitions, the use of this sign is very common in
475 adversative coordination in FinSL, and it can also be inserted at the clausal juncture of
476 the example in (7). Consequently, the non-existence of the sign BUT in Example (7)
477 can be treated as an instance of coordinator ellipsis (McShane 2005). Overall, the
478 presence of the sign BUT makes distinguishing between conjunctive and adversative
479 coordination easier as it reduces the cognitive load in deciphering the existence of the
480 semantic opposition only on the basis of the compositional meanings (and the
481 prosody; see Section 5) of the clauses. The sign BUT also helps the addressee to
482 identify the clause boundary in longer sentences.

483 Disjunctive clausal coordination is exemplified in (10) and (11):

484

485 (10) ...ME SELF GROW-UP ALREADY ' **OR** CULTURE CLIMATE
486 CHANGE...

487 '(I don't know if it is) me who has grown up or if the cultural atmosphere
488 has changed...

489 (cfinsl2013-008-06, signer 1, coo-2)

490 (11) _____polar_____

491 h1: SPEAK **OR** PALM-UP

492 h2: READ

493 You speak it or read it?

494 (mocap data 1, signer 2, example 5)

495

496 As seen from (10) and (11), disjunctive coordination in FinSL employs the sign
497 OR in between the coordinated clauses (see Figure 2). Prosodically, as described by
498 Davidson (2013) for ASL (see Section 2.2), the disjunctive linkage in FinSL is
499 typically marked also with an emphatic change in the head or upper torso position in
500 between the two clauses (see Section 5). In (11), the distinction between the two
501 coordinands is further strengthened by the fact that the two clauses are articulated
502 with different hands.

503 Like, for example, in ASL (Davidson 2013), it is possible to express disjunctive
504 coordination asyndetically also in FinSL with distinct side-to-side head and body
505 leans. However, in practice this requires almost exaggerating the change in the
506 head/body position in between the two clauses. Consequently, in FinSL, asyndetic
507 linking in disjunctive coordination is deemed by informants to be very marked.

508 On the basis of the data analyzed, we may conclude that – conforming to the
509 general tendency of sign languages (see Section 2.2) – linking in conjunctive
510 coordination in FinSL is primarily asyndetic, whereas in adversative and in
511 disjunctive coordination FinSL prefers syndetic linking. Concerning the asyndetic
512 linking in conjunctive coordination, the question then arises of how one formally
513 distinguishes two independently produced clauses from genuine conjunctive
514 coordination. There can be no definite answer to this, and one has to acknowledge that
515 conjunctive coordination in FinSL is always ambiguous in this sense. However, some
516 cues are provided by the prosody, especially in terms of the signing speed and
517 pausing. If the signing speed is relatively fast (as in all of the examples in this
518 section), then the two clauses are very likely to form a single sentence. In contrast, if
519 there is a noticeable pause between the clauses (which is not the case in the examples
520 in this section), then the two clauses are more likely to be independent and isolated

521 units. Moreover, continuous blending over the conjoined clauses (as in 4) may be
522 taken to be a further indicator of the coordinative reading.

523 Some diagnostics can be used to test the status of a construction as a
524 conjunctively coordinated sentence. One test is to convert the original declarative
525 sentence into a negative one (see Tang & Lau 2012). As was stated in Section 3.3,
526 negative sentences in FinSL are constructed with the nonmanual negative operator
527 (headshake), whose scope always lasts to the end of the sentence. If, then, one wishes
528 to convert a proposition 'yes A and yes B' into a negative 'no A and no B', a negative
529 operator must be applied to the first clause and it should apply *continuously* to the end
530 of the second clause. According to the informants, this holds true for the sentences in
531 (4)-(6). However, it must be noted that producing textual sentences in isolation and
532 altering their structure this way is considered by informants to be odd. Two reasons
533 for this are the ellipsis of thematic elements and blending, which together make the
534 sentences heavily context dependent.

535

536 ***4.2 Features of syndetic coordination***

537

538 When clausal coordination is expressed syndetically (i.e. with the help of signs such
539 as ALSO, PLUS, BUT, or OR), the coordinators are positioned between the two
540 coordinand clauses. However, the question of whether the coordinands are more
541 linked to the first (i.e. A and B) or to the second clause (i.e. A and B) – that is,
542 whether the coordination is postpositive or prepositive – cannot be easily answered.
543 At first sight, it appears that both options are possible: for example, a not uncommon
544 situation is that the signer uses the clause boundary as the chance to have a short
545 hesitation break which, in turn, may either precede or follow the coordinator sign. In

546 such cases, which of the coordinands the coordinator belongs to ultimately depends
547 on the context.

548 However, the distribution of eye blinks can be used as evidence that, in general,
549 coordinators are more linked to the latter of the two coordinands, that is, that the
550 coordination in FinSL is more prepositive than postpositive (i.e. A and B). Eye blinks
551 are generally acknowledged to be prosodic markers of constituent boundaries (e.g.
552 Wilbur 2000; Pfau & Quer 2010), and this has been attested also for FinSL (Jantunen
553 2007). In coordinated clauses, eye blinks – if present – tend to occur before any
554 coordinator sign, that is, right after the end of the preceding clause. That this is the
555 fact is acknowledged in the annotation of all the examples in the present paper (see
556 also Figure 4 in Section 5).

557 The signs ALSO and BUT can also be found at the beginning of
558 sentences/clauses. This use of the signs should not be confused with the prepositive
559 type of "and A B" coordination. Rather, in such cases, these signs function as **turn-**
560 **initial utterance particles** that may connect together bits of discourse over long
561 distances (Hakulinen et al. 2004). This use of the sign BUT is demonstrated in (12).

562

563 (12) BUT TRAINING OWN WRESTLE ALWAYS ME SELF GO

564 'But to my wrestling training I always go alone.'

565 (cfinsl2013-008-06, signer 1)

566

567 The sign OR can also occur sentence/clause-initially. However, in such cases
568 there is a semantic restriction that the sentence must be in the interrogative. The use of
569 the sign PLUS at the beginning of sentences is highly marked.

570 In general, syndetic coordination, when used, is heavily monosyndetic (see
571 Section 2.2). In fact, no traditional forms of bi- or multisyndetic coordination seem to
572 exist in FinSL (cf., however, the list buoy construction introduced in Section 2.2, and
573 the following discussion).

