Unit 6: Learning

Learning

- Learning
  - relatively permanent change in an organism's behavior due to experience

Unit Overview

- How Do We Learn?
- Classical Conditioning
- Operant Conditioning
- Learning by Observation

Click on the any of the above hyperlinks to go to that section in the presentation.

How Do We Learn?

How Do We Learn?

We learn by association. Our minds naturally connect events that occur in sequence.

2000 years ago, Aristotle suggested this law of association. Then 200 years ago Locke and Hume reiterated this law.

Association

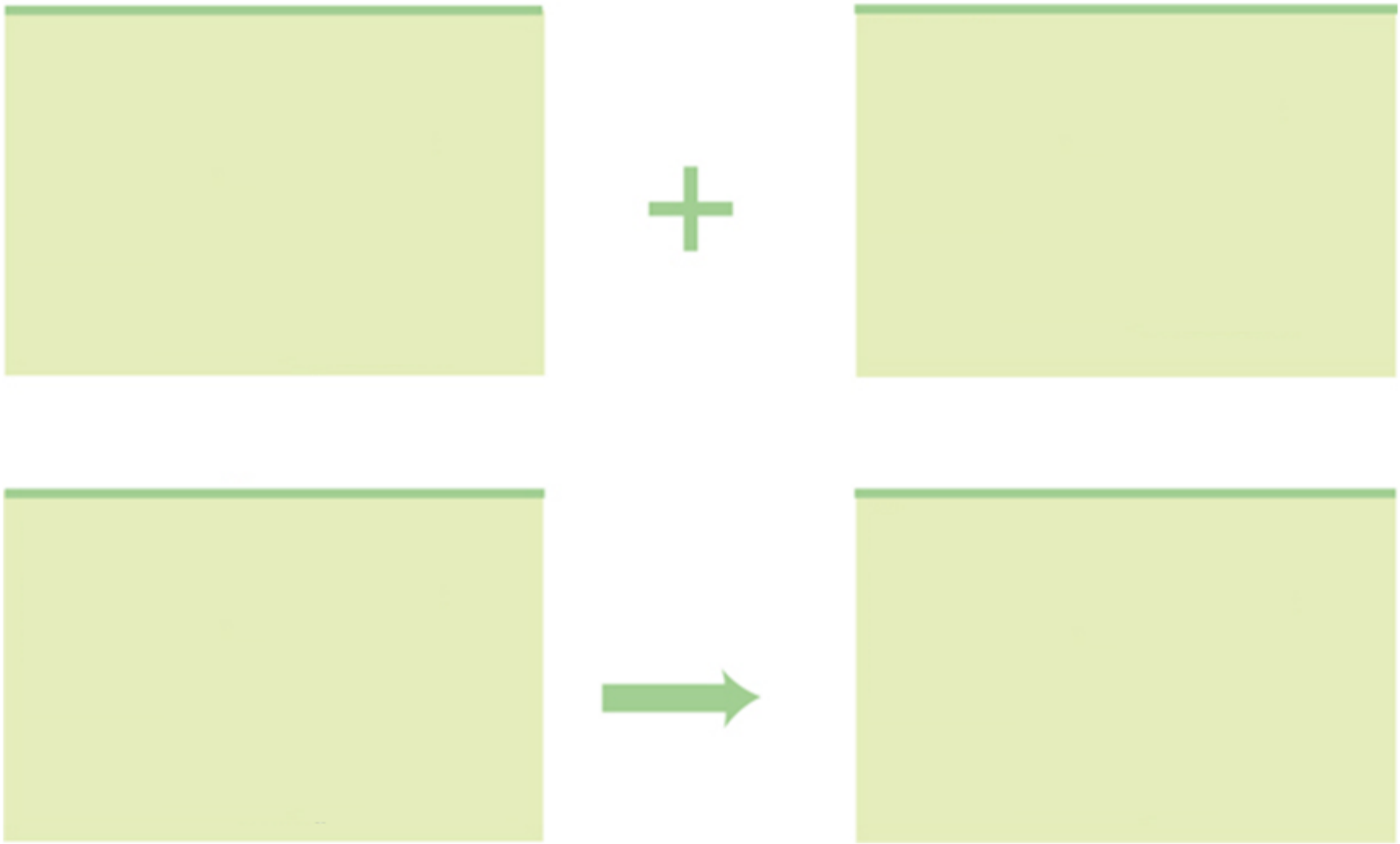
- We learn by association
  - Our minds naturally connect events that occur in sequence
  - Aristotle 2000 years ago
  - John Locke and David Hume 200 years ago
- Associative Learning
  - learning that two events occur together
    - two stimuli
    - a response and its consequences

Introduction

- Learning
- Habituation
- Associative learning
  - Classical conditioning
  - Operant conditioning
  - Observational learning

Classical Conditioning

Two related events:



Classical Conditioning

Two related events:

Stimulus 1:

Lightning

Classical Conditioning

Two related events:

Stimulus 1:
Lightning

+

Stimulus 2:
Thunder

→

Classical Conditioning

Two related events:

Stimulus 1:
Lightning

+

Stimulus 2:
Thunder

Result after repetition:

Stimulus:
We see lightning

→

Classical Conditioning

Two related events:

Stimulus 1:
Lightning

+

Stimulus 2:
Thunder

Result after repetition:

Stimulus:
We see lightning

→

Response:
We wince, anticipating thunder

Operant Conditioning

(a) Response: balancing a ball

Operant Conditioning

(a) Response: balancing a ball

(b) Consequence: receiving food

Operant Conditioning

Classical Conditioning

Classical Conditioning

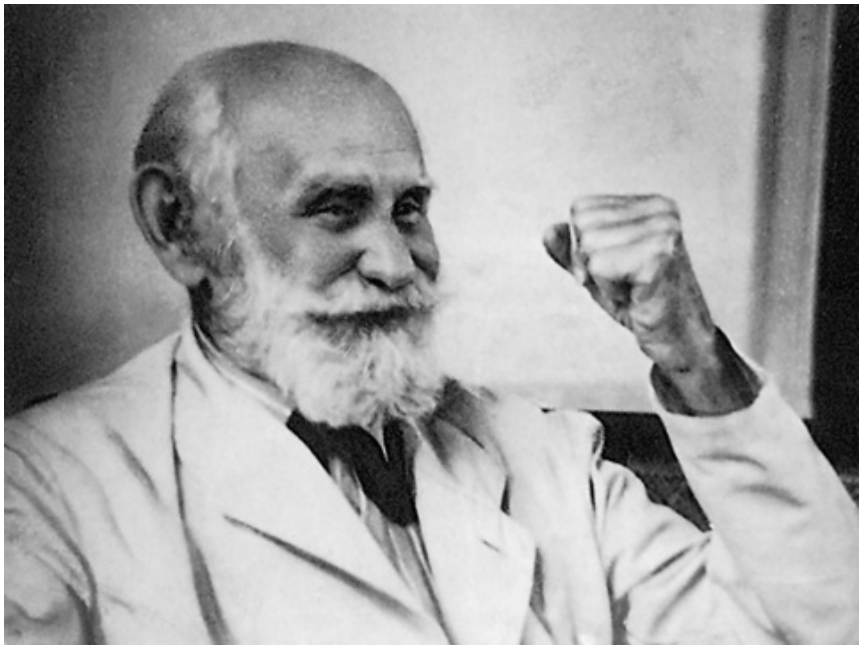
- Classical Conditioning
  - organism comes to associate two stimuli
  - a neutral stimulus that signals an unconditioned stimulus begins to produce a response that anticipates and prepares for the unconditioned stimulus

Introduction

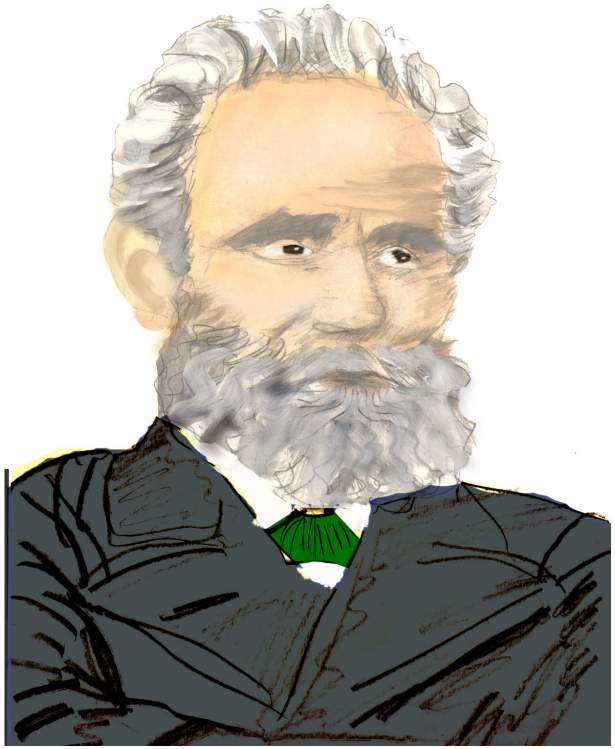
- Classical conditioning
  - Ivan Pavlov
  - John B. Watson
  - Behaviorism

Pavlov's Experiments

- Ivan Pavlov
  - Background
  - Experimental procedure



Ivan Pavlov



- Classical conditioning
- Experiments on dogs

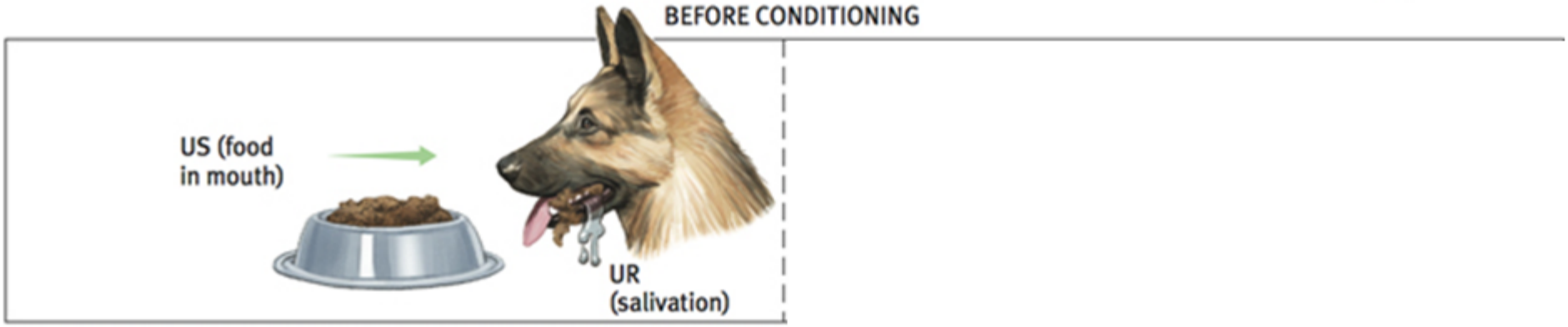
Classical Conditioning and Pavlov's Dogs: Hypothesis

- Dogs salivate when food is placed in their mouths
- Dogs salivate at mere sight of food
- Hypothesis: Dogs can be trained, or conditioned, to salivate when exposed to an external stimulus

Pavlov's Experiments

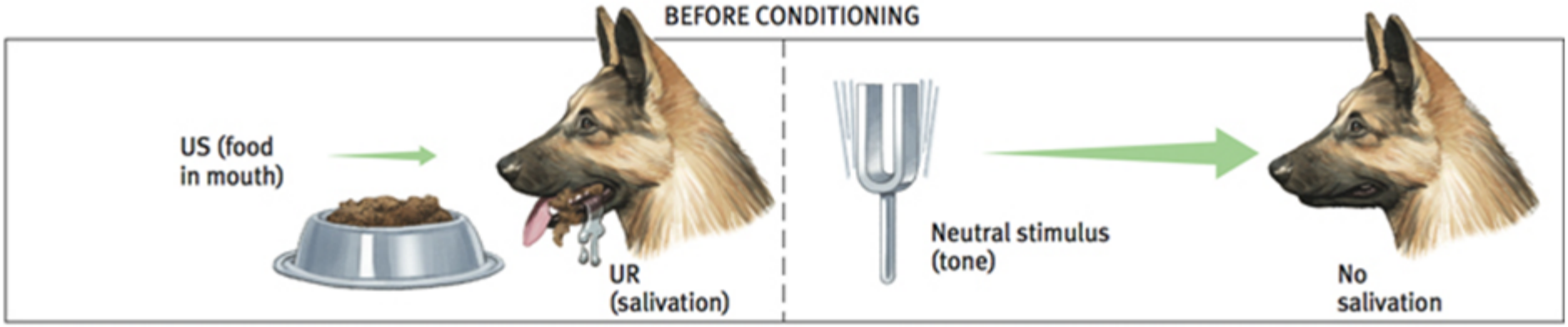
- Parts of Classical Conditioning
  - Unconditioned stimulus (US)
  - Unconditioned response (UR)
  - Conditioned stimulus (CS)
  - Conditioned response (CR)

Pavlov's Experiments



An unconditioned stimulus (US) produces an unconditioned response (UR).

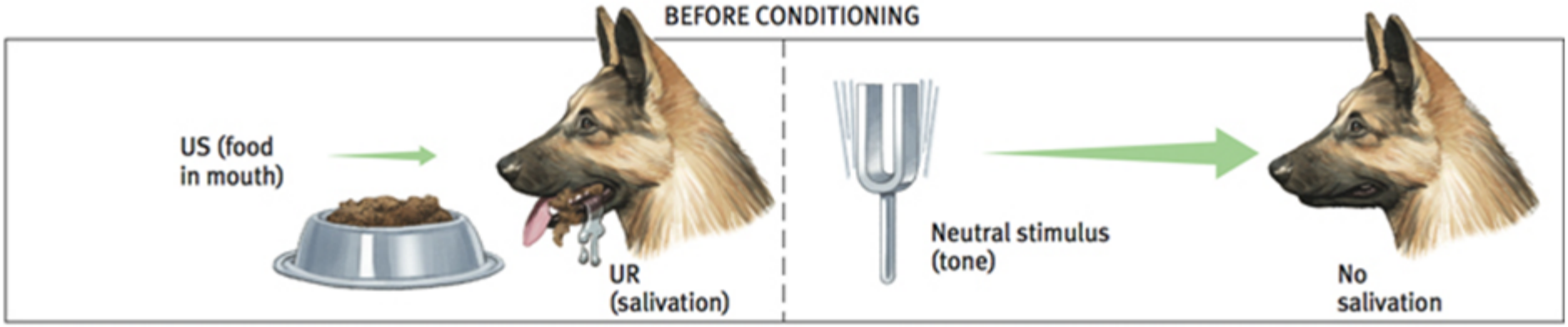
Pavlov's Experiments



An unconditioned stimulus (US) produces an unconditioned response (UR).

A neutral stimulus produces no salivation response.

Pavlov's Experiments



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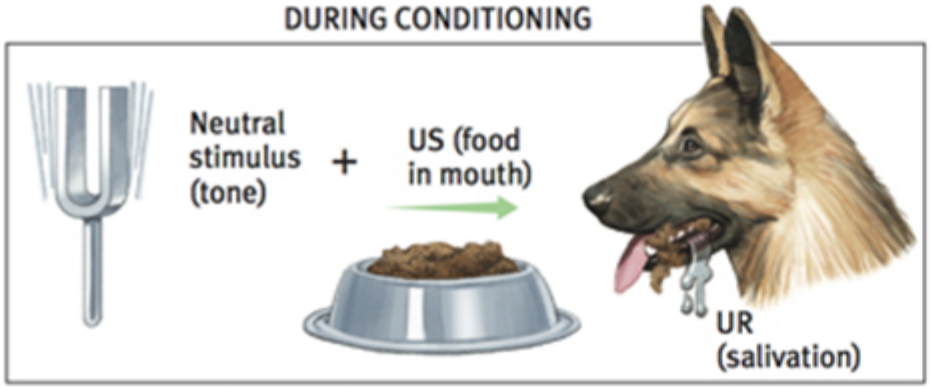
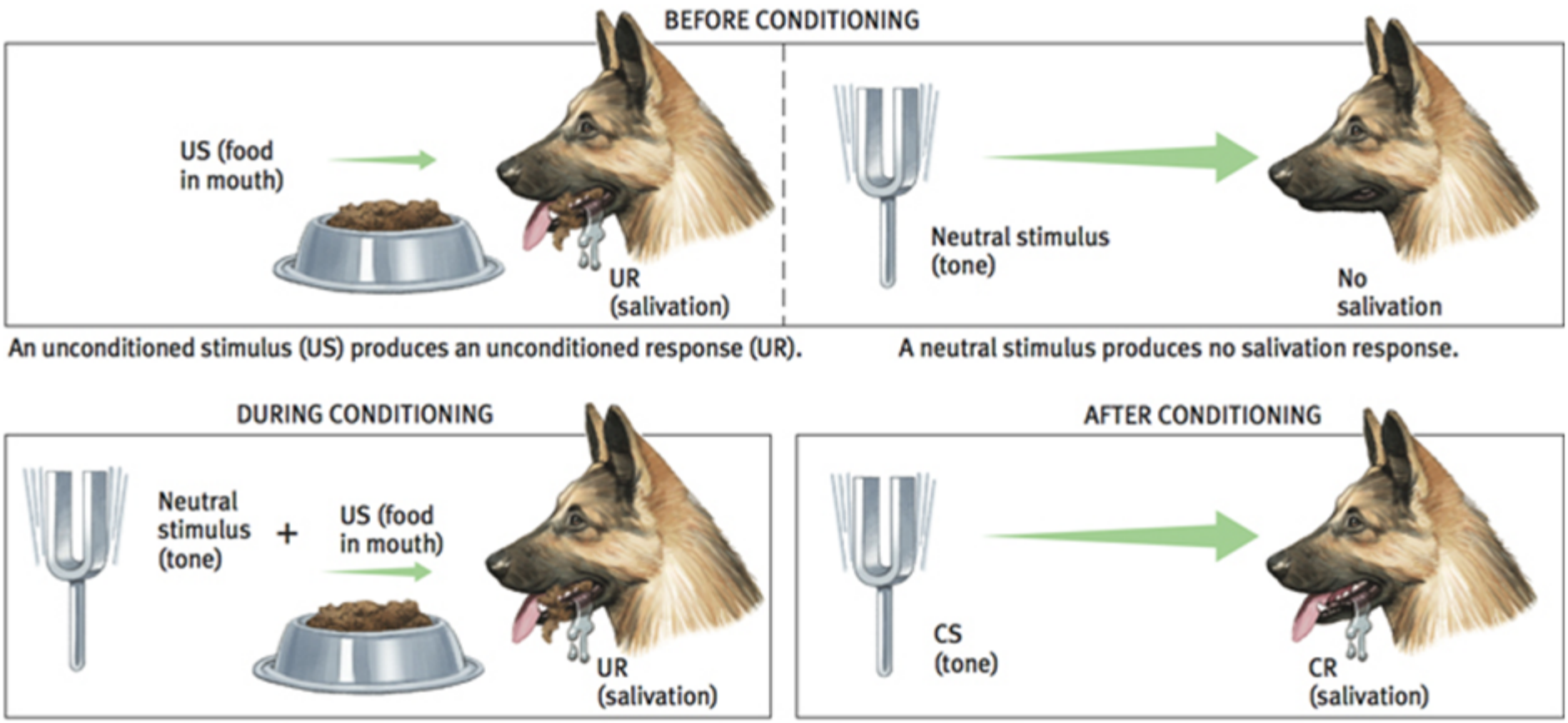


The unconditioned stimulus is repeatedly presented just after the neutral stimulus.
The unconditioned stimulus continues to produce an unconditioned response.

Pavlov's Experiments



An unconditioned stimulus (US) produces an unconditioned response (UR).

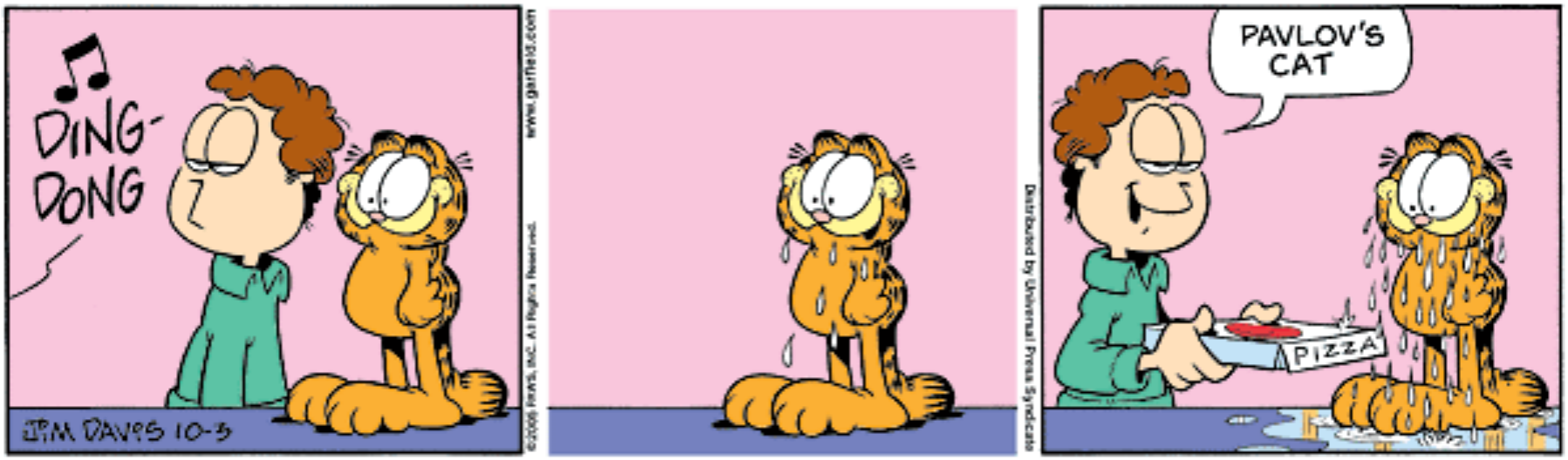
A neutral stimulus produces no salivation response.

