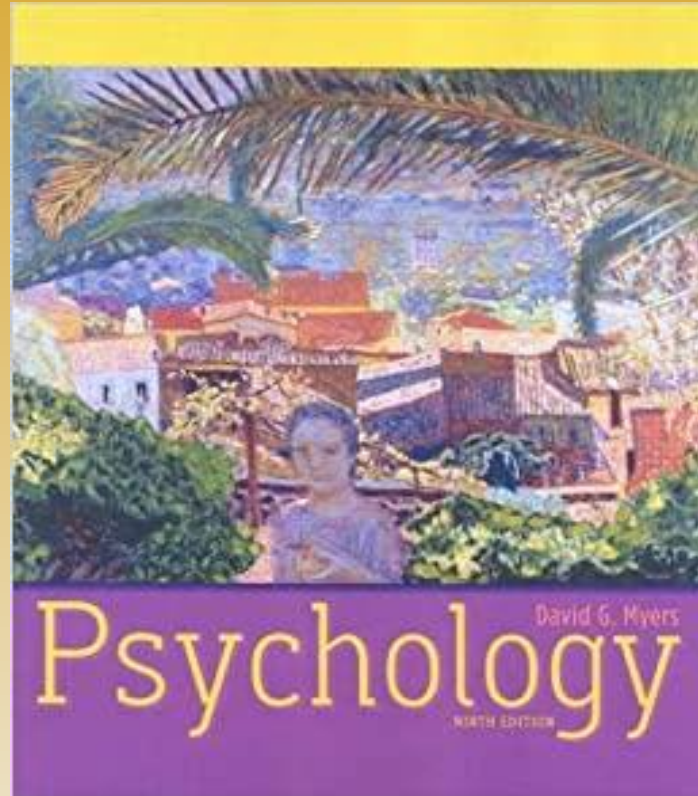


Psychology 11



Chapter 7

Chapter 7- Overview

- How We Learn and Classical Conditioning
- Operant Conditioning
- Operant Conditioning's Applications, and Comparison to Classical Conditioning
- Biology, Cognition, and Learning
- Learning By Observation

How We Learn and Classical Conditioning



How Do We Learn?

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

How Do We Learn?

Classical Conditioning



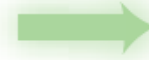
Classical conditioning

How Do We Learn?

Classical Conditioning

Two related events:

Stimulus 1:
Lightning



Classical conditioning

How Do We Learn?

Classical Conditioning

Two related events:

Stimulus 1:
Lightning



Stimulus 2:
Thunder



Classical conditioning

How Do We Learn?

Classical Conditioning

Two related events:

Stimulus 1:
Lightning



Stimulus 2:
Thunder



Response:
Startled
reaction;
wincing



Classical conditioning

How Do We Learn?

Classical Conditioning

Two related events:

Stimulus 1:
Lightning



Stimulus 2:
Thunder



Response:
Startled
reaction;
wincing



Result after repetition:

Stimulus:
We see
lightning



Classical conditioning

How Do We Learn?

Classical Conditioning

Two related events:

Stimulus 1:
Lightning



Stimulus 2:
Thunder



Response:
Startled
reaction;
wincing



Result after repetition:

Stimulus:
We see
lightning



Response:
Anticipation
of loud noise;
wincing



Classical conditioning

How Do We Learn?

Operant Conditioning

Operant conditioning

How Do We Learn?

