Dynamic Choice in Concurrent Random Interval – Random Ratio Schedules

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Background
Studies of performance under concurrent VR – VI schedules of reinforcement have been a testbed to evaluate different choice models, providing contradictory data so far (Baum & Aparicio, 1999). The present experiment provides data about the dynamics of performance under these schedules, in particular its adjustment to frequently uncertain changes in the value of the VR and VI schedules (Baum, 2010). These data will increase the data set needed to compare a broader set of choice models (Coote, Davidson and Elliffe, 2016).

Method
The key pecking of six pigeons was reinforced by ten different pairs of a Findley concurrent random interval – random ratio schedule. Pairs were separated by blackouts of 30 seconds, and each one ended after ten deliveries of reinforcement (Baum, 2010). For five of the pairs, the value of the random interval was fixed, while the value of the random ratio was fixed for the other five pairs. Which of the two conditions started a session, as well as the order of pair presentation within a condition, was randomly determined. The experiment was run for 110 daily sessions, we present data from the last 60.

Conclusions
Globally, contrary to previously reported results (e.g., Herrnstein & Heyman, 1979), we found strong deviations from matching of response and time ratios to reinforcement ratios. There was also evidence of a strong preference for the RR schedules in responses and time measures. Looking at choice measures from reinforce to reinforce within a component, we found that after just a couple of reinforcers, the sensitivity parameter of the matching equation was very close to its asymptotic value, with a value no different from zero before the first reinforcer. The preference for the RR schedule was present since the beginning of a component, and decreased slightly as a function of the number of reinforcers in the component.

We explored the effects on response and time ratios of a sequence of five reinforcers on the same key and some discontinuities. The first reinforcer on either of the sequences had an effect over the preference under both the random ratio and random interval keys. However, subsequent reinforcers on the RR key had no further effect on preference for that key, while subsequent reinforcers in the RI key showed a small and diminishing effect.

References

Diference: Sensitivity

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References