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Authors

Wetzel, Matt

Kurtz, Kenneth

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Human generalization of an alternating category structure

Matt Wetzel

Binghamton University, Binghamton, New York, United States

Kenneth Kurtz

Binghamton University, Binghamton, New York, United States

Abstract

Leading models of human categorization posit that an observed stimulus is classified according to its similarity to stored reference points. In the present study, we investigate a category structure that elicits human generalization behavior not predicted by the reference point framework. In a supervised classification learning task, participants were presented with simple continuous-valued stimuli (one- or two-dimensional) based on an underlying category structure with a strict pattern of alternating regions assigned to each class (e.g., A A B B A A B B ? ?). The participants were then tested on new stimuli with dimension values beyond the range seen in training. A large portion of participants classified new items by extrapolating the alternation sequence they did not classify based on similarity to the nearby reference points. These results pose a challenge to reference point models and raise important issues about concept formation and generalization.