

Negation and Negative Concord in Georgian Sign Language

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8 **Keywords: negation, Negative Concord, Georgian Sign Language, modality, tense, sign**
9 **language typology**

10 **Abstract**

11 Negation is a topic that has received considerable attention ever since the early days of sign language
12 linguistics; also, it is one of the grammatical domains that has given the impetus for sign language
13 typology. In this paper, we offer a typological and theoretical contribution to the study of sign language
14 negation. As for the typological side, we add Georgian Sign Language (GESL) to the pool of languages
15 investigated. Our description reveals that GESL displays a number of typologically unusual features:
16 a considerable number of negative particles, including emphatic, prohibitive, and tense-specific
17 particles; specialized negative modals; and a wide range of possibilities for Negative Concord (NC)
18 involving two manual negative signs, including a unique tense-specific instance of NC. Most of the
19 patterns we report – available negative particles, their clausal position, and NC possibilities – are
20 clearly different from those attested in spoken Georgian. As for the theoretical contribution, we
21 investigate how the highly complex GESL negation system compares to existing taxonomies of NC
22 and Double Negation systems, and we conclude that GESL aligns with certain languages that have
23 been classified as atypical NC languages.

24 **1 Introduction**

25 Even after 60 years of linguistic study, many aspects of the grammars of natural sign languages still
26 have either not been thoroughly investigated at all, or only for a small number of (mostly Western)
27 sign languages. Clausal negation, however, is a domain of grammar that has been comparably well
28 studied for a fair number of sign languages from different geographical regions, including some so-
29 called village sign languages. Actually, next to interrogatives, negation is one of the domains of
30 grammar that gave the impetus for sign language typology, a young and thriving research field (Zeshan
31 2004a, 2004b, 2006; de Vos & Pfau 2015; Zeshan & Palfreyman 2017). Notably, clausal negation is
32 also a prominent domain of inquiry in spoken language typology (e.g., Payne 1985; Dryer 2005;
33 Miestamo 2005; Dahl 2011). Efforts have been made to compare the realization of clausal negation
34 across language modalities, that is, to investigate in how far patterns attested in sign languages (visual-
35 spatial modality) fit, or do not fit, into typological classifications put forward on the basis of a large
36 number of spoken languages (oral-auditive modality). Despite the use of resources that appear to be
37 modality-specific, such as non-manual markers, it has been suggested that typological classifications

38 can be applied to sign languages (e.g., the use of negative particles and affixes, the French-style split
39 negation) (Pfau 2008, 2015; Gökgöz 2021). However, this does not exclude the possibility that we also
40 find patterns that are either specific to sign languages as a group (i.e., modality-specific patterns) or to
41 a particular sign language.

42 In this paper, we add to the typological picture data from Georgian Sign Language (GESL), an
43 as yet understudied sign language. On the one hand, we sketch how basic clausal negation is realized
44 in this language, and we conclude that GESL can be classified as a sign language of the manual
45 dominant type. On the other hand, we zoom in on the interaction of negation with other grammatical
46 categories, namely tense, aspect, and modality. It is the latter domain of inquiry that presents us with
47 some typologically unique features – unique not only in comparison to other sign languages, but also
48 in comparison to spoken languages. Throughout, we include in the presentation various types of
49 Negative Concord that are attested in the language.

50 In the remainder of the introduction, we briefly introduce GESL, sketch some general
51 characteristics of sign language negation, and describe our methodology. In Section 2, we describe
52 how clausal negation is realized in spoken Georgian. This is important, as it will allow us to evaluate
53 whether certain patterns that we identified in GESL are possibly the result of language contact. In
54 Section 3, we then turn to a description of word order facts and the realization of basic negation in
55 GESL. The complex patterns of interaction of negation with tense, aspect, and modality, including
56 various types of Negative Concord, are detailed in Section 4. In Section 5, we investigate how the
57 highly complex GESL negation system compares to existing taxonomies of Negative Concord and
58 Double Negation systems. Section 6 concludes.

59 1.1 Georgian Sign Language

60 GESL is the sign language used by Deaf and hard-of-hearing people in Georgia. At present, it is
61 unknown how many people use GESL for communication in daily life, but it is estimated that at least
62 2,500 people use GESL on a regular basis. In the Georgian constitution, GESL is not mentioned as an
63 official language of Georgia. However, in recent years, GESL has received more and more official
64 recognition – also thanks to linguistic research on the language. It is, for instance, mentioned in various
65 governmental documents of the State Language Department and of the Ministry of Education and
66 Science. It is also the official language of instruction at the three deaf schools in Tbilisi, Kutaisi, and
67 Batumi.

68 Before becoming independent in 1991, Georgia was part of the Soviet Union, and it is therefore
69 not surprising that GESL has been influenced by Russian Sign Language, especially at the lexical level
70 – similar to other sign languages in former parts of the Soviet Union. This influence notwithstanding,
71 the available evidence suggests that GESL is an independent language, which has actually been gaining
72 strength in recent years, emancipating itself from the Russian Sign Language influence – also thanks
73 to activities of the local Deaf community.

74 To date, only a few linguistic studies on GESL are available. In 2012, an overview of the
75 language, including sociolinguistic information and a sketch of its grammar, has been published
76 (Makharoblidze 2012), followed by the publication of a GESL-Georgian dictionary with 4,000 entries
77 (Makharoblidze 2015a; see <http://gesl.iliauni.edu.ge/> for the online version). As for studies on aspects
78 of GESL grammar, Makharoblidze (2015b) describes the use of a number of indirect object markers,
79 Makharoblidze & Pfau (2018) address the interaction of negation with tense (which is also part of the
80 present study), and Makharoblidze (2019) provides an overview of verbal morphology.

81 1.2 Sign language negation

82 As mentioned before, the fact that negation is comparably well studied for sign languages – for
 83 individual sign languages as well as from an intra-modal comparative perspective – allows us to extract
 84 certain recurring typological patterns. We start by noting that all sign languages studied to date employ
 85 manual negative markers as well as non-manual markers, mostly a side-to-side headshake, in the
 86 realization of clausal negation. The way in which these two types of markers interact, however, has
 87 been shown to be subject to language-specific rules (Pfau & Quer 2002; Zeshan 2004a; Pfau 2015,
 88 2016).

89 First, in some sign languages, the use of a manual negative element is optional. In Sign Language
 90 of the Netherlands (*Nederlandse Gebarentaal*, NGT), for instance, the negative particle NOT may be
 91 used (1a), but clausal negation is more commonly realized by means of only a headshake, which
 92 simultaneously accompanies one or multiple manual signs (1c) (Oomen & Pfau 2017: 21, 23). In
 93 contrast, it is not possible to negate a clause only by means of NOT, i.e., without headshake. The corpus-
 94 based study by Oomen and Pfau reveals that the negator NOT mostly follows the verb (1a) but may also
 95 precede the VP (1b) (Oomen & Pfau 2017: 22). Furthermore, the headshake ('hs') always accompanies
 96 NOT, and, in the absence of NOT, at least the verb, but it may also spread onto the object and/or clause
 97 final pointing signs, like the repeated subject pronoun in (1c).¹

- 98
 99
- 100 (1) a. _____ hs [NGT]
 101 INDEX₁ POINT UNDERSTAND NOT
 102 'I don't understand/get the point.'
- 102 b. _____ hs
 103 INDEX₁ ACTUALLY NOT LEARN
 104 'I'm not going to learn (it).'
- 105 c. _____ hs
 106 INDEX₁ INDEX REACT INDEX₁
 107 'I don't react to it.'
- 108

109 Sign languages like NGT, in which the use of a manual negative particle is optional and spreading of
 110 the headshake is possible, are referred to as 'non-manual dominant' sign languages. Clearly, in sign
 111 languages of this type, the headshake carries negative force, as it can negate a proposition by itself, and
 112 it has therefore been suggested that examples like (1ab) exemplify Negative Concord involving a
 113 manual and a non-manual negative marker (Pfau 2016); see Section 5 for further discussion.

114 This contrasts with 'manual dominant' sign languages, in which the use of a manual negative
 115 sign is obligatory. Still, sign languages of this type also employ a headshake (or sometimes a backward
 116 head tilt), but this non-manual marker usually only accompanies the manual negator. The examples in
 117 (2) show that Italian Sign Language (LIS) belongs to this latter group. Crucially, (2b) is ungrammatical
 118 irrespective of the scope of the headshake (Geraci 2005: 221), showing that the headshake in LIS does
 119 not carry negative force.²

¹ We adopt common conventions for glossing sign language examples. Signs are glossed in SMALL CAPS; the gloss INDEX represents a pointing sign, POSS a possessive pronoun; when two words are necessary to gloss a single sign, these are separated by a period (e.g., NOT.YET); the symbol '^' indicates cliticization; subscript numbers next to INDEX or a verb sign represent loci in the signing space (1 = on or close to signer's body, 3 = in neutral signing space); lines above the gloss indicate the presence of a non-manual marker (in all our examples a headshake), the length of the line showing the scope of the marker.

