

## Doubling in sign languages: Focus on agreement

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### 1 Introduction

- Sign languages (SLs) make frequent use of doubling on all grammatical levels. Crucial aspects of form and function of attested doubling phenomena are modality-independent.
- However, due to the availability of two independent articulators and the use of the signing space, we also find modality-specific features, in particular, with respect to form.
- In SLs, like in spoken languages, most instances of doubling seem to have an iconic basis. As we illustrate below, doubling is generally used to realize marked grammatical features (i.e. plural, iterative aspect, emphatic interpretations, ...).
- Moreover, since SLs can express doubling in the sign space, doubling constructions in SLs may also have a local iconicity (e.g. sideward reduplication in plurals and backward reduplication in reciprocals).
- The goal of this presentation is two-fold: (i) to provide an inventory of doubling phenomena in SLs; (ii) to zoom in on an (apparent) doubling phenomenon, which to date has only received little attention: agreement doubling constructions in German Sign Language (*Deutsche Gebärdensprache*, DGS).
- This talk is organized as follows:
  - Overview of doubling phenomena in SLs (Section 2);
  - Sketch of the agreement system of SLs (Section 3);
  - Agreement doubling in auxiliary verb constructions (section 4);

### 2 Doubling phenomena in sign languages

- In SLs, doubling is attested on all levels of grammar. We restrict the discussion to phenomena that involve (almost) identical doubles, neglecting e.g. resumptive pronouns (Crasborn et al. 2009) and simultaneous constructions (Vermeerbergen et al. 2007).

#### 2.1 Phonology: articulator doubling

- SLs are unique in that two identical articulators are available: the two hands. Signs may be one-handed or two-handed, but for the latter, there are clear constraints on the non-dominant (weak) hand (H2) (Battison 1978; Van der Hulst 1996).
- Occasionally, a sign that is one-handed in its citation form may be articulated with two hands: ‘weak prop’ (Padden & Perlmutter 1987).

(1)



a. Two variants of IPSL question particle G-WH



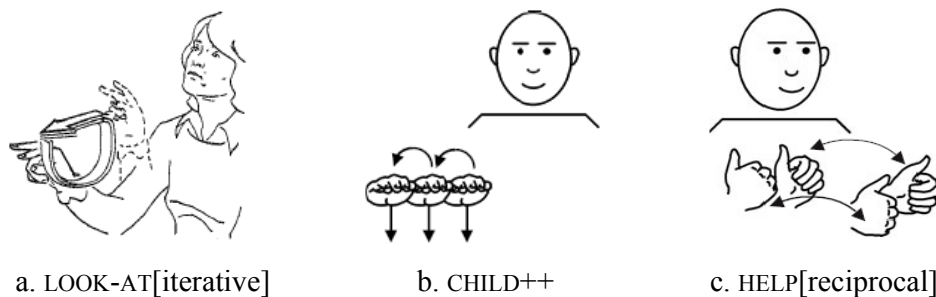
b. LIU emphatic negative

- It appears that this phenomenon is confined to functional signs such as modal verbs (e.g. CAN in DGS), negative and question particles, as illustrated for the Indopakistani SL (IPSL) question particle G-WH in (1a) (Aboh, Pfau & Zeshan 2005).
- While the opposite phenomenon, ‘weak drop’, is subject to phonological constraints (Brentari 1998; Van der Kooij 2001), it is not clear what triggers ‘weak prop’.
- Occasionally, e.g. with modals and negation, doubling appears to have a prosodic and/or emphatic function; see e.g. the Jordanian SL (LIU) emphatic negative in (1b).