The unconditioned stimulus is repeatedly presented just after the neutral stimulus. The unconditioned stimulus continues to produce an unconditioned response.

The neutral stimulus alone now produces a conditioned response (CR), thereby becoming a conditioned stimulus (CS).

Pavlov's Conclusions

Unconditioned Response (UCR)	Unconditioned Stimulus (UCS)	Conditioned Response (CR)	Conditioned Stimulus (CS)
			
because of 		because of 	




Ivan Pavlov
Laboratory
Please knock
Don't ring


PARDON MY PLANET
FOR CRYIN' OUT LOUD, HOW MANY TIMES DO I HAVE TO TELL YOU - THE BELL SIMPLY MEANS GO TO SECOND PERIOD.
LEE 3-3
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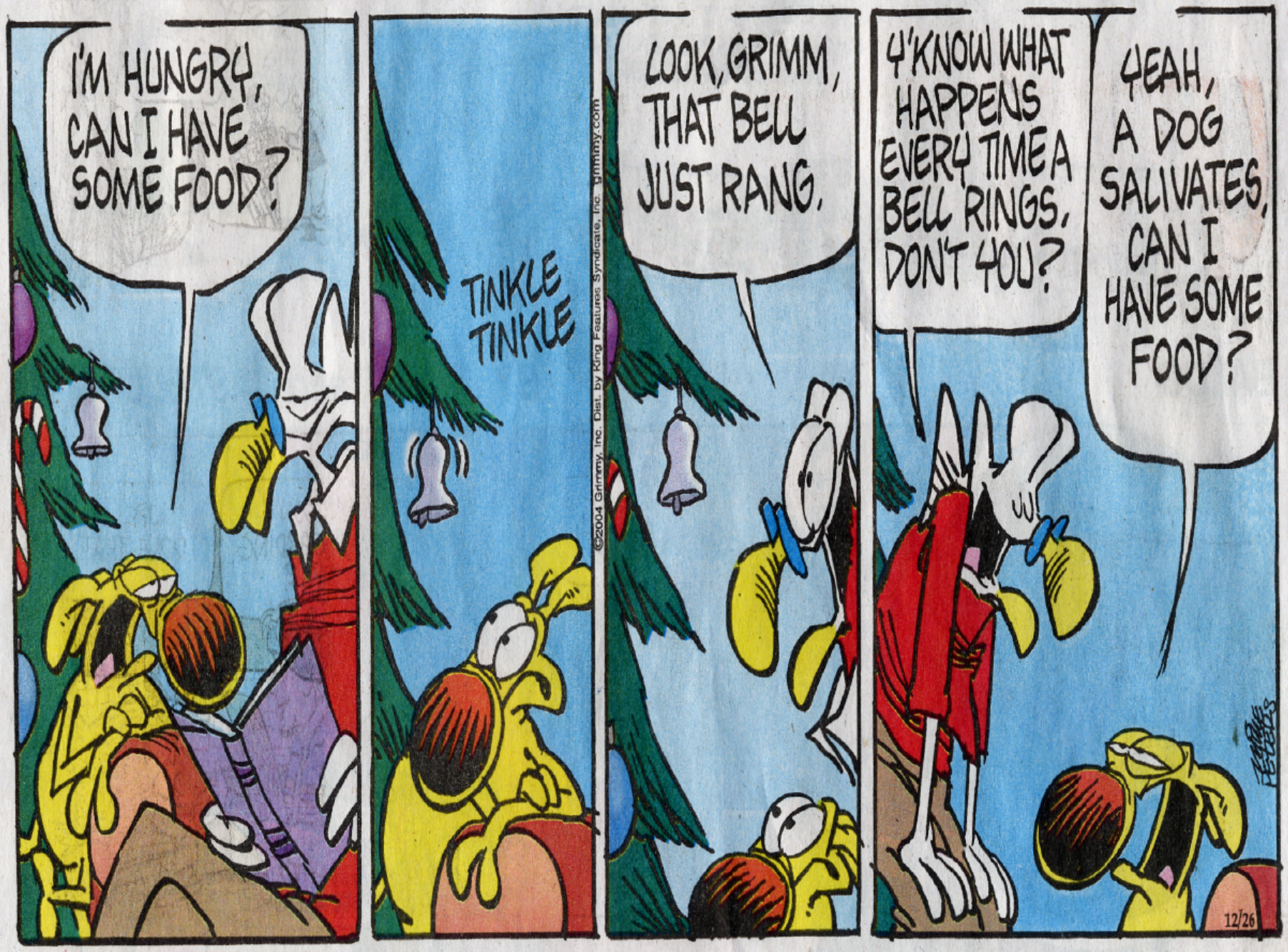
PAVLOV'S HOMEROOM

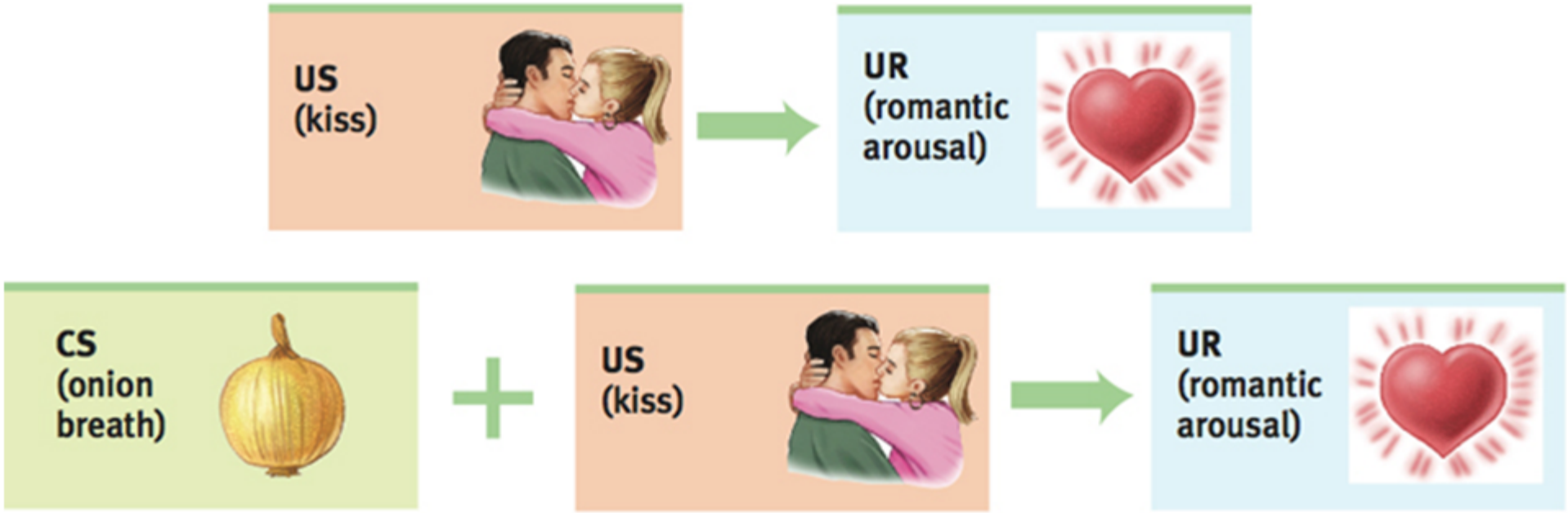
MOTHER GOOSE AND GRIMM

BY MIKE PETERS

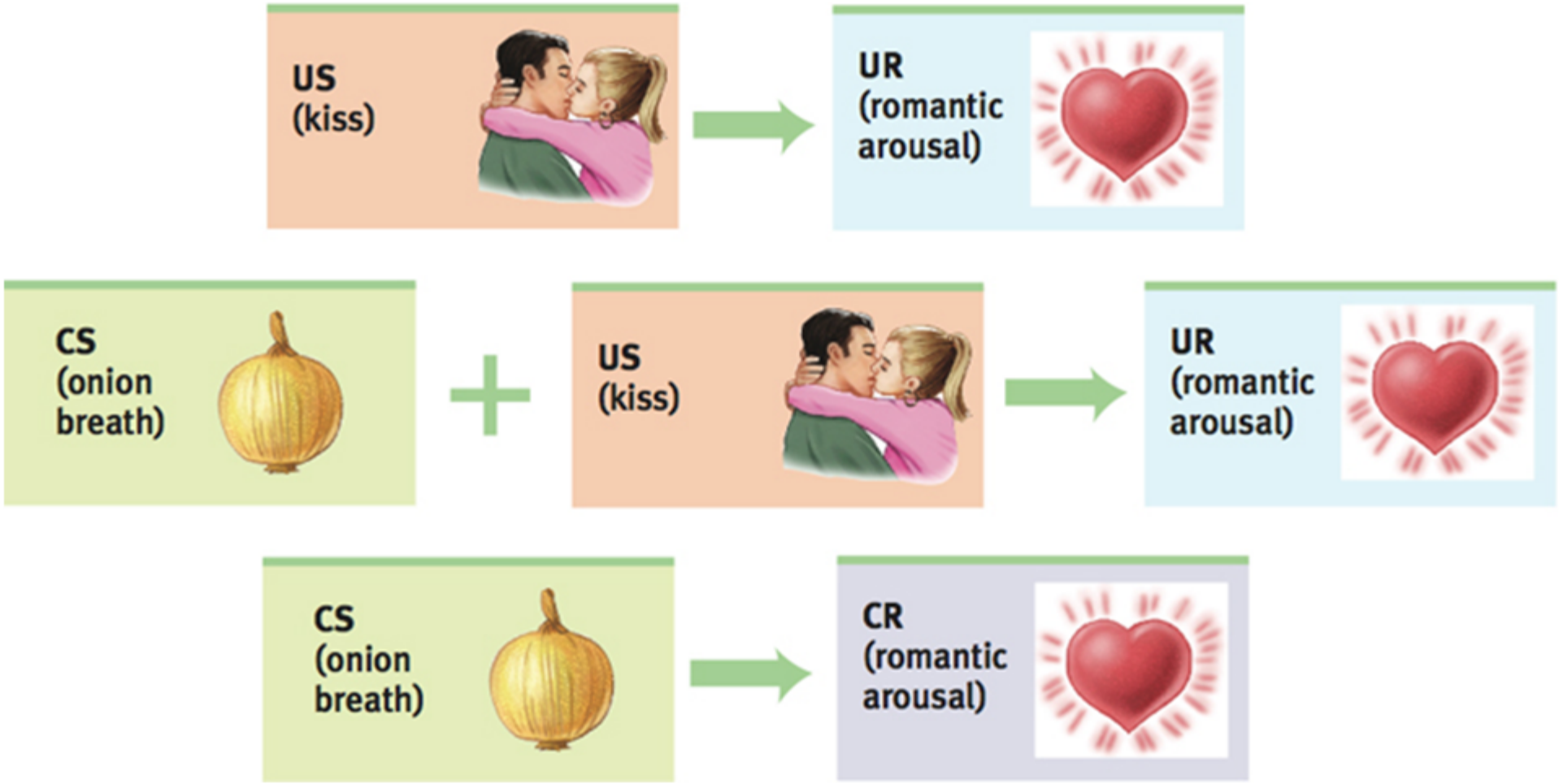


Classical Conditioning

Classical Conditioning



Classical Conditioning



Classical Conditioning

- Acquisition
  - the initial stage in classical conditioning
  - the phase associating a neutral stimulus with an unconditioned stimulus so that the neutral stimulus comes to elicit a conditioned response
  - in operant conditioning, the strengthening of a reinforced response

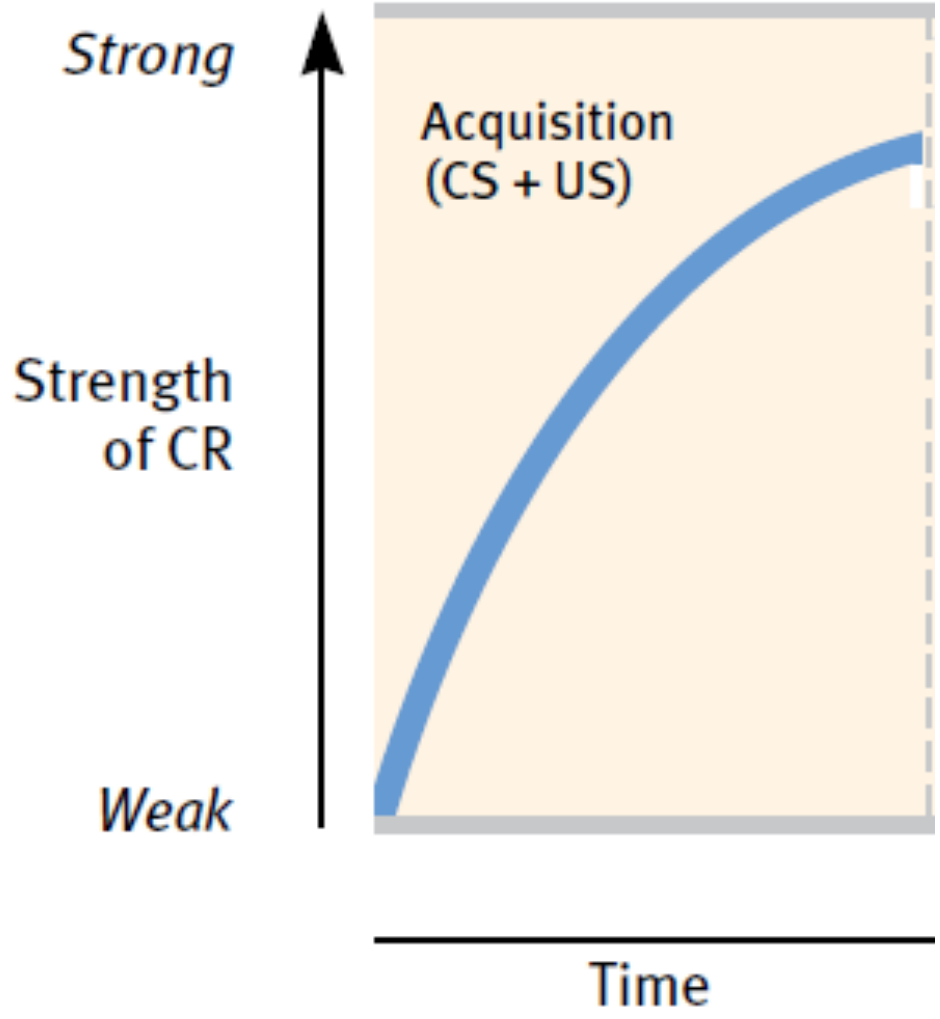
Acquisition

Acquisition is the initial stage in classical conditioning in which an association between a neutral stimulus and an unconditioned stimulus takes place.

1. In most cases, for conditioning to occur, the neutral stimulus needs to come before the unconditioned stimulus.
2. The time in between the two stimuli should be about half a second.

Pavlov's Experiments
Acquisition

- Acquisition
- Higher-order conditioning



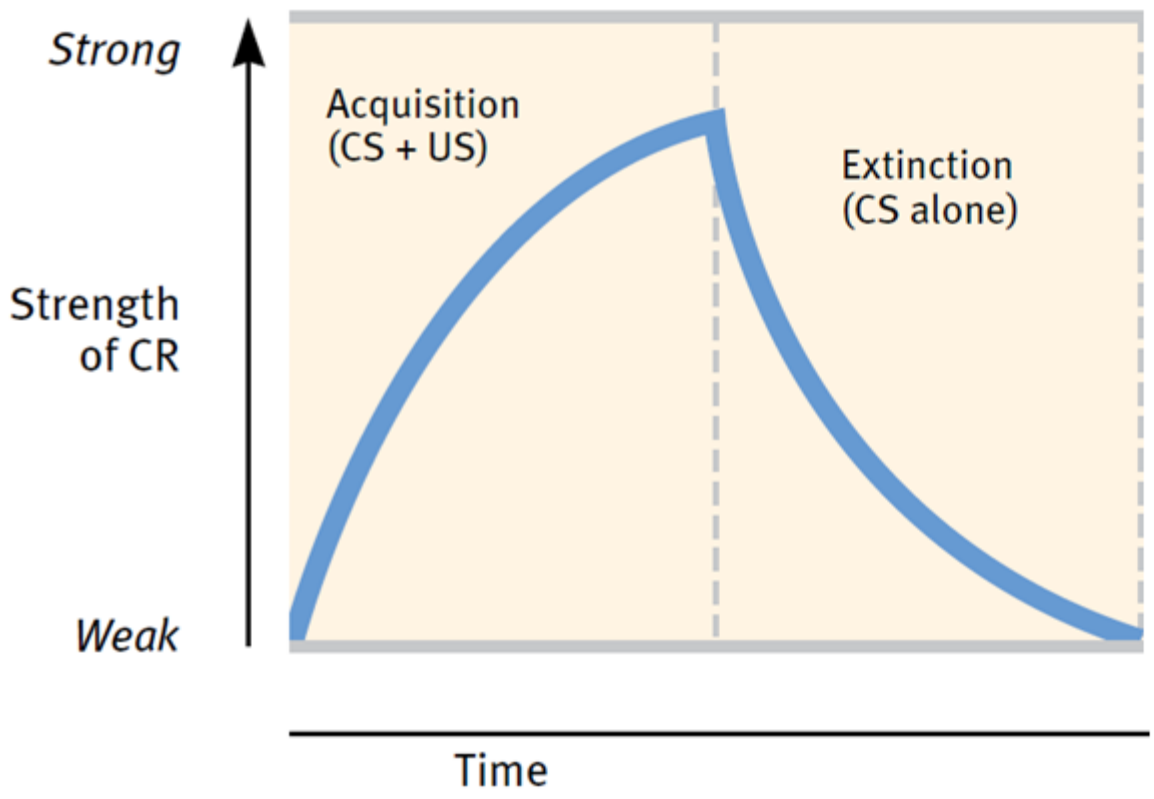
Classical Conditioning

- Extinction
  - diminishing of a CR
  - in classical conditioning, when a UCS does not follow a CS
  - in operant conditioning, when a response is no longer reinforced