² Other sign languages of the non-manual dominant type are, for instance, American Sign Language, Catalan Sign Language, Finnish Sign Language, and Indopakistani Sign Language, where a manual negative sign never renders a

- 120
121
122 (2) a. PAOLO CONTRACT SIGN NOT [LIS]
123 'Paolo didn't sign the contract.'
124 () () hs
125 b. * PAOLO CONTRACT SIGN
126 'Paolo didn't sign the contract.'
127

128 Based on the typological dichotomy and syntactic constraints imposed on the scope of the headshake,
129 it has been claimed that in many sign languages, the headshake should be considered a grammaticalized
130 gesture (van Loon et al. 2014; Pfau 2015). However, this need not be the case in all sign languages.
131 For instance, based on corpus data, Johnston (2018) has recently argued that the headshake is not a
132 grammatical marker of negation in Australian Sign Language, a manual dominant sign language: in
133 this language, headshakes are observed in just over half of the manually negated clauses (in striking
134 contrast to NGT), and their position and spreading behavior do not appear to be linguistically
135 constrained.

136 Numerous sign languages have been reported to have at their disposal multiple negative particles,
137 often expressing additional meanings, such as emphatic negatives, negative existentials, or particles
138 with additional aspectual meaning. The NGT example in (3a) involves the negative completive marker
139 NOT.YET (Coerts 1992: 209), whose handshape and movement are different from that of the negative
140 particle NOT. The use of an emphatic negative particle is illustrated by the Jordanian Sign Language
141 (LIU) example in (3b); this particle differs from the basic negator NOT, which is also present in the
142 example, in movement and accompanying facial expression (adapted from Hendriks (2008: 79); non-
143 manuals not specified in original example).

- 144
145
146 (3) a. AIRPLANE NOT.YET_{3a}COME₁ PALM.UP [NGT]
147 'The plane has not yet arrived.'
148 b. NEG.EMPH SMOKE NEG.EMPH // JORDAN NOT [LIU]
149 'No, of course I don't smoke. That's not done in Jordan.'
150

151 In addition, it is fairly common across sign languages to have special forms for negative modals, be it
152 cliticized or suppletive forms (Shaffer 2002; Zeshan 2004a; Pfau & Quer 2007). Such specialized
153 manual negators will play a prominent role in our discussion of GESL negation in Sections 3 and 4.

154 1.3 Methodology

155 Many of the patterns we describe in this paper were first observed in spontaneous narratives, about five
156 hours in total, produced by 15 native signers (age 24–65), which have been recorded for the purpose
157 of studying sociolinguistic properties of GESL, as well as its verbal morphology. All signers are from
158 Tbilisi and are members of the Deaf Union of Georgia.

159 Subsequently, the patterns concerning negation that we had extracted from the spontaneous data
160 were supplemented by elicited data and grammaticality judgements. Five GESL signers from Tbilisi

4
sentence negative by itself; the group of manual dominant sign languages includes, for instance, Hong Kong Sign Language and Jordanian Sign Language. Turkish Sign Language appears to present us with a hybrid type, as a manual negator is obligatory, but the relevant non-manual marker is capable of spreading (Gökgöz 2011).

161 (age 22–60) participated in an elicitation session, administered by a sign language interpreter, who is
 162 also a native signer. These five signers are born and raised in Deaf families and are actually either from
 163 the third or fourth Deaf generation within their family. They are also members of the Deaf Union of
 164 Georgia and are considered as the best GESL signers among the community members. Four of them
 165 teach GESL to other Deaf and hard-of-hearing people at the Deaf Union and/or at Deaf schools. The
 166 elicited data confirmed the patterns we had previously observed (e.g., basic negation strategy, Negative
 167 Concord), but also presented us with additional negation strategies (e.g., specific negative particles).

168 In a third step, we also obtained grammaticality judgements on pre-recorded sentences which
 169 either mirrored the negation patterns found in the spontaneous and elicited data, or in one way or the
 170 other deviated from them. This allowed us to further confirm these patterns, and also to identify
 171 ungrammatical structures. The same five signers participated in the grammaticality judgement task.

172 2 Negation in spoken Georgian

173 In this section, we sketch the realization of sentential negation in Georgian, the spoken language that
 174 GESL is in contact with, as we are also interested in possible language contact phenomena. Georgian
 175 has two basic negative particles: *ar(a)* ‘not’ (which also functions as negative reply ‘no’) and *ver(a)*,
 176 which has a modal flavor and is often translated as ‘cannot’, although the modal meaning may at times
 177 be rather subtle. Both particles always directly precede the lexical verb, as is shown in the examples in
 178 (4) and (5). In (5), we also illustrate the difference between the two particles. The version in (5b) is the
 179 neutral negative version; it simply implies that no letter-writing has taken place, for instance, because
 180 the speaker didn’t want to. In principle, (5c) could receive the same translation, but it implies that there
 181 was an intention to write a letter, and that specific reasons made it impossible (e.g., lack of time, no
 182 stationery available) (PREV = preverb, AOR = aorist).

- 183
- 184 (4) a. chem-s z’ma-s mo-s-c’on-s brok’ol-i
 185 my-DAT brother-DAT PREV-3OBJ-like-3SBJ broccoli-NOM
 186 ‘My brother likes broccoli.’
- 187 b. chem-s z’ma-s **ar** mo-s-c’on-s brok’ol-i
 188 my-DAT brother-DAT NEG PREV-3OBJ-like-3SBJ broccoli-NOM
 189 ‘My brother does not like broccoli.’
 190
- 191 (5) a. me da-v-c’er-e c’eril-i
 192 I PREV-1SBJ-write-AOR letter-NOM
 193 ‘I wrote a letter.’
- 194 b. me **ar** da-v-c’er-e c’eril-i
 195 I NEG PREV-1SBJ-write-AOR letter-NOM
 196 ‘I did not write a letter.’
- 197 c. me **ver** da-v-c’er-e c’eril-i
 198 I NEG(MOD) PREV-1SBJ-write-AOR letter-NOM
 199 ‘I did/could not write a letter.’
 200

201 Word order in Georgian is fairly free. The above examples, and the ones to follow, display the common
 202 SVO order, but SOV is also attested (alongside other permutations). In both orders, the negative
 203 particles precede the verb, that is, the standard orders in negated clauses are SNegVO and SONegV,
 204 respectively.

205 When neg-words or negative adverbials are used, Negative Concord (NC) is very common in
 206 Georgian, but it is not obligatory. This is illustrated for the neg-word *araperi* ('nothing') in object
 207 position in (6) and for the negative adverbial *arasodes* ('never') in (7) (VER = marker of version). The
 208 (b)-examples involve the negative particle *ar(a)*, but NC involving the particle *ver(a)* is also attested,
 209 as is shown in (6c) – in this case, the neg-word adapts to the negative particle.³

210

211 (6) a. chem-ma da-m araper-i i-q'id-a
 212 my-ERG sister-ERG nothing-NOM VER-buy-3SBJ
 213 'My sister bought nothing.'

214 b. chem-ma da-m ar i-q'id-a araper-i
 215 my-ERG sister-ERG NEG VER-buy-3SBJ nothing-NOM
 216 'My sister bought nothing.'

217 c. chem-ma da-m ver i-q'id-a veraper-i
 218 my-ERG sister-ERG NEG VER-buy-3SBJ nothing-NOM
 219 'My sister did/could not buy anything.'

220

221 (7) a. shen-i megobar-i arasodes sv-am-s lud-s
 222 your-NOM friend-NOM never drink-TH-3SBJ beer-DAT
 223 'Your friend never drinks beer.'

224 b. shen-i megobar-i arasodes ar sv-am-s lud-s
 225 your-NOM friend-NOM never NEG drink-TH-3SBJ beer-DAT
 226 'Your friend never drinks beer.'

227

228 Besides the two particles mentioned above, Georgian has an additional negative particle, prohibitive
 229 *nu*, which can only be used in the imperative and which – just like the other particles – always
 230 immediately precedes the verb; cf. (8).

231

232 (8) nu c'a-x-val ase šors.
 233 NEG(PROH) PREV-2SBJ-go so far
 234 'Do not go so/too far!'

235

236 Further phenomena related to negation in spoken Georgian will be introduced in subsequent sections
 237 in order to scrutinize in how far spoken Georgian has possibly had an impact on the realization of
 238 negation in GESL. While it has long been demonstrated that natural sign languages generally do not
 239 copy the grammatical structure of the surrounding spoken language (e.g., word order, availability of
 240 certain grammatical categories), it is also clear that the spoken language may have an influence on the
 241 sign language (Plaza Pust 2005; Adam 2012) – and this is a possibility we want to explore for GESL.