## 2.2 Morphology & morphosyntax: reduplication

- In some SLs, reduplication may distinguish nouns from verbs: movement in nouns is reduplicated and more tense/shorter than in the corresponding verbs (e.g. FLY – PLANE, SIT – CHAIR) (Supalla & Newport 1978; Kimmelman 2009).
- Reduplication (in combination with other movement changes) commonly marks aspectual distinctions, e.g. the iterative (2a) and habitual (Klima & Bellugi 1979; Rathmann 2005).
- Across SLs, reduplication also frequently marks pluralization. With nouns, reduplication may be ‘simple’ (e.g. BOOK++) or ‘sideways’ (e.g. CHILD++ in (2b)), depending on phonological properties of the base noun (Pfau & Steinbach 2006).

(2)



- In verbs, reduplication may mark plural agreement (e.g. ‘I give to each of you’); also, with certain DGS verbs, reciprocity is marked by backward reduplication, i.e. movement from a to b and back to a (e.g. HELP in (2c); Pfau & Steinbach 2003).
- Interestingly, some of these morphosyntactic functions may also be realized by simultaneous reduplication with H2.
- Taken together, the morphological and morphosyntactic functions of reduplication attested in SLs are identical to those most commonly described for spoken languages (Moravcsik 1978; Rubino 2005).
- As for the realization, however, we observe some modality-specific options (Pfau & Steinbach 2005), namely sideward (2b), backward (2c), and simultaneous (two-handed) reduplication.

## 2.3 Doubling in syntax

- The best-described doubling phenomenon in SLs is wh-doubling, whereby identical wh-elements occupy the sentence-initial and -final position, as illustrated for a wh-object in the American SL (ASL) example (3a) (Petronio & Lillo-Martin 1997: 27).
- Petronio & Lillo-Martin assume that (3a) is an instance of a more general double construction used for focus/emphasis, with the final element occupying a [+focus] C head on the right (see Neidle et al. (2000) and Neidle (2002) for an alternative account).

→ Other elements that may be doubled are modals, quantifiers, and verbs (3b) (Petronio & Lillo-Martin 1997: 31); they also note that only heads can be doubled.<sup>1</sup>

- (3) a.  $\overline{\text{wh}}$   
 WHAT NANCY BUY YESTERDAY WHAT [ASL]  
 ‘What did Nancy buy yesterday?’
- b.  $\overline{\text{hn}}$   
 NANCY HATE ICE-CREAM HATE  
 ‘Nancy *hates* ice-cream.’
- b’. [TopP [TP NANCY **HATE** ICE-CREAM] [Top’ Top [FocP **HATE+Foc** t<sub>TP</sub> ] ] ]
- c. PARTY FINISH, H-A-R-O-L-D SWEEP FLOOR SWEEP-INSTR.CL<sub>broom</sub>  
 ‘After the party, Harold sweeps up the floor (with a broom).’

→ Nunes & de Quadros (2008) reanalyze the doubling facts in light of Kayne’s (1994) antisymmetry model and Nunes’s (2004) copy theory of movement.

→ They assume that the doubled element moves to the head of FocP where it fuses with Foc and thus becomes invisible to the LCA; consequently, the copy will not be deleted by Chain Reduction. Subsequently, TP, including the base copy, moves to SpecTopP (3b’).

→ Fischer & Janis (1990) analyze ‘verb sandwich’ constructions in ASL of the form SV<sub>1</sub>OV<sub>2</sub>, where V<sub>1</sub> and V<sub>2</sub> are two instances of a single verb, but with V<sub>2</sub> carrying morphology not present on V<sub>1</sub>; see (3c), adapted from Fischer & Janis (1990).

→ Their account does not involve focus; rather, they argue that doubling is motivated by morphological ‘heaviness’ of the verb (also see Matsuoka 1997; Kimmelman 2011).

→ Hendriks (2007: 119) reports that in Jordanian SL (LIU) clause negators may be doubled, presumably for emphatic reasons; e.g. the negative sign MA-FI in the first clause in (4a).

