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The evolution of verb classes and verb agreement in sign languages

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Sign languages offer the possibility of raising and examining many issues that would not and could not be raised if human languages were confined to the spoken modality. One central issue concerns the relationship between language structure and modality: how and in what ways does the physical modality of transmission influence structure? In order to attempt to investigate this question in a meaningful way, one must look for specific phenomena or structures that are comparable across modalities yet differ in significant ways.

Verb agreement is precisely such a phenomenon. Verb agreement in sign languages seems to be very similar and at the same time very different from comparable constructions in spoken languages. Weighing the similarities and differences led Lillo-Martin and Meier (henceforth LM&M) to the conclusion that directionality, the formational expression of phi-feature marking in sign languages, can indeed be regarded as a verb agreement mechanism, a conclusion that I agree with wholeheartedly. LM&M, however, do not ignore the differences. In section 6.1 they describe some features of directionality in sign language verbs which makes sign languages typologically unique. Among these features are the specific classification of verbs into agreeing verbs, spatial verbs and plain verbs; the primacy of object agreement over subject agreement; and the ubiquity of this non-canonical system in sign languages.

These typological peculiarities are precisely what we should be looking at if we want to better understand the interaction between language and modality. In particular, I would like to explore here the issue of verb classification. The agreement system described by LM&M is unique in that only one class of verbs in a given sign language is marked for person agreement, the class of *agreement verbs*. Other verbs in the language are not marked for agreement, or are marked for 'locative' agreement (the so called *spatial verbs*). The membership in the class of agreement verbs is determined semantically; agreement verbs, by and large, denote transfer, whether concrete or abstract (Meir 2001, 2002). Though languages may differ with respect to the classification of specific verbs, in all sign languages

that have this system there is a core of verbs denoting transfer (e.g. GIVE, SEND, TAKE, HELP, TELL) in the class of agreement verbs.

The fact that not all verb forms in a given language are marked for agreement is not sign language particular. LM&M, citing Comrie (1989), mention that in some languages animacy determines whether an argument triggers agreement. In other languages, e.g. some dialects of Neo-Aramaic, the definiteness of the syntactic object determines whether the verb agrees with it; only definite objects trigger agreement (Khan 1999, pp. 290–291; 2002, pp. 364–367). Another example is that of Celtic languages, in which the subject agreement marker is in complementary distribution with overt pronouns (McCloskey and Hale 1984, Doron 1988). Yet a system in which agreement inflection is restricted to a specific semantic class of verb is typologically unique, and occurs only in sign languages.

LM&M hint that some of the typological peculiarities of sign language verb agreement may be explained by looking at their diachronic origins. I would like to follow this path, and trace the diachronic development of verb agreement in Israeli Sign Language (ISL). Once we understand how such a system has developed, we will be able to explain why it is verbs of transfer that inflect for agreement, and why this particular agreement pattern is ubiquitous in and restricted to sign languages.

ISL is a relatively young sign language. It emerged along with the Israeli Deaf community about 75 years ago, in a pidgin-like situation. The members of the first generation came from different backgrounds, both in terms of their country of origin, and in terms of their language. A few were born in Israel, and some of them went to the school for the deaf in Jerusalem that was founded in 1932, but the majority were immigrants who came to Israel from Europe (Germany, Austria, France, Hungary, Poland), and later on from North Africa and the Middle East. Some of these immigrants brought with them the sign language of their respective communities. Others had no signing, or used some kind of home sign.[1] Today, four generations of signers exist simultaneously within the Deaf community, which numbers about 10,000 members: from the very first generation, which contributed to the earliest stages of the formation and development of the language, to the fourth generation, that has acquired and further developed the modern language as a full linguistic system. ISL therefore provides us with the opportunity to study a sign language almost from its initial stages, over the course of more than seven decades.

1 For a description of the history of the Deaf community in Israel and the development of ISL, see Meir & Sandler (2008).

The study of the development of verb agreement in ISL that I will be referring to here is based on elicitation task administered to 31 ISL signers, divided into three age groups: Group 1 – thirteen signers aged 65 years and older; Group 2 – ten signers aged 45–65; and Group 3 – eight signers aged 25–44.[2] The elicitation tool is a set of 30 short video clips, designed to elicit simple de-contextualized sentences (Aronoff et al., 2004; Sandler et al., 2005). Each clip depicts a single action carried out by either a human or an inanimate entity by itself or involving another entity. The events presented in the clips vary with respect to the number of arguments (intransitive, transitive and di-transitive) and animacy. For our purposes here, the relevant clips are those denoting transfer events (GIVE, TAKE, THROW, FEED, SHOW) and verbs with two animate arguments (LOOK-AT, PULL, PUSH, TAP), which behave as agreement verbs in some sign languages. Signers are asked to view the clips and describe the event in each clip to another signer. To check for comprehension, the addressee is asked to identify one of three pictures best corresponding to the action just described. In order to trace the development of verb agreement, the responses were analyzed according to whether the verb forms mark agreement with one argument (single-argument agreement), two arguments (two-argument agreement) or do not mark agreement at all.