Operant Conditioning

Operant conditioning



Response: Being polite

How Do We Learn? Operant Conditioning

Operant conditioning



Response: Being polite

Consequence: Getting a treat

How Do We Learn? Operant Conditioning

Operant conditioning



Response: Being polite



Consequence: Getting a treat



Behavior strengthened

Classical Conditioning



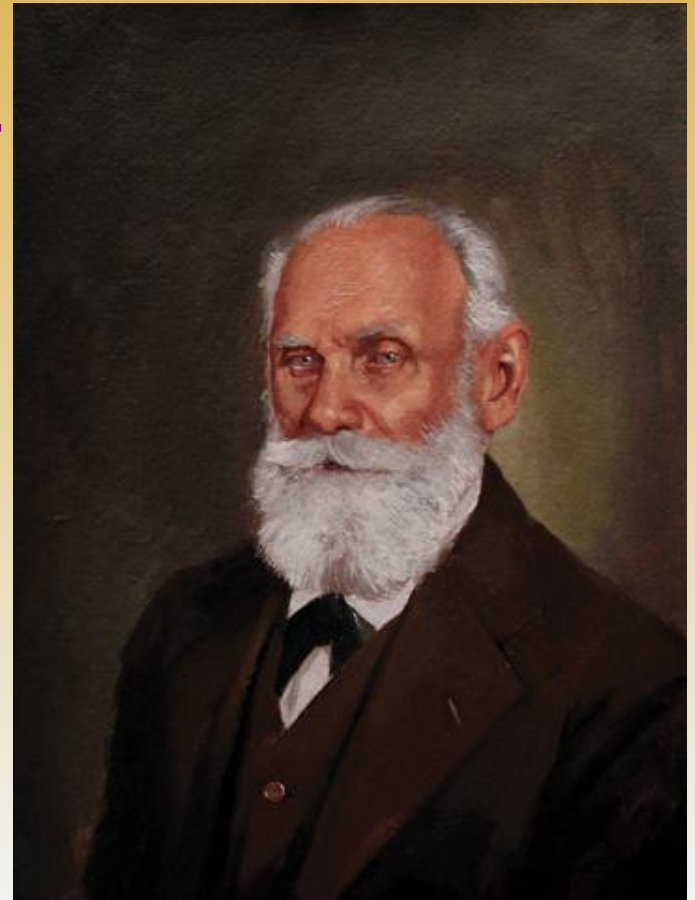