- (4) a.  $\overline{\text{hs}}$   $\overline{\text{hs}}$   
 MA-FI NEG TAKE MA-FI KEYS TAKE MA-FI [LIU]  
 ‘No, I didn’t take them, I didn’t take the keys.’
- b.  $\overline{\text{y/n}}$   
 TOMORROW EVENING MEETING INDEX<sub>2</sub> BE-PRESENT INDEX<sub>2</sub> [NGT]  
 ‘Will you be present at the meeting tomorrow evening?’

→ For some SLs, a process referred to as ‘subject pronoun copy’ has been described (Padden (1988) for ASL; Bos (1995) for SL of the Netherlands, NGT); the clause-final pronoun may either copy a full NP or another pronoun (4b).

### 3 Sign language agreement

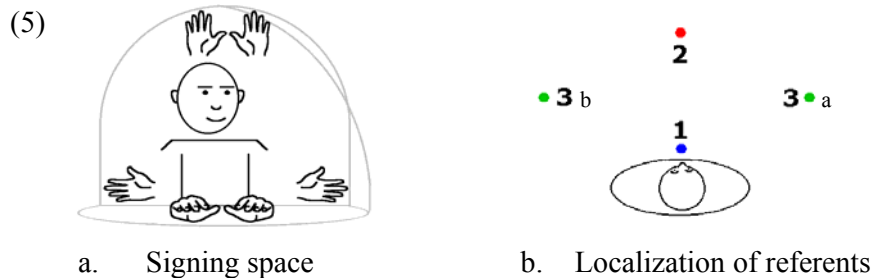
→ SL agreement has intrigued scholars for quite some time because it seems to display properties clearly distinct from spoken language agreement (e.g. Fischer & Gough 1978; Padden 1988; Janis 1995; Bahan 1996; Mathur 2000; Meir 2002; Rathmann & Mathur 2002, 2008); even the applicability of the term “agreement” is debated (Liddell 2003).

→ Here, we only introduce aspects relevant to the discussion in Section 4, neglecting e.g. backwards verbs, plural agreement, non-manual agreement, and animacy constraints (see Sandler & Lillo-Martin (2006) for comprehensive overview).

<sup>1</sup> SL examples are glossed in SMALL CAPS. Subscript numbers refer to locations in the signing space (see the figures in (5)). Lines above the glosses indicate the scope (i.e. onset and offset) of a particular syntactic non-manual marker (e.g. wh=wh-question; hn=headnod; hs=headshake; y/n=yes/no-question; top=topicalization).

### 3.1 Basic patterns and verb types

→ SL agreement is locus agreement. Discourse referents are linked to loci in the signing space (5a). These loci are either actual locations of present referents or locations that are assigned for non-present referents by means of the pointing sign INDEX (1-hand).



→ In the first clause in (6a), the 1<sup>st</sup> person possessive pronoun POSS<sub>1</sub> (B-hand) points towards the signer's chest, while the first occurrence of INDEX<sub>3a</sub> localizes MOTHER at location 3a (see (5b)). In the second clause, this location is used to pronominalize MOTHER.

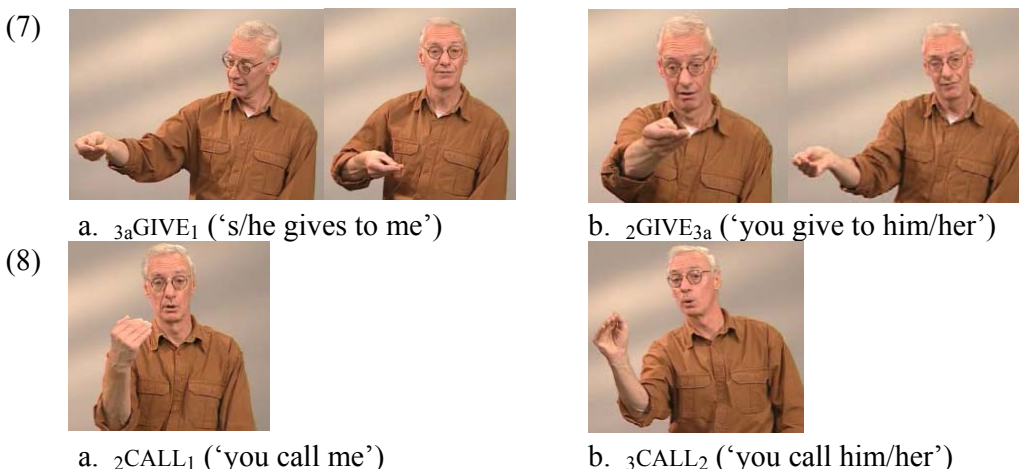
→ Moreover, the verb GIVE moves from 3a towards location 1, thereby showing subject/object agreement, as illustrated in (7a). (7b) shows another agreement pattern for the same verb (beginning and end location of the movement are shown).

