‘Superstition’ in the Pigeon

B.F. Skinner (1948)
Operant Conditioning

Pairing of a behavior and response

- Behavior can be voluntary or involuntary
- Response can be a rate- or time-contingent reward or punishment
Skinner (1948)
Skinner (1948) observations

Superstitious behaviors emerged from timed food reward

Conditioned behavior is influenced by food interval
  ○ Longer intervals = more intervening responses

Conditioning a behavior takes less time than extinction
  ○ Example: 10,000 responses before extinction
Reconditioning

Fig. 1. ‘Reconditioning’ of a superstitious response after extinction. The response of hopping from right to left had been thoroughly extinguished just before the record was taken. The arrows indicate the automatic presentation of food at one-min. intervals without reference to the pigeon’s behavior.
Why should animals be superstitious?

1. Adaptive

2. Causal inferences - why did an event happen?
Implications for human behavior

1. By identifying external causes, you don’t have to attribute causes of behavior to free will

2. Operant conditioning can explain complex behaviors
   a. associative chaining: chaining together of simple stimulus-response pairs into complex behavior
Ping Pong Pigeons https://youtu.be/vGazyH6fQQ4