Classical Conditioning

Pavlov's Experiments

- Ivan Pavlov

Classical conditioning

- Background
- Experimental procedure



Classical Conditioning

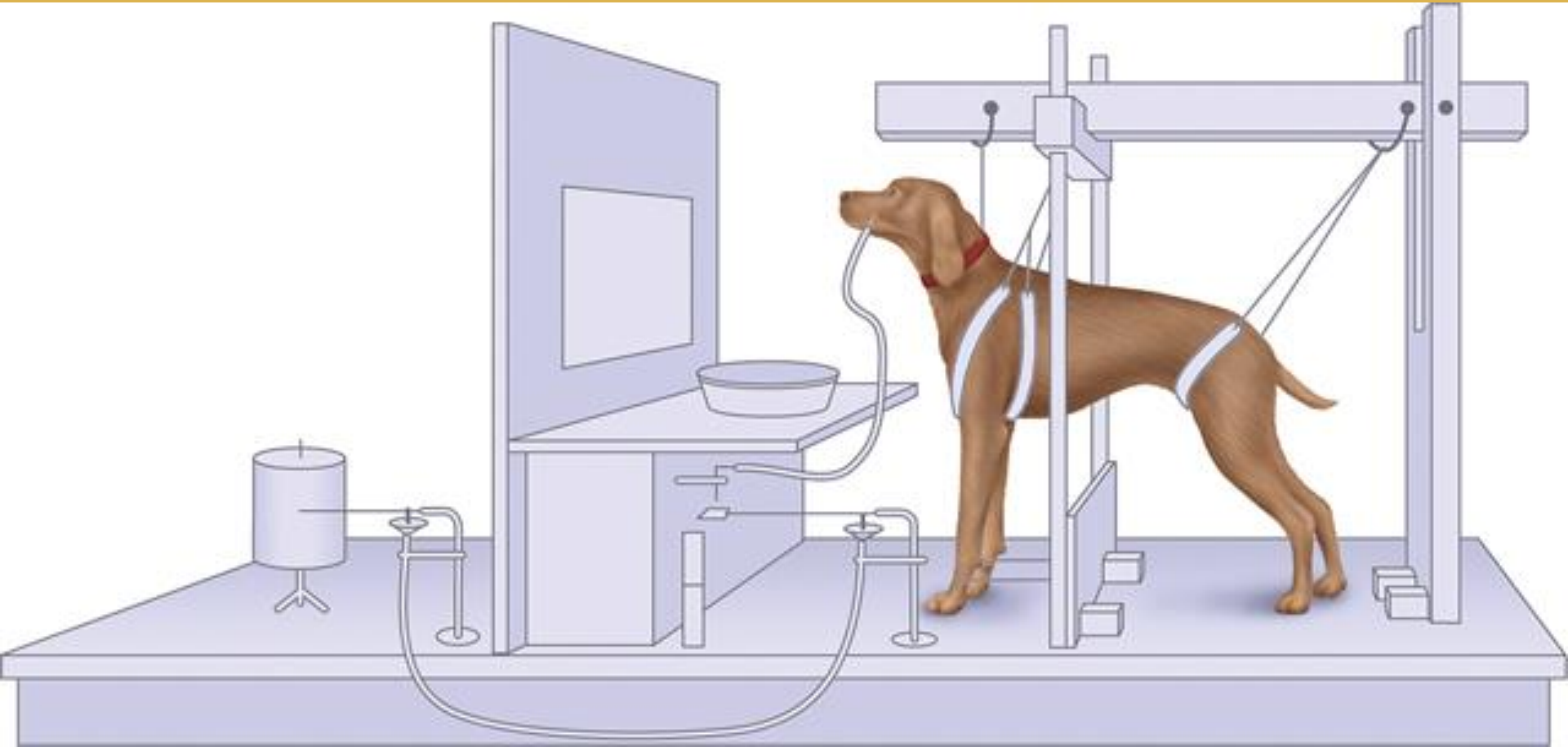
Pavlov's Experiments

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



Classical Conditioning

Pavlov's Experiments



Classical Conditioning

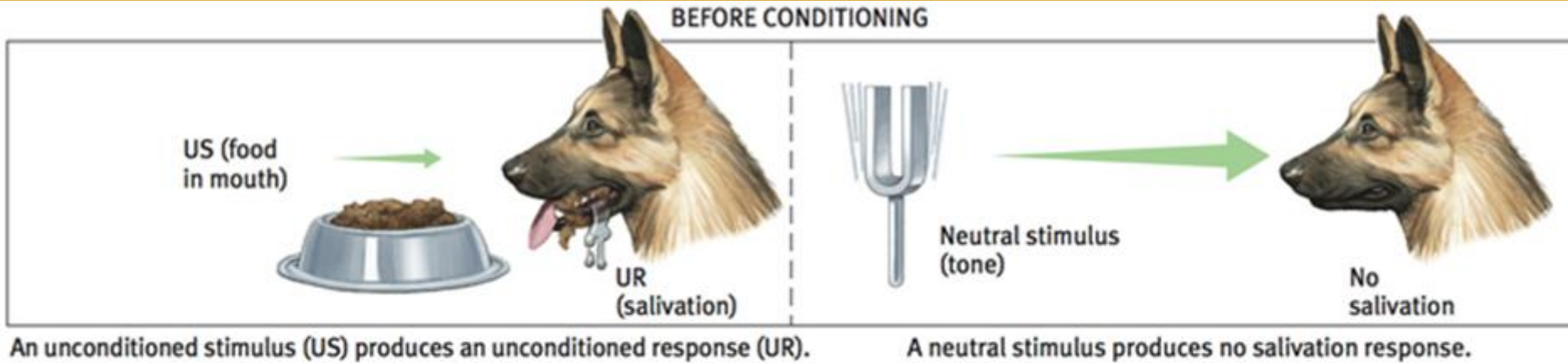
Pavlov's Experiments