- (6) a. POSS<sub>1</sub> MOTHER INDEX<sub>3a</sub> BOOK++ LIKE. [DGS]  
 YESTERDAY INDEX<sub>3a</sub> BOOK<sub>3a</sub>GIVE<sub>1</sub>  
 'My mother likes books. Yesterday she gave me a book.'
- b. A-N-N-A INDEX<sub>3a</sub> POSS<sub>3a</sub> HUSBAND INDEX<sub>3b</sub> TRUST<sub>3b</sub>  
 'Anna trusts her husband.'

→ Crucially, across SLs, only a subgroup of verbs (agreement verbs, AVs) agree with their subject and object by means of movement and/or orientation (Padden 1988). Two realizations of the agr-by-orientation verb CALL are illustrated in (8ab).

→ Some verbs (in some SLs) show only object agreement; and even with verbs that can express subject agreement, subject agreement is optional, e.g. TRUST in (6b).

→ Other verbs, the so-called 'plain verbs' cannot be modulated to show agreement, e.g. the body-anchored DGS verb LIKE in the first clause in (6a).



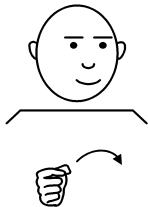
### 3.2 Agreement auxiliaries

- Some SLs have developed means to overcome the agreement gap caused by plain verbs: they make use of agreement auxiliaries which are capable of expressing the agreement relation whenever the main verb is not capable of doing so.
- These auxiliaries differ from spoken language auxiliaries in that they are not used for TAM-marking (Steele 1978). Rather, their basic function is to mark subject/object agreement, and just like AVs, they do so by means of movement and hand orientation.
- Such auxiliaries have been described for Argentinian SL, Catalan SL, DGS, Greek SL, Indopakistani SL, Japanese SL, NGT, and Taiwan SL (TSL); see Steinbach & Pfau (2007) for a cross-linguistic survey and discussion of grammaticalization paths.
- The DGS auxiliary PAM (*Person Agreement Marker*; Rathmann 2003) is used with plain verbs (9a) and adjectival predicates (9b); in the DGS variety we investigated, PAM occurs sentence-finally (but see Rathmann (2003) for another syntactic structure).

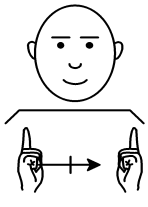
- (9) a. MOTHER INDEX<sub>3a</sub> NEIGHBOR NEW INDEX<sub>3b</sub> LIKE **3aPAM3b** [DGS]  
 ‘(My) mother likes the new neighbor.’
- b. INDEX<sub>1</sub> POSS<sub>1</sub> BROTHER INDEX<sub>3a</sub> PROUD **1PAM3a**  
 ‘I am proud of my brother.’
- c. NEXT WEEK INDEX<sub>1</sub> INDEX<sub>3a</sub> ASK **1PAM3a**  
 ‘I will ask her/him next week.’

- Occasionally, PAM combines with the uninflected form of an AV, e.g. ASK in (9c).
- While PAM is grammaticalized from the noun PERSON, TSL AUX-11 (10a) and NGT ACT-ON (10b) are grammaticalized from the verbs MEET and GO-TO, respectively (Smith 1990; Bos 1994); see (11) for illustrations of the three auxiliary signs..