574

575 ***4.3 Multiple coordination***

576

577 In FinSL, multiple clausal coordination is primarily asyndetic. Even the final
578 coordinated clause is linked to the list asyndetically, contrary to the typical cross-
579 linguistic strategy (Velupillai 2012). Examples in the data of the multiple conjunctive
580 coordination of FinSL clauses are given in (13)-(14).

581

582 (13) h1: CL-A-"climbing-right-paw"-2 ' CL-V-"jump"-2 ' ESCAPE

583 h2: CL-A-"climbing-left-paw"-2 CL-S-"edge"-2 ESCAPE

584 'Gently the frog climbed up the wall, (the frog) jumped down from the
585 edge of the jar, and (the frog) escaped.

586 (cfinsl2013-008-05, signer 2, coo-4)

587 (14) GO-FORWARD-1-2 ' CL-A-"open door"-2 ' STUDY HOW CLOTHES

588 '(the boy and the snowman) went on, (they) opened the closet door, and
589 (they) studied what kinds of clothes there were.

590 (cfinsl2013-005-05, signer 1, coo-5)

591

592 However, as was the case with bi-coordinand conjunctive coordination, also
593 multiple conjunctive coordination can be expressed with a syndetic strategy. In such
594 cases the primary coordinators are, again, the signs ALSO and PLUS. The coordinator

595 appears before the final clause, as is the cross-linguistic tendency. Each of the
596 coordinated items typically forms an independent prosodic unit, the possible
597 coordinand being, on the basis of the distribution of eye blinks, for example, part of
598 the final item.

599 In multiple adversative and disjunctive coordination, the syndetic strategy with
600 the signs BUT and OR is preferred. The location of these signs in the coordinate
601 string is determined by what the signer wishes to say; that is, they can occur on any
602 boundary between the coordinated clauses.

603 No instances of the list buoy construction, introduced in Section 2.2 as a
604 strategy to express multiple coordination, were found in the data. However, according
605 to the native FinSL informants, the list buoy can be used to conjunctively coordinate
606 (typically) multiple units such as clauses also in FinSL (see also Section 6).

607

608 **5 Prosody of clausal coordination in FinSL**

609

610 Section 4 described how there is a prosodic break in between the coordinated clauses.

611 However, it was implicitly stated that this prosodic break is different in different types

612 of coordination. This section discusses these differences in more detail.

613

614 ***5.1 Disjunctive and adversative coordination***

615

616 Let us begin by briefly looking at disjunctive coordination. In general, as stated in

617 Section 4, disjunctive coordination in FinSL is strongly syndetic, that is, FinSL

618 employs the sign OR in between the coordinated clauses. In addition, the disjunctive

619 linkage in FinSL is marked with an emphatic change in the upper-body position in

620 between the two clauses. This change is demonstrated in Figure 3, with video frames
621 showing the clausal juncture of Example (11) in Section 4.1.

622

623 {Figure 3 approximately here}

624

625 Figure 3 shows how the signer swings her upper body from right to left during
626 the production of the coordinator OR to further mark the semantic contrast between
627 the two disjunctively coordinated clauses (as stated in Section 4.1, the two clauses are
628 separated in the example also by the fact that they are articulated with different
629 hands). The figure also shows how the signer pushes her head forward during the
630 sentence. However, although this head thrust undoubtedly makes the contrast and
631 prosodic break between the clauses even more emphatic, it is not in itself a property
632 of coordination. Instead, together with the raising of the eyebrows it forms the
633 nonmanual polar interrogative operator in FinSL (see Section 3.2; see also Puupponen
634 et al. submitted). Note also that the two positions of space in which the upper body of
635 the signer is located in the example do not have any meaning; in other words, the
636 space is not used here for any reference-tracking purpose (see Section 3.3).

637 The data shows that, in disjunctive coordination, prosody manifested by upper-
638 body behavior is used *together* with the manual coordinator sign (see Davidson 2013
639 for ASL). This is not what we typically see in the instances of unmarked adversative
640 coordination with the coordinator sign BUT. Consider the frames in Figure 4,
641 demonstrating the clausal juncture of Example (9) in Section 4.1.

642

643 {Figure 4 approximately here}

644

645 As seen in Figure 4, there is no noticeable upper-body movement that functions
646 to separate or mark the boundary of the two coordinated clauses. Instead, in the
647 example, the prosodic break is manifested almost entirely by the first clause-final eye
648 blink alone. However, the data shows that the sign BUT *can* be accompanied with a
649 head movement. If present, this movement is typically either a head pull or a head
650 thrust, that is, either a backwards or forwards directed movement of the head (for head
651 movements in FinSL, see Puupponen et al. submitted).

652 Tang and Lau (2012) have argued that in cases where manual markers of
653 coordination are absent, the role of nonmanual prosody is increased (see Section 2.2).
654 The present data on disjunctive and adversative coordination – both of which can also
655 be expressed asyndetically in FinSL – supports this argument. When disjunctive
656 coordination, it was stated in Section 4.1, is expressed without the sign OR, the side-
657 to-side body movement in between the clauses becomes nearly exaggerated (and such
658 an asyndetic form of disjunctive coordination is, consequently, very marked). A
659 similar effect is also seen in adversative coordination in which the coordinator BUT
660 has been omitted. Consider the example in Figure 5.

661

662 {Figure 5 approximately here}

663

664 The two frames in Figure 5 show the clausal juncture of Example (7) in Section
665 4.1. In the example, the adversative coordinator BUT is not present and we can
666 observe more nonmanual activity than we typically find in coordination manifested
667 syndetically with the sign BUT (e.g. in Figure 4). In particular, in Figure 5, right after
668 the clausal juncture, the upper body of the signer leans to the left and, simultaneously,
669 the head is thrust forward. Consequently, the whole structure resembles very much

670 asyndetic forms of disjunctive or conjunctive coordination, the semantics together
671 with the prosody being the only way to determine the type of coordination.

672

673 *5.2 Conjunctive coordination*

674

675 The previous section (5.1) showed that asyndetic (marked) forms of disjunctive and
676 adversative coordination in FinSL typically employ changes in the positions and
677 movements of the whole upper body to mark the boundary of the two coordinated
678 clauses. In general, the same strategy can also be used in conjunctive coordination,
679 which in the unmarked case is asyndetic in FinSL (see Section 4.1). However, in
680 conjunctive coordination the data indicates that the head has a more decisive role than
681 the torso in marking the prosodic break. In other words, in conjunctive coordination it
682 is not so much changes in the positions of the whole body that mark the prosodic
683 break between the coordinated clauses as changes in the positions of the head (the
684 head, of course, is part of the upper body, which makes distinguishing between head
685 and whole body behavior sometimes very difficult). Moreover, the behavior of the
686 head also contributes to drawing the contours of coordinated clauses, that is, in joining
687 the units forming the clauses prosodically together.