The analysis of the responses shows that while signers of the youngest group used agreeing forms in 72.5% of their responses, signers in the two older groups used agreeing forms in less than 40% of their responses. However, a closer examination of the responses of the older signers reveals forms that can be regarded as precursors of verb agreement, and may give us a clue as to how the system developed.

In Groups 1 and 2, 60% of the responses contain uninflected forms, which are anchored to the signer's body. In such forms, the verb moves from or towards the signer's body[3], but it is not directed towards a point in space. In the responses of these signers, verbs of transfer do not behave differently from plain verbs. Both types of verbs are signed with respect to the signer's body, and the form of the verb does not change in accordance with a change in the subject or object argument. Figure 1 shows the verb GIVE signed by a Group 1 signer, when describing a clip in which a woman is giving a shirt to a man.

2 This study was supported by a Grant from the Israeli Science Foundation (#553/04) to Irit Meir.

3 Signs such as GIVE move from the signer's body outwards, and signs such as TAKE move from the signing space towards the signer's torso. In the following description of transfer verbs, I refer mainly to GIVE-type verbs, for ease of presentation. But the description and explanation hold of TAKE-type verbs too.

Fig. 1: A non-inflecting form of the transfer verb GIVE

Four signers in this group, however, produce forms that can be regarded as an initial step towards marking agreement. Take, for example, a clip depicting a man throwing a ball to a girl. One signer signed the following:

I FATHER, FEMALE CHILD$_{Z\text{-}2}$ I THROW$_{Z\text{-}2}$ 'I am the father, the child is there, I throw (to the child)'.

In this response, the signer places the sign CHILD in a location in space right in front of her, as if the child were the addressee. She then directs the verb THROW towards the point in space where she localized the child. This verbal form is quite similar to the uninflected forms described above. There are two main differences, though. First, the signer explicitly localizes the argument (CHILD) in front of her; second, the verb is signed as if directed towards the child. Such a form, then, shows the buds of the sign language agreement system, namely directionality: a verb is directed towards a location in space associated with an argument of the verb. In other words, the end point of the sign is being reanalyzed as a morpheme, encoding a feature of the verb's argument. But the verb is still articulated on the Z (signer-addressee) axis. Four signers in the group used this form in 50 (66%) of their responses.

The next step towards an agreement system is seen when the verb is no longer restricted to the Z axis. Some signers produced forms in which the sign's initial location is on the signer's body, and its end point is directed towards a spatial locus associated with the object argument. But, crucially, the location associated with the argument is not on the Z axis, but rather to the right or to the left of the signer (see Figure 2). In other words, the verb's 'loose' end can be directed to any location associated with an argument in the signing plane. Such forms can be

Fig. 2: The transfer verb GIVE directed towards the locus of its (recipient) object argument

regarded as verbs marked for single-argument agreement.[4] The reanalysis of the verb's final location as a morpheme marking agreement with an argument has been completed. This morpheme is not restricted to a specific value (a point in space on the Z axis), but can take any value of an R-locus associated with the verb's argument. Such forms are found in the responses of signers from all three groups, but they become much more prevalent in Group 3 responses. They constitute 41% and 47% of the single agreeing forms in Groups 1 and 2 respectively, and 81% of the single agreeing forms in Group 3.

The final stage of the development of verb agreement is when the verb's heretofore fixed and body-anchored end point can be articulated off the body and is reanalyzed as the subject argument marker. When such a reanalysis occurs, the verb might be said to have left the body; it is no longer body-anchored, as a location on the body is not part of its lexical (phonological) specifications. A verb form marked for agreement with two 3rd person referents moves from one location in space to another, often on the X (left-right) spatial axis (See Figure 3). The body represents 1st person, and the verb moves towards or from the body only if one of the arguments is 1st person. If no 1st person argument is involved, then the verbs move between locations in space associated with the verb's two arguments. Fully-agreeing forms are very rare in the responses of Group 1 and Group 2 signers: 9% and 6% of the responses respectively. They are much more widespread in the responses of Group 3 signers, accounting for 45% of the responses.

Once this mechanism of agreement (that is, associating the verb's initial and final points with the R-loci of the arguments) is established for a group of verbs, other verbs may also adopt this morphological mechanism, and become agreeing

4 I thank Ann Senghas for this point.

Fig. 3: A transfer verb agreeing with two 3rd person referents

verbs. These verbs may share some, but not all of the attributes of verbs of transfer. For example, verbs of communication, such as PHONE or FAX, involve two human participants, as do verbs of transfer, and also the act of communication. In some languages (i.e. ASL and ISL), these signs have become agreement verbs. Similarly, verbs of saying, such as TELL, ASK, ANSWER, TELL-A-STORY, and ASL SAY-NO-TO also became agreement verbs. As pointed out by LM&M, there are many idiosyncrasies regarding which verbs are agreeing. I regard this as an indication that as the formal mechanism becomes established in a language, the semantic basis for the category becomes more opaque, and the grammatical characteristics of the elements become more prominent.

