

No agreement on agreement in signed languages: Are we missing the point?

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Overview

- Agreement: definition
- The indicating verb analysis and agreement
- Re-examining arguments against the indicating verb analysis (e.g., Meier, 2002): speech, gesture & sign
- The 'paradox' of sign language morphology?
- Conclusion

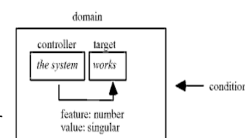
Agreement: a definition

- 'Syntactic' versus 'morphological' agreement
 - some linguistic theories assume that a verb 'agrees' with its subject, for example, regardless of the presence of agreement morphology (cf. Aronoff & Fudeman, 2005)
 - focus here on overt morphological expression of agreement only
- Drawing on typological work by Greville Corbett (2006), using a working definition proposed by Susan Steele (1978: 610):

"...agreement commonly refers to some systematic co-variance between a semantic or formal property of one element and a formal property of another."

Defining terms

- Corbett (2006: 4-5)
 - The element that controls the agreement is the *controller*: here, it is the NP 'the system'
 - The element whose form is determined by the controller is the *target*: here the verb 'works' shows agreement in number *features*
 - The *domain* of agreement is the clause, and there are no *conditions* for this agreement to take place
- Corbett (2006: 264) argued that indicating verbs in signed languages do not show co-variance between controller and target



Agreement vs indicating verbs?

- Padden (1983, 1988): original proposal that *agreement verbs/agreeing verbs*, by being directed towards locations associated with the subject and/or object arguments, are marking for person agreement
- Liddell (2000): proposed that such signs are not marking person agreement, but signal reference tracking by pointing, and thus introduced the alternative term *indicating verb*

Indicating verb analysis & agreement 1

- Liddell (2000, 2003, 2007): directionality of signed language indicating verbs may be controlled by real or imagined location of the referent, not formal or semantic properties of a controller noun phrase
 - British-Australian-New Zealand Sign Language (BANZSL) PRO-1 ASK \rightarrow^y MOTHER: the sign MOTHER produced on ipsilateral forehead but ASK may be directed to a contralateral location away from the signer \neq formal property of controller NP
 - Location and height properties of the referent represented in different forms of American Sign Language (ASL) ASK \rightarrow^y (e.g., a. versus b.) \neq semantic property of controller NP



Indicating verb analysis & agreement 2

- Consider another example (cf. Johnston, 1991; Liddell, 2007), produced in BSL:

- YESTERDAY PRO \rightarrow^y LOOK-AT \rightarrow^x _{back-of-head} _{WHY} _{bf}
- "Why were you staring at the back of my head yesterday?"

- Here, the location associated with the potential controller NP and the verb LOOK-AT \rightarrow^x _{back-of-head} are clearly dissociated

Indicating verb analysis & agreement 3

- The use of indicating verbs that most closely approaches Corbett's definition is:

- _{br} MOTHER PT \rightarrow^y PRO-1 GIVE \rightarrow^y BOOK
- "I gave mother the book"

- Here, the location associated with the pointing sign PT \rightarrow^y after MOTHER as part of the controller NP and the directional marking on the target verb GIVE \rightarrow^y are associated: this might be construed as a covariance between a formal property of the NP and the target
- But we still encounter the listability issue (i.e., how is such a use of space listed in the mental lexicon?) (Liddell, 2000), and not clear how it is distinct from abstract uses of deictic gesture (e.g., Kendon, 2004)
- Even this use may be controlled by the imagined location and height properties of the referent (e.g., ASK \rightarrow^y might be directed towards a higher location)

First person versus non-first person

- Note that arguments by Meier (1990) for a first-person versus non-first-person distinction in ASL are persuasive:
 - fixed form for first vs. variable pointing/gaze for non-first
 - idiosyncratic forms for first person indicating verbs
- Here, focus is on indicating non-first person roles and the lack of a relationship between controller NP properties and directionality
- There may be a case for 'agreement' with first person: however, research needed to show how the use of a fixed first-person versus variable non-first person differs from pointing gestures in which there appear to be similar fixed versus non-fixed forms