Pavlov's Experiments

Extinction and Spontaneous Recovery

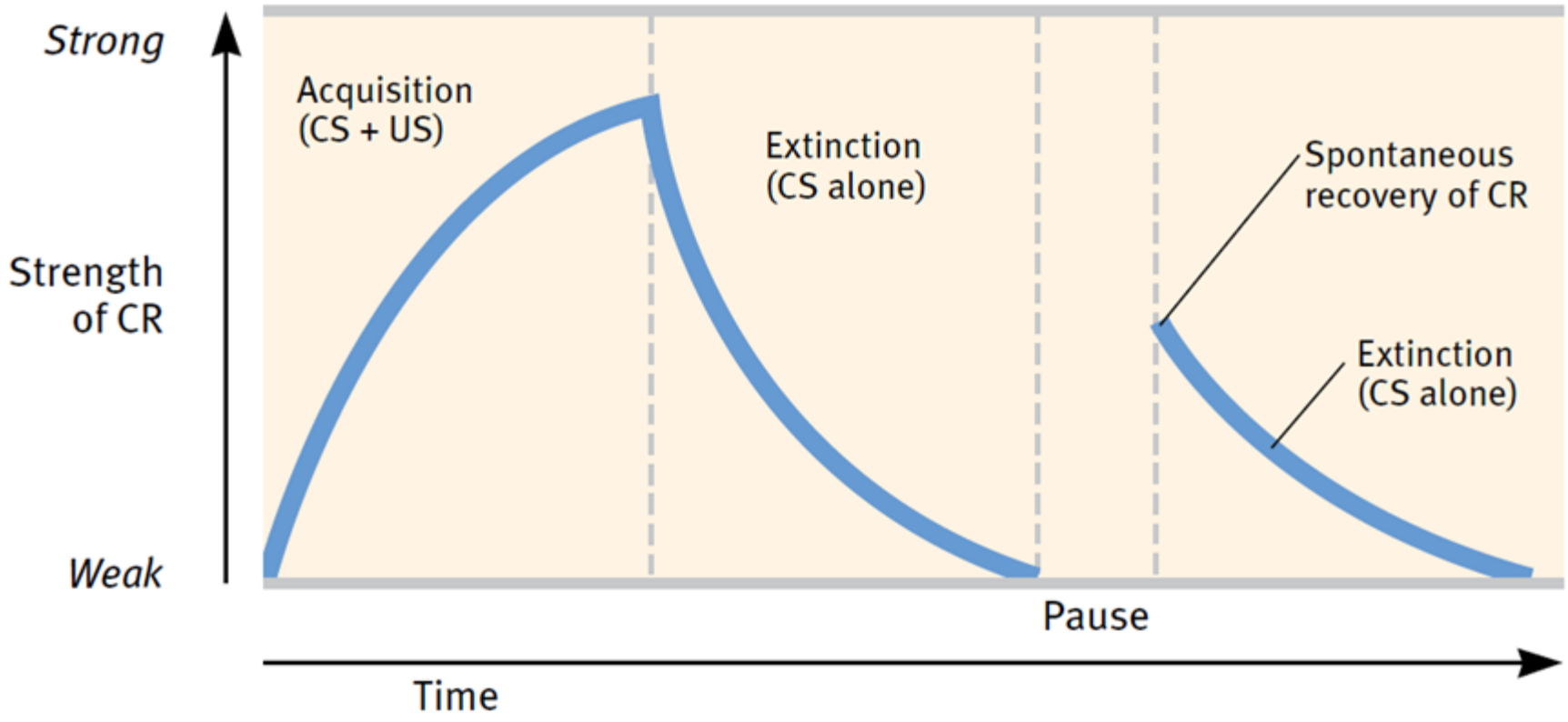
- Extinction



Pavlov's Experiments

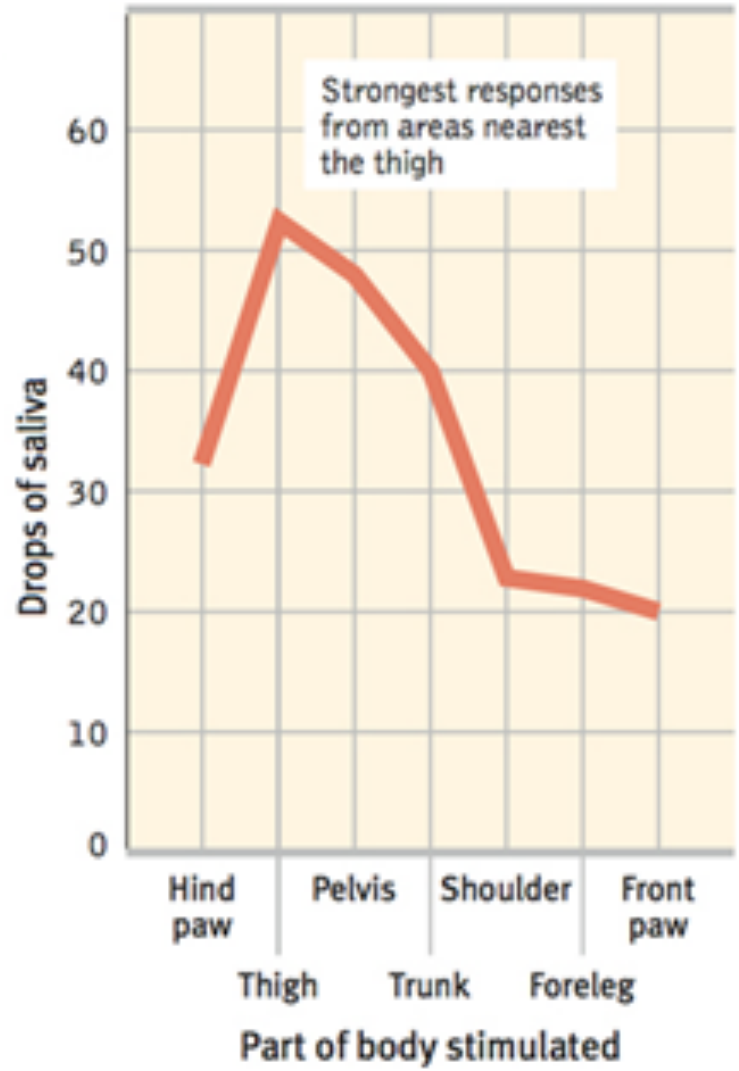
Extinction and Spontaneous Recovery

- Extinction
- Spontaneous recovery



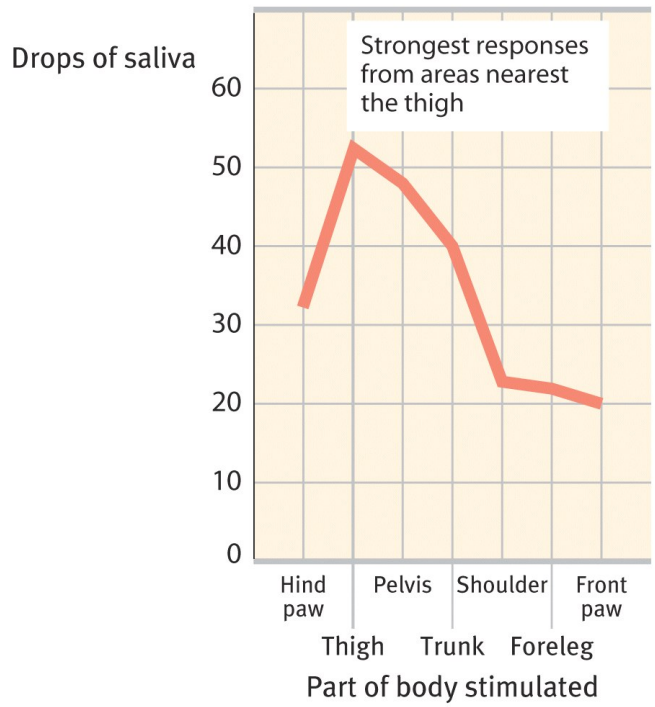
Pavlov's Experiments
Generalization

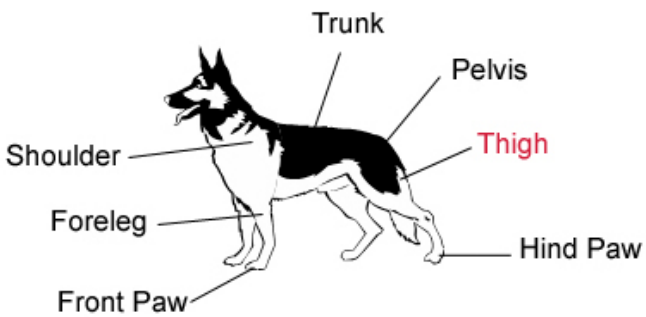
- Generalization



Stimulus Generalization

Tendency to respond to stimuli similar to the CS is called generalization. Pavlov conditioned the dog's salivation (CR) by using miniature vibrators (CS) on the thigh. When he subsequently stimulated other parts of the dog's body, salivation dropped.



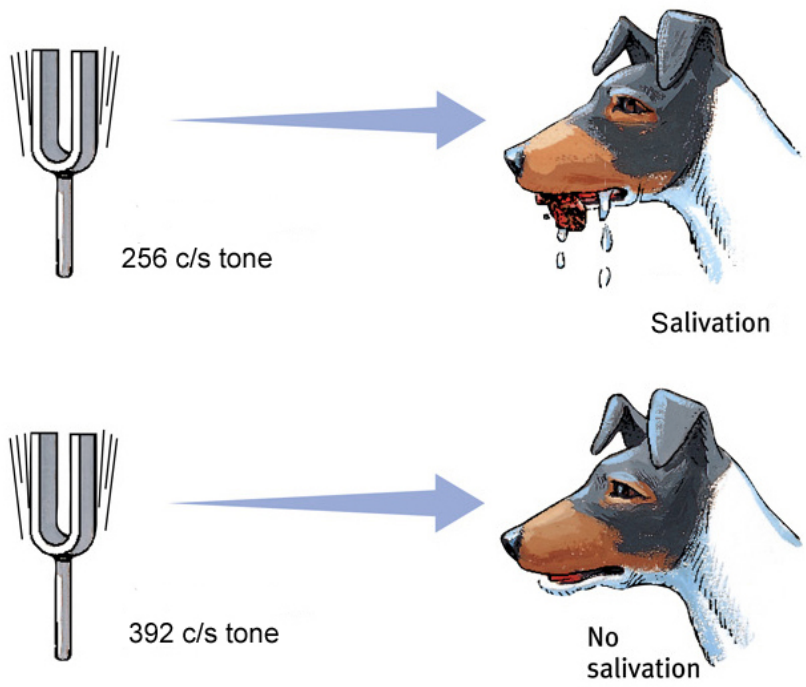


Pavlov's Experiments
Discrimination

- Discrimination

Stimulus Discrimination

Discrimination is the learned ability to distinguish between a conditioned stimulus and other stimuli that do not signal an unconditioned stimulus.

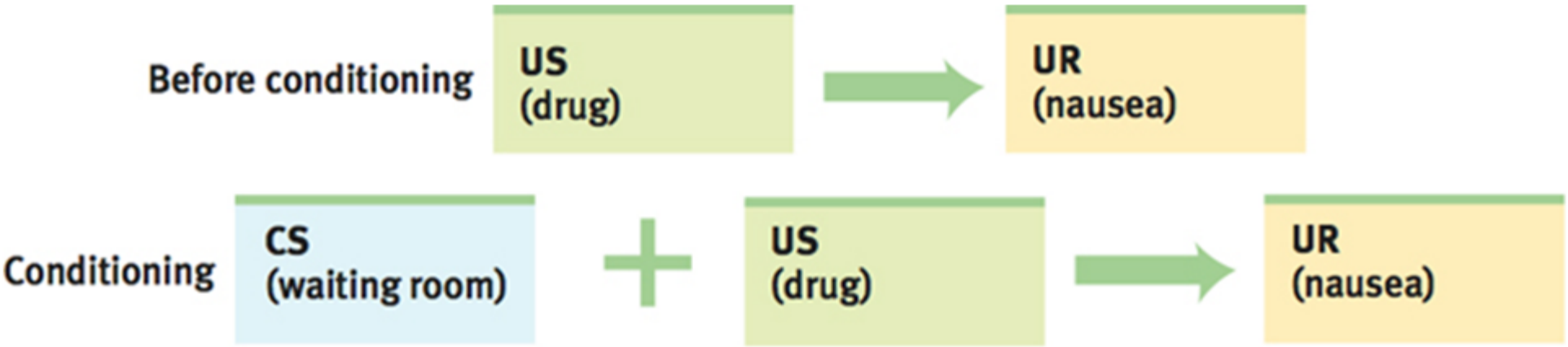


Extending Pavlov's Understanding

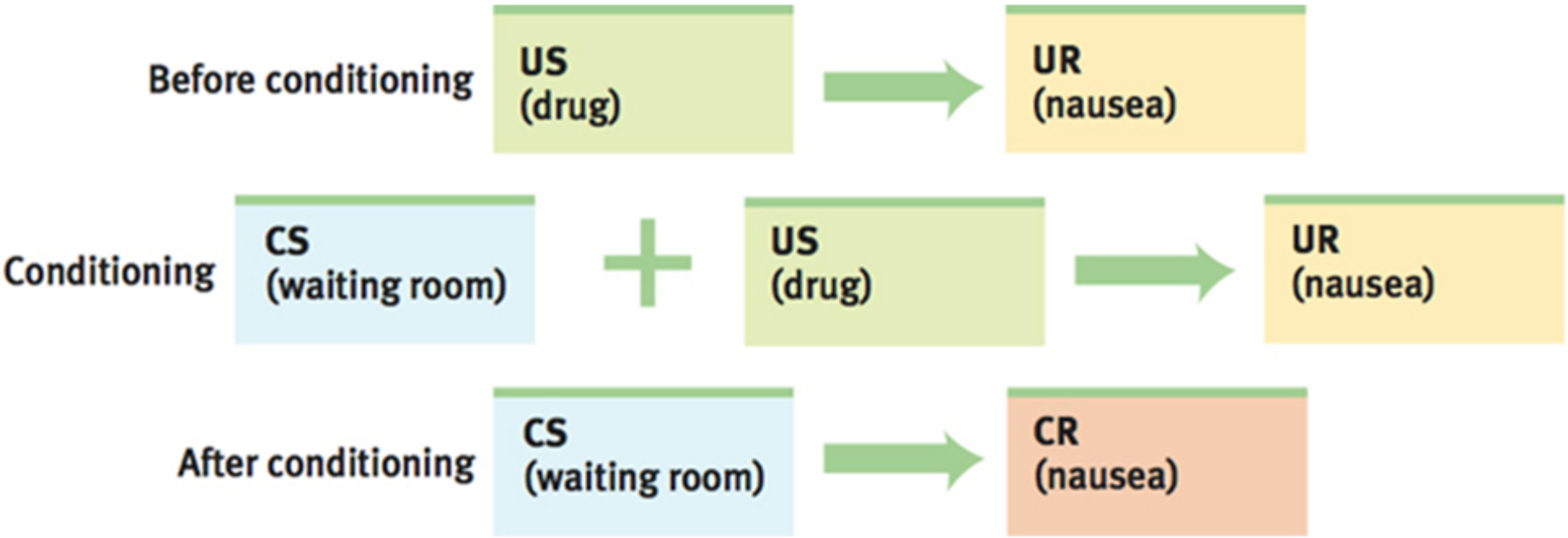
- Cognitive Processes
  - Learned helplessness
- Biological Predispositions
  - Conditioned taste aversion

Extending Pavlov's Understanding

Extending Pavlov's Understanding



Extending Pavlov's Understanding



Cognitive Processes

Early behaviorists believed that learned behaviors of various animals could be reduced to mindless mechanisms.

However, later behaviorists suggested that animals learn the predictability of a stimulus, meaning they learn *expectancy* or *awareness* of a stimulus (Rescorla, 1988).

Cognitive Processes

Conditioning occurs best when the CS and UCS have just the sort of relationship that would lead a scientist to conclude that the CS causes the UCS. — even in classical conditioning, it is not only the simple stimulus-response association but also the thought that counts.

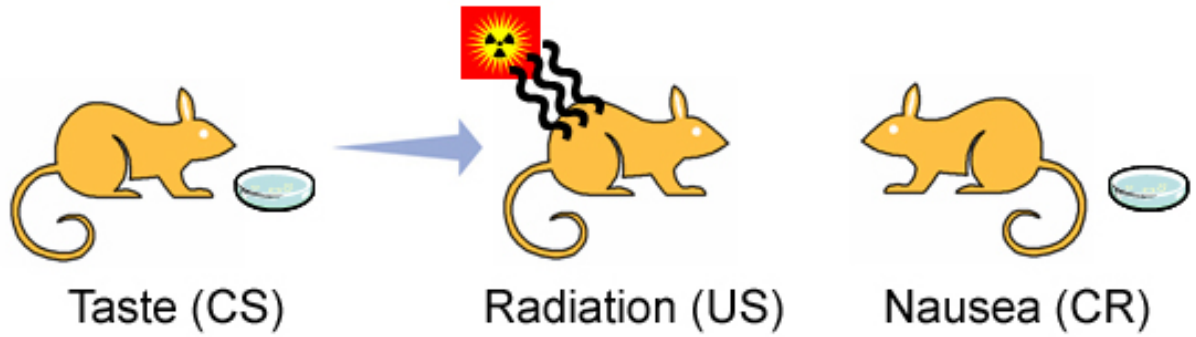
- **Conditioning in advertising**

Biological Predispositions

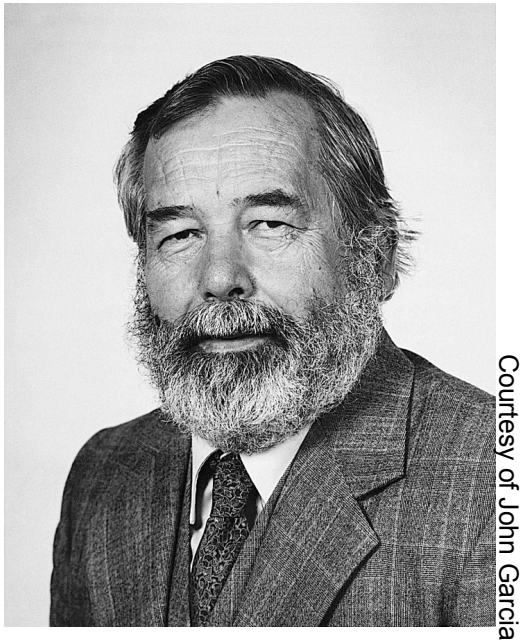
Pavlov and Watson believed that laws of learning were similar for all animals. Therefore, a pigeon and a person do not differ in their learning.

However, behaviorists later suggested that learning is constrained by an animal's biology.

Biological Predispositions



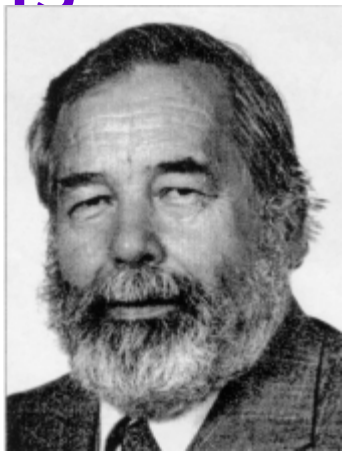
Garcia showed that the duration between the CS and the US may be long (hours), but yet result in conditioning. A biologically adaptive CS (taste) led to conditioning and not to others (light or sound).



Courtesy of John Garcia

John Garcia

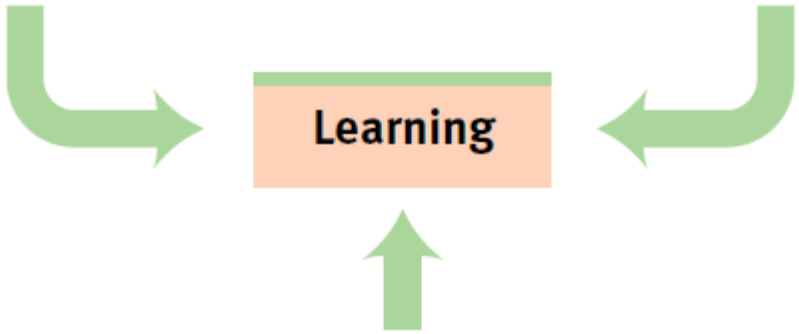
Biological Predispositions



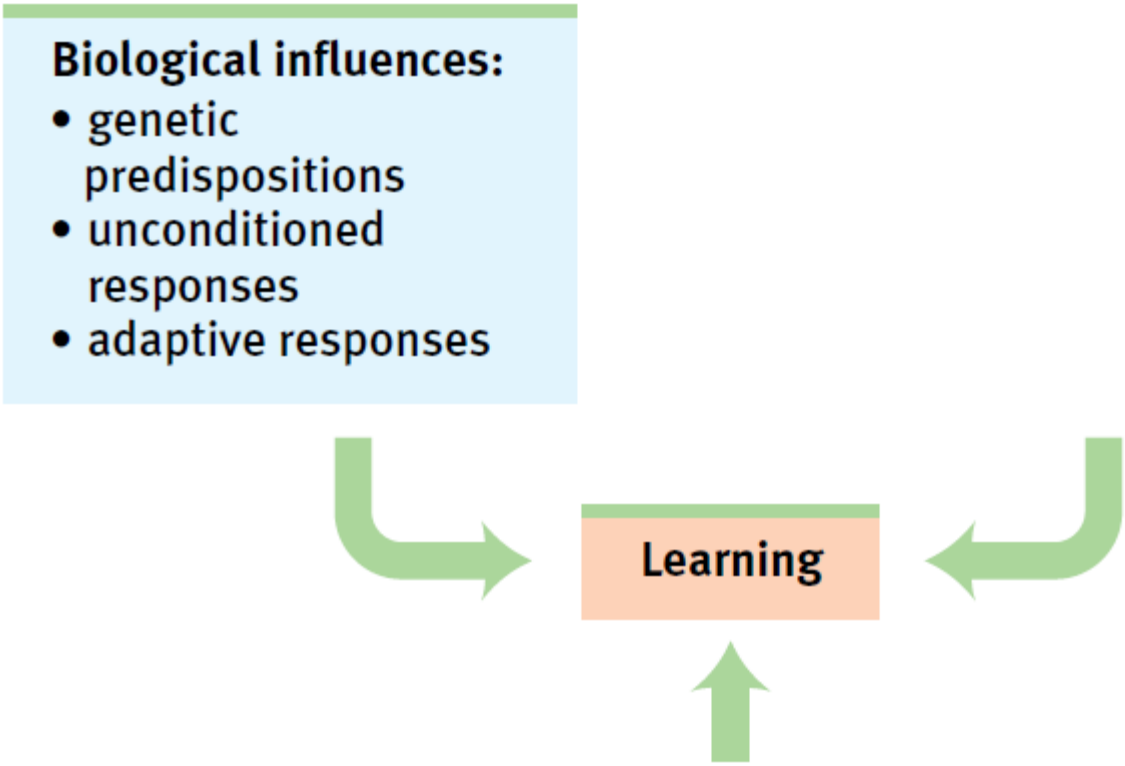
- *John Garcia*

  Conditioned taste aversions
- Not all neutral stimuli can become conditioned stimuli.
- Internal stimuli—associate better with taste
- External stimuli—associate better with pain
- Biological preparedness

