PERFORMANCE IN MULTIPLE SCHEDULES

A thesis presented to the University of Auckland
in partial fulfilment of the requirements
for the degree of Doctor of Philosophy
in Psychology

by

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1983

ACKNOWLEDGEMENTS

I gratefully acknowledge the expert guidance of my supervisor Michael Davison, D.Sc, throughout every aspect of this research.

I also thank Associate Professor Ivan Beale for accepting the task of co-supervisor.

and

I thank my husband, Eric Charman, for his unfailing support and encouragement.

ABSTRACT

Four experiments are reported. Each experiment investigated a different variable which at sometime has been thought to influence performance in multiple schedules. Variable-interval schedules were used in all experiments and twelve pigeons served as subjects, six in the first two experiments and six in the third and fourth. The parametric data provided by each experiment were analysed using the generalized matching law and comparisons with findings in concurrent-schedule research were made. In Experiment 1 the effects of component durations and component reinforcer rates on multiple-schedule performance were investigated. Component duration did not affect sensitivity to the ratios of reinforcer rates. In Experiment 2 the effects of food deprivation and component reinforcer rates on multiple-schedule performance were investigated. Sensitivity to the ratios of reinforcer rates increased as deprivation was reduced. However, the data could only be explained by a model which assumed no direct component interaction. In Experiment 3 the discriminability of the stimuli customarily used in multiple-schedule research was investigated. The stimuli were perfectly discriminable. It was shown that the undermatching of response and reinforcer ratios typical of multiple-schedule performance was not the result of a failure to discriminate the stimuli signalling the components. In Experiment 4, a procedure for investigating time allocation in multiple schedules was introduced. The birds could switch in to the component in effect, and the components alternated at three minute intervals.

Each switch in to a component gave acess to the schedule in effect for fixed brief periods. Ratios of component response rates showed typical multiple-schedule undermatching. However, a commonality in concurrent and multiple-schedule performance was revealed in respect to local or switched-in response rates. In both types of schedule, it appears that pigeons allocate time so as to equalize the local response rates. It is apparent that the differences reported between concurrent and multiple-schedules with respect to the sensitivity with which responses are distributed between the components as a function of the distribution of reinforcers are a result of the constraints imposed on the subjects' allocation of time in multiple schedules.

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