Pointing in sign and gesture is conventionalised

- Agreement verbs are constrained: for example, ASL GIVE points to locations associated with the 'indirect object' and 'subject' referents, but not to 'direct object' (Aronoff, Meir & Sandler, 2000; Meier, 2002)
 - This reflects semantics of GIVE: transfer of ownership between donor and recipient
 - Spatial verb in ASL CL:PASS-BY-HAND not so constrained
 - This argument assumes that adult pointing gestures are themselves not conventionalised, contra Kita (2003) and Kendon (2004)

Pointing in sign and gesture varies cross-linguistically

- Meier (2002) pointed out that the set of indicating verbs differ cross-linguistically (e.g., EXPLAIN is an indicating verb in BANZSL but not in ASL, German Sign Language (DGS) uses a 'person agreement marker' but BANZSL does not)
- Liddell (2003) proposed that the set of indicating verbs and/or auxiliaries and their properties are listed in the mental lexicon, thus may vary from one signed language to the next
- Fusion of signs with pointing gesture is conventionalised, just as use of pointing gestures themselves may vary from culture to culture (e.g., Wilkins, 2003: Arrernte use of specific pointing gesture meaning 'motion towards that location')



Singular versus plural

- Meier (2002) and Cormier (2002, 2007) explained that expressions of numerosity in the verbal and pronominal systems of ASL and BSL affect the interaction with pointing
- Again, whether an indicating verb can point and/or express numerosity, how it points and/or shows number are all conventionalised aspects of specific lexicalised verbs
- The issue here is that the directionality of the pointing itself (i.e, the varying features of the target) does not reflect semantic or formal properties of a controller NP

Indicating verbs and syntax

- Meier (2002) and Sandler & Lillo-Martin (2006) pointed out that the use of indicating verbs has syntactic consequences
- Null arguments and constituent order interact with the use of indicating verbs in ASL and Brazilian Sign Language (LSB): SVO vs. SOV vs. (S)V(O)
- In LSB, indicating verbs also interact with the order of negative sign (preverbal vs. clause final)
- Thus, these authors suggest that agreement verbs must be represented in the syntax

Grammar and gesture: Arrernte

- But, research has begun to suggest interesting interactions between grammar and co-speech gesture
- Arrernte (Wilkins, 2003: 195)
 - '...there is no obligatory marking in noun phrases to indicate singular or plural ... a phrase like *arne nhenhe* ('tree this') can mean either "this tree" or "these trees." However, the singular/nonsingular distinction is frequently made gesturally: when the one-finger point accompanies the phrase, the interpretation is "this tree", whereas when the wide hand point accompanies the phrase the interpretation is "these trees"...

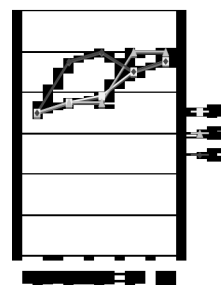


Grammar and gesture: motion verbs and motion gestures

- Studies of co-speech gestures in Turkish, English and Japanese narratives suggest that gestures used to express motion events interact with how features of such events were expressed in the language (Kita & Ozyurek, 2002)
- English speakers used manner & path conflating clausal constructions & gestures, whereas Turkish and Japanese speakers used manner-only or path-only manner gestures & clausal constructions
 - English: *she rolled down the hill*
 - Japanese: *korogat-te saka-o kudaru* ('roll+connective slope+accusative descend': *she descends the slope, rolling*)

Acquisition evidence 1

- Meier (2002) claimed mastery of directionality of indicating verbs for present referents by age 3
- Mastery of this system for absent referents is later still
- This is similar to the acquisition of complex morphological systems (Slobin, 1985)
- But what about the development of the relationship between language and co-speech gesture?