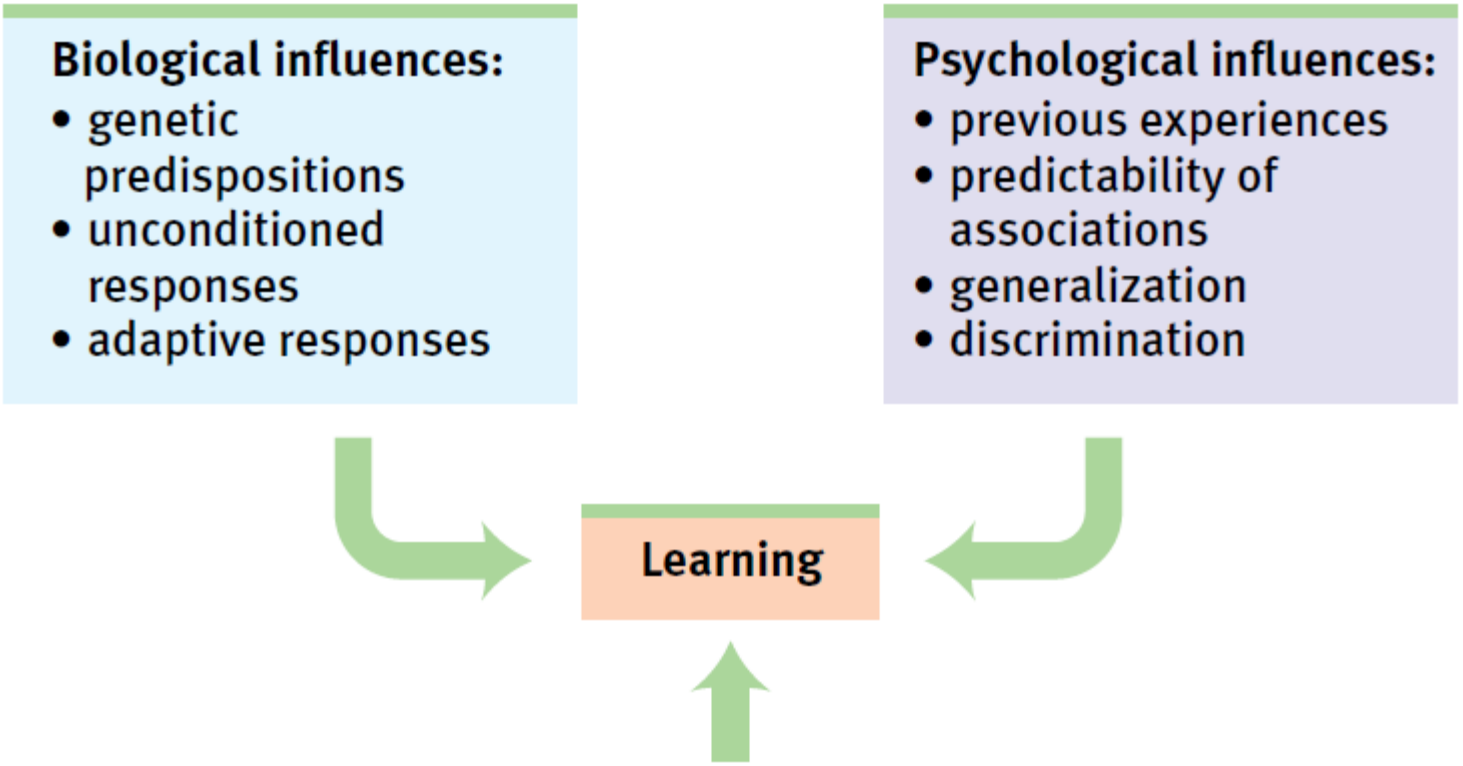
Biopsychosocial Influences on Learning



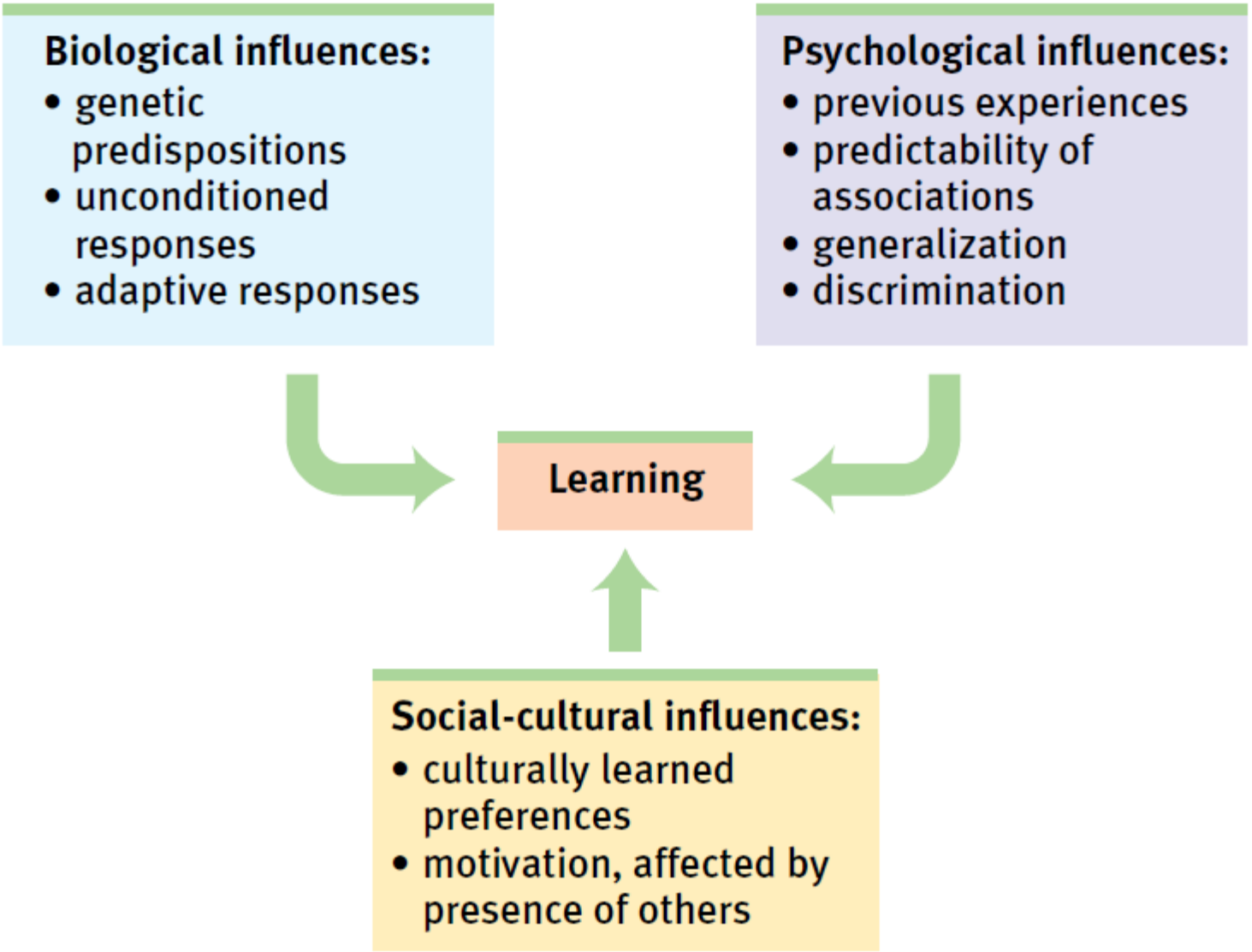
Biopsychosocial Influences on Learning



Biopsychosocial Influences on Learning



Biopsychosocial Influences on Learning

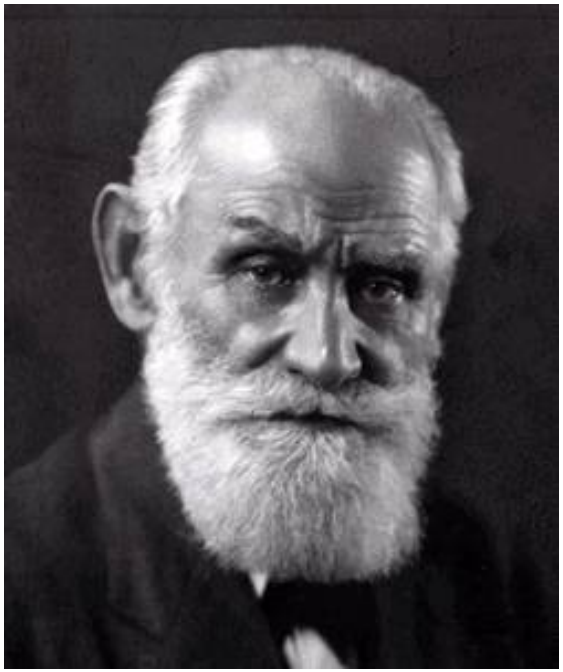


Pavlov's Legacy

- Classical conditioning applies to other organisms
- Showed how to study a topic scientifically

Pavlov's Legacy

Pavlov's greatest contribution to psychology is isolating elementary behaviors from more complex ones through objective scientific procedures.



Ivan Pavlov
(1849-1936)

Pavlov's Legacy
Applications of Classical Conditioning

- John Watson and Baby Albert

Applications of Classical Conditioning

Watson used classical conditioning procedures to develop advertising campaigns for a number of organizations, including Maxwell House, making the "coffee break" an American custom.

Brown Brothers

John B. Watson

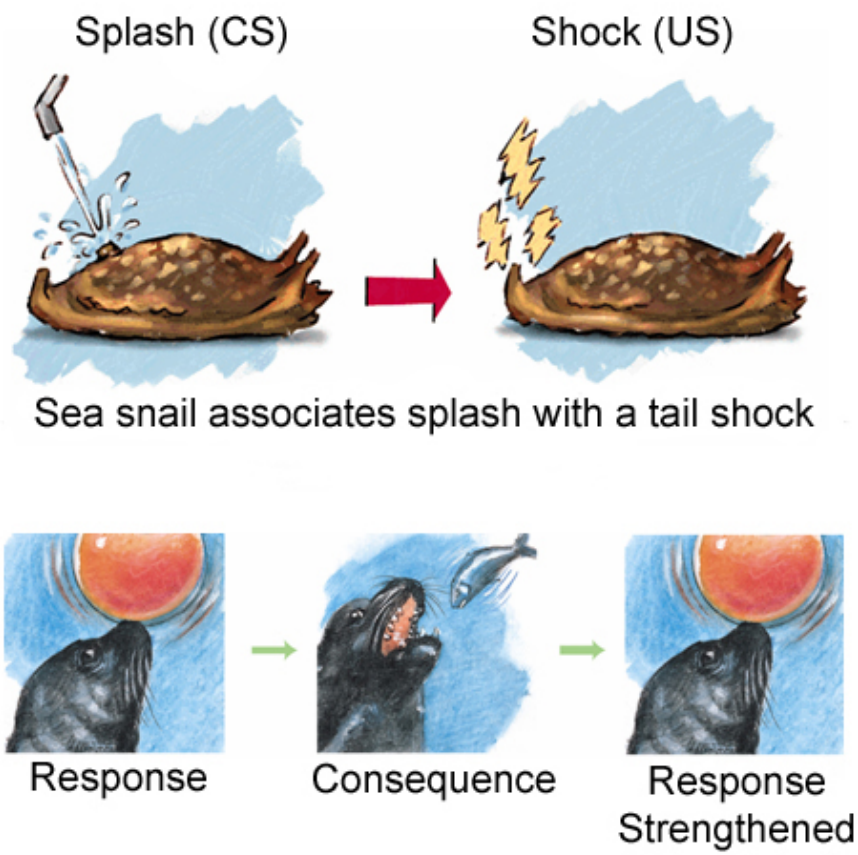
Applications of Classical Conditioning

1. Alcoholics may be conditioned (aversively) by reversing their positive-associations with alcohol.
2. Through classical conditioning, a drug (plus its taste) that affects the immune response may cause the taste of the drug to invoke the immune response.

Operant Conditioning

Operant & Classical Conditioning

1. Classical conditioning forms associations between stimuli (CS and US). Operant conditioning, on the other hand, forms an association between behaviors and the resulting events.



Operant & Classical Conditioning

2. Classical conditioning involves respondent behavior that occurs as an automatic response to a certain stimulus. Operant conditioning involves operant behavior, a behavior that operates on the environment, producing rewarding or punishing stimuli.

Introduction

- Respondent behavior
- Operant conditioning
- Operant behavior

Operant Conditioning

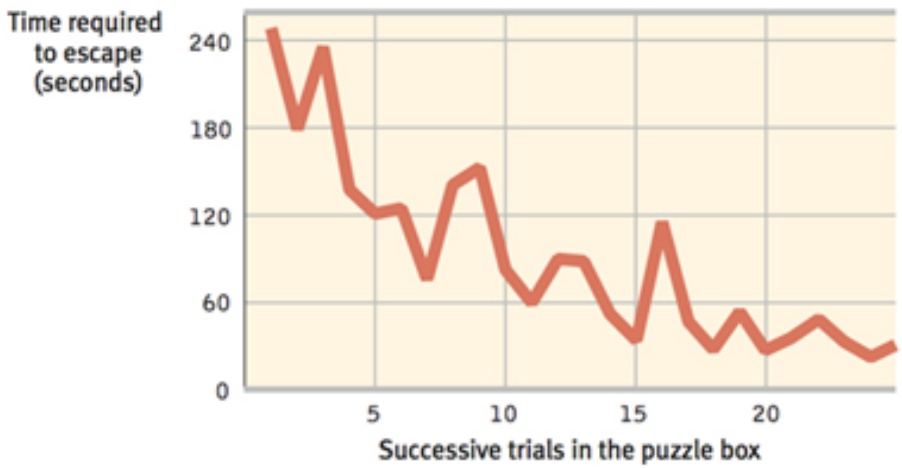
- Operant Conditioning
  - type of learning in which behavior is strengthened if followed by reinforcement or diminished if followed by punishment
- Law of Effect
  - Thorndike's principle that behaviors followed by favorable consequences become more likely, and behaviors followed by unfavorable consequences become less likely

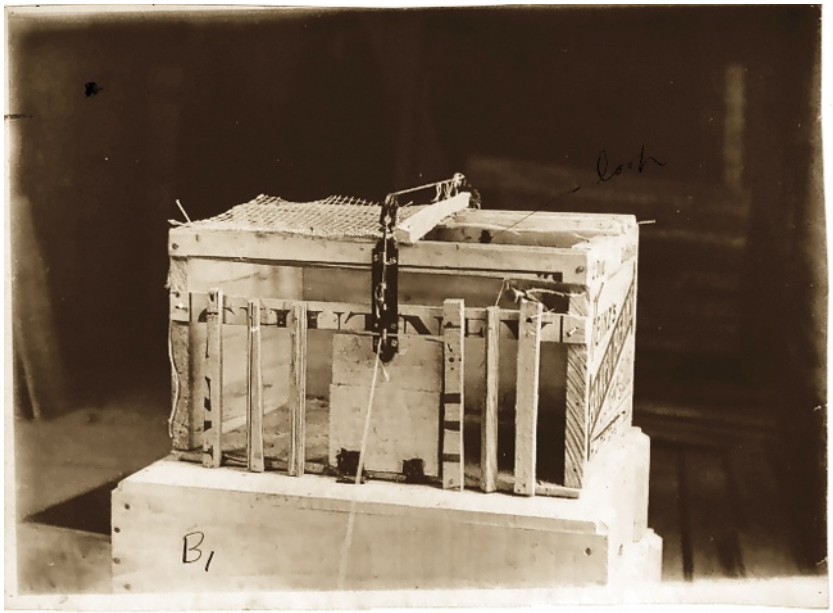
Operant Conditioning

- Operant Behavior
  - operates (acts) on environment
  - produces consequences
- Respondent Behavior
  - occurs as an automatic response to stimulus
  - behavior learned through classical conditioning

Skinner's Experiments

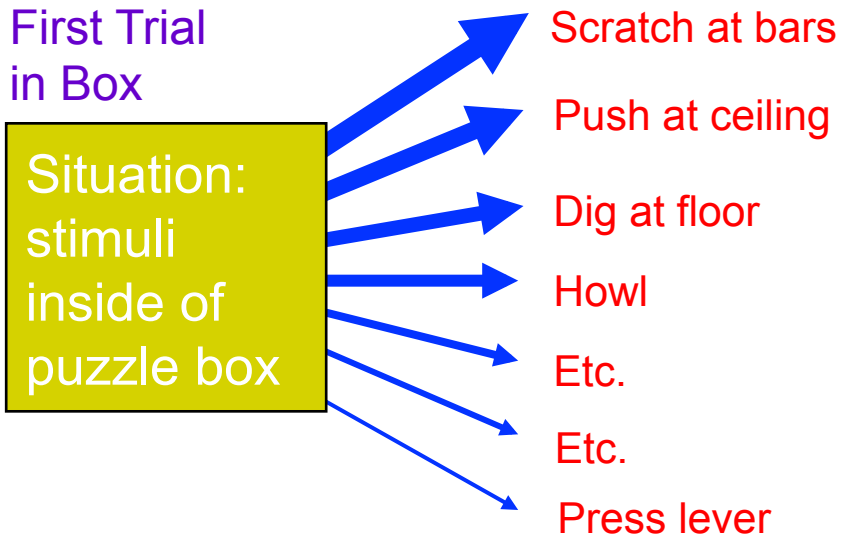
- Edward Thorndike's Law of Effect
- B.F. Skinner
  - Behavioral technology
  - Behavior control

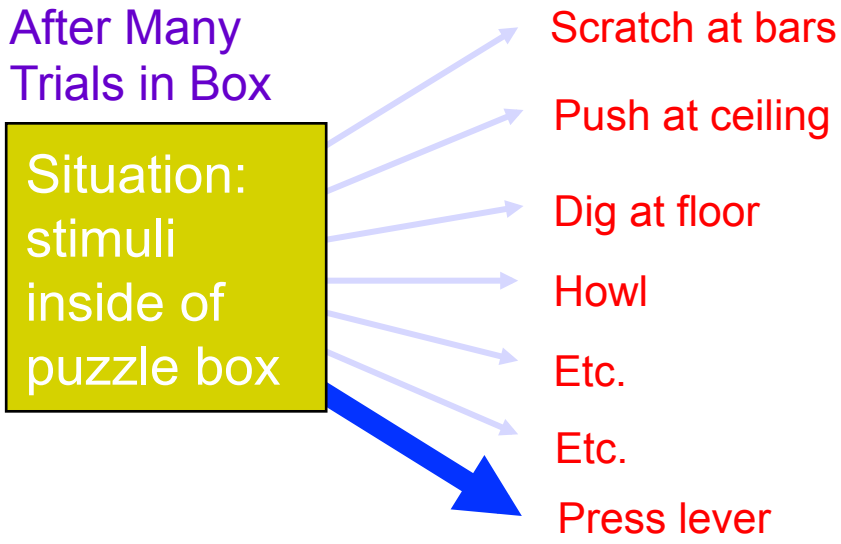




Early Operant Conditioning

- E. L. Thorndike (1898)
- Puzzle boxes and cats

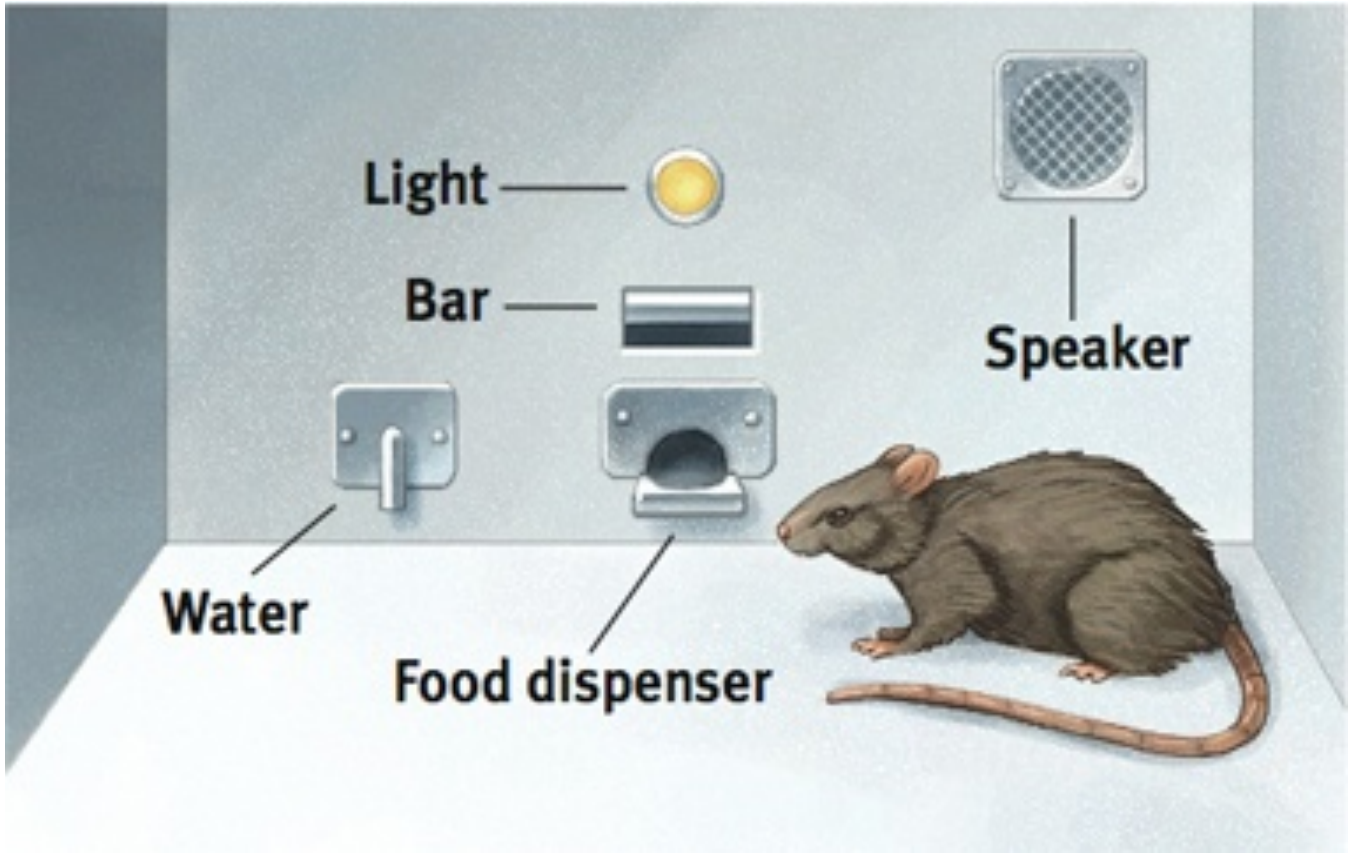




Edward L. Thorndike (1874–1949)

