The impact of structural properties in the adaptation of utterances

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In recent years, linguistics has experienced a shift towards an 'evolutionary framework.' At the core of this framework is the view that linguistic structure emerges from other forces (which can be cognitive, communicative or social), and that these forces create a 'complex adaptive system,' a system that is not stable, but constantly adapting and dynamic (Bülow et al. 2017; Beckner et al. 2009; Geert and Verspoor 2015; Mufwene 2008, Steels 2000). The relationship between actants in the system can be illustrated in feedback-cycles. For example, a speaker-hearer cycle is integrated with a user-structure cycle. This raises the question about the impact of different elements in the cycles and of the cycles themselves on the development of language structure.

This paper researches the impact of structure itself in the evolution of language. According to Croft (2000), utterances – chunks of language material that people utter – are selected by users, and the structure adapts to functional-communicative constraints by users. This process is an instantiation of the General Analysis of Selection (GAS), a generalization of Darwinian ideas of biological selection (Hull 1988). Structure is seen as something that adapts to users. However, adaptivity can be also conceived of as adaptivity to the cycle itself, following Developmental Systems Theory (Oyama 1985/2000; Griffiths and Gray 1994, 1997, 2001). In this case, both the interactor (users) and the replicator (structure) contribute to the stability of the cycle, in a feedback-relationship. This means that some phenomena in language might be more widely distributed than expected because they are part of cycles upheld by structural properties of the replicator.

The effect of structural properties can be seen in the persistence of complex features of language that aren't adaptive for users, such as lexically conditioned inflection (LCI). LCI involves inflectional paradigms that are unpredictable because they are either restricted by certain lexemes or by lexical classes. Users must therefore not only know the paradigm but also the lexeme (class) to master the correct inflection. Examples include ablaut systems or conjugation classes in Indo-European languages, and similar patterns across the globe, such as in Yelî Dnye (Yele, Papua New Guinea), Zuaran Berber (Afroasiatic, Tunisia) or Ket (Yeniseian, Russia). However, LCI shows relevant structural associations with other parts of words. Our study of 79 verbal morphological positions with LCI in 30 genetically and geographically distant languages shows that LCI frequently patterns with prosodic prominent positions such as stressed syllables, as opposed to 134 non-lexically conditioned inflectional positions. While prominence is adaptive for users, LCI is not; however, its mediation through another structural level causes longer replication lineages. The takeaway of these findings is that evolutionary linguists must account for the role of structural elements through which user adaptivity is mediated or adopt a view in which adaptivity is understood as adaptivity to cycles, and not to elements within cycles.

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