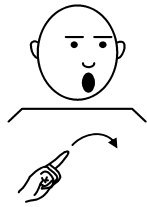
- (10) a. <sup>top</sup> THAT VEGETABLE, INDEX<sub>1</sub> **1AUX-11<sub>3</sub>** NOT-LIKE [TSL]  
 ‘I don’t like that dish.’
- b. ALWAYS INDEX<sub>1</sub> WAIT<sup>++</sup> **1ACT-ON<sub>2</sub>** [NGT]  
 ‘I always (have to) wait for you.’

- (11)
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a. DGS auxiliary PAM



b. TSL auxiliary AUX-11



c. NGT auxiliary ACT-ON

## 4 Agreement doubling constructions

### 4.1 Co-occurrence of PAM with agreement verbs: focus doubling?

- Interestingly, PAM sometimes co-occurs with an inflected AV leading to multiple agreement (12a). In (12b), a partially agreeing verb combines with a fully agreeing PAM.

- (12) a. POSS<sub>1</sub> FRIEND INDEX<sub>3a</sub>, INDEX<sub>3a</sub> ALWAYS <sub>3a</sub>ASK<sub>1</sub> <sub>3a</sub>PAM<sub>1</sub> [DGS]  
 ‘As for my friend, he always asks me.’
- b. A-N-N-A INDEX<sub>3a</sub> POSS<sub>3a</sub> HUSBAND INDEX<sub>3b</sub> TRUST<sub>3b</sub> <sub>3a</sub>PAM<sub>3b</sub>  
 ‘Anna trusts her husband.’
- c. But I already told you that ...  
 \_\_\_\_\_<sup>hn</sup> \_\_\_\_\_<sup>hs</sup>  
 INDEX<sub>1</sub> <sub>1</sub>EXPLAIN<sub>3a++</sub> <sub>1</sub>PAM<sub>3a</sub> INDEX<sub>3a</sub> UNDERSTAND  
 ‘I did explain it to him over and over again. He didn’t understand.’

- Closer inspection reveals that these examples receive an emphatic interpretation; actually, they are frequently accompanied by specific non-manuals such as pursed lips and a single head nod (which, however, may also occur in non-doubled constructions); see (12c).
- One might therefore speculate that PAM is presently developing further into a marker of emphasis/focus when used in combination with agreement verbs.
- Still, the focus doubling analysis by Nunes & de Quadros (2008) – see example (3b) – cannot account for the data, since what is doubled is agreement inflection, not the verb.
- In fact, Nunes & de Quadros (2008: 180) show that, at least in Brazilian SL, agreeing verbs cannot be doubled (cf. \*JOHN<sub>a</sub>LOOK<sub>b</sub> MARY<sub>a</sub>LOOK<sub>b</sub> ‘John *looked* at Mary’).

#### 4.2 Intermezzo: Agreement doubling in spoken languages

- Multiple agreement in auxiliary verb constructions is also attested in numerous unrelated spoken languages. In the Swahili example in (13a), both the auxiliary and the lexical verb are marked for subject agreement (Carstens 2001: 150).
- In the Maasai example in (13b), a passive-like unspecified agent construction, a portmanteau morpheme marking subject and object agreement appears on the Aux and the verb (Anderson 2006: 160).

- (13) a. Juma a-li-kuwa a-me-pika chakula [Swahili]  
 Juma 3SG-PST-be 3SG-PERF-cook 7food  
 ‘Juma had cooked food.’
- b. á'á-púó-í áà-ìdòŋ [Maasai]  
 3:1SG-come-VERB 3:1SG-beat  
 ‘I shall be beaten.’
- c. yaŋ te:s-u-ŋ sur-u-ŋ [Limbu]  
 money spend-3.PL-1.SG.A COMPL-3-1.PT  
 ‘I’ve spent all the money.’

