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The acquisition of verb morphology in Polish and Finnish: Model and experiment

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Abstract: Usage-based approaches suggest that language acquisition is a function of the statistical properties of the input. We compare predictions from neural network models with results of two elicited-production experiments on verb inflection with children in the morphologically complex languages Polish and Finnish. Three-layer neural networks were trained to produce person/number-inflected present-tense verb forms in Polish and Finnish from phoneme representations of verb stems using frequency information from child-directed speech corpora. Simulated acquisition in both languages was affected by token frequency and phonological neighbourhood density (PND) as well as an interaction such that low-frequency forms benefited more from PND than high-frequency forms. Suffix errors showed overgeneralisation and substitutions of low-frequency forms with higher-frequency forms. The model predictions are consistent with our empirical findings, except for the frequency X PND interaction. We discuss the experimental and simulated data and their implications.