242 3 Word order and basic negation in GESL

243 3.1 Word order in affirmative clauses

³ An interesting observation that is not well investigated for Georgian, and that we cannot go into here, concerns the fact that neg-words in object position prefer the preverbal position (6a), while in an NC structure, they normally follow the verb (6b).

244 Similar to what we described for Georgian, word order is also free in GESL. Besides SVO and SOV
 245 orders, V-initial and O-initial orders are also attested – albeit less frequently – where the latter order
 246 arguably results from topicalization (though information structure has not yet been fully investigated
 247 for GESL). Napoli & Sutton-Spence (2014) demonstrate that across sign languages, it not at all
 248 uncommon to find both SVO and SOV within a single language, but that generally, the order is less
 249 constrained for verbs that allow spatial modification to indicate their arguments, i.e., so called
 250 ‘agreeing’ or ‘indicating’ verbs. In a nutshell, in these verbs, the start point of the verb’s movement
 251 trajectory typically aligns with the locus in space associated with the subject, while the end point aligns
 252 with the locus associated with the object.⁴ GESL also distinguishes verbs that can be modified in this
 253 way (e.g., TALK.TO, ANSWER, GIVE) and verbs that cannot be spatially modified (so-called ‘plain’ verbs,
 254 e.g., LIKE, UNDERSTAND, HELP). Interestingly, however, in GESL, word order is free with all verbs, as
 255 is shown in (9) for the plain verb LIKE and in (10) for the agreeing verb TALK.TO. Sentence adverbials
 256 commonly occupy a clause-initial position (10), but they may also appear clause-finally.

257

258 (9) a. POSS₁ BROTHER LIKE VEGETABLE259 b. POSS₁ BROTHER VEGETABLE LIKE
260 ‘My brother likes vegetables.’

261

262 (10) a. YESTERDAY INDEX₁ ₁TALK.TO₃ FRIEND^{DAT}263 b. YESTERDAY INDEX₁ FRIEND^{DAT} ₁TALK.TO₃
264 ‘Yesterday I talked to a friend.’

265

266 Note that GESL has a rich system of manual case markers that only combine with animate arguments
 267 and that may cliticize to the noun they accompany. We shall not discuss these markers in detail, as they
 268 are not relevant in the present context (see Makharoblidze 2015b). Still, as some of the examples we
 269 present include such markers, and given that some informants judge at least some examples as marked
 270 or even ungrammatical when the case marker is omitted, they have to be mentioned. The dative marker
 271 in (10), for instance, involves a H-handshape, which cliticizes to the noun FRIEND; cliticization is
 272 realized by a continuous movement contour from the noun to the case marker, such that the latter loses
 273 its syllabicity (cliticization is indicated by ‘^’).

274 3.2 Basic negation

275 The basic clause negator in GESL, which we gloss as NEG-1, is articulated with a flat hand (all fingers
 276 extended, palm facing forward), which executes a small repeated shaking movement resulting from
 277 rotation of the lower arm. This particle usually appears clause-finally, but it may also precede the verb,
 278 as is shown by the two examples in Figure 1, which express exactly the same meaning. Both examples
 279 display OV order, but given that VO order is also possible, other attested orders are SVONeg and
 280 SNegVO. Remember from the discussion in Section 2 that of these four orders, spoken Georgian only
 281 allows those in which the negative particle immediately precedes the verb (i.e., SNegVO, as in (4b),
 282 and SONegV).

283

⁴ We are neglecting many important details here, which have triggered interesting discussions in the sign linguistics literature regarding the proper treatment of the spatial modification of verbs. For different theoretical accounts, see Padden (1988), Meir (2002), Liddell (2003), Lillo-Martin & Meier (2011), Pfau et al. (2018), and Schembri et al. (2018), among others.

284 < Insert Figure 1 around here (caption at end of document) >

285 Such a variable position of the basic clause negator, without semantic impact, has also been described
 286 for other sign languages. For instance, in NGT, a sign language which allows for OV and VO order,
 287 the particle NOT also most commonly appears clause-finally, but in contrast to GESL, its alternative
 288 position is preceding the entire VP (Oomen & Pfau 2017); the opposite pattern has been described for
 289 American Sign Language (ASL; Wood 1999). It is not really clear what underlies this variability; while
 290 Oomen and Pfau assume that pre-VP placement results from Neg-movement, Wood argues that
 291 sentence-final placement of NOT is derived by VP-movement to a position preceding the negator.

292 Judgements by all of our informants indicate that GESL has to be classified as a manual dominant
 293 sign language. They unanimously agree that examples like those in (11) are ungrammatical –
 294 irrespective of word order and irrespective of the exact spreading domain of the headshake (which, in
 295 the below examples, is the VP). In other words: the headshake by itself does not contribute negative
 296 force, and therefore a manual negator is required in the expression of clausal negation. Moreover, all
 297 the examples we extracted from the data include a headshake, and it appears (i) that the headshake
 298 always accompanies at least one manual sign (i.e., it does not appear by itself, but may also not be left
 299 out), (ii) that the predicate generally falls under the scope of the headshake, and (iii) that headshake on
 300 the entire VP is possible. However, further possibilities for and constraints on spreading have not been
 301 explored in detail, and therefore, we will not gloss the headshake in the remainder of this article, leaving
 302 this issue, that is, the question in how far the headshake is grammaticalized in GESL, for future
 303 investigation.

- 304
 305 hs
 306 (11) a. * POSS₁ BROTHER LIKE VEGETABLE
 307 'My brother doesn't like vegetables.'
 308
 309 hs
 310 b. * YESTERDAY INDEX₁ TALK.TO₃ FRIEND^{DAT}
 311 'Yesterday I did not talk to a friend.'

312 GESL has a second negative particle which is widely used, and which behaves in exactly the same way
 313 as the particle *ver(a)* we described for Georgian (see (5c)). That is, this particle, which we gloss as
 314 NEG-2, has a modal flavor and can often be translated as 'cannot' (deontically and epistemically); it is
 315 signed with a *f*-hand (thumb and pinky extended) which initially makes contact with the nose and
 316 moves forward, as illustrated in Figure 2. Crucially, this particle cannot combine with modal verbs (see
 317 Section 4.1 for discussion), it always expresses the modal/circumstantial meaning by itself
 318 (Makharoblidze 2019). The use of NEG-2 is illustrated in (12). Similar to what we described for the
 319 clause negator NEG-1, different word orders are possible; the particle may, for instance, follow (12a)
 320 or precede (12b) the verb.

321
 322 < Insert Figure 2 around here (caption at end of document) >

- 323
 324 (12) a. YESTERDAY POSS₁ FRIEND VISIT NEG-2
 325 'Yesterday my friend didn't/couldn't visit me.'
 326 b. INDEX₁ LETTER NEG-2 WRITE
 327 'I don't/cannot write a letter.'

328

329 Besides the two basic clause negators, GESL employs some specialized negative particles with
 330 additional semantics. One of these is the emphatic negator NEG(EMPH), illustrated in Figure 3a. This
 331 particle, which appears to have grammaticalized from the two-handed sign DEAD, expresses strong
 332 negation ('really not'), as shown in (13a). The other one, which we gloss as NEG(PROH), expresses a
 333 prohibitive meaning and is used mostly in negative imperatives (13b). Both particles follow the verb.⁵

334

335 < Insert Figure 3 around here (caption at end of document) >

336

337 (13) a. INDEX₃ EAT MEAT NEG(EMPH)

338 'He really doesn't eat meat.'

339 b. SMOKE NEG(PROH)

340 'Don't smoke!'

341

342 The usage of the particle NEG(PROH) resembles that of the particle *nu* that we described for Georgian
 343 in (8). It is thus possible that the existence of a dedicated prohibitive marker is the result of language
 344 contact. Remember, however, that while *nu* always precedes the verb, NEG(PROH) must follow the verb
 345 (but see (17a) below).⁶

346 3.3 Negative Concord

347 Having established that GESL is a manual dominant sign language which features two basic negative
 348 particles and two negative particles with additional semantics, we now turn to Negative Concord. In
 349 GESL, just as in spoken Georgian, NC is attested, but not obligatory, in sentences involving neg-words
 350 like NOTHING or NEVER. In (14), this is illustrated for both NEG-1 and NEG-2, occupying a postverbal
 351 position in an SOV structure (14a) or a preverbal position in an SVO structure (14b). We even came
 352 across examples in which three negative signs are combined (14c). In the remainder of this paper, we
 353 will not include patterns with three manual negative elements in our discussion of NC.

354

355 (14) a. YESTERDAY INDEX₁ NOTHING BUY (NEG-1/NEG-2)

356 'Yesterday I didn't/couldn't buy anything.'

