The interaction of argument-marking strategies

Sander Lestrade
Radboud University Nijmegen

Virtually all languages developed some form of argument marking to tell apart subject from object. The three basic options are dependent marking (DM), head marking (HM), and word order. If each strategy was a viable way of marking argument structure, the different options could be expected to exclude each other. For example, it is often claimed that having a case-marking system allows for free word order. But as shown in Table 1, most languages actually combine several strategies (18 + 17 + 69 + 59 ¿ 1 + 14 + 24) and DM goes together with strict word order more often than not (17 + 59 ¿ 1 + 18).

The explanation for this state of affairs is (at least) twofold. First, the strategy of word order is more complex than the simple use of 0 vs 1 in Table 1 suggests. DM and HM are pretty straightforward: Whatever subtype you use (ergative or accusative, subject or object agreement, suffixes or clitics), you can tell the function of the argument that is marked by the conventional meaning of its marker, and that of an unmarked argument by simple reasoning (e.g. *If it's not the subject, it must be the object*). Surely they have their problems, for example when the arguments do not differ in the properties relevant for agreement or in the case of case syncretism, but in principle, the different subtypes work equally well. Different versions of word order, however, come with inherent limitations. Hawkins argues, e.g. in Hawkins (2002), that if both arguments appear

Published in:
S. Lestrade, P. de Swart & L. Hogeweg (Eds.) (2015).
Addenda. Artikelen voor Ad Foolen (pp. 251–256).
Nijmegen: Radboud University.

Table 1: Frequency count of argument-marking systems as sets of strategies. For the classification as present (1) or absent (0) of a strategy in a language, cf. Dryer (2013), Iggesen (2013), and Siewierska (2013). The sample here consists of the intersection of the languages studied by these authors.

n	DM	HM	order
1	1	0	0
14	0	1	0
24	0	0	1
18	1	1	0
17	1	0	1
69	0	1	1
59	1	1	1

before the verb (the *V3* type), it takes quite some time before it can be figured out what their relationship is and hence DM is desirable. The other way around, if the verb comes first (*V1*), it helps if we are told what to expect. Dryer (2002) proposes an alternative account that is more plausible, I think: If both arguments appear on the same side of the verb, their functions cannot be told apart if one of them is dropped (which frequently happens in natural language) and hence some extra form of marking (be it HM or DM) is necessary both for V1 and V3. The cross-linguistic evidence seems to be in favor of Dryer. Both he himself and Siewierska and Bakker (1996) find that it is mostly V2 that obviates other types of marking, V1 often combining with DM (in addition to HM) and V3 often combining with HM (next to DM).

For these results, Dryer (2002) and Siewierska and Bakker (1996) perform sophisticated typological studies, painstakingly taking into account areal and genetic factors. Let us see if we can get similar results for our-

Table 2: Intersections of WALS samples for word-order (Dryer, 2013) and locus of marking (Nichols & Bickel, 2013). *Obs* gives the observed numbers of languages in the core language sample, *exp* gives the expected number of languages. Absolute differences between observed and expected values larger than 2 are marked in boldface.

	locus							
	both		**DM**		**HM**		**none**	
order	**obs**	**exp**	**obs**	**exp**	**obs**	**exp**	**obs**	**exp**
V1	3	3.2	3	2.8	3	4.1	3	1.8
V2	**6**	**8.6**	7	7.6	11	11.0	**8**	**4.8**
V3	10	9.4	10	8.3	12	12.0	**3**	**5.3**
none	**6**	**3.8**	2	3.3	6	4.8	**0**	**2.1**

selves using counts readily available from the online WALS (Dryer & Haspelmath, 2013). Dryer (2013) provides word-order information for 1377 languages and Nichols and Bickel (2013) specify the locus of marking (HM/DM) for 236 languages; both concern "basic" clauses with full NPs only and the locus classification depends on the treatment of the object. Unfortunately, we cannot simply intersect these samples as this turns out to result in a heavy bias towards SOV languages (i.e., one that is not present in the original sample of Dryer). A simple way to remedy this is only to consider the 100 core languages that all WALS authors were required to include in their sample (but note that four of these are missing from the study of Dryer and two others from the study of Nichols and Bickel). Excluding one language with locus type "other", the numbers are given in Table 2, in the column *obs(erved)*.

These numbers cannot be interpreted straightforwardly, however, as we have to compare them to their *expected values*. For each cell, we can calculate the expected value if there was no interaction between order and locus of marking by multiplying the total number of languages of

the corresponding order type (i.e., the row total in a specific sample) by the total number of the corresponding locus type (the column total), and divide that by the grand total of languages in the sample. For example, for the *V1/both* combination we expect (3 + 3 + 3 + 3) § (3 + 6 + 10 + 6)/93 = 3.2 languages.[1] Absolute differences between observed and expected values larger than 2 are marked in boldface, an arbitrary threshold that singles out a low number of the most interesting deviations only (hopefully).[2]

Note that, at first sight, the marked deviations can be explained along the lines sketched above: there are less V2 languages with both DM and HM and more of these without either of them, as a V in between S and O suffices to keep them apart. Also, there are less V3 languages without further marking than expected if there was no interaction between the strategies, as we wouldn't be able to tell their roles if one of the arguments was dropped. Finally, when word order is not used as an argument marking strategy, there are more languages with both alternative strategies than expected and less without any alternative, as the absence of word order as an argument-marking strategy has to be compensated for.