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

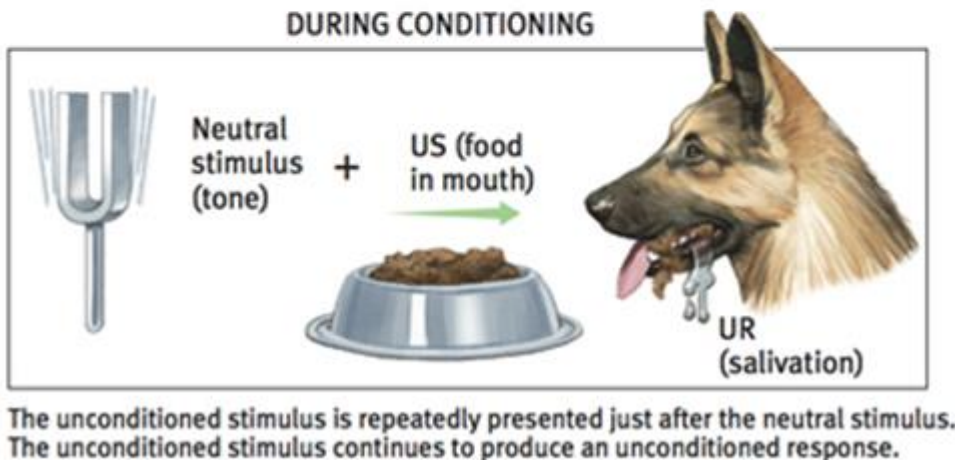
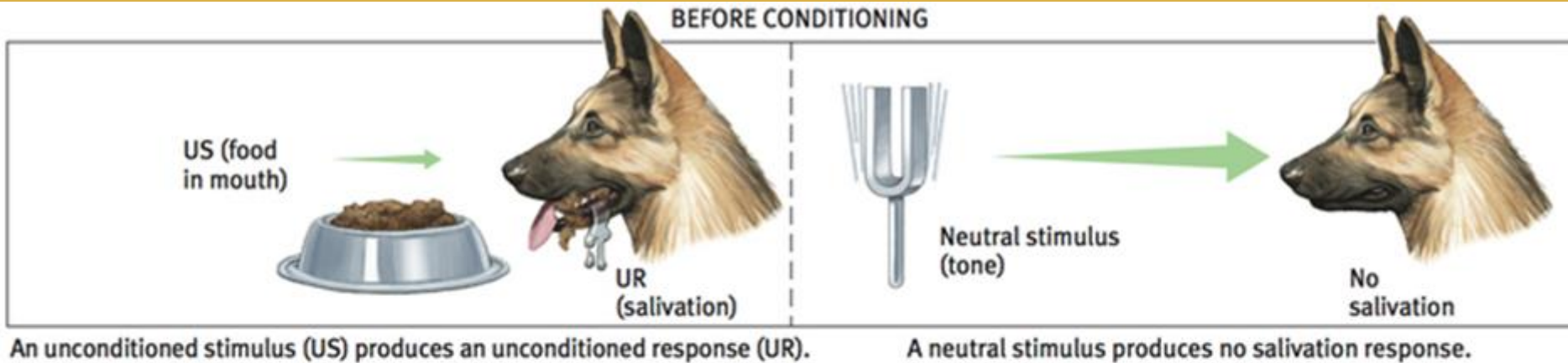
Classical Conditioning

Pavlov's Experiments



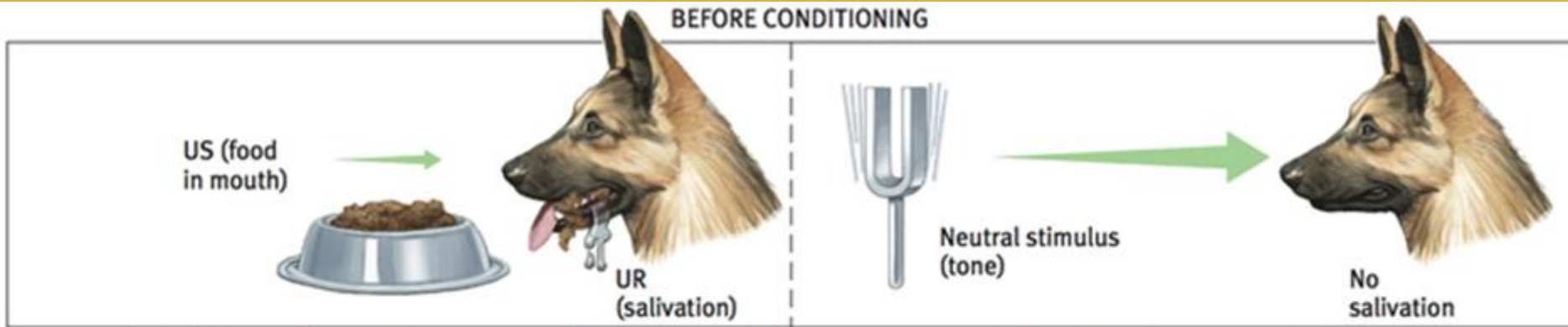
Classical Conditioning

Pavlov's Experiments



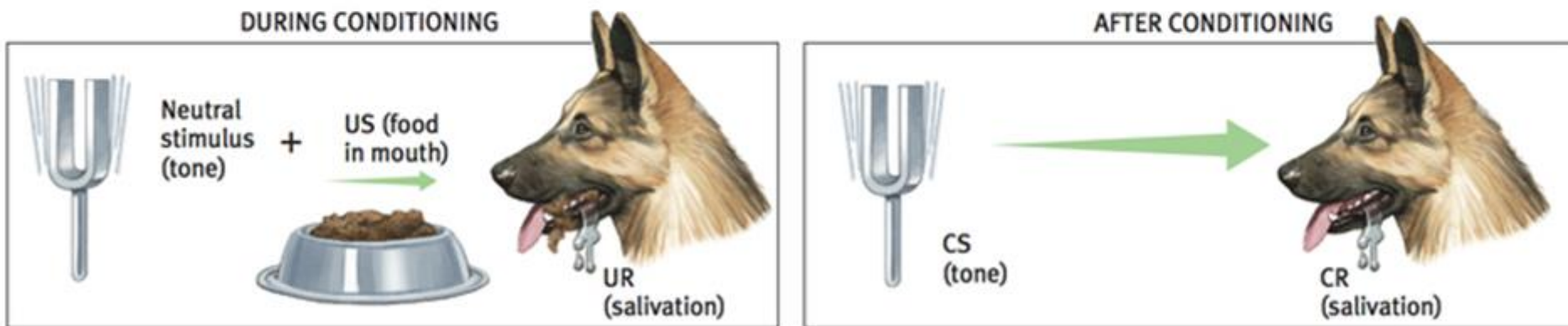
Classical Conditioning

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).