357 b. POSS₁ BROTHER NEVER (NEG-1/NEG-2) DRINK BEER

358 'My brother never drinks / can never drink beer.'

359 c. HERE NOBODY NEVER STUDY (NEG-1/NEG-2)

360 'Nobody ever studies / can ever study here.'

⁵ GESL has a lexical verb PROHIBIT, which is not phonologically related to NEG(PROH) in any way. Note further that the negative modal MUST.NEG (see Figure 4c) can also be used as a prohibitive marker.

⁶ For the sake of completeness, let us add that GESL also features two negation strategies that appear to be derivational in nature. First, the sign EMPTY can combine with nouns to yield a meaning comparable to the English negative suffix *-less* (e.g., HEART^EMPTY 'heartless'). Second, the sign WITHOUT can combine with signs of various lexical categories to express a meaning similar to the English prefix *un-* (e.g., WORK^WITHOUT 'unemployed'). More in-depth study is required, but it appears that both these signs have undergone grammaticalization. Note further that EMPTY may also be used as a negative possessive, as in FATHER HOUSE EMPTY ('Father does not have a house'), suggesting an intermediate stage on the grammaticalization path.

361

362 NEG-1 and NEG-2 can also combine within a clause, but only if NEG-2 precedes NEG-1 (15a–d). The
 363 resulting meaning is purely modal and can only mean ‘cannot’. Note further that there is only one
 364 postverbal slot for negation; hence a combination of postverbal NEG-1 and NEG-2 is ruled out,
 365 irrespective of order. The corresponding combination of particles, that is, of *ar(a)* and *ver(a)*, within a
 366 clause is not grammatical in spoken Georgian.

367

368 (15) a. WOMAN NEG-2 SING NEG-1
 369 ‘The woman cannot sing.’

370 b. WOMAN NEG-2 NEG-1 SING
 371 ‘The woman cannot sing.’

372 c. * WOMAN NEG-1 NEG-2 SING
 373 ‘The woman cannot sing.’

374 d. * WOMAN NEG-1 SING NEG-2
 375 ‘The woman cannot sing.’
 376

377 Furthermore, either of the two basic negative particles may combine with the emphatic negative
 378 particle NEG(EMPH) within a clause, as shown in (16).

379

380 (16) SATURDAY INDEX₃ NEG-1/NEG-2 WORK NEG(EMPH)
 381 ‘On Saturday, he really doesn’t/cannot work.’
 382

383 The prohibitive particle NEG(PROH) occasionally combines with the basic clause negator NEG-1,
 384 yielding another type of NC. While NEG(PROH) always follows the verb when appearing by itself (13b),
 385 when combined with NEG-1, it usually precedes the verb and NEG-1 follows the verb (17a). However,
 386 in contrast to NEG(EMPH), NEG(PROH) cannot co-occur with NEG-2, as shown by the ungrammaticality
 387 of (17b). In Georgian, both corresponding combinations, i.e., of *nu* and *ar(a)* and of *nu* and *ver(a)*,
 388 would yield an ungrammatical sentence.

389

390 (17) a. NEG(PROH) SISTER PUSH NEG-1
 391 ‘Don’t push your sister!’

392 b. * NEG(PROH) SISTER PUSH NEG-2
 393 ‘Don’t push your sister!’
 394

395 Note further (i) that NEG(EMPH) and NEG(PROH) may not be combined within a clause, and (ii) that both
 396 these particles may combine with neg-words – similar to what we described for NEG-1 and NEG-2 (14).
 397 Actually, the combination of one of these four negative particles with a neg-word is the most commonly
 398 attested type of NC in GESL.

399

400 Taken together, we observe that GESL optionally allows for various types of NC, involving the
 401 basic negative particles (which may also combine with each other), neg-words, the emphatic negative
 402 particle, and the prohibitive particle. Yet, not all logically possible combinations are grammatical. We
 pointed out that NC is also optionally possible in Georgian. However, it is noteworthy that many of the

403 combinations that are attested in GESL are ruled out in Georgian. Further types of NC will be addressed
 404 in Section 4, and in Section 4.4, we will present an overview table of the attested combinations.

405 **3.4 Summary**

406 Word order in GESL is rather free, and this freedom extends to the positioning of negative particles
 407 vis-à-vis the verb and object. While GESL shares the former property, flexible word order, with spoken
 408 Georgian, the latter property is clearly different from Georgian, where the negative particles must
 409 immediately precede the verb. The usage of a manual negative element is obligatory in GESL, that is,
 410 the language has to be classified as a manual dominant sign language. GESL has a rich inventory of
 411 negative particles. So far, we presented four particles, two of which, NEG-1 and NEG-2, we consider
 412 basic (although the latter comes with additional modal meaning), and two, NEG(EMPH) and NEG(PROH),
 413 which carry additional meaning. Further particles will be introduced in the next section. Both GESL
 414 and Georgian optionally allow for Negative Concord, but differ from each other with respect to which
 415 negative elements can be combined within a clause.

416 **4 On the interaction of negation with tense, aspect, and modality**

417 Having discussed the basic negation strategies of GESL, we now turn to a description of how negation
 418 interacts with other grammatical categories, viz. tense, aspect, and modality. The fact that negation
 419 commonly interacts with modal notions in interesting ways has been described for many spoken and
 420 signed languages (de Haan 1997; Zeshan 2004a; Iatridou & Zeijlstra 2013; Homer 2015, among
 421 others). In Section 4.1, we address dedicated negative modals that we identified in GESL.
 422 Subsequently, in Section 4.2, we turn to the use of tense- and aspect-specific negative particles.
 423 Typological studies show that the usage of negators or negation strategies that are specific to certain
 424 tenses is not uncommon across spoken languages (e.g., Miestamo 2005); however, to date, only few
 425 such cases have been described for sign languages. Finally, in Section 4.3, we address a typologically
 426 highly unusual three-way interaction between negation, modality, and tense, namely a tense-specific
 427 occurrence of NC.

428 **4.1 Negative modals**

429 For many sign languages, it has been observed that they employ special forms of modal verbs in the
 430 context of negation (Shaffer 2002; Zeshan 2004a; Pfau & Quer 2007). Such negative modals may result
 431 from cliticization of the basic clause negator to the modal, or they may be suppletive forms. GESL is
 432 no exception in this respect. Besides the basic negative particle NEG-2, which, as pointed out above,
 433 may, but doesn't have to introduce modal force, GESL has special negative forms for the modals CAN-
 434 1, WANT, MUST, and KNOW.⁷ The four modals as well as their negative counterparts are illustrated in
 435 Figure 4.

436
 437 **< Insert Figure 4 around here (caption at end of document) >**

438

⁷ KNOW is a lexical verb in GESL, but – as in many other languages, including spoken Georgian – it is commonly understood and behaves like an epistemic modal: as we show here, it displays partial suppletion in the context of negation, and, as will be shown in Section 4.3, it also behaves like other modals in past tense contexts.

439 The stills make clear that the formational changes observed in the negative forms differ from modal to
 440 modal: while CANNOT-1⁸, WANT.NOT, and MUST.NOT are characterized by different types of movement
 441 changes, KNOW.NOT involves a change in handshape. To be precise: CAN-1 involves a downward
 442 movement of two 6-hands articulated at the wrist, while CANNOT-1 is articulated with a sideward
 443 movement of both hands; in WANT, the fingertips of the : -hand contact the contralateral side of the
 444 chest, while in WANT.NOT, a sideward movement to the ipsilateral side is added; in MUST, the palm of
 445 the hand (thumb contacts ring finger) is oriented upwards, and the sign involves a repeated sideward
 446 movement on the horizontal plane, while in MUST.NOT, the palm is initially oriented outward, and by
 447 rotating the lower arm, it is turned inward, then outward again; finally, in KNOW, the B-hand contacts
 448 the forehead and then moves downward, while in KNOW.NOT, the T-hand makes contact and changes
 449 into a C-hand while performing the downward movement.

450 The forms in Figure 4 thus neither involve cliticization of one of the basic negators nor are they
 451 clear cases of suppletion, as most phonological aspects of the base signs are preserved (see Zeshan
 452 (2004a: 41–51) and Quer (2012: 320–323) for discussion of different types of “irregular negatives”
 453 across sign languages). We therefore consider these as instances of partial suppletion which are
 454 characterized by simultaneous, i.e., stem-internal changes. In (18) and (19), we illustrate the use of the
 455 first two of these modals by means of glossed examples. Once again, the examples exemplify that
 456 different orders are attested. Note, however, that the SOModV order of (18) can also apply to the modal
 457 WANT/WANT.NOT and, vice versa, the SModVO order of (19) is also possible for CAN-1/CANNOT-1.