Done? Not quite. The fact that word order is more complex than simply 0 or 1 does not explain the frequent co-occurrence of HM and DM. And in as much it does say anything about it, it makes the wrong predictions: It assumes these strategies are for argument marking and that if word order falls short another strategy is called for. But if things were that simple, either HM or DM should have sufficed as an alternative. That is, we would expect DM and HM to exclude each other, and we have seen they don't. So why using both?

A partial explanation for this state of affairs can be obtained by considering the original functions of the various strategies. Following Lehmann (1988) and others, Siewierska and Bakker (2009, p. 291) argue in the *Handbook of Case* that the primary function of DM is "denoting the nature of the semantic dependency obtaining between the verb and its less predictable dependents". The less predictable the relation, the more necessary its

[1] Recall that six languages are missing from the core set and one was excluded, hence the division by 93.

[2] For Ad's sake, this method is prefered here above more sophisticated measures to determine significance.

marking. Note that this is very different from what is often considered to be the main use of case, namely distinguishing between core arguments (but also note the difference between *primary* and *main*). According to Siewierska and Bakker, however, this is only one of its additional uses. The other additional function of DM is indexing features such as animacy, definiteness, and topicality. HM, on its turn, has this indexing strategy as its main business. It identifies highly accessible referents in the discourse, which are mostly arguments as a consequence. In fact, since arguments often share the relevant agreement properties, HM is hardly reliable for differentiating the arguments. Thus, HM is not in competition with DM with respect to marking argument structure (it performs a different job really), which would explain their combined usage. The basic function of word order, finally, is the sequencing of information to reflect communicative intentions and optimize processing. However, when the V is consistently placed in between S and O, order can be used for disambiguating too, as a viable alternative to DM.

Taking into consideration these developmental pathways not only allows for the co-occurrence of HM and DM, it also predicts a similar dislike for V2: V2 order simultaneously allows for distinguishing subject from object (obviating the development of DM) *and* topic from focus (obviating the use of HM). Unfortunately, however, this explanation is not entirely satisfactory, as one could expect that the absence of strict word order for argument-marking purposes in fact means using it for information structuring. But if that were true, it would exclude (rather than attract) HM, which it doesn't.[3]

For some reason, HM and DM seem to like each other beyond word order. The solution is still to be added by you, Ad, and I'm looking forward to hearing it.

[3]Note, however, that word order is here again more complex than it may seem, as the absence of the preference for a single order subsumes a number of options (cf. Dryer, 2013).

Acknowledgements

Thanks to the Netherlands Association for Scientific Research (*NWO*) for their financial support (grant 275-78-001).

References

Dryer, M. S. (2002). Case distinctions, rich verb agreement, and word order type. *Theoretical Linguistics*, *28*, 151–157.

Dryer, M. S. (2013). Order of subject, object and verb. In M. S. Dryer & M. Haspelmath (Eds.), *The World Atlas of Language Structures Online*. Leipzig: Max Planck Institute for Evolutionary Anthropology.

Dryer, M. S. & Haspelmath, M. (Eds.). (2013). *WALS/Online*. Leipzig: Max Planck Institute for Evolutionary Anthropology. Retrieved from http://wals.info/

Hawkins, S. (2002). Symmetries and asymmetries: Their grammar, typol- ogy and parsing. *Theoretical Linguistics*, *28*, 95–149.

Iggesen, O. A. (2013). Number of cases. In M. S. Dryer & M. Haspelmath (Eds.), *The World Atlas of Language Structures Online*. Leipzig: Max Planck Institute for Evolutionary Anthropology.

Lehmann, C. (1988). On the function of agreement. In M. Barlow & C. A. Ferguson (Eds.), *Agreement in natural languages* (pp. 55–66). Stan- ford, CA: CSLI.

Nichols, J. & Bickel, B. (2013). Locus of marking in the clause. In M. S. Dryer & M. Haspelmath (Eds.), *The World Atlas of Language Structures On- line*. Leipzig: Max Planck Institute for Evolutionary Anthropology.

Siewierska, A. (2013). Verbal person marking. In M. S. Dryer & M. Haspel- math (Eds.), *The World Atlas of Language Structures Online*. Leipzig: Max Planck Institute for Evolutionary Anthropology.

Siewierska, A. & Bakker, D. (1996). The distribution of subject and object agreement and word order type. *Studies in Language*, *20*(1), 115–161.

Siewierska, A. & Bakker, D. (2009). Case and alternative strategies. In A. Malchukov & A. Spencer (Eds.), *The Oxford handbook of case* (pp. 290–303). Oxford: Oxford University Press