Classical Conditioning



Classical Conditioning

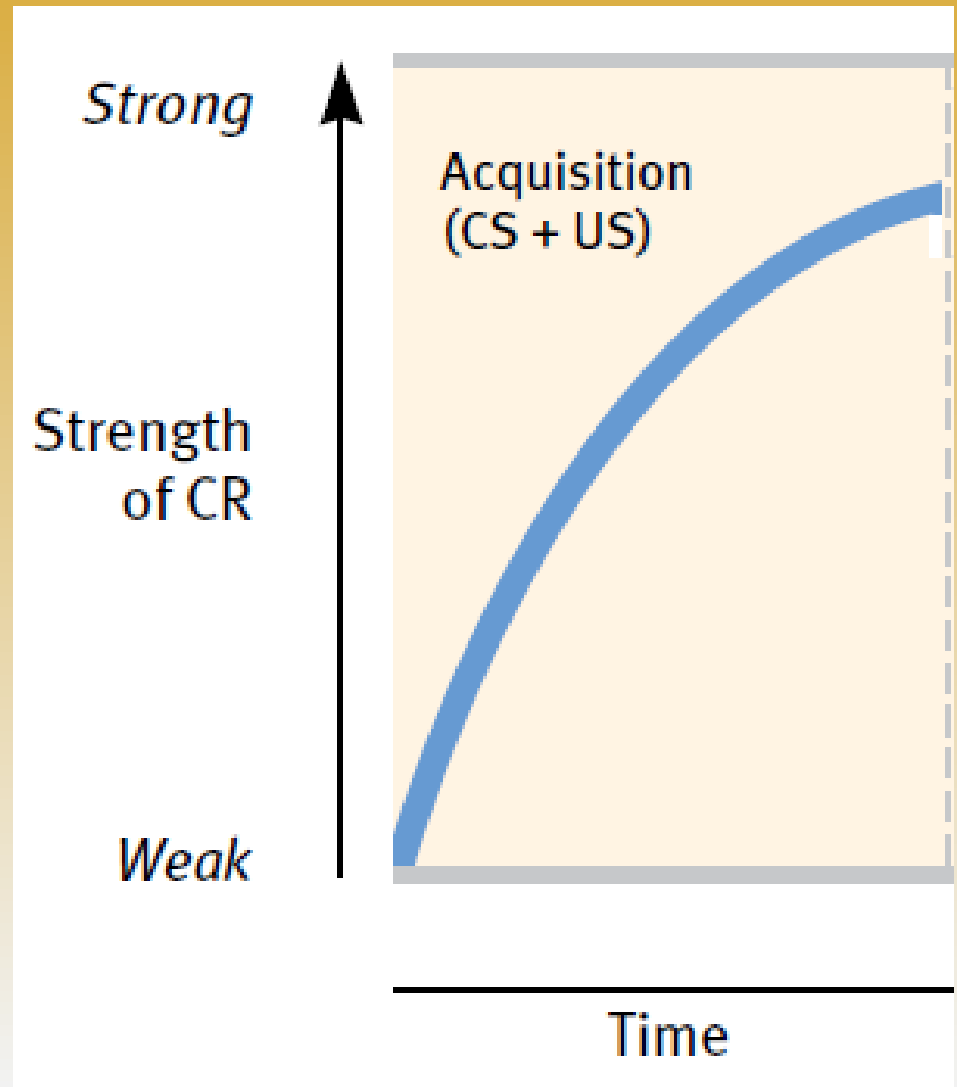


Classical Conditioning



Classical Conditioning Acquisition

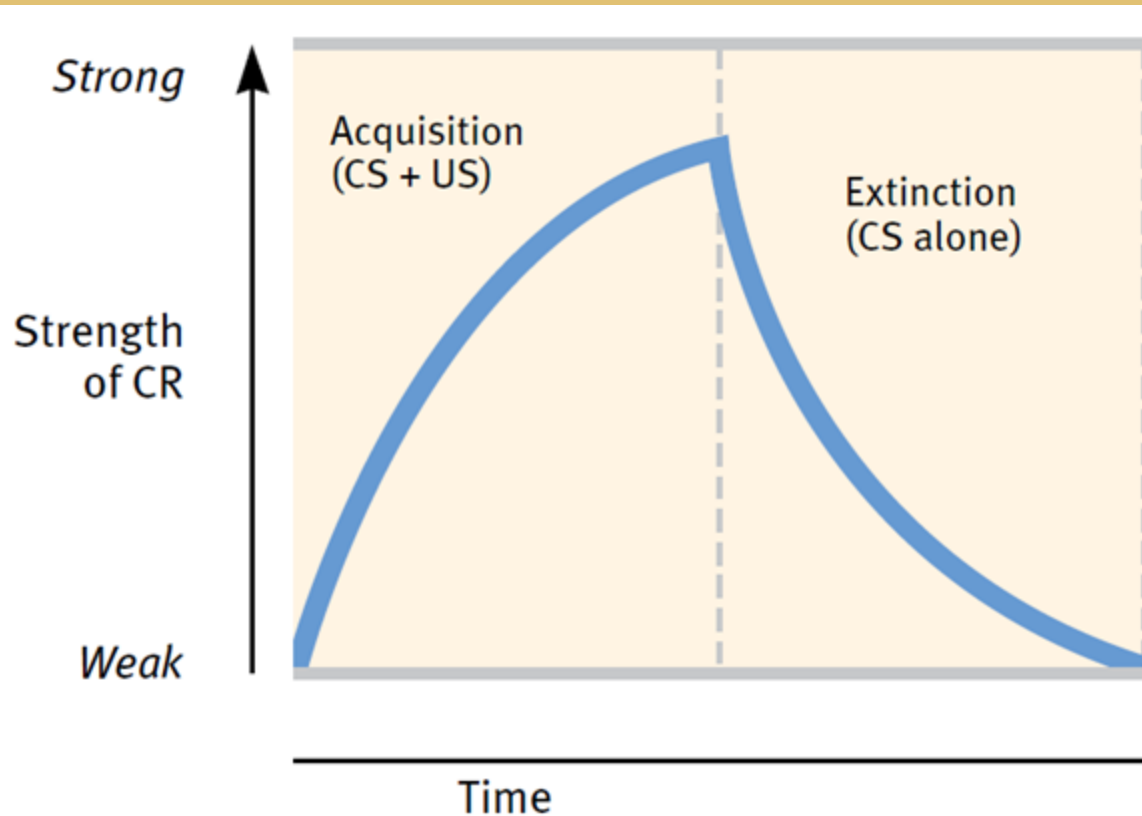
- Acquisition
- Higher-order conditioning