458

459 (18) a. INDEX₃ DINNER CAN-1 PREPARE
 460 ‘She/he can prepare the dinner’

461 b. INDEX₃ DINNER CANNOT-1 PREPARE
 462 ‘She/he cannot prepare the dinner’

463

464 (19) a. STUDENT WANT STUDY FRENCH
 465 ‘The student wants to study French.’

466 b. STUDENT WANT.NOT STUDY FRENCH
 467 ‘The student does not want to study French.’

468

469 The examples in (20ab) further reveal that NC involving a negative modal and one of the two basic
 470 clause negators is impossible. We only illustrate this for clause-final NEG-1/NEG-2, but the
 471 ungrammaticality is independent of the position of the negative particle. Crucially, however, we will
 472 demonstrate in Section 4.3 that, quite strikingly, this ban on NC is lifted for NEG-1 in past tense
 473 contexts. Furthermore, while the combinations illustrated in (20ab) are ungrammatical, negative
 474 modals may combine with NEG(EMPH), as shown for WANT.NOT in (20c).

475

476 (20) a. * INDEX₃ DINNER CANNOT-1 PREPARE NEG-1/NEG-2
 477 ‘She/he cannot prepare the dinner.’

478 b. * STUDENT WANT.NOT STUDY FRENCH NEG-1/NEG-2

⁸ As suggested by the gloss, there are alternative forms of the modal CAN (CAN-2 and CAN-3). These two forms are negated in a different way, i.e., by a combination of the previously introduced NEG-2 with a flat hand. It is likely that this compound form results from a fusion of NEG-2 with NEG-1. We will not include CAN-2 and CAN-3 in the following discussion, but it is worth noting that different variants of the modal verb CAN may combine within a clause (e.g., GIRL CAN-1 DANCE CAN-2 ‘The girl can dance’).

- 479 'The student does not want to study French.'
- 480 c. STUDENT WANT.**NOT** STUDY FRENCH NEG(**EMPH**)
- 481 'The student really does not want to study French.'
- 482

483 In clear contrast to GESL, Georgian does not employ specialized negative modals; rather modal verbs
 484 are negated in the same way as lexical verbs. In (21), we illustrate this only for the modal verb *dzl*
 485 ('can'), but the same is true for other modal verbs. As is evident from (21b), the form of the modal
 486 remains the same; the only change observed is the addition of the negative particle. Note that modal
 487 verbs can only combine with the negative particle *ar(a)*, as the particle *ver(a)* itself is endowed with
 488 modal meaning.

- 489
- 490 (21) a. c'el-s čven še-gv-i-dzl-i-a ardadeg-eb-ze
 491 this.year-DAT we PREV-1PL.OBJ-VER-can-RM-3SBJ vacation-PL-on
 492 c'a-svl-a
 493 PREV-go-INF
 494 'This year, we can go on vacation.'
- 495 b. c'el-s čven **ar** še-gv-i-dzl-i-a ardadeg-eb-ze
 496 this.year-DAT we NEG PREV-1PL.OBJ-VER-can-RM-3SBJ vacation-PL-on
 497 c'a-svl-a
 498 PREV-go-INF
 499 'This year, we cannot go on vacation.'

500 4.2 Tense- and aspect-specific negative particles

501 In the data we collected, we also encountered tense- and aspect-specific negative particles, another
 502 phenomenon that is not attested in spoken Georgian. The first of these particles is the particle
 503 NEG(PERF), illustrated in Figure 5a, which is clearly a mono-morphemic form and is used in perfective
 504 (or completive) contexts (22a). Crucially, the aspectual interpretation results from the use of the particle
 505 alone (cf. use of the particle NOT.YET in the NGT example in (3a)). (22b) shows that, just like other
 506 negative particles, NEG(PERF) may also precede the verb, and that it may optionally combine with the
 507 basic clause negator NEG-1 (note that the reverse order of the two particles would also be grammatical).
 508 However, in crucial contrast to the basic clause negator NEG-1, NEG(PERF) cannot combine with NEG-2
 509 (22c).

- 510
- 511 (22) a. INDEX₁ STEAL INDEX₃ BOOK NEG(**PERF**)
 512 'I have not stolen this book.'
- 513 b. INDEX₁ NEG(**PERF**) STEAL INDEX₃ BOOK NEG-**1**
 514 'I have not stolen this book.'
- 515 c. * INDEX₁ NEG(**PERF**) STEAL INDEX₃ BOOK NEG-**2**
 516 'I have not stolen this book.'

517

518 < Insert Figure 5 around here (caption at end of document) >

519

520 Next to NEG(PERF), we came across the tense-specific particle NEG(FUT), which is only used in the
 521 future tense. Figure 5b illustrates that NEG(FUT) is a compound form by origin, involving the basic
 522 clause negator NEG-1. However, the meaning of the first part is no longer transparent, and the second
 523 part has lost the side-to-side movement characteristic of NEG-1. The sign only involves a short outward
 524 rotation of the hand during which the handshape changes. Use of this particle alone is sufficient to
 525 encode the temporal meaning and thus makes the use of the future tense marker FUTURE unnecessary
 526 (23ab). Alternatively, the marker FUTURE can be used in combination with the basic negator NEG-1
 527 (23c), and also in combination with NEG(FUT), leading to double marking of future tense, as illustrated
 528 in (23d). Note further that, just like NEG(PERF), NEG(FUT) may also precede the verb and may combine
 529 with NEG-1, but not with NEG-2 (23e).⁹

530

531 (23) a. INDEX₁ FUTURE WRITE LETTER

532 'I will write a letter.'

533 b. INDEX₁ WRITE LETTER NEG(FUT)

534 'I will not write a letter.'

535 c. INDEX₁ FUTURE WRITE LETTER NEG-1/NEG-2

536 'I will not (be able to) write a letter.'

537 d. INDEX₁ FUTURE WRITE LETTER NEG(FUT)

538 'I will not write a letter.'

539 e. INDEX₁ NEG(FUT) WRITE LETTER NEG-1 / *NEG-2

540 'I will not write a letter.'

541

542 There is a third sign which might be analyzed as a tense-specific negative particle, namely the sign
 543 which could be glossed as NEG(PST). However, in contrast to the two signs in Figure 5, this is a
 544 transparent combination of two existing signs: the past tense copula WAS and the basic negator NEG-1.
 545 We are therefore reluctant to analyze this sign, which in principle might also be glossed as WAS^NEG-
 546 1, as a dedicated negative particle. Evidence that suggests that we might indeed be dealing with a more
 547 conventionalized form, possibly in the process of being grammaticalized, comes from the observation
 548 that the parts can never be separated; that is, a string like DRESS WAS BEAUTIFUL NEG-1 (implied
 549 meaning 'The dress was not beautiful') is ungrammatical, and the order would rather have to be DRESS
 550 BEAUTIFUL WAS^NEG-1. In other words: in such contexts, use of the conventionalized combination is
 551 obligatory. Further research is necessary to determine the exact present status of WAS^NEG-1 /
 552 NEG(PST).

553 As already pointed out above, tense-specific negative particles (or negation strategies) are not
 554 uncommon in spoken languages. Makharoblidze & Pfau (2018: 147), for instance, observe that out of
 555 the 297 languages listed in the Appendix to Miestamo (2005), 53 (18%) display tense-specific negation
 556 strategies. Yet, when it comes to sign languages, the use of a tense-specific negative particle has to
 557 date only been reported for Israeli Sign Language (Meir 2004). In contrast to the particle we described
 558 for GESL, the one identified for Israeli Sign Language carries a past tense meaning and is therefore
 559 glossed as NEG-PAST. Yet, similar to what we described for GESL, Meir shows that use of NEG-PAST
 560 alone yields the desired past tense reading (e.g., INDEX₃ SLEEP NEG-PAST 'He didn't sleep at all').

⁹ What we have to leave open for now is the combination of negative modals with either NEG(PERF) or NEG(FUT). Apparently, different modals behave differently in this respect; it seems, for instance, that NEG(FUT) can combine with WANT.NOT but not with CANNOT-1. For this reason, we include a '?' in the relevant cells in Table 1 in Section 4.4.

561 **4.3 A negation-modality-tense interaction**

562 In Section 4.1, we introduced negative modals, and we showed that these modals cannot combine with
 563 the basic clause negator NEG-1. However, when studying GESL modal verbs in more detail and
 564 eliciting clauses with different tense specifications (as overtly indicated by adverbials) from native
 565 signers, Makharoblidze & Pfau (2018) noticed that in past tense contexts, the signers systematically
 566 combined the special negative form of the modal with the manual sign NEG-1. In Figures 6 and 7, we
 567 provide examples that illustrate this pattern for the negative modals CANNOT-1 and WANT.NOT,
 568 respectively. Once again, different orders are possible but the negative particle NEG-1 must always
 569 follow the negative modal (similar to what we observed when it combines with NEG-2; see (15)). Figure
 570 6 exemplifies the order (S)–NEG.MOD–NEG-1–VP, while the order (S)–NEG.MOD–VP–NEG-1 is
 571 illustrated in Figure 7.

