

Connecting input filtering and selection in language evolution

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1 Abstract

Previous work has demonstrated the formal equivalence of simple models of cultural evolution, based on iterated Bayesian learning with symmetric Dirichlet priors, with neutral models of biological evolution. This demonstration was profitable in allowing the use of existing mathematical results from population genetics to be applied to questions of language change. We extend this work by exploring parallels between more complicated models of cultural evolution, featuring “input filtering”, and models of biological evolution with selection. We investigate the use of analytic expressions for steady-state distributions for predicting the outcomes of cultural learning models, and apply these methods to the explanation of historical word order change via input filtering. In addition to these practical outcomes, our work relates to the broader question of just how similar linguistic and other cultural change is to Darwinian evolution in biology, and how valid it is to speak of cultural traits being “selected for”.