A COMBINATION LOCK FOR AUTOMATIC PROGRAMMING OF TWO ANIMALS IN A SINGLE EXPERIMENTAL SPACE¹

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In order to identify two animals living together freely in a single experimental space, two different responses, each producing its own electrical output, are successively approximated in each animal. The responses are designed so that there is a very low probability that one animal will trigger the other's output without explicit training. The concept is similar to that described by Reynolds and Skinner (1962) who selectively reinforced each of two pigeons, both free in a single experimental space.

Fig. 1. Photograph of the face of the combination lock.

The combination lock consists of a pointer which can be rotated to any of 16 positions indicated by the 16 lamps. The pointer rotates a two-pole, 32-point switch behind the panel. One pole connects the lights to the panel, so that each lamp lights in turn as the pointer is rotated. The color of the lamps alternates. Two positions on the second pole (on opposite sides of the dial) were selected for each animal,

and they were trained individually (approximately 1000 reinforcements) to turn the pointer to the assigned position and hold it there for 6 sec. The effective position was defined by an arc of approximately 11 degrees. Each animal's performance came narrowly under the control of its particular position on the selector switch. The requirement of holding the pointer made it unlikely that any random movement of the pointer would activate a circuit. No instance was observed of one animal adjusting the pointer to another animal's position. Both animals had continuous access to the combination lock and other apparatus in the first experiment. In a later phase of the experiment, the animals lived together in a large living space, in which experimental chambers were arranged serially. Once the chimpanzee's behavior came under the control of the combination lock stimulus (the large light in the center), it was wired in series with the entrance door. The combination lock came on when the animals closed the door. When the animal set the combination lock to an effective position, the door locked behind and the lights came on in the experimental devices. The entrance door to the experimental cubicle opened again when the animal entered the next space and locked the door behind it by beginning the next experimental procedure. A switch in the door frame indicated whether any doors were open or closed electrically. Only at the early stages of the experiment did two animals occasionally enter the experimental chamber together. When this occurred the dominant animal which set the combination, performed in the experimental procedures and received the food pellets.

REFERENCE

- Reynolds, G. S. and Skinner, B. F. A technique for reinforcing either of two organisms with a single food magazine. *J. exp. Anal. Behav.*, 1962, 5, 58.

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