Classical Conditioning

Extinction and Spontaneous Recovery

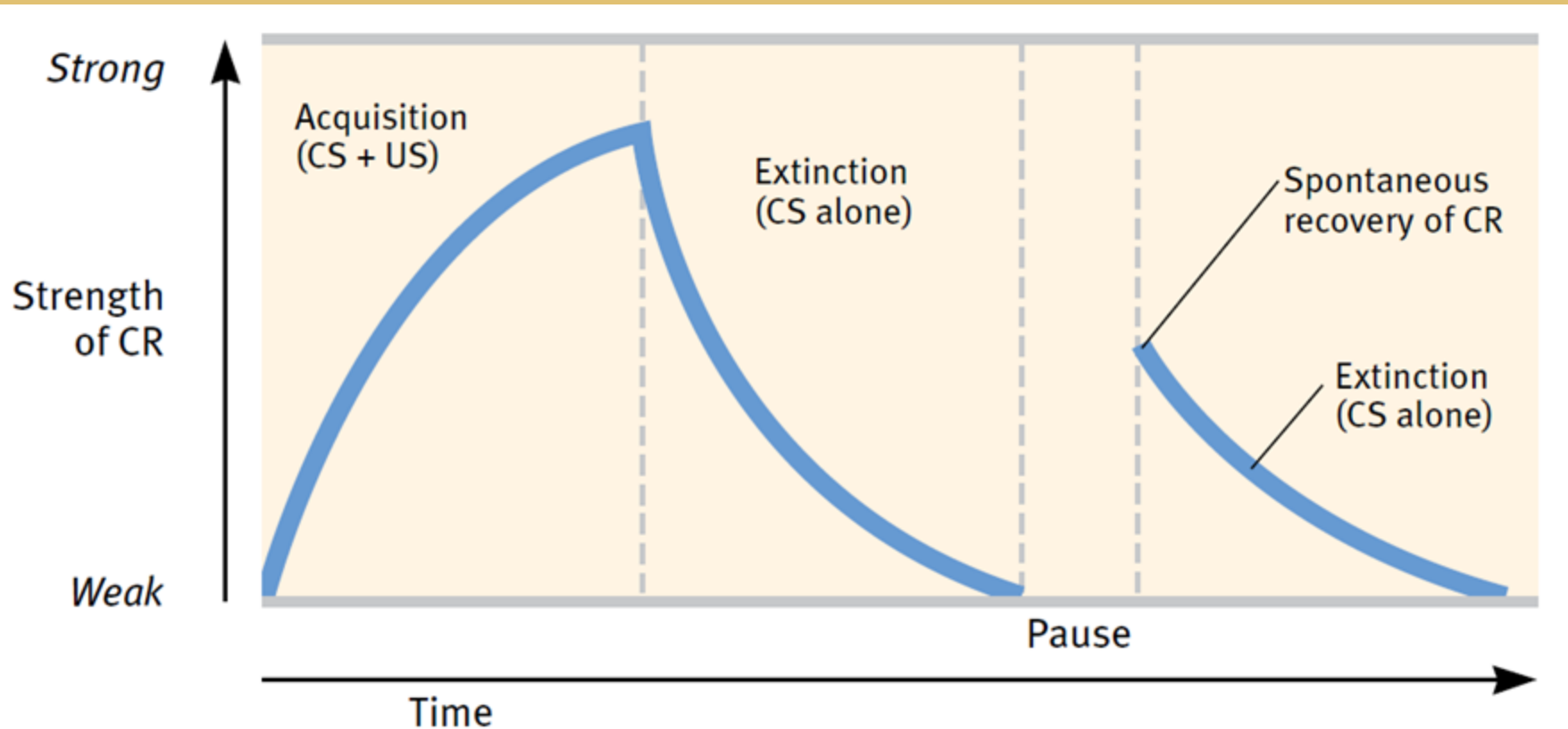
- Extinction



Classical Conditioning

Extinction and Spontaneous Recovery

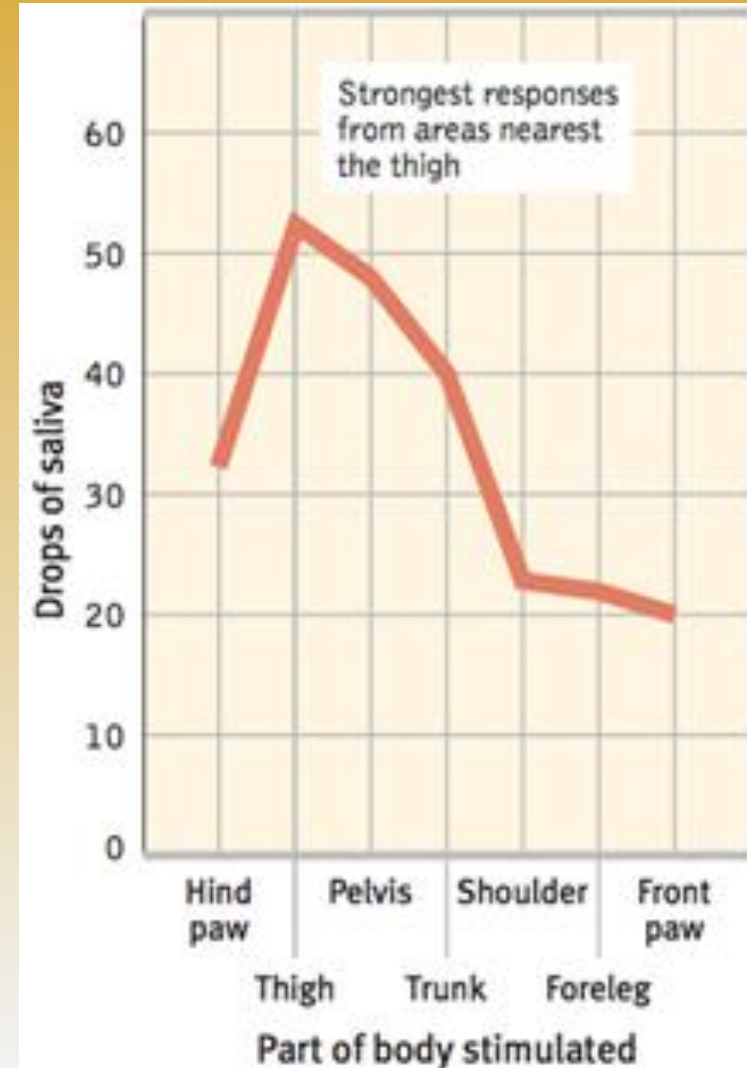
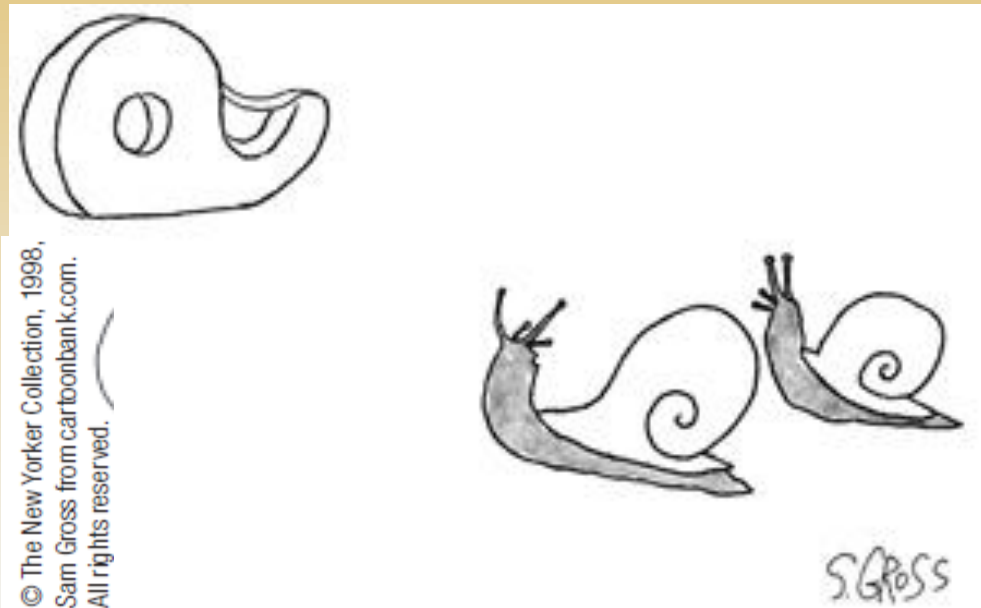
- Spontaneous recovery



