Many animals are attuned to the variability of food intake rate (referred to as foraging risk) which can induce preferences for future decision making.

Classic risk-sensitivity paradigms offer two alternatives: constant or variable.

Pigeons have been shown to prefer an alternative that offers constant food amount, yet prefer ones with variable reinforcement delay.

Modified scalar expectancy theory (SET) is a cognitive model used to explain preferences toward any type of risk.

Response effort has been shown to fit this model, but it is still unclear whether the time associated with increased effort duration is a confound of delay condition due to the additional costs of pecking responses.

Purpose: To investigate temporal aspects of pecking response effort, in order to test whether modified SET can predict this behaviour.

Hypothesis: We hypothesized that pigeons would prefer the variable alternative in both effort and matched delay manipulations, but that the preference would be stronger in the response effort condition over the delay condition due to the additional costs of pecking responses.

Methods

- 4 pigeons (Columba livia) trained in operant conditioning colour discrimination tasks
- 2 conditions, within-subjects design. Delay condition used duration time from initial sessions of the effort condition to match temporal distributions experienced during pecking
- 10 risk exposure & 10 decision probe sessions per condition; 40 trials per session with fixation & 2 alternative forced discrimination

(i) Autoshaping: birds learned to peck at touch screen for 5 seconds of food reinforcement

(ii) Colour discrimination: birds learned to peck on positive stimuli; pecks on the red negative stimulus were punished with delay

(iii) Risk exposure: risk contingencies were imposed on positive stimuli

(iv) Decision probes: probe trials pair 2 positive stimuli to measure preference, replaced 25% of trials per session

Results

 variations in food amount and food delay.


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