Acquisition evidence 2

- Gullberg, de Bot & Volterra (2008) explained that development of adult speech-gesture system not yet fully described: more studies are needed
- Mayberry & Nicoladis (2000) followed 5 French-English bilingual children from age 2;0 to 3;6 and found that the use of iconic and beat gestures correlated with speech development, whereas pointing gestures did not
- Coletta (2004), however, suggested that children aged 6 and over use more metaphoric, beat and abstract deictic gestures than younger children

Neurolinguistic evidence

- Meier (2002) listed a number of case studies of deaf aphasics that indicate more left-hemisphere involvement than right-hemisphere for indicating verbs, suggesting these verbs pattern like other linguistic abilities
- Insufficient data on gesture and aphasia: more research needed
- For ASL, some evidence for right-hemisphere involvement in comprehension (Poizner, Klima & Bellugi, 1987), and in syntactic processing (Neville et al., 1997)
- Capek et al. (2001) showed deaf native ASL signers sentences containing indicating verb errors. This ERP study found left hemispheric activity in these participants similar to that seen in hearing people reading or listening to syntactic violations in English.
- However, indicating verb errors in which the verb was directed to a new location, not previously associated with a referent, elicited bilateral responses
- Neurolinguistic evidence alone, however, cannot lead to definitive conclusions about the nature of the directionality in indicating verbs (cf. Van Lancker Sidtis, 2006)

Indicating verbs and the emergence of signed language grammars

- Directional verbal gestures emerge in home sign systems and in modified forms of Signing Exact English used by deaf children not exposed to ASL, but appear under-developed compared to ASL (Supalla, 1991; Goldin-Meadow, Butcher, Mylander & Dodge, 1994)
- Indicating verbs much more frequent and systematic in signed language creoles than pidgins, as seen in first and second cohort of Nicaraguan Sign Language users (Senghas & Coppola, 2001)
- Reports of language change in younger vs. older signers of established signed languages (Engberg-Pedersen, 1993)
- Apparently rare in Al-Sayid Bedouin Sign Language (Sandler & Lillo-Martin, 2006)

Lexicalisation of pointing gesture & verb signs

- Indicating verbs develop as pointing gestures are incorporated into verb signs as part of an emerging linguistic system, and may continue to develop through analogic processes of language change
- Increasing conventionalisation provides evidence of an emergent subsystem of the grammar, but not necessarily an agreement system
- Agreement systems generally emerge by means of a separate but related process: grammaticalisation (Givon, 1976; Corbett, 2006).
 - Full pronouns>clitics>inflectional morphology
- No evidence that this grammaticalisation pathway followed in signed languages (Liddell, 2003): many first person forms clearly not the result of the fusion of PRO-1 and a verb (e.g., BANZSL REMIND-1, EXPLAIN-1; ASL ASK^{TV} etc)
- Pronouns and indicating verbs instead involve similar uses of gestural space, and not clear that handshape assimilation in pronouns is part of a process of grammaticalisation (e.g., Bayley, Lucas & Rose, 2002), although analysed as cliticisation (Sandler & Lillo-Martin, 2006)

Indicating verbs as derivational morphology

- Liddell (2003) suggested that indicating verbs form a derivational system, rather than an inflectional one marking person agreement
- He proposes a cognitive/construction grammar based approach in which varying indicating verb forms are listed in the mental lexicon (cf., rule-based analyses in Janis, 1992; Meir, 1998; Rathmann & Mathur, 2008)
- Yet, indicating verbs form the best candidate for an inflectional system in signed language grammars (Engberg-Pedersen, 1993), so what are the implications for models of signed language morphology?
- Liddell (2003) and Bergman & Dahl (1994) claimed that ASL and Swedish Sign Language are basically inflectionless languages with well-developed iconic derivational morphology

Signed languages as inflectionless?

- An overview of processes treated as inflections in the signed language literature:
 - Marking number in nouns: optional, phonologically conditioned reduplication process (e.g., Pfau & Steinbach, 2006)
 - Multiple and exhaustive marking in verbs: optional form of reduplication, not necessarily agreement with controller NP in number (e.g., Liddell, 2003)
 - Aspect marking in verbs: optional, iconically-motivated reduplication (e.g., Rathmann, 2005); ideophonic? (Bergman & Dahl, 1994)
 - Classifier constructions: iconically-motivated lexical subsystem, not marking agreement with gender/noun class (e.g., Schembri, 2003; Nadolske, in progress)
- Not much evidence here of highly-grammaticalised, obligatory inflectional morphology in signed languages (cf. Aronoff, Meir & Sandler, 2005)

What paradox?