572
 573 < Insert Figure 6 around here (caption at end of document) >

574
 575 < Insert Figure 7 around here (caption at end of document) >

576
 577 The pattern we observe in Figures 6 and 7 is in striking contrast to what we described for present tense
 578 examples in (20), where the combination of a negative modal and NEG-1 leads to ungrammaticality. In
 579 (24a), we further illustrate this constraint with the present tense equivalent of the example in Figure 7
 580 (we add an overt subject pronoun in order to make clear that the ungrammaticality does not result from
 581 the missing subject). It is thus evident that the ban on NC between a negative modal and NEG-1 does
 582 not apply to all tenses.¹⁰ In fact, further discussions with the informants revealed that this type of NC
 583 is obligatory in past tense contexts, as shown by the ungrammaticality of (24b).

584
 585 (24) a. * TODAY INDEX₁ WANT.NOT NEG-1 INDEX₃ PAINT
 586 'Today I don't want to paint it.'

587 b. * LAST NIGHT INDEX₁ CANNOT-1 SLEEP
 588 'Last night I couldn't sleep.'

589
 590 Makharoblidze & Pfau (2018) also offer a brief discussion of the GESL pattern from a cross-linguistic
 591 perspective. On the one hand, they show that NC involving negative modals has been described for
 592 some sign languages (e.g., ASL and NGT). Crucially, however, this type of NC is never constrained
 593 to a specific tense. On the other hand, they present examples from two spoken languages – Arapesh (a
 594 Torricelli language spoken in Papua New Guinea) and Lewo (an Austronesian language spoken on
 595 Vanuatu) – in which one tense is negated by a single marker, while another tense requires double
 596 marking. These examples, however, do not involve negative modals; rather, it is the basic negation
 597 strategy that differs dependent on tense.¹¹ It thus appears that GESL presents us with a type of NC that

¹⁰ In contrast to the ban on NC between a negative modal and NEG-2, which does apply to all tenses.

¹¹ Moreover, in the spoken languages, present and past tense are grouped together (realis) and distinguished from future (irrealis) in the context of negation, while in GESL, present and future tense align and contrast with past tense.

598 has not previously been described for any signed or spoken language: obligatory, tense-specific NC
599 involving negative modals.

600 4.4 Summary

601 Beyond the basic and specialized (emphatic, prohibitive) negative particles discussed in Section 3.2,
602 GESL also features two (maybe three) tense/aspect-specific negative particles as well as specialized
603 negative modals, which we analyze as partially suppletive forms. Again, NC is attested, but it is
604 severely constrained: both tense/aspect-specific particles may combine with NEG-1 and NEG(EMPH) but
605 not with NEG-2, and for obvious reasons, they cannot combine with each other; for semantic reasons,
606 NEG(PROH) can only combine with NEG(FUT). Negative modals are particularly interesting in this
607 respect, as they can combine neither with NEG-1 nor with NEG-2 in non-past contexts, but must combine
608 with NEG-1 in the past tense. An overview of the combinatorial possibilities is provided in Table 1. Let
609 us reiterate that almost all patterns reported in this section are clearly different from spoken Georgian,
610 as Georgian neither features special forms for negative modals nor tense-specific negative particles.

611

612 < Insert Table 1 here (see end of document) >

613

614 Possible combinations that we have not addressed yet are those that involve “doubling”, that is, the co-
615 occurrence of two identical negators within a clause – in Table 1, these are the cells that run diagonally
616 from the top left to the bottom right. This type of NC has been reported for other sign languages, e.g.,
617 ASL (Petronio 1993), Brazilian Sign Language (Libras; de Quadros 1999), and Sign Language of the
618 Netherlands (van Boven et al. submitted) – and at least for ASL and Libras, it has been argued to
619 constitute a focus marking strategy. However, according to all our informants, NC of the doubling type
620 is ruled out in GESL. The only apparent exception are neg-words (bottom right cell), but crucially, the
621 attested cases are not instances of doubling, as two different neg-words are involved (e.g., NOBODY and
622 NEVER in (14c)).

623 5 Discussion

624 Now that we have given an overview of the rather complex and typologically unusual system of
625 negation in GESL, we are going to investigate how this system compares to existing taxonomies of NC
626 and double negation systems.

627 5.1 Standard NC systems in spoken and sign languages

628 Generally speaking, languages vary cross-linguistically with respect to whether they allow NC or not.
629 Dutch is a so-called Double Negation language, a language where every morpho-syntactically
630 negatively marked element also induces a semantic negation. Consequently, in all three examples in
631 (25), the co-occurrence of two neg-words yields an affirmative meaning.

632

633 (25) a. Niemand belt niet [Dutch, Double Negation]
634 NEG.body calls NEG
635 ‘Nobody doesn’t call.’ = ‘Everybody calls.’

636 b. Niemand belt niemand
637 NEG.body calls NEG.body
638 ‘Nobody calls nobody.’ = ‘Everybody calls somebody.’

- 639 c. Suzanne belt niet niemand
 640 Suzanne calls NEG NEG.body
 641 ‘Suzanne doesn’t call nobody.’ = ‘Suzanne calls somebody.’
 642

643 In contrast, Czech (26) and Italian (27) are NC languages, where one or more negative elements jointly
 644 yield one semantic negation. NC languages are commonly divided into so-called Strict NC languages
 645 and Non-strict NC languages (cf. Giannakidou 2006; Zeijlstra 2004, to appear). Czech is classified as
 646 a Strict NC language, as every neg-word – be it preverbal (i.e., VP-external) or postverbal (i.e., VP-
 647 internal) – obligatorily needs to be accompanied by the negative marker *ne*. In (26a), the neg-word
 648 appears in object position, while in (26bc), it functions as subject and either precedes (26b) or follows
 649 (26c) the verb. Crucially, without the negative marker *ne*, all three sentences would be ungrammatical.

- 650
 651 (26) a. Milan *(ne-)vidim nikoho [Czech, Strict NC]
 652 Milan NEG-sees NEG.body
 653 ‘Milan doesn’t see anybody.’
 654 b. Dnes nikdo *(ne-)volá
 655 today NEG.body NEG-calls
 656 ‘Today nobody calls.’
 657 c. Dnes *(ne-)vola nikdo
 658 today NEG-calls NEG.body
 659 ‘Today nobody calls.’
 660

661 Italian, by contrast, is a so-called Non-strict NC language, as only postverbal (i.e., VP-internal) neg-
 662 words need to be accompanied by a higher negation, yielding an NC reading. Consequently, the
 663 examples in (27a) and (27c) pattern with the corresponding Czech examples in (26a) and (26c): both a
 664 neg-word in object position (27a) and a post-verbal subject neg-word (27c) have to be accompanied
 665 by the negative marker *non*. However, in contrast to Czech, preverbal (i.e., VP-external) neg-words
 666 cannot be accompanied by a negative marker. Inclusion of a negative marker in examples like (27b)
 667 thus results in ungrammaticality.

- 668
 669 (27) a. Gianni (*non) ha telefonato a nessuno [Italian, Non-strict NC]
 670 Gianni NEG has called to NEG.body
 671 ‘Gianni didn’t call anybody’
 672 b. Ieri nessuno (*non) ha telefonato
 673 yesterday NEG.body NEG has called
 674 ‘Yesterday nobody called’
 675 c. Ieri *(non) ha telefonato nessuno
 676 yesterday NEG has called NEG.body
 677 ‘Yesterday nobody called’
 678

679 Strikingly, all three types of languages can be attested among sign languages as well, showing that the
 680 distribution of types of NC/DN languages is not specific to modality.

681 Like Dutch, LIS is a Double Negation language, where no (manual) negative element is
 682 accompanied by another one. Remember from the examples in (2) that LIS is a manual dominant sign

683 language. According to Geraci (2005), examples involving NC, consisting of a combination of the
 684 negative marker NOT¹² and a neg-word, are straightforwardly ungrammatical, as shown in (28ab). To
 685 the extent that a negative marker and a neg-word can co-occur in a clause, only a Double Negation
 686 reading is marginally available (Geraci 2005; cf. also Pfau 2016).¹³

- 687
 688 (28) a. NOBODY CONTRACT SIGN (*NOT) [LIS, Double Negation]
 689 'Nobody signed the contract.'
 690 b. CONTRACT SIGN (*NOT) NOBODY
 691 'Nobody signed the contract.'
 692 c. ? SMOKE CANNOT NOBODY
 693 'Nobody can't smoke.' = 'Everybody must smoke.'
 694

695 As was shown in (2), a non-manual headshake may accompany negation in LIS. Yet, given that a
 696 clause cannot be negated by means of the headshake only, the headshake, by definition, does not count
 697 as a negative marker, and consequently cannot establish NC relations either.

