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Linguistic and Gestural Evolution: Identifying Replicating Traits

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ABSTRACT

This analysis proposes an evolutionary approach to long-standing questions regarding the nature of the relationships between language and gesture. Developing from Jablonka & Lamb (2014) and Ritt (2004), linguistic and gestural evolution is defined formally as changes in the relative frequencies of replicating traits within a population. Potential replicating traits are identified here based on four modality-independent criteria: (i) stability, across contexts and performances; (ii) variation across populations; (iii) multiplication, as a unit within populations through transmission and learning; and (iv) competition, with some traits replicating more successfully than others. This analysis focuses on replicating traits on a broadly morphological scale and identifies two groups of replicating traits based on a notion of *reaction norms*, referring to the range of variation in form and in meaning within an individual trait. Lexical and categorical functional morphemes in both signed and spoken languages and conventionalized gestures like emblems, which meet the criteria for replicating traits, have fixed forms (narrow reaction norms) but more flexible meanings (broad reaction norms). These traits are symbolic but may be iconic in some sense or entirely arbitrary. Because they can be used creatively with extended meanings and in new functions, these traits are highly evolvable over time. This analysis also identifies traits with flexible forms (broad reaction norms) but constrained meanings (narrow reaction norms), including pointer and representative/iconic gestures and pronominal signs, agreeing/directional markers and classifier predicates in sign languages. The flexible forms of these traits tend to have motivated analogue relationships with their meanings, so that differences in form correspond predictably to differences in their meanings, but the meanings that these traits can encode are constrained. For example, the phonological movements of individual classifier predicates are also limited to encoding either spatial paths, manners of motion or physical boundaries of entities. Traits with flexible forms are highly plastic; the same underlying trait can be adapted in context to encode all of the potential meanings within its reaction norm without requiring any changes in the nature of the trait itself. As a consequence, traits with flexible forms evolve much more slowly than traits with fixed forms. Linguistic and gestural replicating traits are distinguishable in two ways. First, linguistic traits are constrained by relatively narrow functional reaction norms, the boundaries of which represent linguistic constraints arising from interactions within grammatical systems. Gestural traits are not constrained in the same ways and have much broader functional reaction norms. Second, at the scale that is relevant here, morphological linguistic traits are ‘teams’ of phonological, syntactic and semantic traits that replicate together as a unit; gestural traits are single non-compositional traits rather than trait teams.

REFERENCES

- Jablonka, E. & M. Lamb. 2014. *Evolution in Four Dimensions: Genetic, Epigenetic, Behavioral and Symbolic Variation in the History of Life*. Cambridge Mass: The MIT Press.
- Ritt, N. 2004. *Selfish Sounds and Linguistic Evolution: A Darwinian Approach to Language Change*. Cambridge UK: Cambridge University Press.