

Phonological constraints on morphology: evidence from Old Germanic nominal inflection

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Traditionally the interplay between phonology and analogy has been framed in terms of the so-called Sturtevant's Paradox (Sturtevant 1947: 109), which states that sound change which is regular produces irregularity (e.g. by introducing allomorphic variation into the paradigm), while analogical change, being irregular, produces regularity (e.g. by eliminating allomorphic variation from the paradigms). One of the implications of this formulation is that morphological changes are essentially reactive towards phonological changes. In the later studies on analogy this straightforward relation was considered not entirely adequate, and some refinements were suggested. In a somewhat amended version proposed by Hock (2003: 457), the relation between these two mechanisms of language change has been defined as follows: "Sound change typically is regular, and morphologically or semantically motivated analogy typically is irregular; but phonologically motivated analogy (such as morphophonemic and rule extension) tends to be as regular as sound change, and changes such as dissimilation and metathesis require a general phonological motivation to become regular" (cf. Fertig 2013). Much as the type of interaction described by the paradox can be found in many changes cross-linguistically, a closer scrutiny of certain morphological developments in the nominal system of early Germanic languages reveals a much more complex interaction between phonological changes and morphological restructuring, including analogical levelling. The following developments diverge from the course of interaction expected from the described relation between phonological and morphological changes:

- 1) Phonological constraints, such as metrical characteristics (foot structure, potentially interacting with analogy), occasionally induce *regularisation* of a paradigm, which thus deviates from the shape expected from a strict application of sound laws, e.g. the introduction of *-u* in the NOM. SG. of light-syllable feminine root nouns (OE/Ofris. *hnutu*) or the tendency towards homogeneous singular paradigms in the feminine *istems* (OE *dryht*, *ēst*, OFris. *dēde*, *kest*).
- 2) Phonological constraints may effectively block a morphologically motivated regularisation or/and formal enhancement of the paradigm (e.g. sporadic instead of consistent extension of the analogical DAT. SG. *a*-stem marker *-e* in heavy-syllable root nouns (OE *fōt(e)*, *neah(e)*).
- 3) The impact of phonological changes can be modified by frequency of use and the functionality of the form (in the paradigm), e.g. the retention of the marker *-i* in the NOM. PL. of heavy-syllable root nouns (OS *fōti*), or the loss or retention of the *r*-formative in the paradigm of the *s*-stems (OE *lambor*, *hrīper*; OFris. *clāthar*, *hrēther*).
- 4) Phonologically-induced changes can enhance morphological transparency rather than increase irregularity by introducing allomorphic variation into the paradigm (e.g. the development of *i*-mutation or the *r*-formative as salient plural markers (OE, OS)).

The evidence for the claims made in the present study comes from a systematic investigation of the reorganisation of the nominal inflection in Old West Germanic languages (Adamczyk forth.). The present study focuses in particular on the factors involved in the restructuring mechanism and their

share in the interaction between phonological and morphological developments. Several factors emerge as decisive for the attested patterns of restructuring, namely (1) frequency of occurrence/use, operating on various levels including the frequency of morpho-syntactic categories and lemma-specific frequencies (Greenberg 1966; Bybee & Hopper 2001; Bybee 2007; Hawkins 2004), (2) the morpho-phonological salience of inflectional exponents (Goldschneider & DeKeyser 2001; Corbett et al. 2001; Dammel & Kürschner 2008), (3) functionality of morphological forms, and (4) their phonological characteristics (e.g. foot structure; Lahiri & Dresher (1991)). The attested inflectional profiles of the nominal paradigms emerged as a result of a complex interaction between these conditioning factors, which could either enhance or neutralise the effects of the activity of the individual determinants. The study aims at evaluating their significance by applying a multivariate analysis, where the above-mentioned factors serve as independent variables, in order to predict the outcome of the interaction between phonological changes and analogical shifts (cf. Versloot & Adamczyk 2017). The study reveals that the scope and intensity of the effects and the outcome of the competition between phonological and morphological developments is in most instances controlled by frequency. A closer examination of the mentioned factors and the interactions between them allows one to gain a better understanding of the mechanisms involved in phonological and analogical changes.

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