

The Psychology Of Learning (Pt. 3)



PSYCH 1101: DAY 19

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Can Behaviorism Explain The Scope Of Psychology?

- Three basic learning mechanisms proposed to explain everything
 1. Habituation
 2. **Classical (Pavlovian) Conditioning**
 3. Operant (Instrumental) Conditioning



When You Only Need Once To Learn: Taste Aversion

- The “Garcia effect”
 - Garcia (1955) found that rats given sweetened water, then exposed to radiation (to induce nausea)
 - rats avoided the sweet water after only one trial
- Organisms are *biologically prepared* to learn this association
 - conscious awareness is not necessary
 - sickness can occur hours later
 - only some kinds of stimuli work (pairing nausea with tones or lights has no effect)

Learning Mechanisms

1. Habituation
2. Classical Conditioning
- 3. Operant (Instrumental) Conditioning**

Operant/Instrumental Conditioning

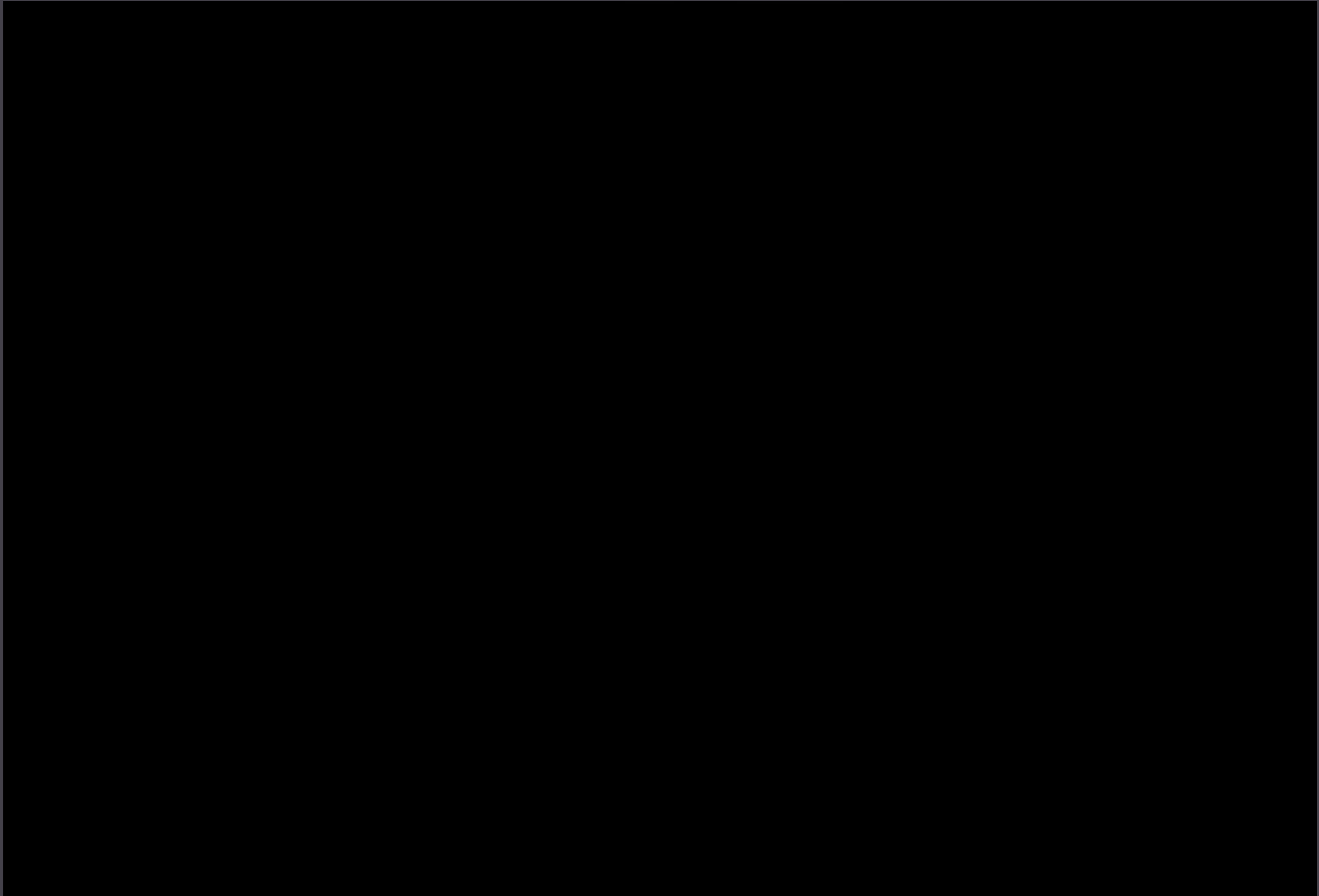
- Simple but powerful concept: organisms learn the relationships between actions and rewards/punishments
- learning occurs as the organism changes its behavior (increases or decreases a response) as a function of the *consequences* that follow from their behavior

