Shape categorization is biased by position in a learned sequence

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Abstract

When presented with a novel word in a sentence, word order can be used to determine the category (noun, verb, etc.) to which that word belongs. However, it is unclear whether this tendency to use sequence information to infer category membership is specific to language, or is more domain-general. To examine this, we conducted experiments in humans and Rhesus macaques, using three perceptually distinct shape categories. Subjects were taught to categorize shapes, then to select them in a fixed order. Ambiguous stimuli were then generated by combining shapes from different categories. In humans, when an ambiguous morph was presented in a sequence, its subsequent categorization shifted radically based on its position in the sequence. These results demonstrate that the tendency to use sequence information to infer category membership is not unique to language. Data collection in macaques is underway, and will help determine whether this tendency is restricted to humans.

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