We can now get back to the typological puzzle posed above, namely, why is verb agreement in sign languages restricted to verbs of transfer? The key to this question is the form of verbs denoting transfer in a manual-visual language. When depicting a transfer event in gestures, typically the hands move outwards from the signer's body, as if tracing the transfer of an entity from one possessor (represented by the signer's body) towards another person (the recipient). One end of the sign is at the signer's body, and the other end is in space, away from the body. It is this 'loose end' of the verbs that is crucial here: when a language acquires a systematic use of space for referential purposes, this 'loose end' lends itself more easily towards reanalysis; it is reanalyzed as a morpheme encoding the R-locus associated with the object (recipient) argument. After one end point undergoes such reanalysis, eventually the other end point, the one close to the signer's body, may also be reanalyzed in a similar way, as encoding properties of the argument associated with the signer's body, the subject argument (Meir et al. 2007). Verbs of transfer share a meaning component and a formational component: they denote the transfer of an entity from one possessor to another, and their form consists of a path movement between the signer's body and space. The

two endpoints (first the spatial end and the body-anchored end) lend themselves quite easily to reanalysis: they become morphemes, encoding person and number features of the two possessors.

What makes verbs of transfer special in sign languages is that they share not only meaning (as they do in spoken languages as well), but also a specific form: a path movement moving from or towards the signer's body. It is this packaging of shared meaning and form that makes verbs of transfer in the manual modality amenable to reanalysis, eventually leading to the creation of a morphological class.

If ISL is a representative example of how verb agreement has developed in sign language, then languages of the two modalities show very different developmental path. In spoken languages, many verb agreement markers can be traced (or at least have been argued to develop) from grammaticalization and cliticization of free pronouns (see e.g., Givón, 1971, 1976; van Gelderen, 2011). In ISL, the source for the agreement morphemes is the form of verbs of transfer, and reanalysis of their end points as morphemes. These different origins can explain some of the typological differences between languages in the two modalities. However, the two systems also share certain characteristics, as LM&M show. For example, they both license null arguments and interact with word order. What may account for the similarities between two systems with such different developmental trajectories? I suggest a functional explanation: formal similarities are shaped by similarities in function. Both systems serve for reference tracking, and they do it by encoding pronominal features on verb forms. These systems, then, could be regarded as convergent structures in language evolution. In biology, convergent structures are structures that perform the same or similar function by a similar mechanism but evolved separately, sometimes through different pathways. Examples are insect and bird wings, cetacean and fish fins. Some of the formal similarities of these organs are due to the similar function they evolved to perform. Our ability to observe the diachronic development of verb agreement in ISL raises the possibility of positing convergent structures in language evolution as well.

References

Aronoff, M., I. Meir, C. Padden and W. Sandler (2004): Morphological universals and the sign language type. In G. Booj & J. van Marle, eds., *Yearbook of morphology 2004*, 19–39. Dordrecht/Boston: Kluwer Academic Publishers.

Comrie, B. (1989). *Language universals and linguistic typology: Syntax and morphology*, 2nd edition. Chicago: University of Chicago Press.

Doron, E. (1988). On the Complementarity of Subject and Subject-Verb Agreement. In Barlow, M. and C. Ferguson (eds.), *Agreement in Natural Language*. Stanford: CSLI, pp. 201–218.

Givón, T. (1971). Historical syntax and synchronic morphology: An archaeologist's field trip. *Chicago Linguistic Society, 7*, 394–415.
Givón, T. (1976). Topic, pronoun and grammatical agreement. In C. N. Li (Ed.), *Subject and topic* (pp. 149–188). New York: Academic Press.
Khan, G. (1999). *A grammar of Neo-Aramaic: The dialect of the Jews in Arbel*. Leiden: Brill.
Khan, G. (2002). *The Neo-Aramaic dialect of Qaraqosh*. Leiden: Brill.
McCloskey, J. and K. Hale (1984). On the Syntax of Person-Number Agreement in Modern Irish. *NLLT* 1, 487–533.
Meir, I. (2001). 'Motion and Transfer: The analysis of two verb classes in Israeli Sign Language.' In Dively, V. (ed.), *Signed Languages: Discoveries from international research*. Washington D.C.: Gallaudet University Press, pp. 74–87.
Meir, I. (2002). A cross-modality perspective on verb agreement. *Natural Language & Linguistic Theory, 20*(2), 413–450.
Meir, I. & W. Sandler (2008). *A language in space: The story of Israeli Sign Language*. New York: Lawrence Erlbaum Associates.
Meir, I., C. A. Padden, M. Aronoff & W. Sandler (2007). Body as subject. *Journal of Linguistics,* (43), 531–563.
Sandler, W., I. Meir, C. Padden and M. Aronoff (2005). The emergence of grammar: Systematic structure in a new language. *PNAS,* Feb, 15, 2005, vol. 102 no. 7, 2661–2665.
Van Gelderen, E. (2011). *The Linguistic Cycle: Language Change and the Language Faculty*. Oxford: Oxford University Press.