

Rehabilitating ‘non-proportional’ analogy

The proportional model of analogical change attributes morphological productivity to the solution of a proportion like (a) below, involving ad-hoc generalisation of relationships between small sets of inflected words. This captures the fact that similarity begets similarity in language change: items that look or behave alike, sometimes in quite superficial ways, are liable to become even more alike. Yet many examples of morphological innovation do not appear to be based on any proportional model: contrast the Greek subjunctive *rhégnūtai* in (a) with the variant form *rhégnuētai* in (b), which seems to be formed simply by combining a stem and suffix. Such changes fit better within a rule-based approach to productivity, in which speakers perform a global analysis of linguistic data and distill it into a mental grammar capable of reconstituting surface forms as needed.

- a. *phéretai* ‘it is carried’ (ind.) is to *phérētai* (subj.) as *rhégnutai* ‘it shatters’ (ind.) is to ***rhégnūtai***
b. ***rhégnu-ētai*** SHATTER-mediopassive.3sg.subj (cf. *phér-ētai* CARRY-mediopassive.3sg.subj)

Such phenomena led the Neogrammarians to concede that not all analogical processes are proportional (e.g. Osthoff 1897, Paul 1886:95). Attempts to reconcile ‘non-proportional’ and proportional analogy have since fallen into two camps: either all morphological change is treated as non-proportional within a rule-based approach (e.g. Kiparsky 1968), or all analogical change is treated as proportional (see e.g. Hill 2020, Garrett 2008, Fertig 2016). The former approach fails to capture the role of surface similarity in morphological change, while the latter relies on explaining away apparently non-proportional examples by finding either a proportional model or an alternative explanation such as dialect borrowing. Nonetheless both proportional and non-proportional analogy are still widely invoked in historical linguistics, and the theoretical conflict between them remains unresolved.

I will outline a new way of reconciling proportional and ‘non-proportional’ analogy by expanding analogical proportions to include any number of known surface forms, rather than being limited to the three forms of classical proportions (‘*a* is to *b* as *c* is to *x*’). Using computational procedures a local analysis of these forms is performed on the fly and used to predict an unknown inflectional form. In this framework, rules and analogies are seen as notational variants at opposite ends of a spectrum: while traditional rules are maximally general in scope, traditional analogical proportions are based on a single exemplar. This accommodates both types under a single umbrella, while retaining the insights that speakers look for similar models when producing morphological forms, and that the generalisations revealed by morphological innovations can be quite local and idiosyncratic (Joseph 2011). I will show how by integrating both types of analogy with a common formalism, they can be subjected to the same measures (e.g. of phonological/morphosyntactic similarity, type and token frequency) and subjected to a unified statistical analysis, to reveal factors that affect the probability of a putative analogical change actually taking place.

Fertig, D. (2016). Mechanisms of paradigm leveling and the role of universal preferences in morphophonological change. *Diachronica*, 33(4), 423-460.

Garrett, A. (2008). Paradigmatic uniformity and markedness. In J. Good (ed.), *Linguistic universals and language change*, 125-143. New York: OUP.

Hill, E. (2020). Analogy in inflectional change: Modification or whole-word replacement?. *Language* 96(1), 38-58.

Joseph, B. (2011). A localistic approach to universals and variation. In Peter Siemund (ed.), *Linguistic universals and language variation*, 404-425. Berlin: Mouton de Gruyter.

Kiparsky, P. (1968). Linguistic universals and linguistic change. In Bach, E. and Harms, R.T. (Eds.), *Universals in linguistic theory* (171-202). New York: Holt, Rinehart and Winston.

Osthoff, H. (1879). Kleine Beiträge zur Declinationslehre der Indogermanischen Sprachen. *Morphologische Untersuchungen*, 2, 1-147.

Paul, H. (1886). *Principien der Sprachgeschichte*. 2nd ed. Halle: Niemeyer.