THE EFFECT OF MULTIPLE S^A PERIODS ON RESPONDING ON A FIXED-INTERVAL SCHEDULE: II. IN A PRIMATE¹

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A squirrel monkey was subjected to a fixed-interval pattern of reinforcement. During the course of each interval a bright white light was repeatedly presented. In the presence of the white light, a response was never immediately followed by food; the white light thus functioned as S^A . Responding was interrupted during the S^A periods, but in the squirrel monkey as in the pigeon, these interruptions did not destroy the characteristic scalloped pattern of the cumulatively recorded responding through each interval.

The progressive increase in rate of responding under fixed-interval (FI) schedules of reinforcement resulting in a characteristic scalloped pattern of the cumulative record has been shown in pigeons to occur even when each individual interval is repeatedly interrupted by S^A periods (Dews, 1962). A squirrel monkey has been subjected to the same schedule, with similar results.

Materials and Procedure

The squirrel monkey was handled as described by Kelleher, Gill, Riddle, and Cook (1963). The experimental chamber contained a lever and a dispenser of liquid food. The mature S was maintained at a weight of 595 g, about 75% of *ad lib* weight. The basic sched-

ule was FI 600 sec TO 60 sec. During the TO period no lights were present. During the 600-sec interval, a transilluminated white circle-stimulus was continuously present. The houselight (HL) was also present during alternate 60-sec periods, starting each interval with a period when it was present. At the conclusion of the 600-sec interval, the HL remained off, so that a response was never reinforced during the presence of the HL; the HL was thus S^A . (This is the converse of the pigeon experiments in which absence of HL was S^A .) The S was untrained at the start of the experiment and was never subjected to an FI uninterrupted by HL. Each session was composed of 30 intervals and the results shown were collected after about 50 sessions.

RESULTS

The rate of responding during presence of the HL became consistently much less than in

Fig. 1. Cumulative records of squirrel monkey under FI 600 sec TO 60 sec schedule of reinforcement. Downward displacement of pen recording responding shows periods with houselight present. Presentation of reinforcer is shown by marks on lower trace and cumulating pen re-set to base line. During 60 sec TO period after reinforcement, no lights were present in chamber but the paper feed continued. Note the general scalloped patterns characteristic of FI responding.

Fig. 2. Mean rate of responding in successive 60-sec periods of last three sessions each of 30 intervals. The monkey had been subjected to about 50 previous sessions. Note progressive increase in rates in both consecutive S^D periods (no houselight present) and in consecutive S^A periods (houselight present).

the preceding and succeeding periods without HL. The S^A periods were therefore interrupting S 's progressive sequential responding. Nev-

ertheless, increase in frequency of responding in successive comparable segments through the interval characteristic of FI responding developed. This can be seen in the overall scalloped appearance of the cumulative records of individual intervals (Fig. 1) and also in the increasing mean rates of responding in corresponding successive segment of many intervals (Fig. 2).

CONCLUSION

Since the FI pattern of responding developed in a monkey despite interruption by repeated S^A periods, the arguments against chained responding functioning as mediating behavior in the genesis and maintenance of characteristic FI behavior apply in the primate as in the pigeon.

REFERENCES

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