Classical Conditioning

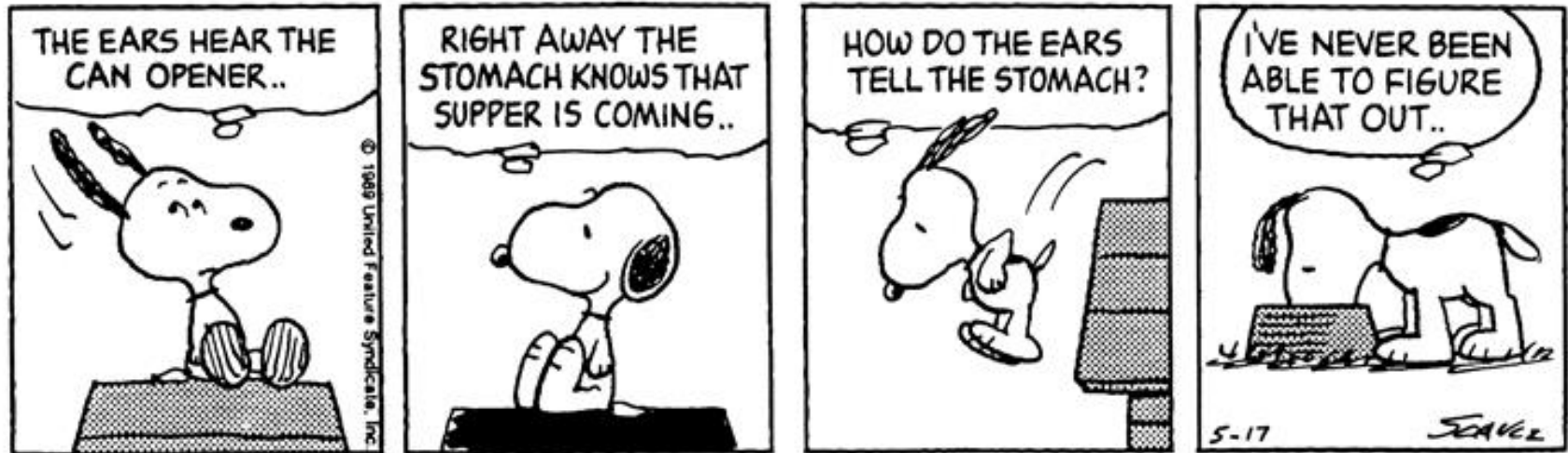
Generalization

- Generalization



Classical Conditioning Discrimination

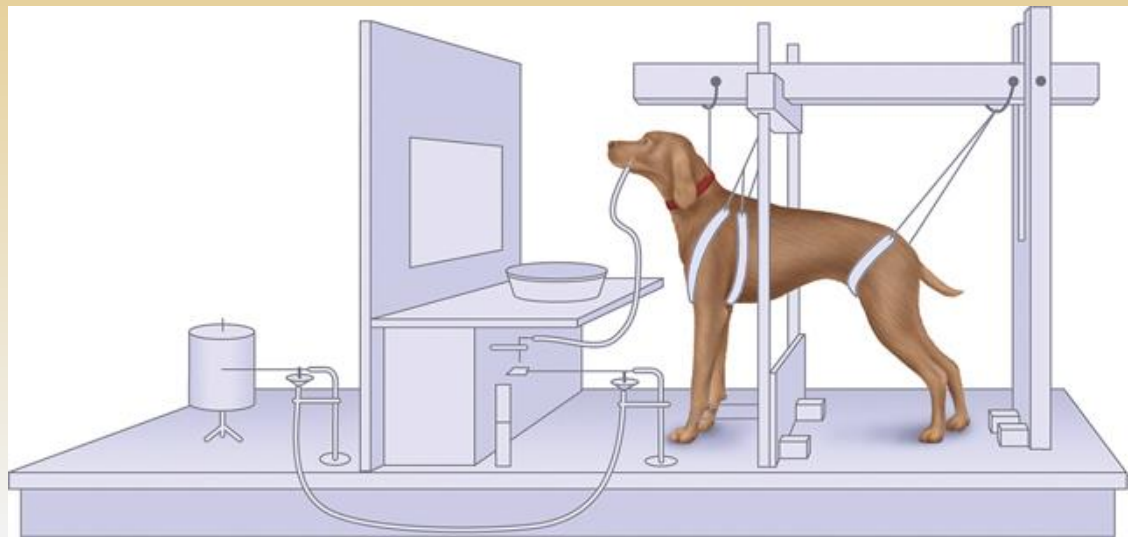
- Discrimination



Classical Conditioning

Pavlov's Legacy

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



Classical Conditioning

Pavlov's Legacy:

Applications of Classical Conditioning

- John Watson and Baby Albert



Both images Archives of the History of American Psychology. The University of Akron

Operant Conditioning



Operant Conditioning

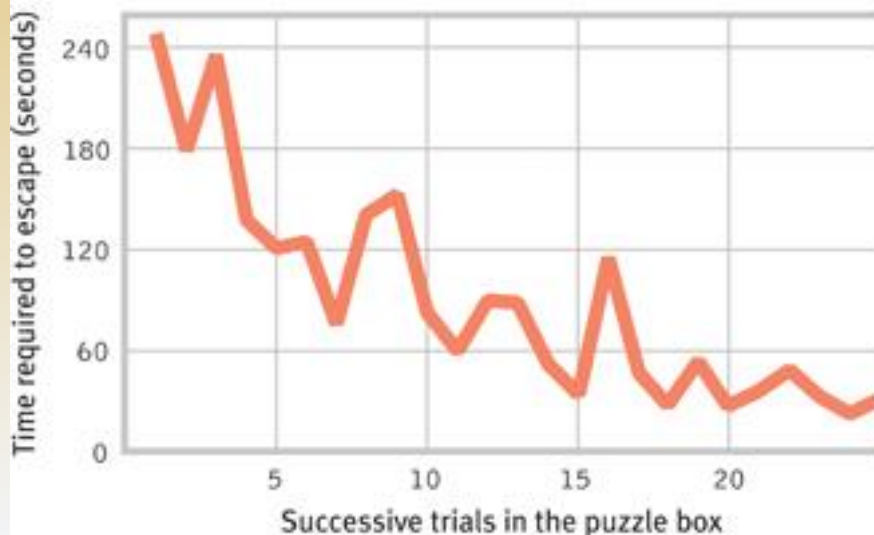
- Classical Conditioning
 - Respondent behavior
- Operant conditioning
 - Actions associated with consequences
 - Operant behavior



