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Comment

The challenges of language dynamics Comment on “Modelling language evolution: Examples and predictions” by Gong, Shuai, and Zhang

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The concept *language dynamics* is gaining currency and has been recognized as a field of study in its own right. There are review articles describing recent research in this domain [1–3] and even a journal dedicated to it, called *Language Dynamics and Change* (published since 2011 with Brill). Nevertheless, it is not easy to find a good definition of what exactly is covered by ‘language dynamics’. I will attempt to provide such a definition here: *The study, through observations, reconstructions or simulations, and, whenever possible, quantitative methods, of processes of emergence, change and interaction of languages at any time scale, possibly in relation to processes within or among human agents, who may pertain to specific environments.* This definition captures diverse popular areas of inquiry, such as, for instance, the interdisciplinary study of the evolution of language, historical-typological linguistics as carried out by professional linguists, and language competition—a topic most often addressed by statistical physicists. Providing such an overarching definition of a wide range of research foci contains a challenge: can they be combined?

To illustrate what this challenge means, we can take the example of preferred word orders in languages. For half a century it has been known that languages usually prefer a certain order of subject (S), verb (V), and object (O), and that, as far as the two first are concerned, there is a very strong preference for S to precede V [4]. Through the painstaking descriptive work on thousands of languages we can nowadays observe [5] that 47.1% of (a sample of) the world’s languages prefer SOV and 41.2% prefer SVO, with other orders ranging from uncommon to marginal. The preference for SOV comes out even stronger from the point of view of language families. Thus, SOV is found in 56.1% of families and SVO only in 21.7% [5]. Although more data would be needed to confirm this, it looks like SVO may be the preferred order from the point of view of the number of speakers: based on data available for 798 languages we can observe 1.8 billion SVO language speakers (365 languages, median number of speakers = 42,250) and 1.3 billion SOV language speakers (433 languages, median number of speakers = 7240). Clearly, word order falls under the purview of language dynamics. When a language evolves from scratch there must be mechanisms by which speakers converge on a certain preferred word order. But there must also be mechanisms by which SOV vs. SVO emerge as competing contenders for the dominant pattern *across* languages (with the other logically possible orders being attested but more infrequent to various degrees). Finally, models of language competition should contain

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