698 Things are crucially different in (at least some) non-manual dominant sign languages, where neg-
 699 words inside and outside the VP (or more precisely, postverbal and preverbal neg-words) are
 700 accompanied by an additional negative marker, viz. the headshake. This is the case, for instance, in
 701 NGT, a non-manual dominant sign language, where the headshake can negate a clause by itself and
 702 where, consequently, the combination of a neg-word and the headshake constitutes an instance of NC
 703 (see (1c)). As the examples in (29) illustrate, neg-words are indeed always accompanied by the
 704 headshake, regardless of whether they appear in pre- or postverbal position and regardless of whether
 705 they are subjects or objects.

- 706
 707 _____ hs
 708 (29) a. INDEX₁ CHOOSE NOTHING [NGT, Strict NC]
 709 'I choose nothing.'
 710 _____ hs
 711 b. INDEX₁ NOTHING CHOOSE
 712 'I choose nothing.'
 713 _____ hs
 714 c. YESTERDAY NOBODY COME
 715 'Yesterday nobody came.'
 716

717 Russian Sign Language (RSL), finally, is a language where VP-external subject neg-words, which
 718 unlike in most spoken languages appear in a postverbal, sentence-final position, cannot be
 719 accompanied by a negative marker, but where VP-internal neg-words, subjects and objects alike, must
 720 be accompanied by the negative marker, just as is the case in spoken Non-strict NC languages (see

¹² LIS has two negative markers, which are glossed as NON and NEG by Geraci (2005), and both of which appear in post-verbal position. In the examples in (28), we subsume both markers under the gloss NOT. Geraci also notes that the two negative markers cannot co-occur in one clause.

¹³ Geraci does not provide examples with NOT and neg-word in object position (i.e., examples that would correspond to (26a) and (27a)), but states that the ungrammaticality of (28ab) extends to these cases.

721 Kuhn & Pasalskaya 2019; Kuhn 2020).¹⁴ In (30), the VP-internal object neg-word NOTHING (30a) or
 722 the VP-internal subject neg-word NOBODY (30b) must be licensed by the sentence-final negative
 723 marker NOT, whereas a VP-external negative subject, as in (30c) may not.

- 724
 725 (30) a. IX-1 NOTHING BUY *(NOT) [RSL, Non-strict NC]
 726 'I didn't buy anything.'
- 727 b. NOBODY 3-CALL-1 *(NOT)
 728 'Nobody calls.'
- 729 c. 3-CALL-1 (*NOT) NOBODY
 730 'Nobody calls.'

731
 732 Hence, *prima facie*, the same dimensions of variation with respect to negation and NC that apply in
 733 spoken language also apply in sign languages, showing again that the latter only differ from the former
 734 in terms of their modality of symbolic realization.

735 5.2 Non-standard NC systems in spoken and sign languages

736 In recent years, it has turned out, however, that the landscape of NC in spoken languages is much richer
 737 than sketched in the previous section. Without doing full justice to the literature, at least three other
 738 aspects of variation related to negation and NC are attested among spoken languages. These concern:
 739 (i) the optionality of NC; (ii) the co-occurrence of multiple negative markers; and (iii) hybrid NC
 740 systems, where only a strict subset of the set of negative elements can participate in NC relations. We
 741 discuss (i)–(iii) in turn.

742 First, in certain languages, NC is optional. West Flemish is a good example (cf. Haegeman 1995;
 743 Haegeman & Lohndal 2010). Whereas neg-words may establish NC relations with both other neg-
 744 words (30a) or negative markers (30b) in this language, NC is never obligatory. Consequently, (30c)
 745 without NC is just as good as (30b).

- 746
 747 (31) a. K een nooit niets gezien [West Flemish]
 748 I have never NEG.thing seen
 749 'I have never seen anything.'
- 750 b. Valère ken niemand nie
 751 Valère knows NEG.body NEG
 752 'Valère doesn't know anybody.'
- 753 c. Valère ken niemand
 754 Valère knows NEG.body
 755 'Valère doesn't know anybody.'

756
 757 Second, albeit it is a rare phenomenon, in certain languages, neg-words must be accompanied by a
 758 negative marker, but cannot establish an NC relation with each other. Whereas most spoken and signed
 759 NC languages, including Czech, Italian, and Russian Sign Language, exhibit NC constructions in
 760 which more than one neg-word participates, in Afrikaans, at least in its more conservative variety,

¹⁴ Just like Italian Sign Language, Russian Sign Language is a manual dominant sign language when it comes to negation. A negative headshake may accompany a manual negative marker, but cannot replace it. Such headshakes cannot render a sentence negative on their own and therefore are not real negative markers.

761 every negative sentence, regardless of whether it contains a negative marker (32a) or a neg-word (32b),
 762 ends with the negative marker *nie* (cf. den Besten 1986; Biberauer 2008, 2009; Biberauer & Zeijlstra
 763 2012). This means that Afrikaans allows not only NC between a neg-word and a negative marker (as
 764 in most other NC languages), but also between two negative markers.¹⁵

- 765
 766 (32) a. Hy is nie moeg nie [Afrikaans]
 767 he is NEG tired NEG
 768 'He is not tired.'
- 769 b. Hy is nooit moeg nie
 770 he is never tired NEG
 771 'He is never tired.'
- 772

773 However, when two neg-words co-occur in a single clause, only a Double Negation reading emerges,
 774 as shown in (33).

- 775
 776 (33) Niemand het niks gekoop nie [Afrikaans]
 777 NEG.body has NEG.thing bought NEG
 778 'No one had bought nothing.' = 'Everyone bought something.'
- 779

780 Third, in languages like French, as in most other NC languages, NC is possible between multiple neg-
 781 words, as shown in (34). However, French is exceptional in that any combination of neg-words with
 782 the negative marker *pas* gives rise to a Double Negation reading, irrespective of whether the neg-word
 783 appears in preverbal (35a) or postverbal position (35b). Note that the same holds for the combination
 784 of more than one neg-word with *pas*. In (35c), the two neg-words establish an NC relation to the
 785 exclusion of *pas*, and the sentence yields two semantic negations (see Zeijlstra 2010, to appear).¹⁶

- 786
 787 (34) Personne mange rien [French]
 788 NEG.body eats NEG.thing
 789 'Nobody doesn't eat anything.'
- 790
 791• (35) a. Personne mange pas [French]
 792 NEG.body eats NEG
 793 'Nobody doesn't eat.' = 'Everybody eats.'
- 794 b. Jean mange pas rien
 795 Jean eats NEG NEG.thing
 796 'Jean doesn't eat nothing.' = 'Jean eats something.'
- 797 c. Personne mange pas rien

¹⁵ The only exception to this generalisation arises when two negative markers should appear adjacent to one another; in this case, only one *nie* is realized (see Biberauer (2008) for arguments that this scenario involves a real instance of haplology).

(i) Hy kom *nie* (**nie*)
 He come NEG NEG
 'He isn't coming'

¹⁶ French also has an optional preverbal negative marker *ne*, but as this element never renders a sentence negative by itself, it cannot count as an NC-item (or as a negative element in the first place), and we therefore leave it out from the examples.

798 NEG.body eats NEG NEG.thing
 799 ‘Nobody doesn’t eat anything.’ = ‘Everybody eats something.’
 800

801 Irrespective of the exact underlying analysis, the examples above show that the landscape of NC is
 802 much richer than is generally assumed. This, of course, has strong repercussions for sign languages as
 803 well. If such atypical NC systems can be found in spoken languages, and there is nothing modality-
 804 specific about them, they should be expected to be manifest in sign languages as well. However, as of
 805 yet, such NC patterns have not been discussed in the literature.

806 5.3 Towards a classification of GESL

807 The discussion of GESL above shows that such atypical NC properties are indeed attested in sign
 808 language. First, as shown in (14), repeated here as (36), NC is not obligatory in GESL, and the language
 809 thus patterns with West Flemish in this respect.

- 810
 811 (36) a. YESTERDAY INDEX₁ NOTHING BUY (NEG-1/NEG-2)
 812 ‘Yesterday I didn’t/couldn’t buy anything.’
 813 b. POSS₁ BROTHER NEVER (NEG-1/NEG-2) DRINK BEER
 814 ‘My brother never drinks / can never drink beer.’
 815 c. HERE NOBODY NEVER STUDY (NEG-1/NEG-2)
 816 ‘Nobody ever studies / can ever study here.’
 817

818 Second, as shown in (15ab), repeated below as (37ab), NC between two negative markers, here NEG-1
 819 and NEG-2, is possible as well, yielding a pattern that is reminiscent of the one described for Afrikaans
 820 above.