688 To understand the prosodic role of the head in conjunctive clausal coordination,
689 let us look at the data presented in Figure 6. Basically, Figure 6 is a screenshot from
690 the ELAN annotation tool used in the annotation of the present data and it presents
691 Example (4) in Section 4.1. However, in addition to the glosses and sentence-level
692 translation, the screenshot also includes visualized head movement data produced
693 with *SLMotion* (see Section 1.2). In Figure 6, the head movement data is represented
694 in four panels. The uppermost panel shows the amount of **horizontal** (x-axis) motion

695 of the centroid of the signer's head, tracked from the video. The three panels below
696 that show the motion of the head with respect to the **yaw** angles(the turning
697 movements of the head), **pitch** angles (the nodding movements of the head), and **roll**
698 angles (the tilting movements of the head), respectively. The vertical bar (with the
699 crosshair) marks the area of the clausal juncture.

700

701 {Figure 6 approximately here }

702

703 In general, the head movement data in Figure 6 demonstrates how, in the
704 production of the example, the head moves a lot. This is partly because of the blend of
705 the signer into the boy during the sentence. However, from the point of view of
706 coordination, the behavior of the head in the dimension captured by the roll descriptor
707 (the lowest panel) is more systematic than in the others. In practice, the roll value
708 describes the sideways, tilting-like movements of the head. In Figure 6 we see that the
709 clausal juncture is associated with the lowest roll value, the descriptor thus forming a
710 valley-shape over the juncture. In practice, in terms of the roll angle, the data tells us
711 that the head position at the moment of the juncture is close to neutral whereas during
712 the production of both coordinand clauses the head is tilted to the signer's right
713 (indicated by the increasing roll value in the positive direction). The descriptor in the
714 uppermost panel, showing the sideways movement of the centroid of the head (along
715 the x-axis), agrees with this analysis.

716 The tendency of particularly sideways tilt-like movements of the head to draw
717 the contours of the clauses in conjunctive coordination is a characteristic of all the
718 FinSL data analyzed (nonmanual prosody is known to tie syntactic units together, and
719 hence to add cohesion, also more generally; e.g. Pfau & Quer 2010). To strengthen

720 this point further, Figure 7 presents another example of the phenomenon; Figure 7
721 presents Example (5) in Section 4.1. Note that this time the figure shows only the
722 yaw, pitch, and roll descriptors (cf. Figure 6).

723

724 {Figure 7 approximately here}

725

726 In Figure 7, the roll angle descriptor (bottom panel) again captures the fact that
727 the head tilts to the right and returns to its neutral position during the production of
728 both coordinands, and that the clausal juncture is associated with the moment the first
729 tilt-like movement ends and the second one begins. Moreover, this example shows
730 that the clausal juncture is associated also with a nod-like movement of the head (the
731 middle panel showing the pitch angle descriptor), and that this nod-like movement
732 also participates in drawing the contour of the clauses. Here the nod-like movement
733 functions to emphasize the forward-directed manual movement of the verbal predicate
734 HOME+GO comprising the first clause (cf. Puupponen et al. submitted). In general,
735 however, unlike what has been argued to be the case with ASL and HKSL (e.g. Tang
736 & Lau; see Section 2.2), the present FinSL data with its human-made annotations
737 does not normally include head nods in inter-sentence clausal junctures (in any of the
738 three semantic types of coordination). Instead, nods tend to occur at sentence
739 boundaries.

740

741 **6. Sign language-specific forms of clausal coordination**

742

743 As was mentioned in Section 1.1, sign languages are different from spoken languages
744 in terms of their physical manifestation, and this is a cause for various modality

745 differences between the two types of languages. In terms of coordination, Section 2.2
 746 already presented the list buoy construction as one type of sign language-specific
 747 form of prepositive and multisyndetic coordination strategy (see Velupillai 2012), and
 748 Section 4.3 stated that the list buoy structure can be used as a mechanism to
 749 coordinate multiple clauses also in FinSL. On the strength of the present FinSL data,
 750 this section now presents two more structural means by which sign languages can
 751 express clausal coordination. In general, we consider these means to be sign language-
 752 specific in the sense that they employ natural characteristics of sign languages that are
 753 either not available at all in spoken languages or are only marginally used in spoken
 754 languages. In practice, the strategies are enabled by the fact that signers can use two
 755 manual articulators in the production of sentences, and by the pervasive iconicity of
 756 sign language structure.

757 The fact that sign languages have two (primary) manual articulators (i.e. the
 758 two hands) and an array of (secondary) nonmanual articulators (e.g. facial elements,
 759 the head, and the torso) makes it possible to coordinate units **simultaneously**.

760 Consider the boldfaced parts of the following examples:

761

762 (15) _____ "the signer looks around in a puzzled manner"

763 h1: **CL-V_{bent}-''sit''-2_{right}**

764 h2: **CL-V_{bent}-''sit''-2_{left}**

765 i. 'The boy and the dog sit and look around in a puzzled manner.'

766 ii. 'The boy sits and looks around in a puzzled manner *and* the dog sits and

767 looks around in a puzzled manner'

768 (cfinsl2013-008-05, signer 2, coo-10)

769 (16) h1: CL-S-"grab-branch"-2 **LOOK-FOR** CL-S-"hold-on-branch"-2
770 h2: CL-S-"grab-branch-and-hold-on-to-it"-2 -----
771 'The boy grabs the branches and looks around for the frog.'
772 (cfinsl2013-008-05, signer 2, coo-8)

773

774 In (15), visualized also in Figure 8, the dominant hand (h1) represents the sitting
775 boy and the non-dominant hand (h2) represents the sitting dog. In addition to this
776 highly iconic manual configuration, the signer has also created a mimical blend in
777 which she with her nonmanual upper body behavior represents the activity of the boy
778 and the dog (i.e. she looks around in a puzzled manner). As a whole, this
779 simultaneous construction can be analyzed either as one (two-handed) Type 3 verbal
780 or as two simultaneously produced (one-handed) Type 3 verbals. If the former
781 analysis is preferred, the example demonstrates the simultaneous conjunctive
782 coordination of two NP-like elements (cf. 'the boy **and** the dog'). If the latter analysis
783 is adopted, the example demonstrates the conjunctive coordination of at least two
784 simultaneously produced clauses (cf. 'The boy sits and looks around in a puzzled
785 manner **and** the dog sits and looks around in a puzzled manner'). No clear-cut solution
786 to this analytical ambiguity is available.

