

Alignment stability and change: arguments from a Bayesian evolutionary angle

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The topic of change patterns and morphosyntactic cycles of alignment typology has been under discussion for years, not least within Indo-European syntactic reconstruction theory. An important issue in this literature concerns the diachronic evolutionary paths between nominative/accusative and ergative systems, as well as active systems and various types of split and fluid systems. Of great importance in Indo-European is the emergence of ergativity within the Indo-Aryan branch, which is secondary, developing out of a nominative-accusative system (Dahl & Stronski, 2016).

Reconstruction of morphosyntactic cycles and directionality in diachronic typology are typically based on reconstruction of formal systems by the comparative method in combination with observations from grammaticalization theory (Harris & Campbell, 1995, pp. 240-281). This method does not yield unambiguous results: for Indo-European, almost all types of alignment systems have been reconstructed on the basis of a comparative reconstruction of systems in daughter languages, from nominative-accusative over ergative to various active systems (Bauer, 2000; Delbrück, 2009a, 2009b, 2010; Gamkrelidze & Ivanov, 1984; Klimov, 1971).

We take a different approach to this issue, inferring ancestral states using a Bayesian evolutionary methodology. Our data consist of alignment patterns — e.g., nominative-accusative, no marking, ergative, active, split, and so forth (Carling et al., 2018) — attested in various Indo-European languages across different tenses. We use the probabilistic programming language Stan (Carpenter et al., 2017) to infer evolutionary transition rates between different alignment patterns and reconstruct the probabilities of different alignment patterns in Proto-Indo-European (Cathcart, Carling, Larsson, Johansson, & Round, 2018). In general, the results give low support for alternative models for Proto-Indo-European, such as ergative and active systems (e.g., Nominative-Accusative alignment is reconstructed with 77% probability for pronouns in the simple past, whereas Ergative alignment is reconstructed with only 11%). It is obvious, that these systems have emerged secondarily in branches by means of internal pressure or areal influence.

Alignment change typically involves several aspects of grammar, both the relations between core arguments (A,S,O) in different tenses and by different , various extensions of the core (indirect object, possession), the design of the case system by nouns and pronouns, and valency or alignment marking on the verb. In the paper, we will look specifically at the ancestral reconstructions at proto-language states of these properties, matching the results against previous proposals of Indo-European diachronic alignment.

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