Is the evolution of linguistic complexity more like population genetics or community ecology?

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How should we model the cultural evolution of linguistic complexity? The answer depends on the assumptions we make about the relevant:

1. *Levels of analysis*, one or more of:

    - Tokens, e.g. phonemes, words, constructions
    - Grammars, e.g. morpho-syntactic paradigms and syntagms
    - Speech communities, e.g. dialects, sprachbunds

2. *Measures of complexity*, one or more of:

    - Token-linked properties, e.g. processing & acquisition costs, or adaptive value
    - Systemic properties, e.g. size, relations, compositionality, recursion
    - Distributional properties, e.g. efficiency and diversity in use

3. *Evolutionary dynamics*, one or more of:

    - Darwinian processes, e.g. selection, drift, and innovation
    - Directed processes, e.g. biased transmission
    - Ecological processes, e.g. interactions, niches, environmental variation

Both the target phenomena and our means of measuring and describing them under-specify each other. In turn, there are multiple possible mappings between any of these and any given evolutionary frameworks. This *multiple realisability* of linguistic complexity has several implications: i) competing explanations of variable complexity are difficult to comparatively assess: are high levels of morphological complexity an adaptative response to the cultural niche provided by small-scale speaker communities (Lupyan & Dale, 2010), or is there a directed process of change towards simpler grammars in large-scale speech communities (Wray & Grace, 2007), or are easily-acquired linguistic variants selected for in large speech communities (Reali, Chater, & Christiansen, 2018)? In fact, ii) any combination of these explanations might apply simultaneously, to variable extents which depend on the specific context. Because of this, we should iii) look for causally robust links between the explanatory dimensions outlined above. As an example, I will outline how multiple causal paths connect small-scale speech communities to different kinds of structural complexity and diversity.

References

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