

Phonological Idiosyncrasy and the mental lexicon: acquisition and change over time

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When children learn language, they must learn abstract rules about their entire language, while also learning individual lexical items which sometimes do not follow those rules. In this talk, I present GLaPL, a computational model which concurrently learns phonological grammar and word representations. Features of a word (e.g. stress pattern) are represented with continuously-valued weights, simulating the memory strength associated with each feature of a word. This model correctly predicts (a) that phonological rules with fewer exceptions should allow more sparse lexical representations, and (b) that more frequent words in a language should diverge more from the demands of the grammar. I present simulations on cross-linguistic stress data, a case study using corpus data of English comparatives ('more happy' v. 'happier'), and finally an iterated learning study simulating the change in a language's lexicon across generations. In this last simulation, more frequent lexical items become more idiosyncratic even without any major change in the phonological grammar of the language (contra Bybee (1995) and others).