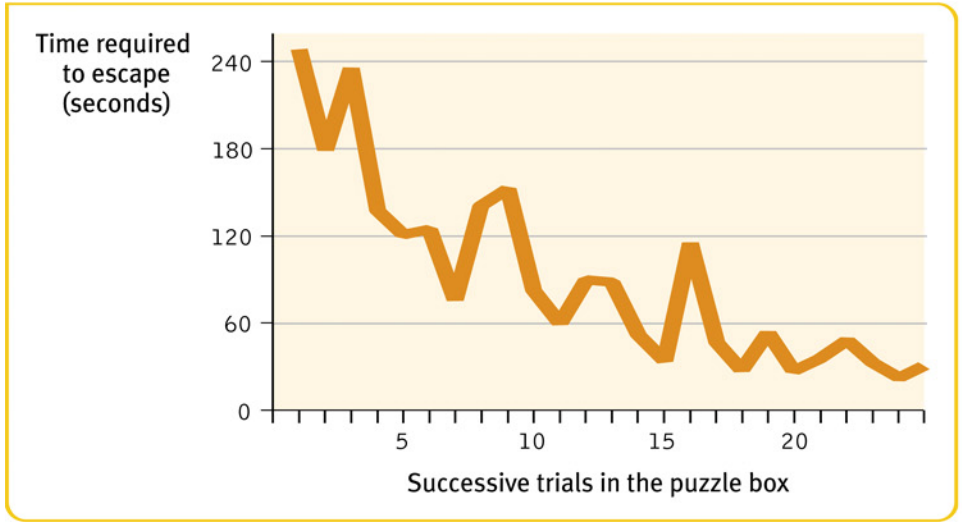
Skinner's Experiments

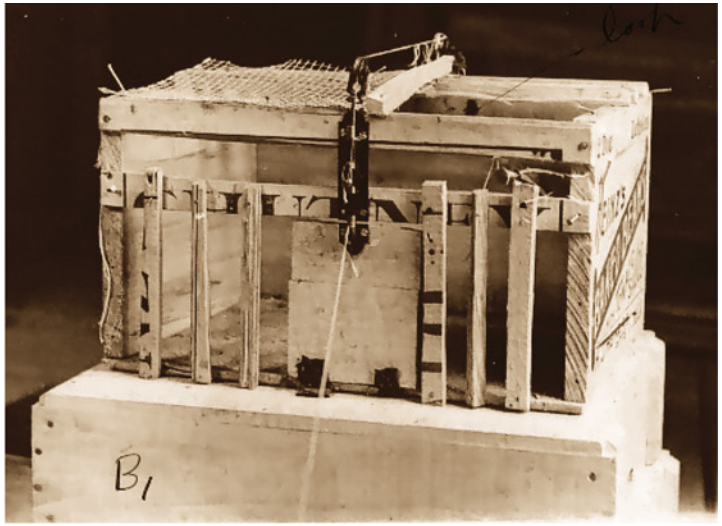
- Operant Chamber (Skinner Box)



Skinner's Experiments

Skinner's experiments extend Thorndike's thinking, especially his law of effect. This law states that rewarded behavior is likely to occur again.



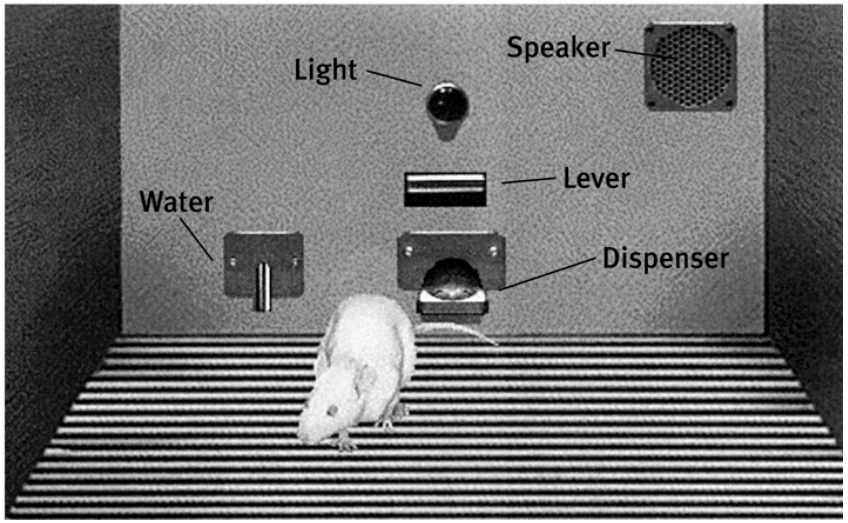


Yale University Library

Operant Chamber

Using Thorndike's law of effect as a starting point, Skinner developed the Operant chamber, or the Skinner box, to study operant conditioning.

Walter Dawn/ Photo Researchers, Inc.



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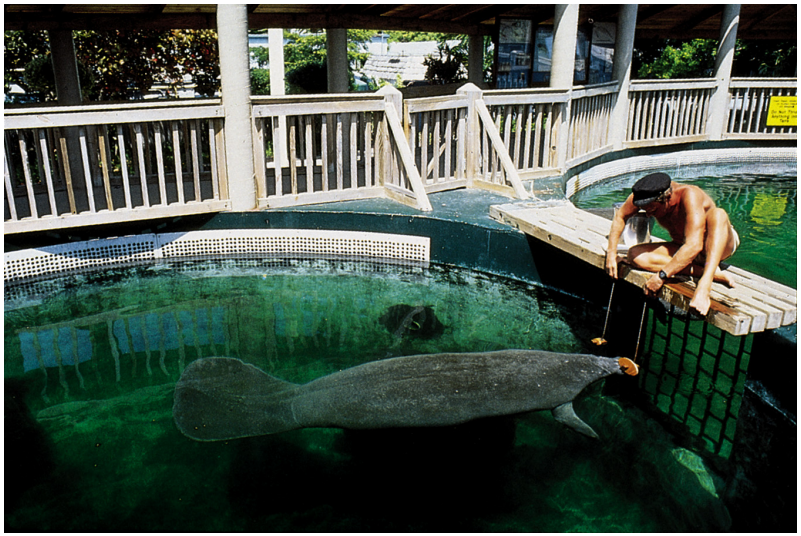
Skinner's Experiments
Shaping Behavior

- Shaping
  - Successive approximations
  - Discriminative stimulus

Shaping

Shaping is the operant conditioning procedure in which reinforcers guide behavior towards the desired target behavior through successive approximations.

Khamis Ramadhan/ Panapress/ Getty Images



Fred Bavendam/ Peter Arnold, Inc.

A rat shaped to sniff mines. A manatee shaped to discriminate objects of different shapes, colors and sizes.

Skinner's Experiments
Types of Reinforcers

- Reinforcer
  - Positive reinforcement
  - Negative reinforcement

Ways to Increase Behavior

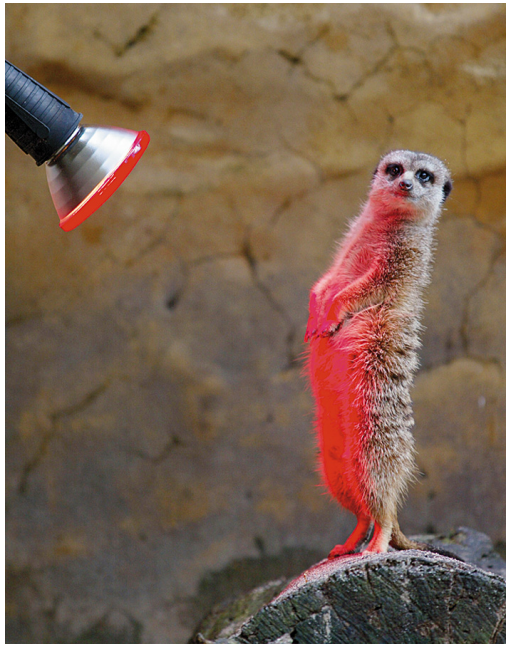
Operant Conditioning Term	Description	Examples
Positive reinforcement	Add a desirable stimulus	Getting a hug; receiving a paycheck

Types of Reinforcers

Any event that strengthens the behavior it follows. A heat lamp positively reinforces a meerkat's behavior in the cold.

WAYS TO INCREASE BEHAVIOR

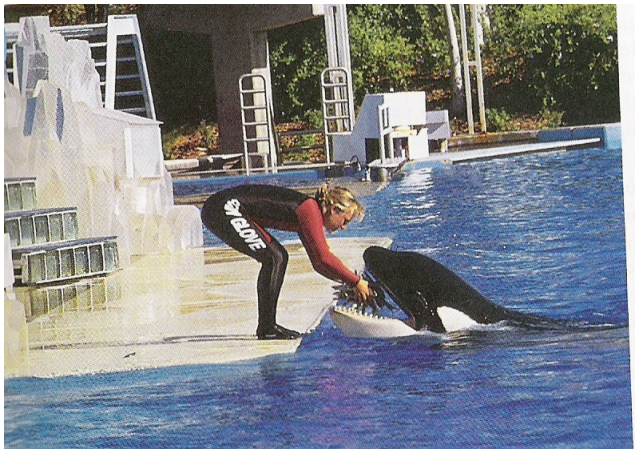
Operant Conditioning Term	Description	Possible Examples
Positive reinforce-ment	*Add* a desirable stimulus	Getting a a hug; receiving a paycheck
Negative reinforce-ment	*Remove* an aversive stimulus	Fastening seatbelt to turn off beeping



Reuters/ Corbis

Operant Conditioning

- Positive Reinforcement
  - any event that strengthens the behavior it follows



- Negative Reinforcement
  - The removal of a punishment or an aversive stimulus
  - It STRENGTHENS behavior

Negative Reinforcement and Punishment

Negative reinforcement: Removing an unpleasant stimulus

1. Unpleasant stimulus

=

2. Removal of unpleasant stimulus

=

Punishment

1. Introducing an unpleasant stimulus

2. Withholding a pleasant stimulus

Skinner's Experiments
Types of Reinforcers

- Reinforcer
  - Positive reinforcement
  - Negative reinforcement

Ways to Increase Behavior

Operant Conditioning Term	Description	Examples
Positive reinforcement	Add a desirable stimulus	Getting a hug; receiving a paycheck
Negative reinforcement	Remove an aversive stimulus	Fastening seatbelt to turn off beeping

Response

Something positive occurs.

Positive reinforcement strengthens the response because it results in the occurrence of something positive.

Ellen has temper tantrum.

Alice hugs Ellen to soothe her.

Result: Frequency of tantrums increases.

Response

Something negative removed.

Negative reinforcement strengthens the response because it results in something negative being removed or not occurring.

Ellen has temper tantrum.

Alice stops asking **Ellen** to clean room.

Result: Frequency of tantrums increases.

In contrast, punishment *weakens* the strength of the response:

Response

Something negative occurs.

Punishment weakens the response because it results in the occurrence of something negative.

Ellen has temper tantrum.

Alice tells **Ellen** off.

Result: Frequency of tantrums decreases.

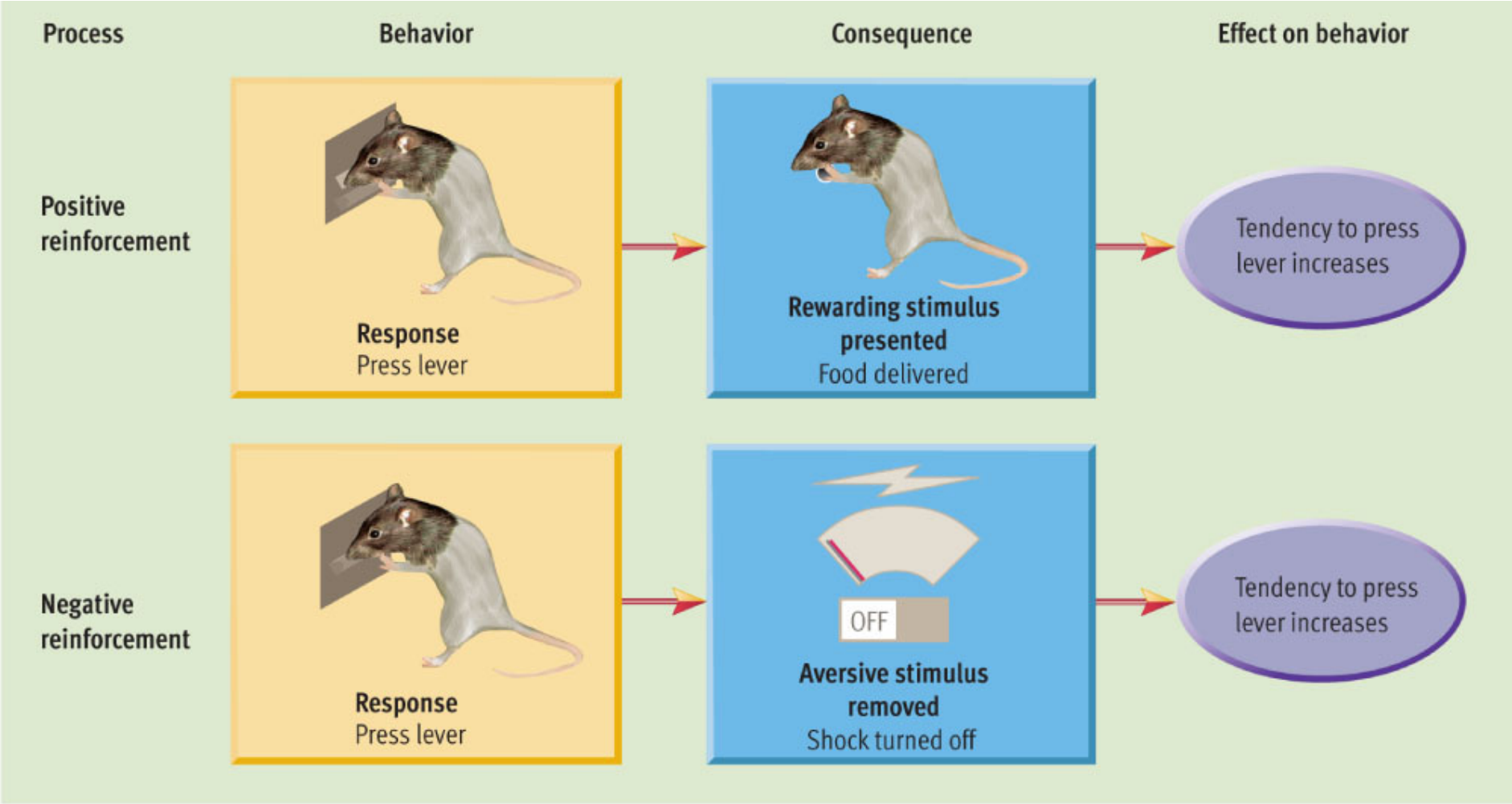


Figure 6.18 Positive reinforcement versus negative reinforcement

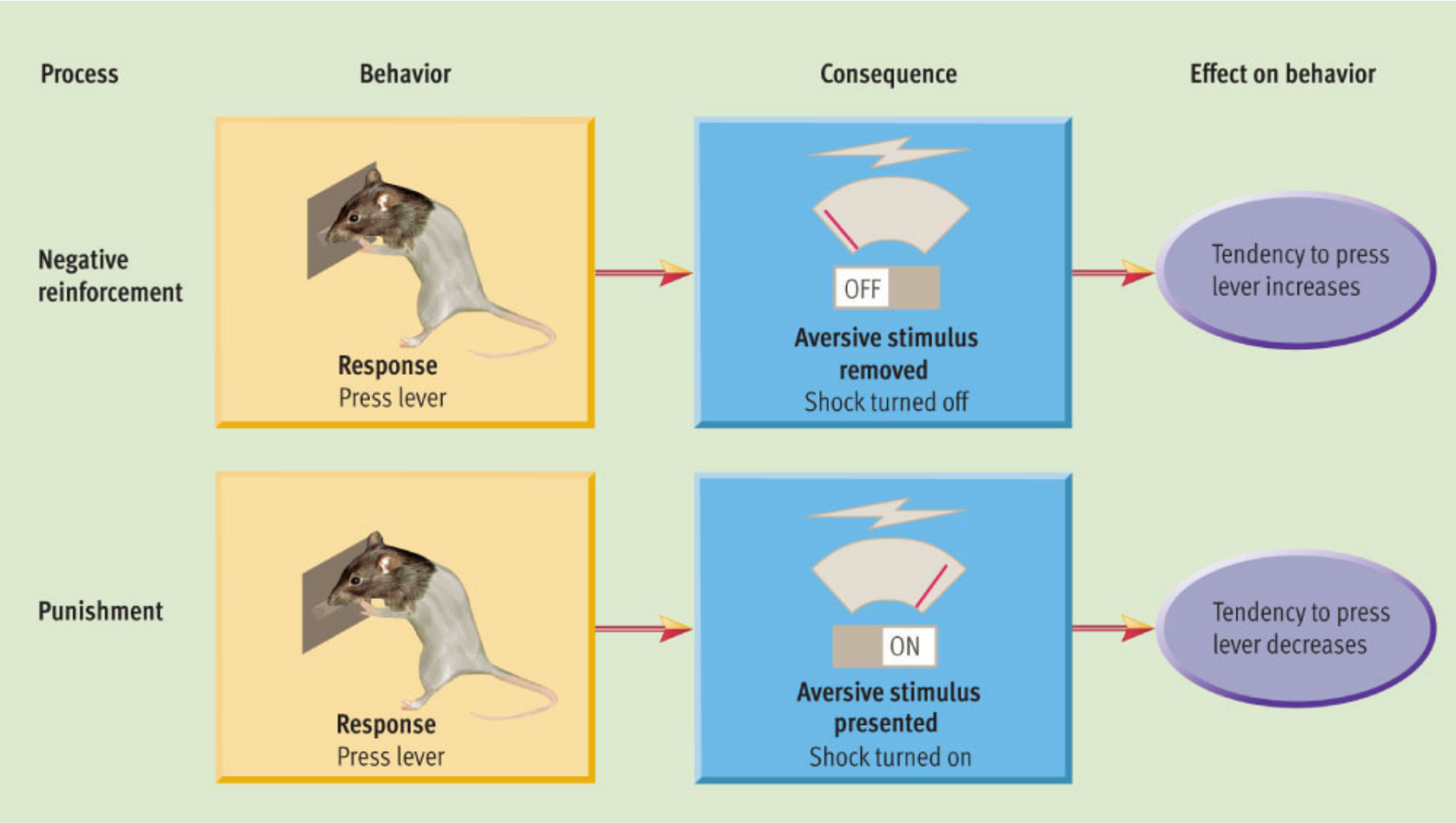
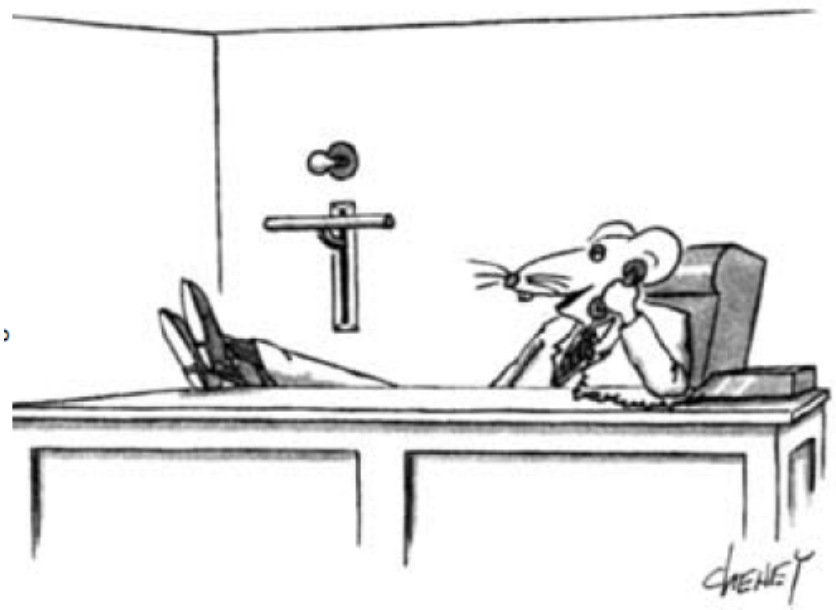


Figure 6.20 Comparison of negative reinforcement and punishment

Skinner's Experiments
Types of Reinforcers

- Primary reinforcer
- Conditioned reinforcer
  - Secondary reinforcer
- Immediate vs delayed reinforcers



"Oh, not bad. The light comes on, I press the bar, they write me a check. How about you?"