- In the Limbu (Nepal) example in (13c), subject and object agreement markers appear on both the lexical verb and the aspectual auxiliary (van Driem 1987: 119).
- At first sight, the DGS examples in (12) look similar. Crucially, however, the examples in (13) do not receive an emphatic interpretation.
- For Bantu, Carstens (2001) assumes that structures like (13a) are raising constructions:
- the subject first agrees with the lower verb in Asp and moves to SpecAspP;
  - even though agreement involves all phi-features (phi-completeness), Carstens assumes that the subject is not deactivated because deactivation can only result from agreement with finite T;
  - therefore, the subject is still eligible for Agree with T and moves further to SpecTP.



→ Looking at the examples in (14), it turns out that a subject pronoun copy may intervene between agreeing verb and PAM (17a) but not between plain verb and PAM (17b); with plain verbs, the copy must follow PAM (17c).

- (17) a. INDEX<sub>1</sub> TEACHER NEW INDEX<sub>3a</sub> <sub>1</sub>HELP<sub>3a</sub> INDEX<sub>1</sub> <sub>1</sub>PAM<sub>3a</sub> [DGS]  
 ‘I help the new teacher.’
- b. \* INDEX<sub>1</sub> TEACHER NEW INDEX<sub>3a</sub> LIKE INDEX<sub>1</sub> <sub>1</sub>PAM<sub>3a</sub>  
 ‘I like the new teacher.’
- c. INDEX<sub>1</sub> TEACHER NEW INDEX<sub>3a</sub> LIKE <sub>1</sub>PAM<sub>3a</sub> INDEX<sub>1</sub>  
 ‘I like the new teacher.’

### 4.3.3 Modals

→ Modal verbs usually occupy a clause-final position in DGS. When PAM combines with a plain verb, the modal must indeed follow PAM (18a). In contrast, in agreement doubling constructions, the modal intervenes between the lexical verb and PAM (18b).

- (18) a. INDEX<sub>1</sub> TEACHER NEW INDEX<sub>3a</sub> UNDERSTAND <sub>1</sub>PAM<sub>3a</sub> CAN/MUST [DGS]  
 ‘I can/must understand the new teacher.’
- b. INDEX<sub>1</sub> TEACHER NEW INDEX<sub>3a</sub> <sub>1</sub>HELP<sub>3a</sub> CAN/MUST <sub>1</sub>PAM<sub>3a</sub>  
 ‘I can/must help the new teacher.’

### 4.3.4 Non-manual negation

→ In DGS, sentential negation is usually realized by a non-manual marker only, viz. a side-to-side headshake; this headshake must accompany at least the verb/auxiliary, i.e. the element which raised to the head of NegP (Pfau 2002, 2008).

→ It turns out that the examples in (14) behave differently under negation. When PAM combines with a plain verb, spreading of the headshake from PAM onto the verb is optional (19a); in contrast, in the agreement doubling construction, the headshake must accompany the verb and PAM (19bc).

- (19) a. INDEX<sub>1</sub> TEACHER NEW INDEX<sub>3a</sub> LIKE <sub>1</sub>PAM<sub>3a</sub> [DGS]  
 ‘I don’t like the new teacher.’
- b. \* INDEX<sub>1</sub> TEACHER NEW INDEX<sub>3a</sub> <sub>1</sub>HELP<sub>3a</sub> <sub>1</sub>PAM<sub>3a</sub>  
 ‘I don’t help the new teacher.’
- c. INDEX<sub>1</sub> TEACHER NEW INDEX<sub>3a</sub> <sub>1</sub>HELP<sub>3a</sub> <sub>1</sub>PAM<sub>3a</sub>  
 ‘I don’t help the new teacher.’

→ Crucially, (19a) is mono-clausal and therefore, headshake on the auxiliary negates the whole proposition.

