

LEARNING SERIAL ORDER BY COMMON MARMOSETS

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Studies of serial-order learning by monkeys (e.g., Cebus monkeys, macaque monkeys, etc.) and pigeons have provided evidence that these animals have the ability to memorize arbitrary sequence of arbitrary stimuli (e.g., D'Amato & Colombo, 1988); however, it is unclear whether or not common marmosets learn to produce a series of lists. In the present study, we trained 4 marmosets in a serial reaching task to examine their ability to learn serial order of 4-item lists. In the task, we used 4 complex graphic patterns as visual stimuli. Subjects were required to reach and touch graphic patterns in a given order to get a reward. First, they were required to learn the order of two graphic patterns (A->B). All the marmosets could learn the 2-stimulus order in 25-55 sessions. Thereafter, a new graphic pattern was introduced and we trained them to learn a serial order of the three graphic patterns (A -> B -> C). In 40 sessions, two of them showed over 80% in some sessions. These data indicate that they could learn serial order of at least 3 list items. At the present, we are training them to learn 4-item lists. However, in a pilot study with marmoset in matching to sample task, performance had not increased above chance level after numerous sessions. In the present study, we have been able to demonstrate that common marmosets can be trained a complex task such as the serial order reaching task. All experiments were conducted in accordance with Guide for the Care and Use of Laboratory Primate and Japanese regulations on animal experiments.

Keywords: common marmoset, cognitive task, serial learning