Primary & Secondary Reinforcers

1. Primary Reinforcer: An innately reinforcing stimulus like food or drink.

2. Conditioned Reinforcer (secondary reinforcer): A learned reinforcer that gets its reinforcing power through association with the primary reinforcer.

Immediate & Delayed Reinforcers

1. Immediate Reinforcer: A reinforcer that occurs instantly after a behavior. A rat gets a food pellet for a bar press.

2. Delayed Reinforcer: A reinforcer that is delayed in time for a certain behavior. A paycheck that comes at the end of a week.

We may be inclined to engage in small immediate reinforcers (watching TV) rather than large delayed reinforcers (getting an A in a course) which require consistent study.

Reinforcement Schedules

1. Continuous Reinforcement: Reinforces the desired response each time it occurs.

2. Partial Reinforcement: Reinforces a response only part of the time. Though this results in slower acquisition in the beginning, it shows greater resistance to extinction later on.

Skinner's Experiments
Reinforcement Schedules

- Continuous reinforcement
- Partial (intermittent) reinforcement
- Schedules
  - Fixed-ratio schedule
  - Variable-ratio schedule
  - Fixed-interval schedule
  - Variable-interval schedule

"I wrote another five hundred words. Can I have another cookie?"

Skinner's Experiments
Reinforcement Schedules

SCHEDULES OF REINFORCEMENT

Skinner's Experiments
Reinforcement Schedules

Schedules of Reinforcement
Fixed

Skinner's Experiments
Reinforcement Schedules

Schedules of Reinforcement	
Fixed	**Variable**

Skinner's Experiments
Reinforcement Schedules

Schedules of Reinforcement		
	Fixed	Variable
Ratio		

Skinner's Experiments
Reinforcement Schedules

Schedules of Reinforcement		
	Fixed	Variable
Ratio		
Interval		

Skinner's Experiments
Reinforcement Schedules

SCHEDULES OF REINFORCEMENT

	Fixed	Variable
Ratio	*Every so many:* reinforcement after every n^{th} behavior, such as buy 10 coffees, get 1 free, or pay per product unit produced	
Interval		

Skinner's Experiments
Reinforcement Schedules

SCHEDULES OF REINFORCEMENT

	Fixed	Variable
Ratio	*Every so many:* reinforcement after every n^{th} behavior, such as buy 10 coffees, get 1 free, or pay per product unit produced	*After an unpredictable number:* reinforcement after a random number of behaviors, as when playing slot machines or fly-casting
Interval		

Skinner's Experiments
Reinforcement Schedules

SCHEDULES OF REINFORCEMENT

	Fixed	Variable
Ratio	*Every so many:* reinforcement after every n^{th} behavior, such as buy 10 coffees, get 1 free, or pay per product unit produced	*After an unpredictable number:* reinforcement after a random number of behaviors, as when playing slot machines or fly-casting
Interval	*Every so often:* reinforcement for behavior after a fixed time, such as Tuesday discount prices	

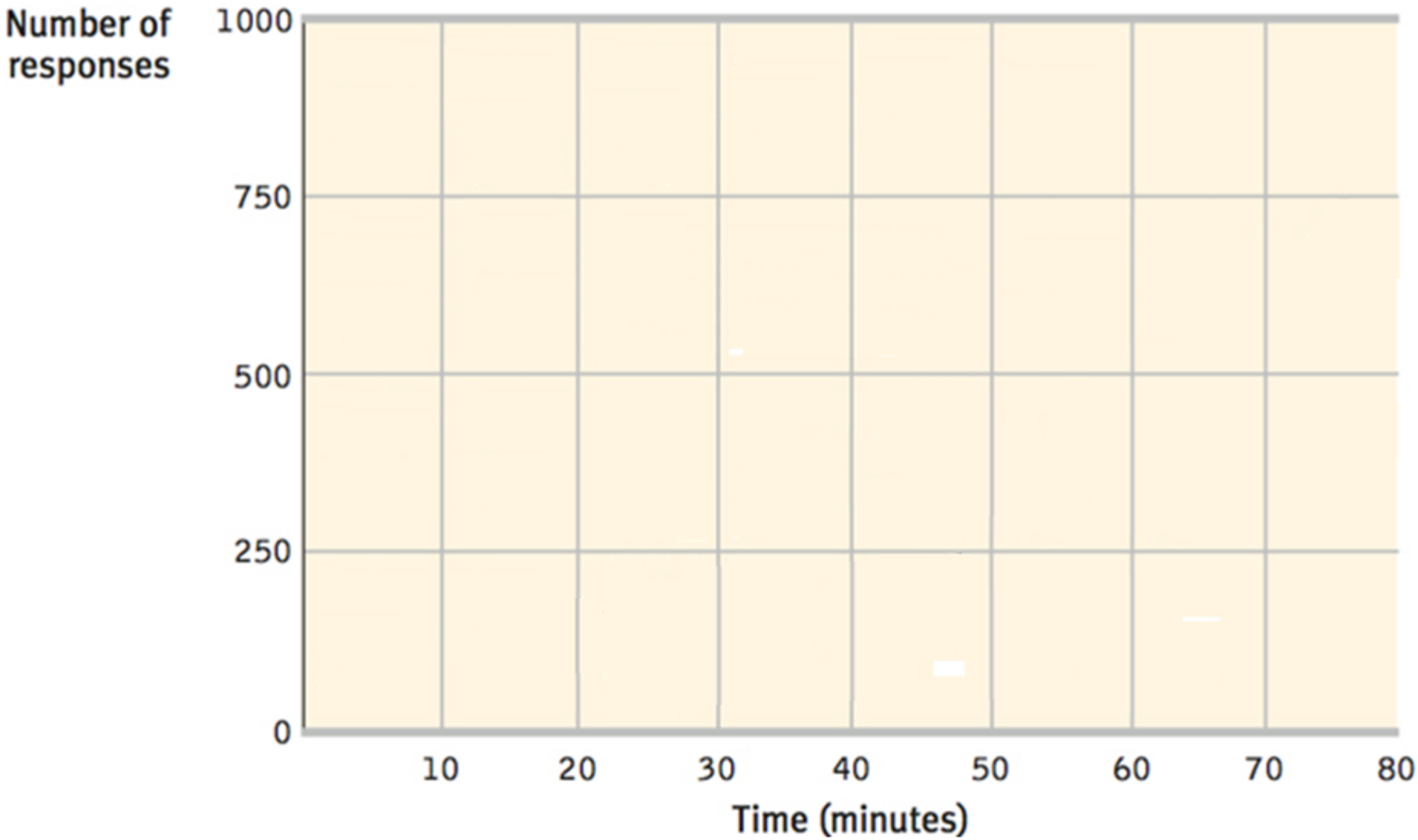
Skinner's Experiments
Reinforcement Schedules

SCHEDULES OF REINFORCEMENT

	Fixed	Variable
Ratio	*Every so many:* reinforcement after every n^{th} behavior, such as buy 10 coffees, get 1 free, or pay per product unit produced	*After an unpredictable number:* reinforcement after a random number of behaviors, as when playing slot machines or fly-casting
Interval	*Every so often:* reinforcement for behavior after a fixed time, such as Tuesday discount prices	*Unpredictably often:* reinforcement for behavior after a random amount of time, as in checking for e-mail

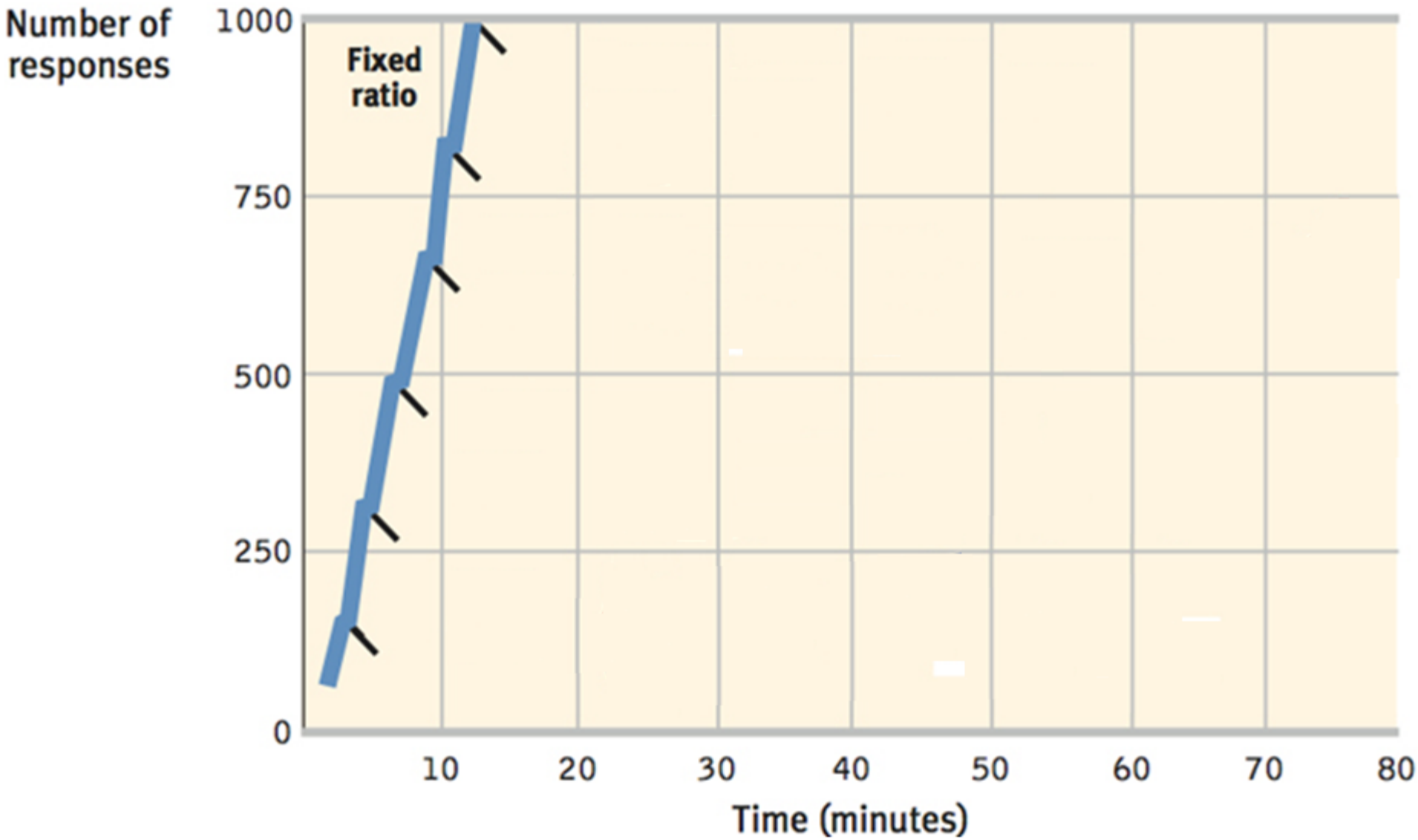
Skinner's Experiments

Reinforcement Schedules

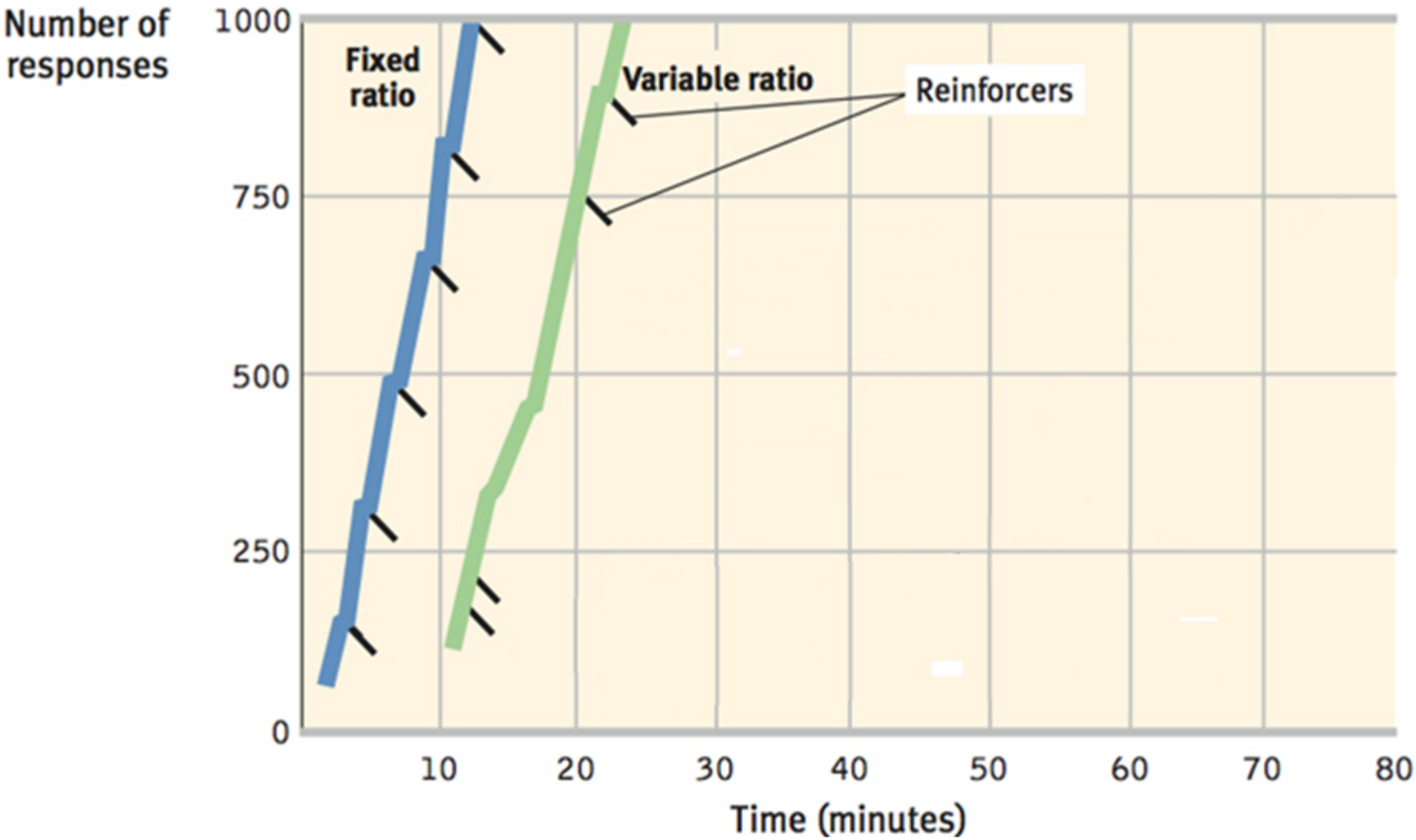


Skinner's Experiments

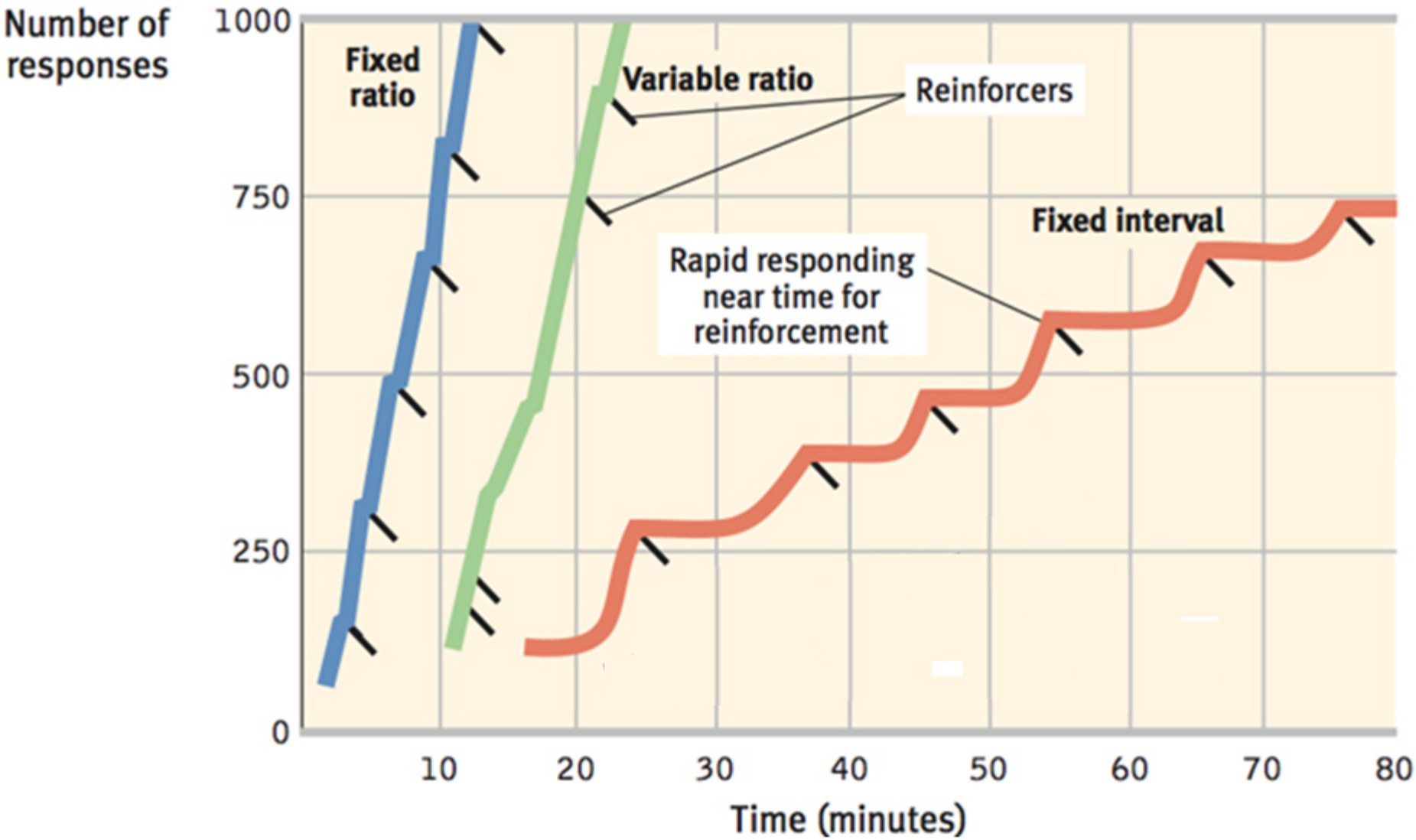
Reinforcement Schedules



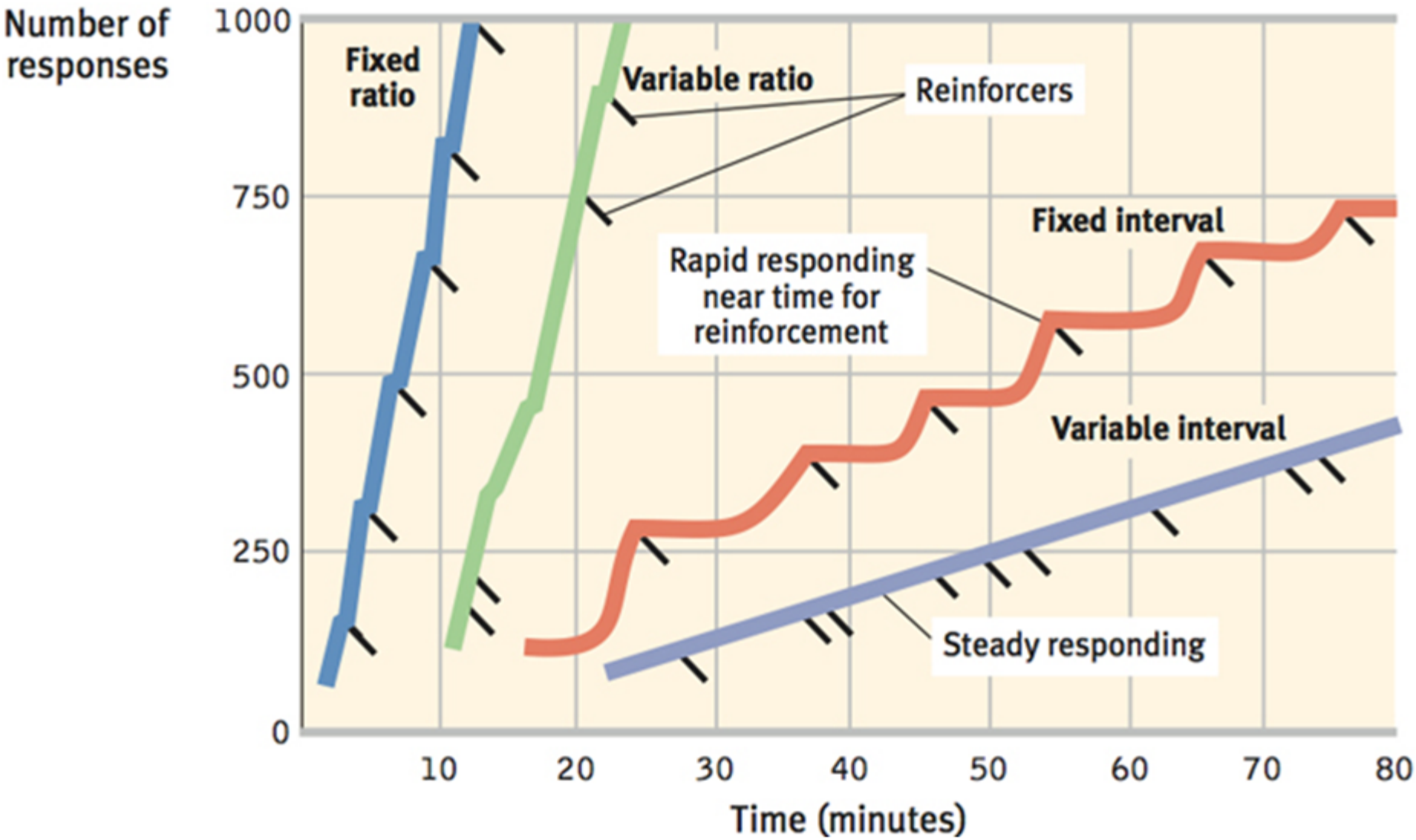
Skinner's Experiments
Reinforcement Schedules