787

788 {Figure 8 approximately here}

789

790 The sentence in (16) is a slightly different example of simultaneous conjunctive
791 coordination that makes use of the existence of two hands. In this example, the signer
792 first produces a two-handed Type 3 verbal/clause with the overall meaning 'the boy
793 holds on to the branch of the tree'. After the completion of the sign, the non-dominant

794 hand is retained in the configuration and position of this Type 3 verbal/clause as a so-
 795 called **fragment buoy** while the dominant hand continues to produce the Type 1
 796 verbal LOOK-FOR, corresponding to an elliptical transitive clause ('the boy looks for
 797 the dog'). After this verbal/clause is produced, the dominant hand returns to the initial
 798 configuration and position of the first Type 3 verbal, still present in the non-dominant
 799 hand. In terms of temporality, the production of the second clause overlaps with the
 800 retained and fragmented production of the first clause. Analytically, the fragment
 801 buoy in the non-dominant hand functions to add cohesion to the complex sentence
 802 during the production of the second clause; that is, it can be treated as a formal marker
 803 that signals the interconnectedness of the two clauses. Similar examples can also be
 804 found elsewhere in the data, as demonstrated in (17; see Figure 9):

805

806 (17) h1: CL-V-"animate-object-flies"-2_{up} 'LOOK-AROUND

807 h2: CL-B-"ground"-2_{down} -----

808 'They flew above the ground and looked down.'

809 (cfinsl2013-005-05, signer 1, coo-6)

810

811 {Figure 9 approximately here}

812

813 The second sign language-specific structural means to coordinate units found in

814 the FinSL data concerns the modification of the movement parameter of verbal signs.

815 Most typically, the movement parameter is modified in FinSL verbals to iconically

816 display information related to the event structure, such as the perfective aspect.

817 However, in (18), the modification is best analyzed as a means to isomorphically code

818 the temporal sequentiality of the two events ('the lamp goes on **and** the lamp goes

819 off'). In practice, the conjoining of the events is done by first opening the hand and
820 then almost immediately closing it again. Figure 10 shows the modification with
821 frames captured from the data.

822

823 (18) CL-Ax-"plays with the light switch"-4u **LAMP-ON/OFF**

824 'The snowman turns the switch and is amazed to see how the light goes

825 first on and then off.'

826 (cfinsl2013-008-05, signer 1, coo-5)

827

828 {Figure 10 approximately here}

829

830 The two sign language-specific clausal coordination strategies described above

831 (the simultaneous production of clauses, and the iconically grounded modification of

832 the movement parameter of signs) are perhaps not the most typical ways in which

833 FinSL (or other sign languages) express clausal coordination. However, we take them

834 as evidence for the view that clausal coordination is, indeed, not a fixed phenomenon

835 but rather can be seen as a gradient phenomenon (see Gast & Diessel 2012) which,

836 ultimately, is connected to the channel in which the language is expressed.

837

838 **7. Conclusion**

839

840 This paper has discussed the three main types of clausal coordination (conjunctive

841 coordination, adversative coordination, and disjunctive coordination) and their

842 typological characteristics in FinSL. It has been shown that conjunctive coordination

843 is primarily asyndetic, although forms of syndetic conjunctive coordination also exist

844 in FinSL. In adversative and disjunctive coordination, the syndetic strategy is
845 preferred to the asyndetic strategy, although it is a marked option in both cases.
846 Moreover, the paper has shown that syndetic coordination in FinSL (when used) is, in
847 principle, both prepositive and heavily monosyndetic. Multiple coordination of
848 clauses has also been shown to be possible.

849 Concerning the nonmanual prosody of clausal coordination, the paper has
850 discussed the various ways of marking the juncture of coordinated clauses and
851 provided evidence for the general argument that the role of nonmanual behavior
852 increases in the absence of manual markers of coordination. Moreover, on the basis
853 of, for example, computer-vision analysis of the head movements of the signer
854 appearing on the videos, the paper has suggested that nonmanual activity not only
855 marks the junctures of the coordinated clauses but also contributes to drawing their
856 prosodic contours. It is here suggested that this direct prosodic marking of the shapes
857 of syntactic constituents is an important feature of sign languages, to be taken into
858 account in future work.

859 When situated in the wider cross-linguistic context, the results of the present
860 paper indicate that, in terms of clausal coordination, FinSL behaves fairly similarly to
861 the world's spoken languages, which typically form the basis of all of the typological
862 work in linguistics. However, this is not to say that the visual-gestural channel of
863 FinSL – and of all sign languages – does not affect the manifestation of clausal
864 coordination. Some of these modality effects have also been addressed in this paper;
865 they include the simultaneous production of clauses as well as the iconic modification
866 of predicate verbals. In the end, it has been suggested that these sign language-
867 specific "effects" are caused most significantly by the existence of the "other" hand

868 (together with other articulators) and by the pervasive iconicity of sign language
869 structure.

870 To conclude, future research will continue to investigate complex sentences in
871 FinSL. The next logical step is to focus on embedded structures, including instances
872 of asymmetric coordination, which is not dealt with in the present paper. A major sub-
873 goal in this work concerns the creation of a representative video-based research
874 corpus of FinSL. Only through such a corpus will it be possible to make the shift from
875 qualitative observations to true usage- and frequency-based generalizations in the
876 investigation of FinSL syntax. Happily, this work has begun and is already well under
877 way.

878

879 **Acknowledgements**

880

881 The author wishes to thank Outi Pippuri and Saija Kuronen for their annotation work
882 for the present study. The author also wishes to thank Tuija Wainio and Danny De
883 Weerd for helpful discussion of the paper and its FinSL material. Special thanks are
884 also due to the anonymous reviewers of the journal as well as to Eleanor Underwood
885 for checking the English of the paper. The financial support of the Academy of
886 Finland under grants 269089 and 273408 is gratefully acknowledged.

