Uncovering Childrens' Category Representations with MCMCP

Pablo Leon Villagra
Brown University, Providence, Rhode Island, United States

Isaac Ehrlich
University of Toronto, Toronto, Ontario, Canada

Chris Lucas
University of Edinburgh, Edinburgh, United Kingdom

Daphna Buchsbaum
Brown University, Providence, Rhode Island, United States

Abstract

Uncovering how categories develop through childhood is crucial for cognitive science. However, even for simple domains, categories can be complex, making it challenging to access them experimentally.

Here, we use an experimental method that allows us to produce exemplars from children's implicit categories (Markov Chain Monte Carlo with People, MCMCP). Instead of querying pre-specified materials, MCMCP adaptively selects which stimuli to present, allowing us to focus on the most informative exemplars. We use MCMCP to uncover age-dependent differences in the category organization of fruits in a pre-registered online experiment. Comparing five-year-olds, seven-year-olds, and adults, we find a developmental progression of initially broad and overlapping fruit categories to more differentiated distributions. Furthermore, we find that across age groups, apple and grape categories exhibit bi-modal color distributions. We discuss these results in the context of theories of randomness reduction over the lifespan and shape biases in category induction.

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