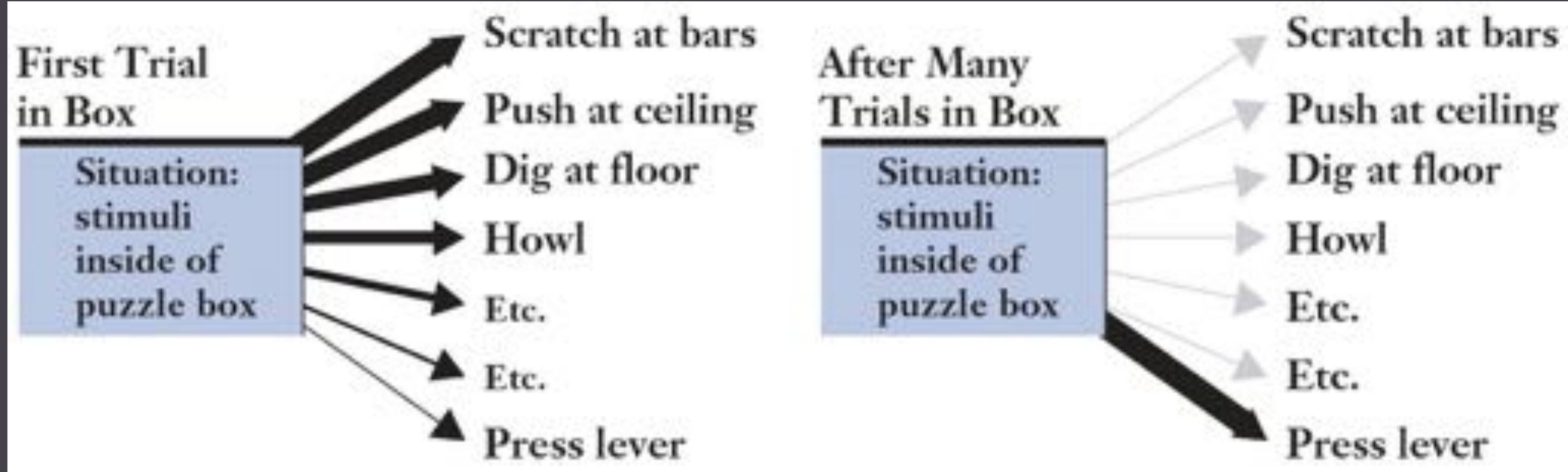
The 'Law Of Effect'

Behaviors that are followed by a “satisfying state of affairs” tend to be repeated and those that produce an “unpleasant state of affairs” are less likely to be repeated



E.L. THORNDIKE (1874-1949)







Skinner's Radical Behaviorism

- “Big Theory” of psychology
- emphasized learning only through conditioning (rejected any “innate” skills or knowledge)
- rejected unobservable variables (thoughts, feelings) as unscientific
- learning mechanisms no different across species



A "Skinner Box"



The Pigeon As A Weapon



Nose Cone, Pigeon-Guided Missile

1944

From Pavlov's dogs to Skinner's pigeons

This experimental device was developed during World War II by behavioral psychologist B.F. Skinner, who experimented with harnessing pigeons' pecking movements to steer missiles. Skinner divided this nose cone into three compartments, and proposed strapping a pigeon in each one. As a bomb headed towards earth, each pigeon would see the target on its screen. By pecking at the image, the birds would activate a guidance system that would keep the bomb on the right path until impact. Skinner's idea received initial support, but the U.S. military finally dismissed it as impractical.

Notes

- * One Skinner-trained bird pecked at an image more than 10,000 times in 45 minutes.
- * Burrhus Frederic Skinner, born March 20, 1904, Susquehanna, PA; died August 18, 1990, Cambridge, MA
- * Web display only

Related Images



Detail of the three screens of the nose cone. A pigeon was behind each screen.

Shaping Behavior

- **Positive Reinforcement**

- A “reinforcer” is the thing that increases the behavior
- Can be “Primary” (e.g., food) or “Secondary” (e.g., money)

- **Negative Reinforcement**

- *rewarding* someone by removing a BAD thing (e.g., an umbrella stops the rain)
- (do not ever forget this, please.)

- **Punishment**

- you all know this one—negative consequences in response to an unwanted behavior.