887

888

889 **References**

890

891 Ala-Sippola, Sanna (2012). Agentin ilmaiseminen suomalaisella viittomakielellä tuo-
892 tetussa asiatekstissa [Expressing agent in a formal FinSL narrative]. MA thesis
893 in General Linguistics, Department of Modern Languages, University of
894 Helsinki.

895 Bickel, Balthasar (2010). Capturing particulars and universals in clause linkage: A
896 multivariate analysis. In Isabelle Bril (Ed.), *Clause linking and clause*
897 *hierarchy: Syntax and pragmatics*, 51–101. Philadelphia, PA (USA): John
898 Benjamins.

899 Bril, Isabelle (2010). The syntax and pragmatics of clause linkage and clause
900 hierarchy: Some new perspectives (Editor's introduction). In Isabelle Bril (Ed.),
901 *Clause linking and clause hierarchy: Syntax and pragmatics*, 1–23.
902 Philadelphia, PA (USA): John Benjamins.

903 Butler, Cristopher S. (2003). *Structure and function: A guide to three major*
904 *structural-functional theories. Part 2: From clause to discourse and beyond*.
905 Amsterdam: John Benjamins.

906 Crasborn, Onno & Sloetjes, Han (2008). Enhanced ELAN functionality for sign
907 language corpora. In the *Proceedings of the 3rd Workshop on the*
908 *Representation and Processing of Sign Languages: Construction and*
909 *Exploitation of Sign Language Corpora*, 39–43. Paris: ELRA.

910 Davidson, Kathryn (2013). ‘And’ or ‘or’: General use coordination in ASL. *Semantics*
911 *& Pragmatics* 6(4), 1–44.

912

- 913 Gast, Volker & Holger Diessel (2012). The typology of clause linkage: Status quo,
914 challenges, prospects. In Volker Gast & Holger, Diessel (Eds.), *Clause Linkage*
915 *in cross-linguistic perspective: Data-driven approaches to cross-clausal syntax*,
916 1–36. Berlin: Mouton De Gruyter.
- 917 Dixon, Robert M. W. (1994). *Ergativity*. Cambridge: Cambridge University Press.
- 918 Dixon, Robert M. W. (2006). Complement clauses and complementation strategies in
919 typological perspective. In R. M. W. Dixon & A. Aikhenvald (Eds.),
920 *Complementation: A cross-linguistic typology*, 1–48. Oxford: Oxford University
921 Press.
- 922 Dixon, Robert M. W. (2010). *Basic Linguistic Theory. Vol. 1, Methodology*. Oxford:
923 Oxford University Press.
- 924 Dixon, Robert M. W. & Aikhenvald, Alexandra Y. (2000). Introduction. In Robert M.
925 W. Dixon & Alexandra Y. Aikhenvald (Eds.), *Changing valency: Case studies*
926 *in transitivity*, 1–29. Cambridge: Cambridge University Press.
- 927 Dryer, Mathew S. (2001). What is Basic Linguistic Theory? URL: [http://linguistics.](http://linguistics.buffalo.edu/people/faculty/dryer/dryer/blt)
928 [buffalo.edu/people/faculty/dryer/dryer/blt](http://linguistics.buffalo.edu/people/faculty/dryer/dryer/blt) (accessed 14 April 2014).
- 929 Dryer, Mathew S. (2006). Descriptive theories, explanatory theories, and Basic
930 Linguistic Theory. In Felix K. Ameka, Alan Dench & Nicholas Evans (Eds.),
931 *Catching language: Issues in grammar writing*, 207–234. Berlin: Mouton de
932 Gruyter.
- 933 Foley, William A. (2010). Clause linkage and nexus in Papuan languages. In Isabelle
934 Brill (Ed.), *Clause linking and clause hierarchy: Syntax and pragmatics*, 27–50.
935 Philadelphia, PA (USA): John Benjamins.

- 936 Hakulinen, Auli, Maria Vilkuna, Riitta Korhonen, Vesa Koivisto, Tarja Riitta Heino-
937 nen & Irja Alho (2004). *ISO suomen kielioppi* [BIG Finnish grammar]. Helsin-
938 ki: Suomalaisen kirjallisuuden seura.
- 939 Haspelmath, Martin (2004). Coordinating constructions: An overview. In Martin
940 Haspelmath (Ed.), *Coordinating constructions*, 3–39. Amsterdam: John
941 Benjamins.
- 942 Haspelmath, Martin (2007). Coordination. In Timothy Shopen (Ed.), *Language*
943 *typology and syntactic description: Complex constructions. Volume 2*, 1–51.
944 Second edition. Cambridge: Cambridge University Press.
- 945 Hodge, Gabrielle & Johnston, Trevor (2013). Patterns from a signed language corpus:
946 Clause-level units in Auslan (Australian Sign Language). Paper presented at the
947 *Theoretical Issues in Sign Language Research Conference 11*. University
948 College London, 13 July 2013.
- 949 Hoyer, Karin (2012). Dokumentation och beskrivning som språkplanering: perspektiv
950 från arbete med tre tecknade minoritetsspråk [Language documentation and
951 description as language planning – Working with three signed minority
952 languages]. Doctoral dissertation in General Linguistics. Department of Modern
953 Languages, University of Helsinki.
- 954 Huang, Yan (2000). *Anaphora: A cross-linguistic study*. Oxford: Oxford University
955 Press.
- 956 Jantunen, Tommi (2007). The equative sentence in Finnish Sign Language. *Sign*
957 *Language & Linguistics* 10(2), 113–143.
- 958 Jantunen, Tommi (2008). Fixed and free: order of the verbal predicate and its core
959 arguments in declarative transitive clauses in Finnish Sign Language. *SKY*
960 *Journal of Linguistics* 21(2008), 83–123.

