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Dimensional Card Sorting by Rhesus Monkeys: Remember Yesterday?

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In the present study, five rhesus monkeys were presented with a dimensional card-sort task. On each trial, the monkeys were presented with a stimulus that contained four different properties: a shape (circle, triangle, cross, or star), a color (red, blue, green, or yellow), a number of items (1, 2, 3, or 4), and a background (vertical lines, horizontal lines, diagonal lines or cross hatched lines). This sample appeared in the center of the screen surrounded by four different possible choices in each corner of the screen. Each choice corresponded to some characteristic of the sample (the color of the sample, the shape of the sample, the number of items in the sample, and the background of the sample). For each session and day there was a new rule that was reinforced. The rules were the specific stimulus dimension (shape, color, number, or background) that would need to be matched for reinforcement. This meant that the monkeys had to use trial-and-error to determine the correct rule each day. The monkeys learned to match correctly on all four of the dimensions (color, shape, number, and background). However, on some days, the same rule was repeated from the previous day. On these occasions, a “Y” symbol appeared on the screen. This cue was introduced to determine whether the monkeys could remember the previous day’s rule. The monkeys were able to perform the dimensional stimulus-sorting task, an important finding in itself, and moreover appeared to use the strategy of remembering the previously used rule. This performance provides the basis for determining whether the animals always default to the previous rule, or do so specifically when cued with the “Y”, or even understand the symbol to represent “yesterday” rather than some other time in the past.