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Rhesus macaques generalize abstract rules within but not between stimulus categories

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Abstract

Comparative sequence learning experiments allow cognitive processes that are required for language in humans to be studied in nonhuman animals. We investigated Rhesus macaques' ability to detect abstract regularities in visual sequences, and their capacity to generalize to novel stimuli. On each trial, two colors were randomly generated and arranged into three-element long sequences based on three rules ('AAB', 'ABA', 'BAA'). Monkeys were able to learn the rules and select appropriate sequences of colored squares, and generalized this learning to the novel color combinations. To further assess generalization, we presented probe trials using sequences comprised of randomly generated white shapes. Monkeys showed no evidence of spontaneous generalization between stimulus categories. Our results demonstrate that monkeys are able to learn abstract rules governing visual sequences and that they generalize these to novel sequences within a stimulus category, but provides no evidence of generalization between stimulus categories.