

CAPUCHIN MONKEYS CHOOSE EFFICIENT ROUTES USING A LASER POINTER APPARATUS

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Choosing an efficient path through a series of goal sites is a problem with survival implications for nonhuman primates. The goal of this work is to determine what strategies capuchin monkeys use to choose an efficient route between a series of goal sites in sequence. In a laboratory setting, captive tufted capuchin monkeys (*Cebus apella*) were presented with a traveling salesman problem consisting of two goal sites (i.e., food items of equal size). Subjects chose goal sites in sequence by manipulating a joystick controlling a laser pointer. A choice was made when the laser dot came within 2.5 cm of the goal. The laser dot began closer to one goal site than the other (at ratios of 1:1, 1:2, 1:3, and 1:4), resulting in two potential path choices: efficient (i.e., choosing the item closest to the laser dot first) and inefficient (i.e., choosing the item farthest from the laser dot first). Goal sites were presented at equal distances from the subject, left to right (i.e., allocentric condition) and with one site closer to the subject, front to back (i.e., egocentric condition). In both conditions, capuchin monkeys were capable of making efficient path choices at all distance ratios. Strategies and the efficiency of choices between six goal sites in sequence is also discussed. The ability to make efficient route choices without a change in the perspective of the subject is essential to planning a future route.

Keywords: Capuchins, Route efficiency, Traveling salesman problem, Spatial cognition