- 961 Jantunen, Tommi (2009). *Tavu ja lause: tutkimuksia kahden sekventiaalisen perusyks-*
962 *sikön olemuksesta suomalaisessa viittomakielessä* [Syllable and sentence: Stu-
963 dies on the nature of two sequential basic units in FinSL]. *Jyväskylä Studies in*
964 *Humanities* 117. Jyväskylä: University of Jyväskylä.
- 965 Jantunen, Tommi (2010). Suomalaisen viittomakielen pääsanaluokat [The main parts
966 of speech in FinSL]. In Tommi Jantunen (Ed.), *Näkökulmia viittomaan ja viit-*
967 *tomistoon* [Perspectives on sign and lexicon], 57–78. Jyväskylä: University of
968 Jyväskylä.
- 969 Jantunen, Tommi (2013). Ellipsis in Finnish Sign Language. *Nordic Journal of*
970 *Linguistics* 36(3), 303–332.
- 971 Jantunen, Tommi, Birgitta Burger, Danny De Weerd, Irja Seilola & Tuija Wainio
972 (2012). Experiences collecting motion capture data on continuous signing. In
973 the *Proceedings of the 5th Workshop on the Representation and Processing of*
974 *Sign Languages: Interactions Between Corpus and Lexicon*, 75–82. Paris:
975 ELRA.
- 976 Johnston, Trevor & Schembri, Adam (2007). *Australian Sign Language. An*
977 *introduction to sign language linguistics*. Cambridge: Cambridge University
978 Press.
- 979 Karppa, Matti, Ville Viitaniemi, Marcos Luzardo, Jorma Laaksonen & Tommi Jantu-
980 nen (2014). SLMotion - An extensible sign language oriented video analysis
981 tool. In the *Proceedings of the 9th international conference on Language*
982 *Resources and Evaluation (LREC 2014)*, 1886–1891. Paris: ELRA.
- 983 Liddell, Scott K. (1980). *American Sign Language syntax*. The Hague: Mouton
984 Publishers.

- 985 Liddell, Scott K. (2003). *Grammar, gesture, and meaning in American Sign*
986 *Language*. Cambridge: Cambridge University Press.
- 987 Luzardo, Marcos, Matti Karppa, Jorma Laaksonen & Tommi Jantunen (2013). Head
988 pose estimation for Sign Language video. In J.-K. Kamarainen & M. Koskela
989 (Eds.), *Image Analysis*, 349-360. Springer.
- 990 McShane, Marjorie J. (2005). *Theory of ellipsis*. Cary, NC (USA): Oxford University
991 Press.
- 992 Pfau, Roland & Quer, Josep (2010). Nonmanuals: Their grammatical and prosodic
993 roles. In Diane Brentari (Ed.), *Sign Languages: A Cambridge Language Survey*,
994 381–402. Cambridge: Cambridge University Press.
- 995 Puupponen, Anna, Tommi Jantunen, Ritva Takkinen, Outi Pippuri & Tuija Wainio
996 (2014). Taking non-manuality into account in collecting and analyzing Finnish
997 Sign Language video data. In the *Proceedings of the 6th Workshop on the*
998 *Representation and Processing of Sign Languages: Beyond the Manual Channel*
999 [organized as a part of LREC 2014 at Reykjavik, Iceland, 31 May, 2014], 143–
1000 148. Paris: ELRA.
- 1001 Puupponen, Anna, Tuija Wainio, Birgitta Burger & Tommi Jantunen (submitted).
1002 Head movements in the dimension of depth in FinSL: nods, nodding, head
1003 thrusts and head pulls. October 2014.
- 1004 Reintges, Chris H. (2010). Coordination, converts and clause chaining in Coptic
1005 Egyptian: Typology and structural analysis. In Isabelle Bril (Ed.), *Clause*
1006 *linking and clause hierarchy: Syntax and pragmatics*, 203–265. Philadelphia,
1007 PA (USA): John Benjamins.

- 1008 Rissanen, Terhi (1985). Rissanen, Terhi. 1985. *Viittomakielen perusrakenne* [The
1009 basic structure of sign language]. Publications of the Department of General
1010 Linguistics, University of Helsinki No. 12. Helsinki.
- 1011 Rissanen, Terhi (1998). The categories of nominals and verbals and their morphology
1012 in Finnish Sign Language. Licentiate Thesis in General Linguistics. The
1013 Department of Finnish and General Linguistics, University of Turku.
- 1014 Sandler, Wendy (2012). Visual prosody. In Roland Pfau, Markus Steinbach & Bencie
1015 Woll (Eds.), *Sign language: An international handbook*, 55–76. Berlin: Mouton
1016 De Gruyter.
- 1017 Savolainen, Leena (2006). Interrogatives and negatives in Finnish Sign Language: An
1018 overview. In Ulrike Zeshan (Ed.), *Interrogative and negative constructions in*
1019 *sign languages*, 284–302. Nijmegen: Ishara Press.
- 1020 *Suvi = Suvi, the Online Dictionary of FinSL*. URL: <http://suvi.viittomat.net> (accessed
1021 14 April 2014).
- 1022 Takkinen, Ritva, Tommi Jantunen & Outi Ahonen (forthcoming). Finnish Sign
1023 Language. In Julie Bakken Jepsen, Goedele De Clerck, Sam Lutalo Kiingi &
1024 William B. McGregor (Eds.), *Sign languages of the world*. In preparation for
1025 publication with Mouton De Gruyter.
- 1026 Tang, Gladys & Lau, Prudence (2012). Coordination and subordination. In Roland
1027 Pfau, Markus Steinbach & Bencie Woll (Eds.), *Sign language: An international*
1028 *handbook*, 340–365. Berlin: Mouton De Gruyter.
- 1029 Van Valin, Robert D. (2005). *Exploring the syntax-semantics interface*. Cambridge:
1030 Cambridge University Press.
- 1031 Van Valin, Robert D. & LaPolla, Randy J. (1997). *Syntax: Structure, meaning and*
1032 *function*. Cambridge: Cambridge University Press.

- 1033 Velupillai, Viveka (2012). *An introduction to linguistic typology*. Amsterdam: John
1034 Benjamins.
- 1035 Wilbur, Ronnie B. (2000). Phonological and prosodic layering of nonmanuals in ASL.
1036 In Karen Emmorey & Harlan Lane (Eds.), *The signs of language revisited: An*
1037 *anthology to honor Ursula Bellugi and Edward Klima*, 215–244. Mahwah, New
1038 Jersey: LEA.
- 1039 Zeshan, Ulrike (2004). Hand, head, and face: Negative constructions in sign
1040 languages. *Linguistic Typology* 8, 1–58.
- 1041

1042 **Appendix 1.**

1043

1044 The coding and transcription conventions used in this paper.

1045

1046 Note that examples cited from the literature are represented in their original form and

1047 the conventions listed here do not necessarily apply to them.

1048

1049 *Manual behavior in signs*

1050

1051 WOMAN Signs are referred to, according to the standard convention in sign
1052 language research, as glosses, which are to be understood as rough
1053 translations of the signs' core meaning. Notation in capitals.