Skinner's Experiments
Reinforcement Schedules



Skinner's Experiments
Reinforcement Schedules



Schedules of Reinforcement

- Fixed Ratio (FR)
  - reinforces a response only after a specified number of responses
  - faster you respond the more rewards you get
  - different ratios
  - very high rate of responding
  - like piecework pay

Schedules of Reinforcement

- Variable Ratio (VR)
  - reinforces a response after an unpredictable number of responses
  - average ratios
  - like gambling, fishing
  - very hard to extinguish because of unpredictability

Schedules of Reinforcement

- Fixed Interval (FI)
  - reinforces a response only after a specified time has elapsed
  - response occurs more frequently as the anticipated time for reward draws near

Schedules of Reinforcement

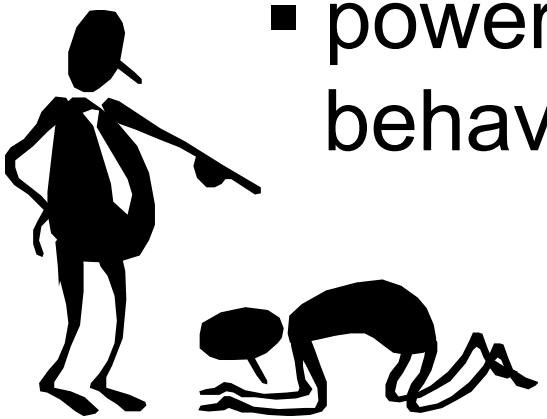
- Variable Interval (VI)
  - reinforces a response at unpredictable time intervals
  - produces slow steady responding
  - like pop quiz

Skinner's Experiments
Punishment

- Punishment
  - Positive punishment
  - Negative punishment

Punishment

- Punishment
  - aversive event that decreases the behavior that it follows
  - powerful controller of unwanted behavior



Punishment

An aversive event that decreases the behavior it follows.

WAYS TO DECREASE BEHAVIOR

Type of Punisher	Description	Possible Examples
Positive punishment	Administer an aversive stimulus	Spanking; a parking ticket
Negative punishment	Withdraw a desirable stimulus	Time-out from privileges (such as time with friends); revoked driver's license

Skinner's Experiments
Punishment

Ways to Decrease Behavior

Type of Punisher	Description	Possible Examples

Skinner's Experiments
Punishment

Ways to Decrease Behavior

Type of Punisher	Description	Possible Examples
Positive punishment		

Skinner's Experiments
Punishment

Ways to Decrease Behavior

Type of Punisher	Description	Possible Examples
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Skinner's Experiments
Punishment

Ways to Decrease Behavior		
Type of Punisher	**Description**	**Possible Examples**
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Skinner's Experiments
Punishment

Ways to Decrease Behavior		
Type of Punisher	**Description**	**Possible Examples**
Positive punishment	Administer an aversive stimulus	Spanking; a parking ticket
Negative punishment	Withdraw a desirable stimulus	Time-out from privileges (such as time with friends); revoked driver's license

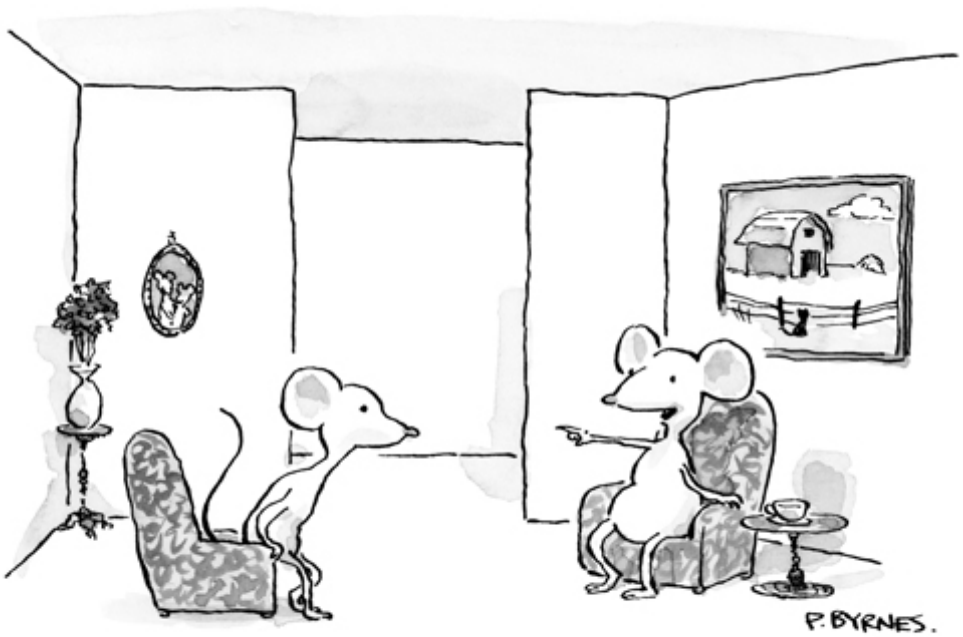
Skinner's Experiments
Punishment

- Negatives of using punishment
  - Punished behavior is suppressed not forgotten
  - Punishment teaches discrimination
  - Punishment can teach fear
  - Physical punishment may increase aggression

Extending Skinner's Understanding

Cognition and Operant Conditioning

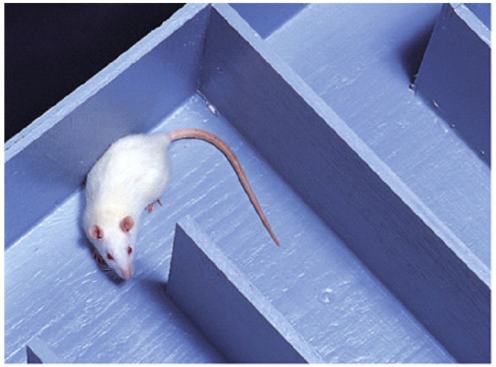
- Latent learning
  - Cognitive map
- Insight learning
- Intrinsic motivation
- Extrinsic motivation

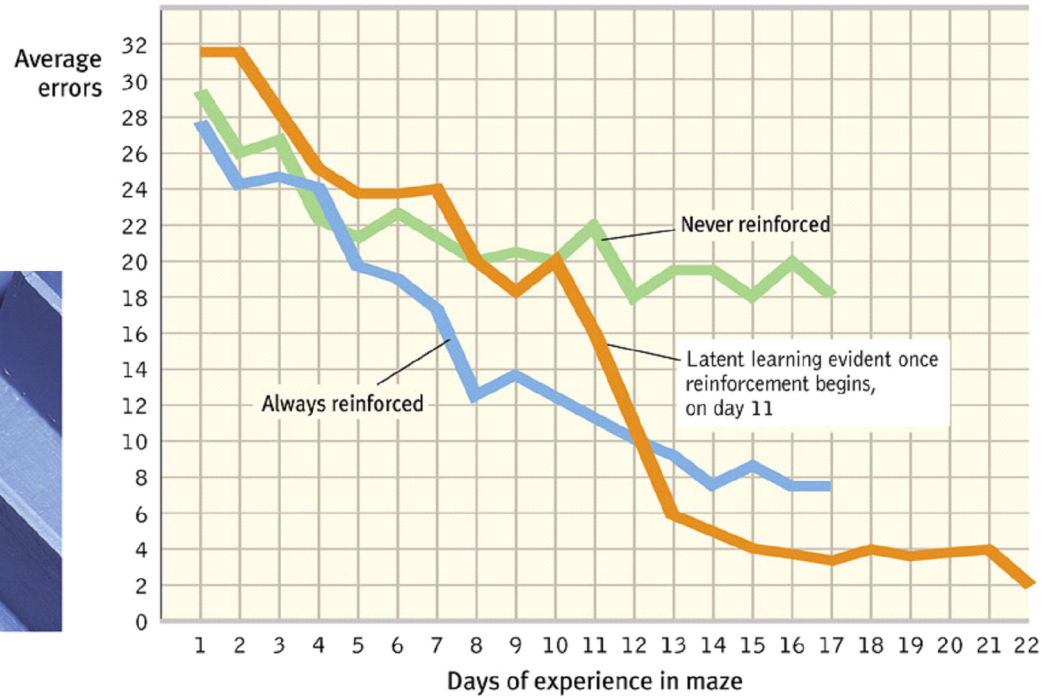


"Bathroom? Sure, it's just down the hall to the left, jog right, left, another left, straight past two more lefts, then right, and it's at the end of the third corridor on your right."

Latent Learning

Such cognitive maps are based on latent learning, which becomes apparent when an incentive is given (Tolman & Honzik, 1930).





Cognition & Operant Conditioning

Evidence of cognitive processes during operant learning comes from rats during a maze exploration in which they navigate the maze without an obvious reward. Rats seem to develop cognitive maps (E.C. Tolman), or mental representations, of the layout of the maze (environment).

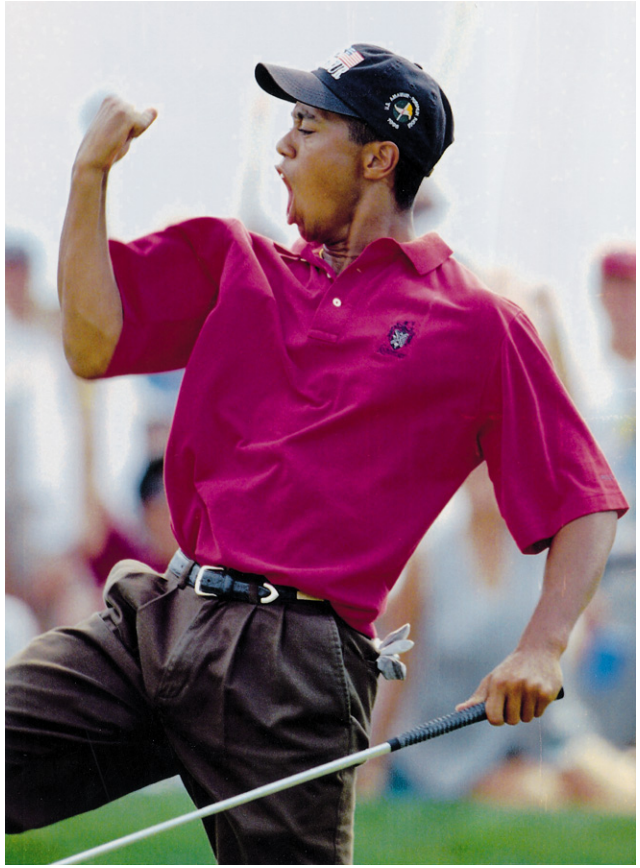
Cognition and Operant Conditioning

- Overjustification Effect
  - the effect of promising a reward for doing what one already likes to do
  - the person may now see the reward, rather than intrinsic interest, as the motivation for performing the task

Motivation

Intrinsic Motivation: The desire to perform a behavior for its own sake.

Extrinsic Motivation: The desire to perform a behavior due to promised rewards or threats of punishments.



Extending Skinner's Understanding

Biological Predispositions

- Biological constraints predispose organisms to learn associations that are naturally adaptive

Biological Predisposition

Biological constraints predispose organisms to learn associations that are naturally adaptive.

Breland and Breland (1961) showed that animals drift towards their biologically predisposed instinctive behaviors.

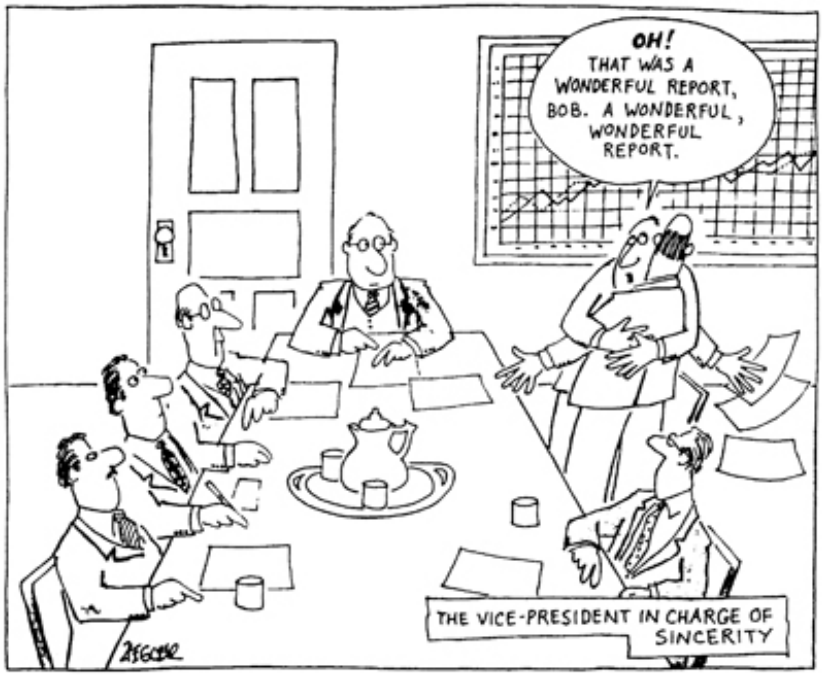
Marian Breland Bailey

Photo: Bob Bailey

Skinner's Legacy

Applications of Operant Conditioning

- At school
- In sports
- At home
- For self-improvement



Applications of Operant Conditioning

Reinforcement principles can enhance athletic performance.

In Sports

Applications of Operant Conditioning

Reinforcers affect productivity. Many companies now allow employees to share profits and participate in company ownership.

At work

Applications of Operant Conditioning

In children, reinforcing good behavior increases the occurrence of these behaviors. Ignoring unwanted behavior decreases their occurrence.

Skinner's Legacy

Skinner argued that behaviors were shaped by external influences instead of inner thoughts and feelings. Critics argued that Skinner dehumanized people by neglecting their free will.

Falk/ Photo Researchers, Inc.

Skinner's Importance

Education: programmed instruction

Work

Parenting

Personal goals

Contrasting Classical and Operant Conditioning

- Similarities between classical and operant conditioning
- Differences between classical and operant conditioning

TABLE 8.3

COMPARISON OF CLASSICAL AND OPERANT CONDITIONING

	Classical Conditioning	Operant Conditioning
Response	Involuntary, automatic.	Voluntary, operates on environment.
Acquisition	Associating events; CS announces US.	Associating response with a consequence (reinforcer or punisher).
Extinction	CR decreases when CS is repeatedly presented alone.	Responding decreases when reinforcement stops.
Cognitive processes	Organisms develop expectation that CS signals the arrival of US.	Organisms develop expectation that a response will be reinforced or punished; they also exhibit latent learning, without reinforcement.
Biological predispositions	Natural predispositions constrain what stimuli and responses can easily be associated.	Organisms best learn behaviors similar to their natural behaviors; unnatural behaviors instinctively drift back toward natural ones.

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

Classical Conditioning	Operant Conditioning

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
Basic idea		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
Basic idea	Organisms learn associations between events they don't control.	

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
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Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

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Response		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
Basic idea	Organisms learn associations between events they don't control.	Organisms learn associations between their behavior and resulting events.
Response	Involuntary, automatic.	

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

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Acquisition		

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Extinction		

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Spontaneous recovery		

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Generalization		

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Generalization	The tendency to respond to stimuli similar to the CS.	Organisms' responses to similar stimuli are also reinforced.

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Discrimination		

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Contrasting Classical and Operant Conditioning

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Cognitive processes		

Contrasting Classical and Operant Conditioning

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Spontaneous recovery	The reappearance, after a rest period, of an extinguished CR.	The reappearance, after a rest period, of an extinguished response.
Generalization	The tendency to respond to stimuli similar to the CS.	Organisms' responses to similar stimuli are also reinforced.
Discrimination	The learned ability to distinguish between a CS and other stimuli that do not signal a US.	Organisms learn that certain responses, but not others, will be reinforced.
Cognitive processes	Organisms develop expectation that CS signals the arrival of US.	Organisms develop expectation that a response will be reinforced or punished; they also exhibit latent learning, without reinforcement.

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
Basic idea	Organisms learn associations between events they don't control.	Organisms learn associations between their behavior and resulting events.
Response	Involuntary, automatic.	Voluntary, operates on environment.
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Biological predispositions	Natural predispositions constrain what stimuli and responses can easily be associated.	Organisms best learn behaviors similar to their natural behaviors; unnatural behaviors instinctively drift back toward natural ones.