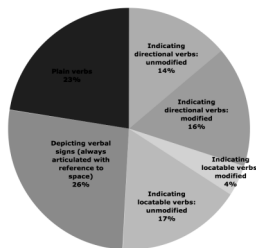
- Morphology: 'the paradox of signed language morphology' (Aronoff, Meir & Sandler, 2005): sign languages are young languages with variable patterns of transmission, and exhibit certain common grammatical characteristics of 'young creole languages' and yet, they also show morphology that is reminiscent of very heavily inflecting languages, with verb agreement and classifier constructions, for example
- Some issues:
 - Morphosyntactic characteristics of creole languages is in dispute (McWhorter, 1998; DeGraff, 2003), but claim is that they show little or no inflection, and only semantically regular derivation
 - Inflection vs derivation is problematic (e.g., Spencer, 2006)
- But revised view of signed language morphology as having minimal inflection but complex semantically regular derivational morphology may bring them more into line with what is known about creolisation and grammaticalisation processes generally

Indicating verbs and (socio-)linguistic variation

- The sociolinguistic situation of signing communities mean that there is a lot of apparent idiosyncratic variation with respect to all aspects of language use, including morphology - as young languages, many of their morphosyntactic properties are not highly grammaticalised
- Some of the variation correlates with language-external factors, such whether a signer is deaf or hearing, is a native or non-native signer etc (Lucas & Valli, 1992).
- But Engberg-Pedersen (1993:65) proposed that these modifications also interact with language-internal factors such as the frequency of a lexical unit and the sign's formal characteristics when modified

Indicating verbs in Auslan study

- Research from Australian Sign Language (Auslan) Corpus project on 2,448 indicating verb tokens from 50 narratives supports this claim: different verbs are modified at different rates, with high frequency forms (LOOK, SAY, COME, ARRIVE, GO) showing spatial modification significantly more often (de Beuzeville, Johnston & Schembri, submitted)
- Indicating verbs significantly more likely to be modified when co-occurring with constructed action
- Corpus-based approaches will assist us in identifying these language-internal and external influences and thus enable us to more accurately characterise signed language grammars



Alliterative agreement & indicating verbs

- Aronoff, Meir & Sandler (2005) discussed interesting similarities between 'agreement' in indicating verbs, and literal alliterative agreement systems, such as those documented for Bainouk:
 - kata:ma-ŋɔ in-ka
 - river-DEF this-CV
- Like signed languages, the form of the 'agreement' morpheme is not fixed, but involves copying the first syllable, apparently addressing Liddell's 'listability' issue (i.e., that there are a very large number of possible directions in which indicating verbs may point)
- As Aronoff et al. (2005) recognised, however, this still differs from signed language indicating verbs because literal alliterative agreement involves co-variance between a target and a formal property of the controller NP (i.e., part of its phonological form)

Zero agreement morpheme analysis

- Rathmann & Mathur (2008) proposed that non-first person agreement verbs include a zero agreement marking morpheme, which is matched with a deictic gesture within an interface between spatio-temporal conceptual structure and the articulatory-phonetic system, following a model proposed by Jackendoff (2002)
- But work on speech and co-speech gesture by Kita & Ozyurek (2002) suggested direct interactions between gestural and linguistic systems, and others have argued for a unified account of the speech-gesture system (McNeill, 1992)
- Zero morpheme analysis motivated by theory-internal considerations, such as autonomy of language from other cognitive systems?
- Other researchers also have accepted a role for gesture, while maintaining an agreement analysis (e.g., Sandler & Lillo-Martin, 2006)
- Not clear how to test such claims, as behavioural studies cannot distinguish between these accounts and Liddellian analysis

Conclusion

- While recognising that various theoretical approaches make different assumptions about grammar, this review of the arguments against the indicating verb analysis suggests knock-down evidence against Liddell's proposal is still lacking
- I would like to suggest that the indicating verb analysis has the following strengths:
 - it is part of a unified account of a range of phenomena in signed languages: spatial modifications of nouns, pronouns, depicting verbs and other signs; constructed action etc (Liddell, 2003)
 - it draws on increasing evidence of a speech-gesture system (McNeill, 1992; Kendon, 2004)
 - it suggests an alternative analysis of signed languages as young languages that, like the spoken language creole prototype, lack extensive inflection but have a rich system of iconic derivational morphology (cf. McWhorter, 1998; Aronoff, Meir & Sandler, 2005)

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