

Formally biased phonology: Complexity in learning and typology

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Phonological systems are biased toward formal simplicity, both in learning and in typology. Simplicity bias in learning is particularly evident in laboratory studies of the acquisition of miniature phonological systems (see Moreton and Pater 2011 for a review). Patterns that make crucial use of a smaller number of features are consistently learned more easily than ones that make use of a larger number of features. Typology displays parallel skews, in what Martinet (1968) and Clements (2003) term feature economy: languages tend to make maximal use of each feature, rather than proliferate features. Despite the pervasiveness of these and other biases toward simplicity, they have received little attention in phonological theory. In this presentation, we review the empirical evidence for formal biases in phonology, and show that they emerge from a simple gradual learning algorithm. We highlight parallels between the data and models in phonology and research on concept learning in cognitive psychology, a connection that opens up a range of directions for further research.

Clements, G.N. 2003. Feature economy in sound systems. *Phonology* 20. 287-333.

Martinet, André. 1968. Phonetics and linguistic evolution. In Bertil Malmberg (ed.)

Manual of phonetics. Completely revised and extended edition. Amsterdam: North- Holland. 464-487. Reprinted from the 1st edition (1957), edited by L. Kaiser. 252-273.

Moreton, Elliott and Joe Pater. 2011. Learning artificial phonology: A review. Ms. in submission. <http://people.umass.edu/pater/moreton-pater-review.pdf>