1054

1055 LOOK-AT A hyphen is used when a single sign is glossed with more than
1056 one (English) word.

1057

1058 HOME+GO Consecutive signs in compound-like structures are indicated by
1059 plus signs.

1060

1061 HOUSE-2 A gloss followed by a hyphenated number or numbers identifies
1062 a directional sign (i.e, that the sign is either directed to a certain
1063 location or produced at a certain location). Spatial locations are
1064 drawn from Figure 11, below, from Rissanen (1985: 18). The
1065 numbers may be followed by words (e.g., *up* and *down*) further
1066 specifying the location that is pointed at.

1067

1068 {Figure 11 approximately here}

1069

1070 INDEX-3 A non-pronoun pointing made with the index finger. As with other
1071 signs, the number indicates the relative point the sign is directed
1072 toward (see Figure 11).

1073

1074 CL-G- A *CL- "letter"* notation at the beginning of the gloss indicates
1075 that the corresponding sign contains a classifier handshape.

1076 Handshape symbols are based on Rissanen (1985: 68–69).

1077

1078 -"come-to-a-stop"-4-1 The end part of the gloss in Type 3 signs describing the
1079 sign's movement. The written sequence in between the quotation
1080 marks describes the overall manner of the movement. Numbers
1081 indicate the change in the location of the hand in the signing space
1082 (see Figure 11).

1083

1084 "let-it-be" Gloss-like words written in regular letters in between quotation
1085 marks represent gestures.

1086

1087 n-e-n Letters separated by hyphens refer to finger-spelled words in which
1088 every letter is expressed.

1089

1090

1091 h1/h2 When needed, the activity of the two hands is represented on
1092 separate lines. H1 stands for the dominant hand (typically the right
1093 hand of a right handed signer) and h2 for the non-dominant hand
1094 (typically the left hand of a right handed signer).

1095

1096 *Non-manual/temporal behavior in signing*

1097

1098 / The symbol of pause.

1099

1100 ' A change in non-manual behavior without a pause (e.g., when
1101 signaling a phrase or clause boundary).

1102

1103 The scope of layered non-manuals (e.g., operators, mimic behavior) is typically
1104 signaled with a line above the glossing. Alternatively, this behavior may be coded
1105 together with the symbols below.

1106

1107 *Symbols and abbreviations relating to the analysis*

1108

1109 [OWN WORK-PLACE] Syntactic constituents (phrases, clauses etc.) may be
1110 indicated within square brackets. The initial bracket may be
1111 preceded by additional grammatical information (for some of which,
1112 see below).

1113

1114 V Verbal sign in predicate function.

1115

1116	A/S	A unit referring to the single (S) or more active (A) participant
1117		(prototypically the agent) in a situation encoded by an intransitive or
1118		transitive verbal, respectively.
1119		
1120	P	A unit referring to the more passive participant in the situation
1121		encoded by a transitive verbal (prototypically the patient).
1122		
1123	NP	Syntactic phrase in which the head is a nominal.
1124		
1125	TOP	Topic.
1126		
1127	COM	Comment (clause).

FIGURES



Figure 1. A FinSL list buoy meaning 'secondly'.

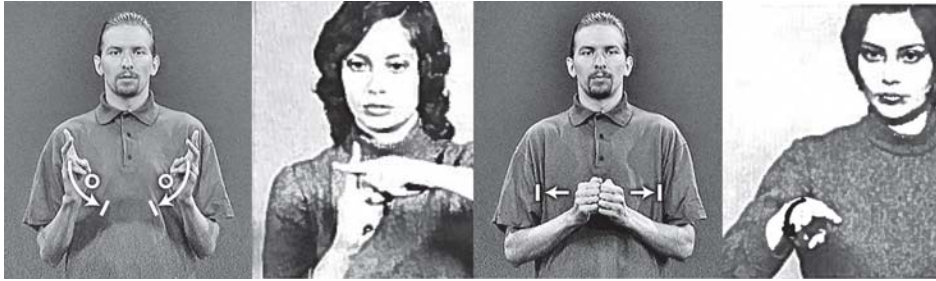


Figure 2. FinSL signs (from left to right) ALSO, PLUS, BUT, and OR.



Figure 3. The articulation of FinSL signs SPEAK (left), OR (middle), and READ (right) forming the clausal juncture of Example (11) in Section 4.1.

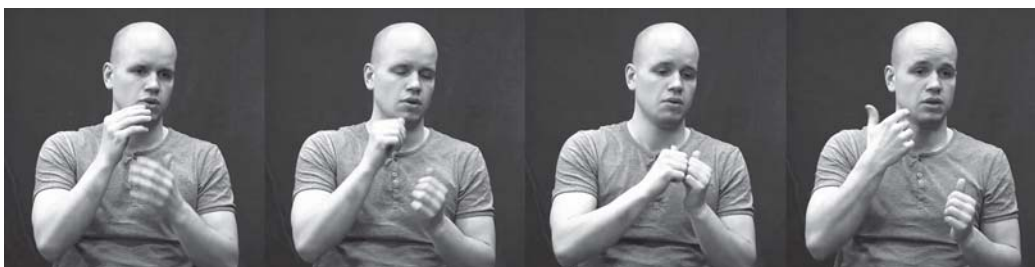


Figure 4. The articulation of the FinSL sign YES (left), eye blink and the consecutive sign BUT (the two frames in the middle, respectively), and the beginning of the sign NOW (right), all forming the clausal juncture of Example (9) in Section 4.1.

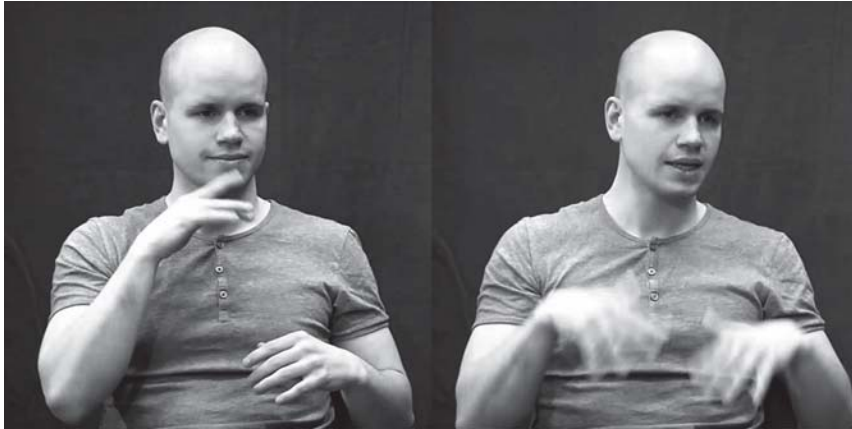


Figure 5. The articulation of the FinSL signs NICE (left) and TIRED (right) forming the clausal juncture of Example (7) in Section 4.1.