→ In contrast, in (19b), headshake on only PAM leads to a ‘polarity clash’ in a bi-clausal construction since only the second clause <sub>1</sub>PAM<sub>3a</sub> is marked by a negative headshake (cf. \*‘I helped him, I didn’t’). As a consequence, both clauses contradict each other.

→ Hence, the bi-clausal construction in (19b) can only receive the interpretation ‘I helped him. No, I didn’t’ – i.e. it is only possible if someone *wants* to contradict him-/herself.



→ In sum, the mono-clausal construction in (19a) has only one negative head Neg<sup>o</sup> (the non-manual negative headshake can spread over the verbal head). By contrast, the bi-clausal structure in (19bc) involves two independent negative heads, which agree in polarity for semantic reasons.

#### 4.4 Analysis

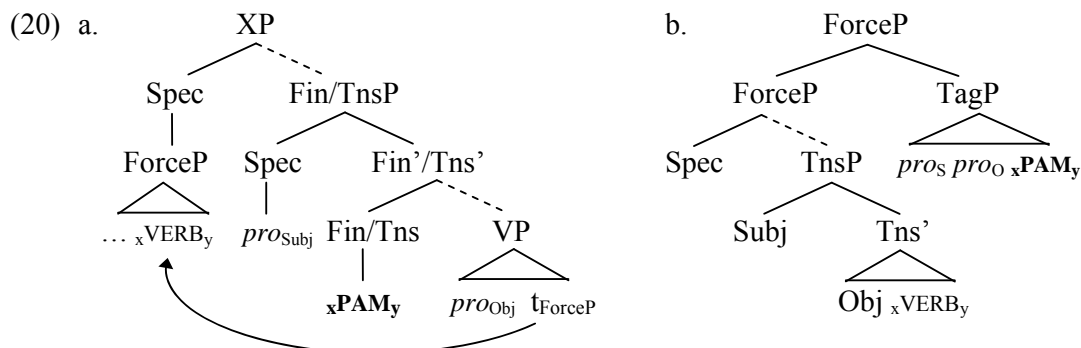
→ Taken together, the above data suggest that agreement doubling constructions are in fact bi-clausal.

- the examples in (16) indicate that there is a prosodic boundary between the agreeing verb and PAM that blocks cliticization;
- the examples in (17) and (18) show that typically clause-final elements can intervene between AVs and PAM – as is expected if a clause boundary follows the AV;
- the examples in (19) illustrate that the inflected agreement marker moves to the independent negative head of the second clause.

→ We assume that the (marked) bi-clausal strategy triggers an M-implicature (Levinson 2000) and gives rise to an emphatic interpretation ( $\approx$  ‘I like the neighbor, I do him’).

→ As for the syntactic structure of agreement doubling constructions, there are (at least) two options:

- the agreement auxiliary PAM selects a sentential complement (ForceP); PAM ends up in a high functional head, Tns or Fin, and the lower ForceP subsequently moves into a higher specifier (20a);
- the phrase containing PAM is actually a tag, which right-adjoins to ForceP (20b); note that this TagP would have to include AgrPs.



#### 5 Conclusion

→ Doubling occurs at all grammatical levels in SLs. As for function, it expresses similar meaning as doubling in spoken languages. As for form, we find some modality-specific realizations (articulator doubling, specific types of reduplication).

→ At first sight, the constructions we investigated in more detail – agreement doubling constructions – appear peculiar from a typological point of view:

- first, while doubling in spoken languages commonly expresses intensification (e.g. with adjectives), it seems to be less commonly employed for emphasis (e.g. verb doubling in Vata (Koopman 1984); also see Kandybowicz (2007));
- secondly, the specific strategy used, agreement doubling, while being attested in auxiliary verb constructions in spoken languages (Anderson 2006), does not come with the marked (emphatic) interpretation we found in DGS.

→ Closer inspection of the data, however, reveals that the constructions are actually bi-clausal; under a bi-clausal analysis, the above peculiarities disappear – or at least become less striking.

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