Learning by Observation

Introduction

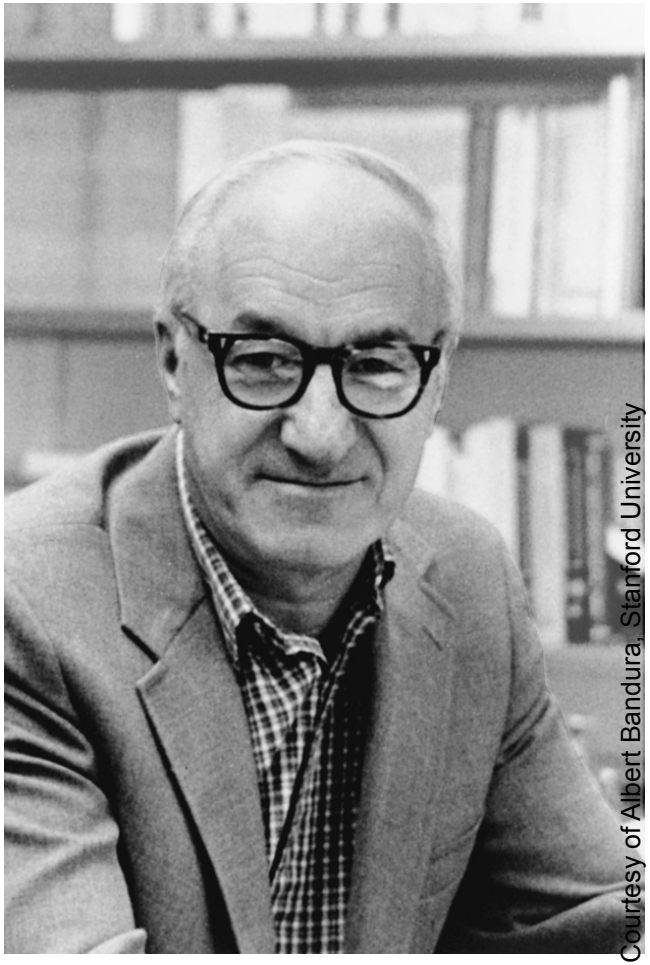
- Observational learning
  - Social learning
  - Modeling

Observational Learning

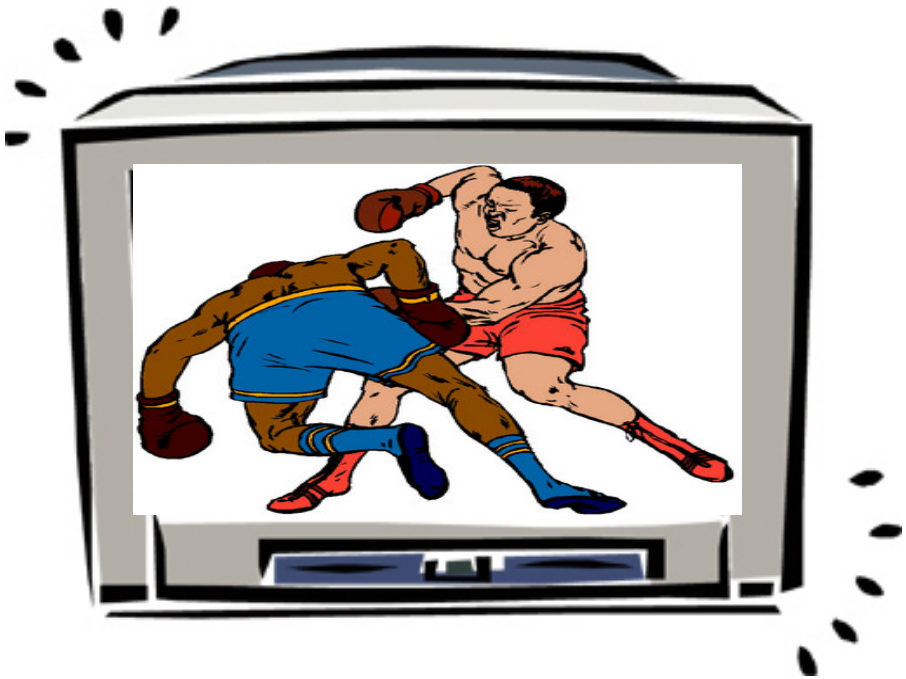
- Observational Learning (Albert Bandura)
  - learning by observing and imitating others
- Modeling
  - process of observing and imitating a specific behavior
- Prosocial Behavior
  - positive, constructive, helpful behavior
  - opposite of antisocial behavior

Bandura's Experiments

Bandura's Bobo doll study (1961) indicated that individuals (children) learn through imitating others who receive rewards and punishments.



Albert Bandura: Hypothesis



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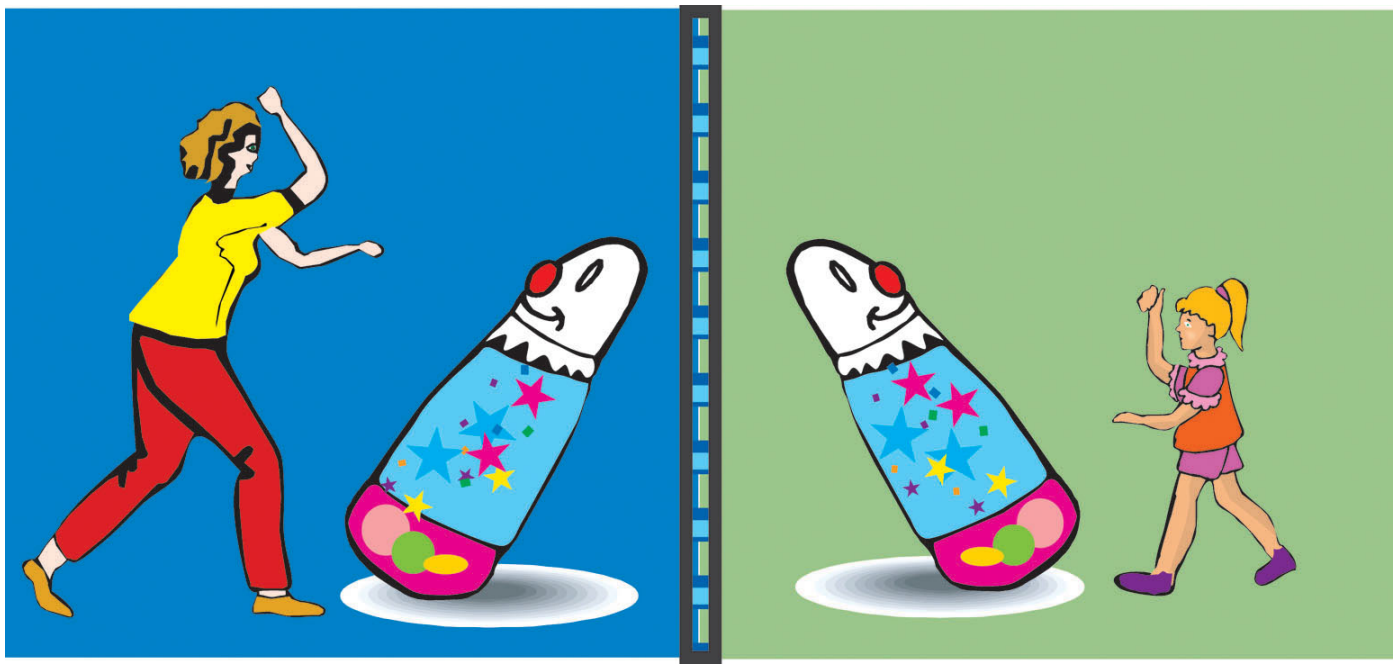
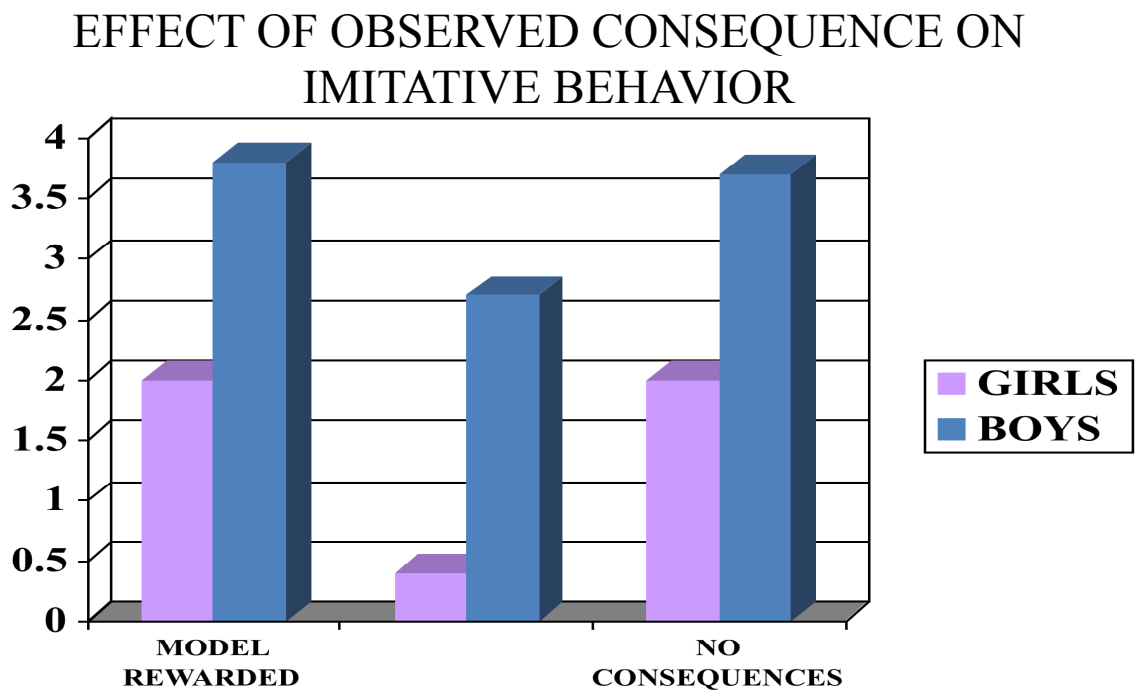
- Believed we learn through observation and imitation
- Hypothesized that children would imitate aggressive behavior they observed

Bandura's Methodology



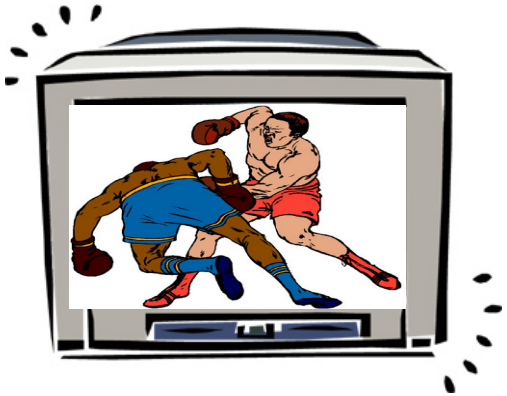
- Children watched films of adults beating Bobo dolls
- Three groups: aggression-rewarded, aggression-punished, no consequences
- Children went into rooms with toys that they were told not to play with

Bandura's Results



- Children in the aggression-punished group expressed the fewest aggressive behaviors toward the Bobo dolls
- Children in the other two groups expressed an equal number of aggressive behaviors and were more aggressive than children in the aggression-punished group

Bandura's Experiment



Viewing aggressive behavior

+

Rewards for imitation

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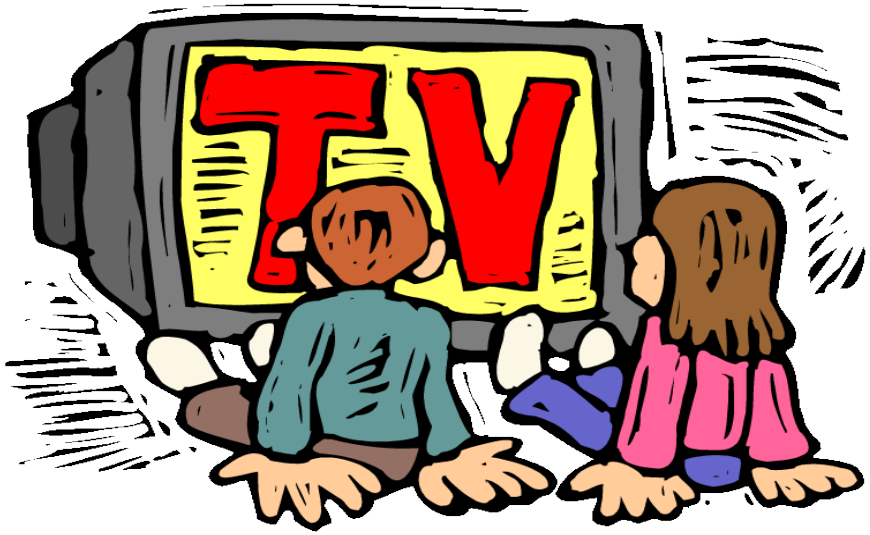
Aggressive behavior

- Children promised rewards for imitating the adult in the film
- Now, all three groups were equally aggressive
- Children had learned the aggressive behavior from the film, but those who saw the adults being punished were less likely to act aggressively

Bandura's Social Learning Theory



- Relates to effects of violence and other images on TV and in the movies
- Children imitate good and neutral behaviors as well as bad ones

This series of photographs shows children observing and modeling aggressive behavior.

Albert Bandura's Bobo Doll Experiment

Positive Observational Learning

Fortunately, prosocial (positive, helpful) models may have prosocial effects.

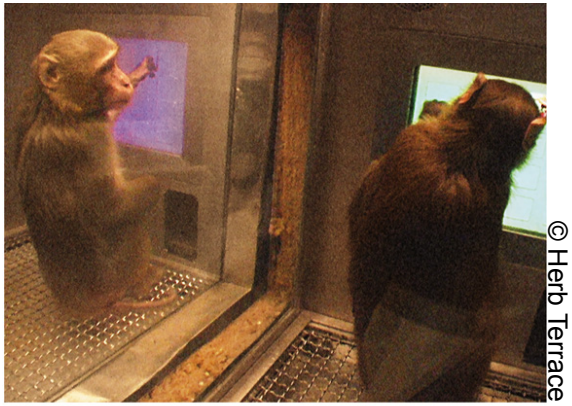
Bob Daemmrich/ The Image Works

Applications of Observational Learning

Unfortunately, Bandura's studies show that antisocial models (family, neighborhood or TV) may have antisocial effects.

Learning by Observation

Higher animals, especially humans, learn through observing and imitating others.



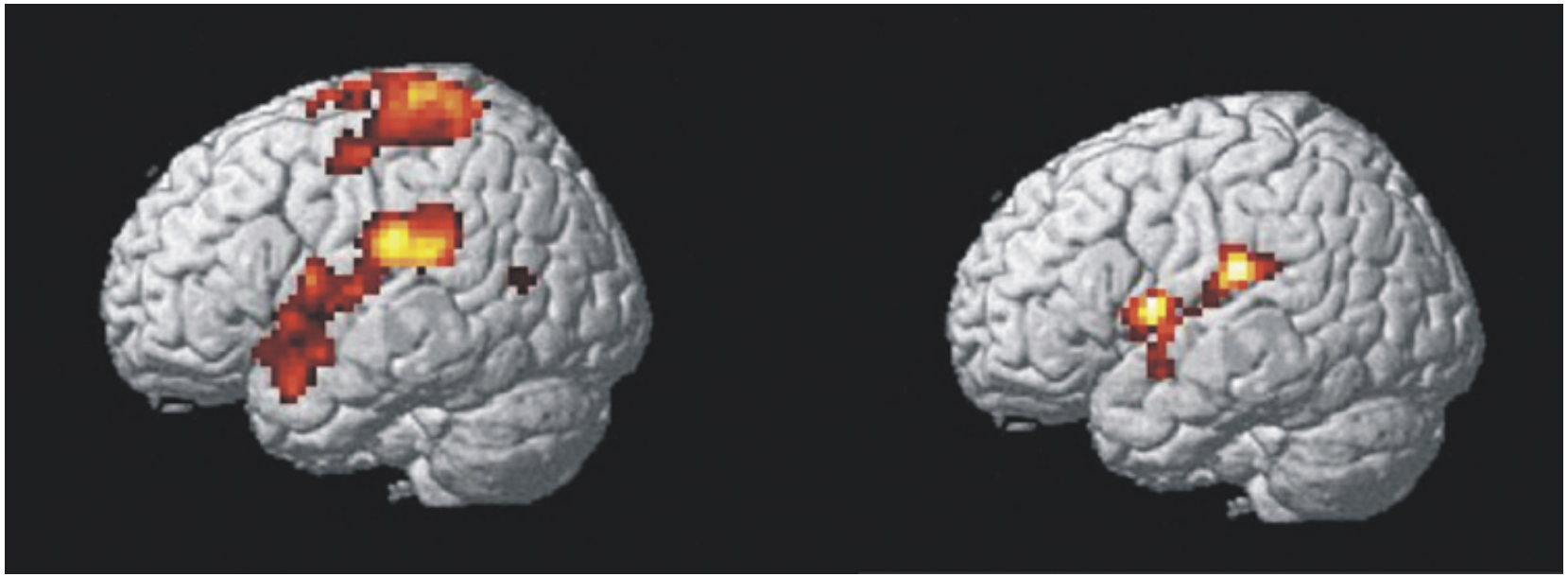
© Herb Terrace

The monkey on the right imitates the monkey on the left in touching the pictures in a certain order to obtain a reward.

©Herb Terrace

Mirrors in the Brain

- Mirror neurons
- Theory of mind

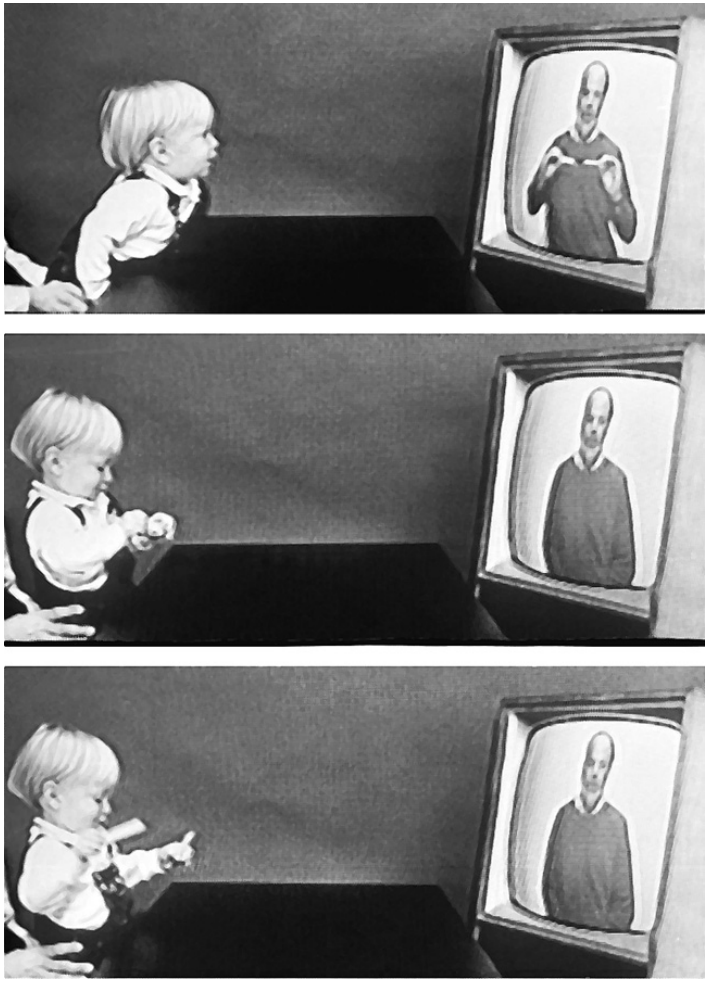


Applications of Observational Learning
Prosocial vs Antisocial Effects

- Prosocial effects
- Antisocial effects

Imitation Onset

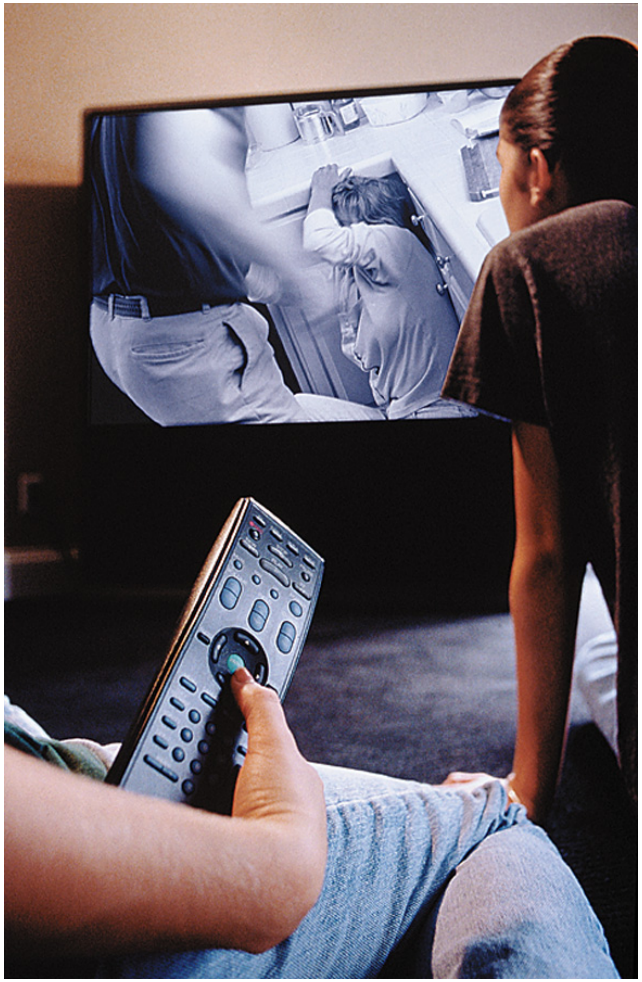
Learning by observation begins early in life. This 14-month-old child imitates the adult on TV in pulling a toy apart.



Meltzoff, A.N. (1998). Imitation of televised models by infants. Child Development, 59 1221-1229. Photos Courtesy of A.N. Meltzoff and M. Hanuk.

Television and Observational Learning

Gentile et al., (2004) shows that children in elementary school who are exposed to violent television, videos, and video games express increased aggression.



Ron Chapple/ Taxi/ Getty Images

Modeling Violence

Research shows that viewing media violence leads to an increased expression of aggression.

Bob Daemmrich/ The Image Works

Glassman/ The Image Works

Children modeling after pro wrestlers

Table 5.6

Factors That Increase Imitation

You're more likely to imitate:

- People who are rewarded for their behavior
- Warm, nurturant people
- People who have control over you or have the power to influence your life
- People who are similar to you in terms of age, sex, and interests
- People you perceive as having higher social status
- When the task to be imitated is not extremely easy or difficult
- If you lack confidence in your own abilities in a particular situation
- If the situation is unfamiliar or ambiguous
- If you've been rewarded for imitating the same behavior in the past

SOURCE: Based on research summarized in Bandura (1977, 1986, 1997).

The End