The timecourse of phonotactic learning

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Abstract: Speakers show sensitivity to the sound patterns possible in their language (phonotactics patterns). These patterns can involve specific sound sequences (e.g. bb) or more general classes of sequences (e.g. two identical consonants). In some bottom-up models of phonotactic learning, generalizations can only be formed once some of their specific instantiations have been acquired. To test this assumption, we designed an artificial language with both general and specific phonotactic patterns, and gave participants different amounts of exposure to the language. Contrary to the predictions of bottom-up models, the general pattern required less exposure to be learned than did its specific instantiations. We model our results by adapting a Bayesian rule-learning model, in which specific and general patterns are learned simultaneously. In addition to explaining our results, we use this framework to analyze several other studies from the literature.