- 821
 822 (37) a. WOMAN NEG-2 SING NEG-1
 823 ‘The woman cannot sing.’
 824 b. WOMAN NEG-2 NEG-1 SING
 825 ‘The woman cannot sing.’
 826

827 And, finally, as discussed at length in Section 4, and shown in Table 1, not every negative element may
 828 participate in NC relations. The examples in (20), repeated here as (38), for instance, show that negative
 829 modals, such as CANNOT-1 or WANT.NOT, cannot be accompanied by the negative markers NEG-1 and
 830 NEG-2.

- 831
 832 (38) a. * INDEX₃ DINNER CANNOT-1 PREPARE NEG-1/NEG-2
 833 ‘She/he cannot prepare the dinner.’
 834 b. * STUDENT WANT.NOT STUDY FRENCH NEG-1/NEG-2
 835 ‘The student does not want to study French.’
 836

837 Hence, the outcomes of our investigation into a relatively unexplored sign language, GESL, show that
 838 the intricate and marked NC patterns observed in spoken languages like West Flemish, French and
 839 Afrikaans, can also be attested in sign languages.

840 Note finally, that the search for rare NC phenomena, which guided us from spoken languages to
 841 sign language, can, in principle, also go the opposite way. As discussed in Section 4.3, there is one
 842 context in GESL where NC is obligatory: when used in past tense contexts, negative modals have to
 843 combine with the negative marker NEG-1, as is shown in (39) (see also Figures 6 and 7).

844
 845 (39) LAST NIGHT INDEX₁ CANNOT-1 SLEEP *(NEG-1)
 846 ‘Last night I couldn’t sleep.’
 847

848 To the best of our knowledge, no such tense-governed instances of obligatory NC have hitherto been
 849 observed for spoken languages. Given the discussion above, it should come as no surprise that we take
 850 this current absence to be accidental and not to be a principled fact about sign language, spoken
 851 language, or linguistic negation in general.

852 6 Conclusion

853 In this paper, we made a contribution to sign language typology, a young research field that pursues
 854 two, oftentimes related, goals (Pfau & Zeshan 2016; Zeshan & Palfreyman 2017). On the one hand,
 855 scholars strive to identify structural differences across sign languages, i.e., intra-modal differences, in
 856 all domains of grammar – think, for instance, of handshape inventories, patterns of pluralization, and
 857 relativization strategies (Perniss et al. 2007). On the other hand, some studies offer a cross-modal
 858 comparison, whereby the patterns that are identified are compared to patterns and classifications that
 859 have previously been established on the basis of typological research into spoken languages.

860 In our study on negation and Negative Concord in Georgian Sign Language, we pursued both
 861 these goals – following suit of previous studies which compared negation strategies across sign
 862 languages (e.g., Pfau & Quer 2002; Zeshan 2004a) and/or between sign and spoken languages (e.g.,
 863 Pfau 2002, 2016; Gökgöz 2021). As for the first goal, we established that GESL belongs to the class
 864 of manual dominant sign languages, which require the presence of a manual negator – a pattern that
 865 has been reported for various sign languages. What makes GESL typologically unusual, as compared
 866 to other sign languages, are (i) the availability of a rather wide variety of negative particles, including
 867 emphatic and tense-specific particles, and (ii) the multifarious, yet not unconstrained, possibilities for
 868 Negative Concord. As for the second goal, the comparison to spoken languages, we showed (i) that the
 869 attested negation patterns are clearly different from those available in spoken Georgian, that is, they
 870 are not the result of cross-modal borrowing, and (ii), zooming in on NC, that GESL displays some
 871 special and unusual characteristics of NC that have also been identified in several spoken languages.
 872 A typologically highly unusual characteristic of GESL – both in comparison to other sign languages
 873 and spoken languages – is the existence of a tense- and verb-specific type of NC, viz. obligatory NC
 874 with modal verbs in the past tense.

875 A component that we neglected in the present study is the non-manual marker involved in
 876 negation: a side-to-side headshake. The data allows us to ascertain that a headshake is commonly used
 877 in GESL negation and that it cannot by itself change the polarity of a clause. However, we are not yet
 878 in a position to say something about its scope, that is, whether it is capable of spreading beyond the
 879 manual negative sign. For a manual dominant sign language, the expectation would be that the non-
 880 manual marker is confined to the manual negator (cf. the LIS example in (2)). Yet, the available data
 881 suggest that in GESL, the headshake can extend over parts of the clause, e.g., the verb and/or the object.
 882 Further investigation of GESL might thus contribute to the typology of sign language negation, as it
 883 may reveal that there is also variation within the group of manual dominant sign languages – as has
 884 already been demonstrated for non-manual dominant sign languages (Pfau & Quer 2002). The question

885 would then be whether the headshake is a grammatical marker which is capable of spreading, as has
 886 recently been argued for Russian Sign Language (Rudnev & Kuznetsova 2021), or whether its use is
 887 less constrained because it is a co-speech gesture rather than a grammatical element, as has been argued
 888 for Australian Sign Language by Johnston (2018).

889 **7 Author contributions**

890 TM collected the GESL data by means of elicitation and grammaticality judgements; she wrote
 891 Sections 1.1, 1.3 and 2, which were revised based on feedback by RP. Sections 4.1 and 4.3 were co-
 892 authored by TM and RP. RP wrote Sections 1.2 and 6 as well as first versions of Sections 3 and 4.2,
 893 which were revised based on feedback by TM and HZ. HZ wrote Section 5, which was revised based
 894 on RP’s feedback.

895 **8 Funding**

896 Zeijlstra’s contribution to this project was supported by a grant by the German Science Foundation
 897 (*Deutsche Forschungsgemeinschaft – DFG*), project number 414910159 (“A)symmetries and
 898 movement in spoken and sign languages”).

899 **9 Acknowledgments**

900 To be added later.

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- 1027
- 1028

1029 **Table**

1030

1031 **Table 1.** Possibilities for Negative Concord in Georgian Sign Language: ‘+’ indicates that NC is attested; ‘-’ indicates that
 1032 NC involving these two elements is not attested.

	NEG-1	NEG-2	NEG(EMPH)	NEG(PROH)	NEG(PERF)	NEG(FUT)	neg. modal	neg- word
NEG-1	-	+ ^a	+	+	+	+	-/+ ^b	+
NEG-2	+ ^a	-	+	-	-	-	-	+
NEG(EMPH)	+	+	-	-	+	+	+	+
NEG(PROH)	+	-	-	-	-	+	- ^c	+
NEG(PERF)	+	-	+	-	-	-	? ^d	+
NEG(FUT)	+	-	+	+	-	-	? ^d	+
neg. modal	-/+ ^b	-	+	- ^f	? ^d	? ^d	- ^e	+
neg-word	+	+	+	+	+	+	+	-/+ ^f

1033 ^a NEG-2 must precede NEG-1.

1034 ^b Only in past tense, but then obligatory.

1035 ^c We have not attested any such examples, but this is arguably due to the fact that modals are in general unavailable in
 1036 imperatives (and thus prohibitives).

1037 ^d Further research is necessary, as different negative modals appear to behave differently when it comes to these
 1038 combinations.

1039 ^e The minus here refers to combinations of different negative modals as well as to cases of doubling, whereby the same
 1040 negative modal appears twice in a clause.

1041 ^f Different neg-words can be combined within a clause, but doubling of one and the same neg-word is ruled out.

1042

1043

1044 **Figure captions**

1045

1046 **Figure 1.** Negated transitive clause ‘I do/did not write a letter’, with (A) negative particle following
 1047 the verb and (B) negative particle preceding the verb.

1048

1049 **Figure 2.** The negative particle NEG-2 (‘(can)not’).

1050

1051 **Figure 3.** Two specialized negative particles: (A) emphatic negative and (B) prohibitive marker.

1052

1053 **Figure 4.** Modals and their negative counterparts in GESL: (A) CAN-1 – CANNOT-1; (B) WANT –
 1054 WANT.NOT; (C) MUST – MUST.NOT; (D) KNOW – KNOW.NOT.

1055

1056 **Figure 5.** Tense- and aspect-specific negative particles in GESL: (A) NEG(PERF) and (B) NEG(FUT).

1057

1058 **Figure 6.** The negative modal CANNOT-1 used in a past tense context: ‘Yesterday it was impossible to
 1059 go there / one could not go there’; note the combination of the irregular negative form CANNOT-1 with
 1060 the negator NEG-1 (slightly adapted from Makharoblidze & Pfau 2018: 144).

1061

1062 **Figure 7.** The negative modal WANT.NOT used in a past tense context: ‘Yesterday I did not want to
 1063 paint it’; note the combination of the irregular negative form WANT.NOT with the negator NEG-1
 1064 (slightly adapted from Makharoblidze & Pfau 2018: 144).

1065