Successive Approximation To Train Animals



The Partial Reinforcement Effect

Schedules of Reinforcement

Fixed ratio reinforcement - reward after every n^{th} response

Variable ratio reinforcement - reward *on average* once in every n responses

Fixed interval reinforcement - reward after every y seconds (or minutes, or hours, etc.)

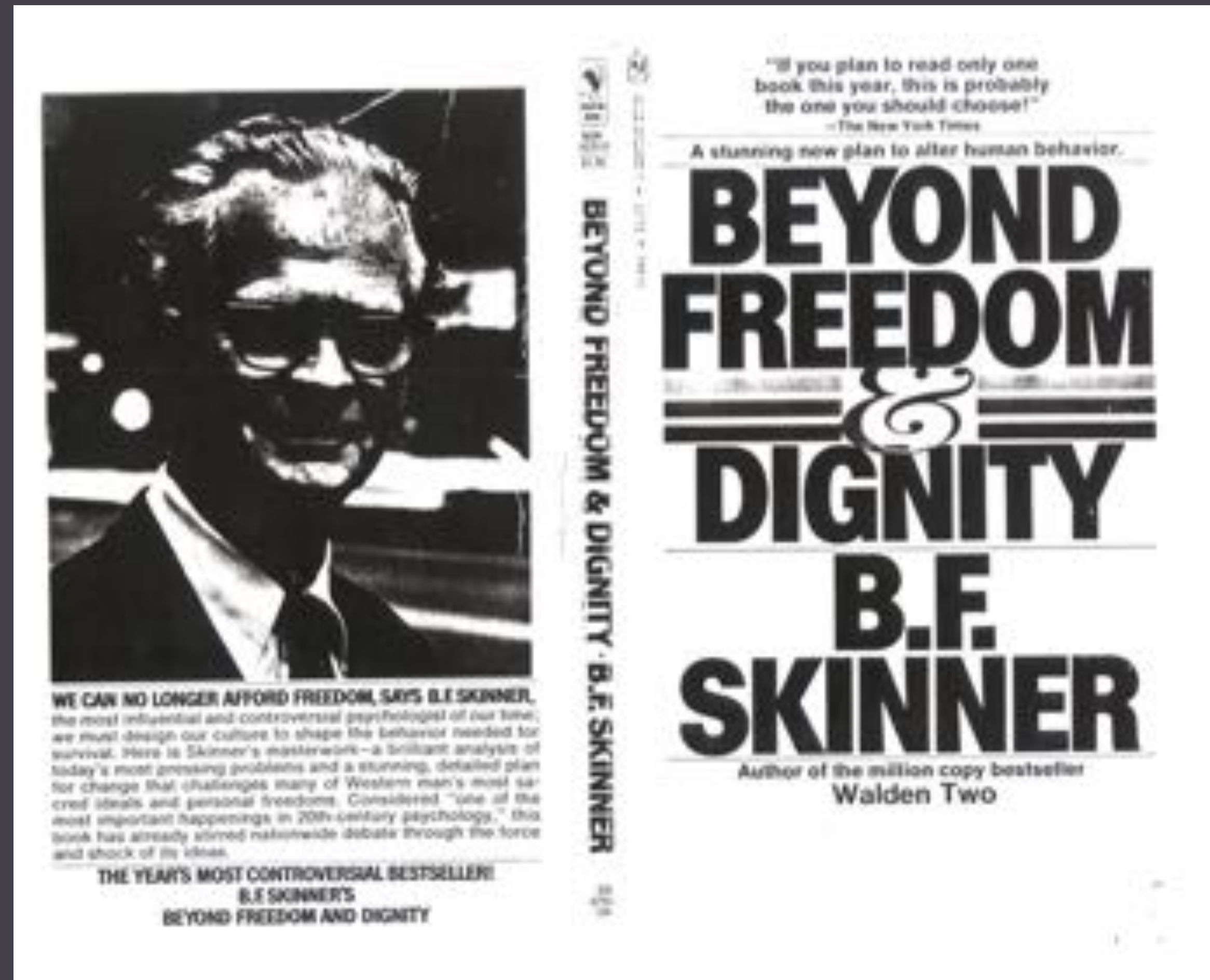
Variable interval reinforcement - reward once in every y seconds (or minutes, or hours, etc.)



You like it when a particular person sends you text messages. How often should you reply so that they keep texting you?



The World As A Skinner Box



How Successful Was Behaviorism?

- The family of theories emphasizing the basic principles of learning
 - Led to rigorous, scientific research that continues to this day
 - The principles of classical and operant conditioning are as close to fundamental laws of behavior as we have
 - We know, because *it just works*

Behavioral Techniques For Helping Parents: Alan Kazdin, Child Conduct Clinic, Yale University