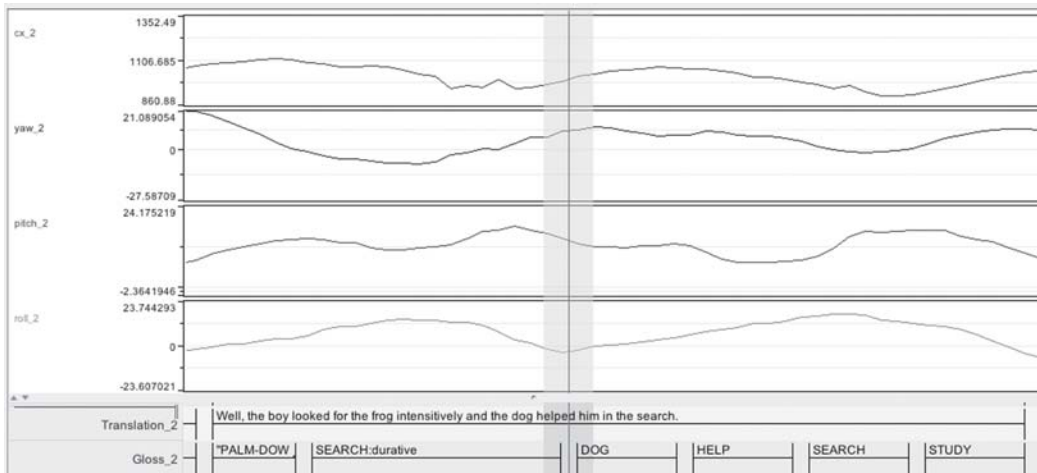


Figure 6. ELAN screenshot showing visualized head movement data for Example (4) in Section 4.1.

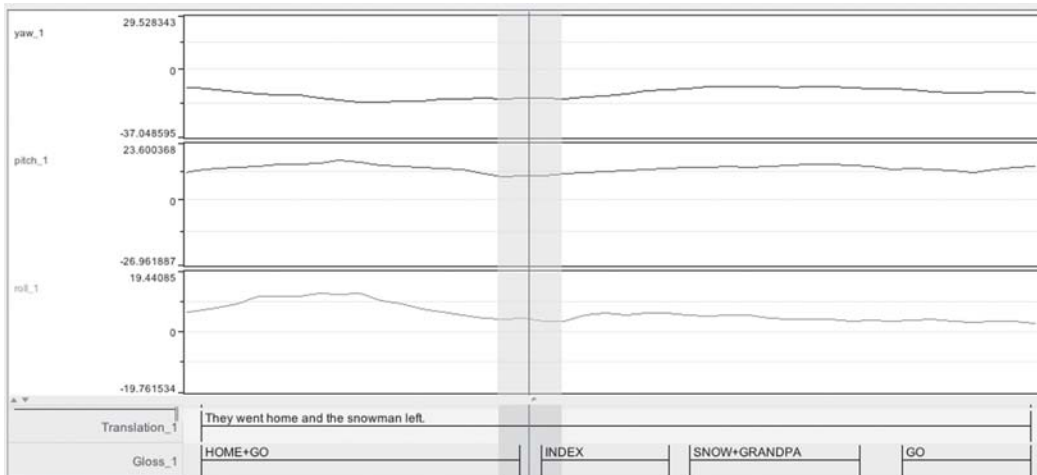


Figure 7. ELAN screenshot showing visualized head movement data for Example (5) in Section 4.1.



Figure 8. A frame from the data showing the simultaneous conjunctive construction in (15).



Figure 9. A frame from the data showing the production of the final clause in (17).

The non-dominant hand is retained in the same position as in the first clause.



Figure 10. An example of the modification of the movement parameter of a verbal resulting in two conjunctively coordinated clauses.

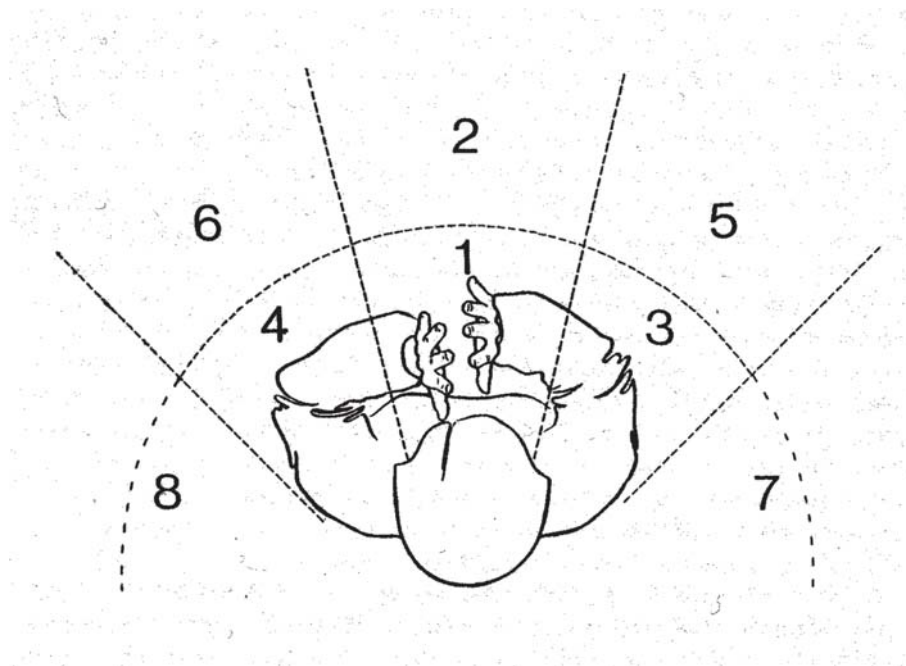


Figure 11. Locations in signing space (from Rissanen 1985: 18).