Vitaly Titov & Maria Sidelnikova/Shutterstock

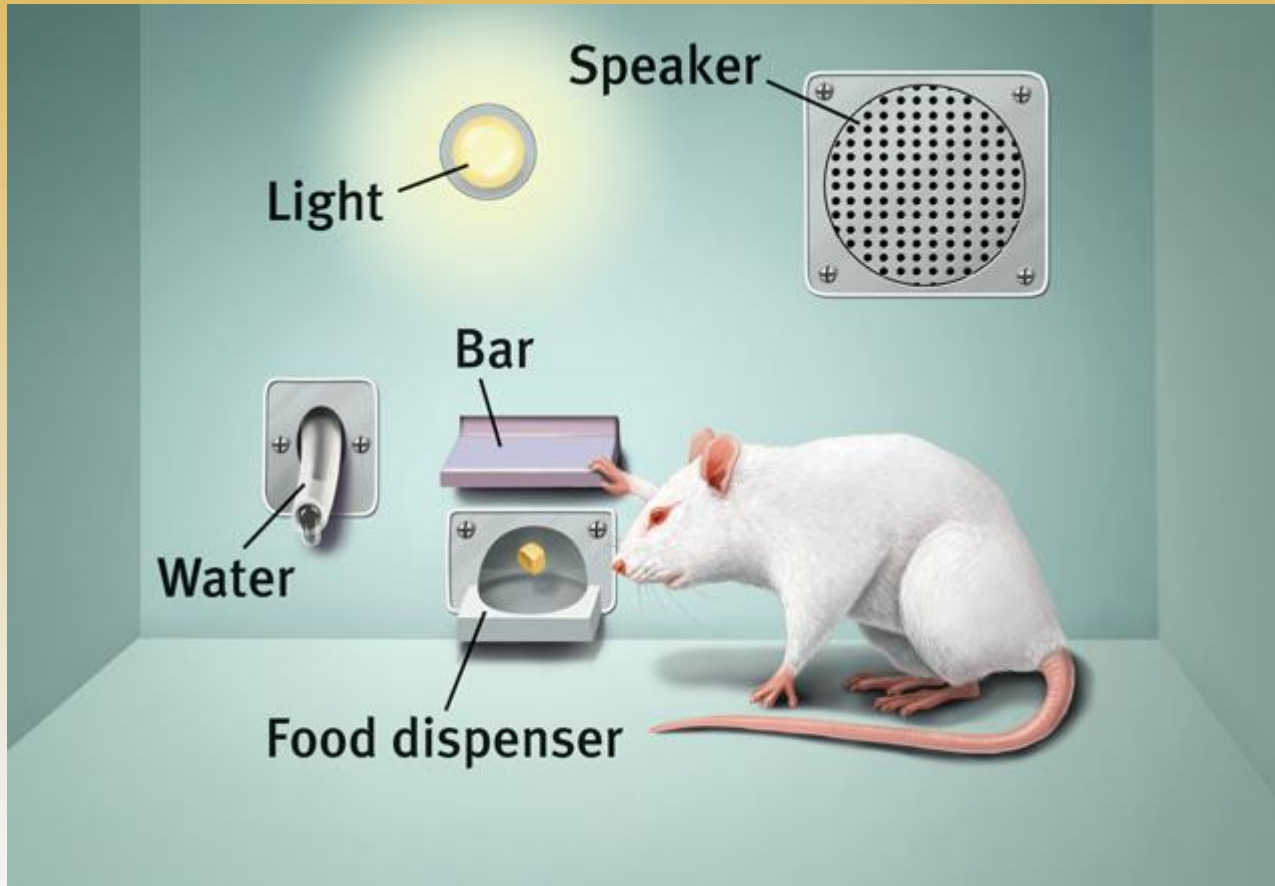
Skinner's Experiments

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



Skinner's Experiments

- Operant Chamber (Skinner Box)
- Reinforcement



Skinner's Experiments

Shaping Behavior

- Shaping
 - Successive approximations
 - Discriminative stimulus



Skinner's Experiments

Types of Reinforcers

- Reinforcer
 - Positive reinforcement
 - Negative reinforcement

Ways to Increase Behavior

Operant Conditioning Term	Description	Examples
<i>Positive reinforcement</i>		
<i>Negative reinforcement</i>		

Skinner's Experiments

Types of Reinforcers

- Reinforcer
 - Positive reinforcement
 - Negative reinforcement

Ways to Increase Behavior

Operant Conditioning Term	Description	Examples
<i>Positive reinforcement</i>	Add a desirable stimulus	
<i>Negative reinforcement</i>		

Skinner's Experiments

Types of Reinforcers

- Reinforcer
 - Positive reinforcement
 - Negative reinforcement

Ways to Increase Behavior

Operant Conditioning Term	Description	Examples
<i>Positive reinforcement</i>	Add a desirable stimulus	Pet a dog that comes when you call it; pay the person who paints your house
<i>Negative reinforcement</i>		

Skinner's Experiments

Types of Reinforcers

- Reinforcer
 - Positive reinforcement
 - Negative reinforcement

Ways to Increase Behavior

Operant Conditioning Term	Description	Examples
<i>Positive reinforcement</i>	Add a desirable stimulus	Pet a dog that comes when you call it; pay the person who paints your house
<i>Negative reinforcement</i>	Remove an aversive stimulus	

Skinner's Experiments

Types of Reinforcers

- Reinforcer
 - Positive reinforcement
 - Negative reinforcement

Ways to Increase Behavior

Operant Conditioning Term	Description	Examples
<i>Positive reinforcement</i>	Add a desirable stimulus	Pet a dog that comes when you call it; pay the person who paints your house
<i>Negative reinforcement</i>	Remove an aversive stimulus	Take painkillers to end pain; fasten seat belt to end loud beeping

Skinner's Experiments

Types of Reinforcers:

Primary and Secondary Reinforcers

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



Skinner's Experiments

Reinforcement Schedules

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



Skinner's Experiments

Reinforcement Schedules

Schedules of Reinforcement

	Fixed	Variable
<i>Ratio</i>		
<i>Interval</i>		

Skinner's Experiments

Reinforcement Schedules

Schedules of Reinforcement

	Fixed	Variable
<i>Ratio</i>	<i>Every so many:</i> reinforcement after every <i>n</i> th behavior, such as buy 10 coffees, get 1 free, or pay per product unit produced	
<i>Interval</i>		

Skinner's Experiments

Reinforcement Schedules

Schedules of Reinforcement

	Fixed	Variable
<i>Ratio</i>	<i>Every so many: reinforcement after every nth behavior, such as buy 10 coffees, get 1 free, or pay per product unit produced</i>	<i>After an unpredictable number: reinforcement after a random number of behaviors, as when playing slot machines or fly casting</i>
<i>Interval</i>		

Skinner's Experiments

Reinforcement Schedules

Schedules of Reinforcement

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

Skinner's Experiments

Reinforcement Schedules

Schedules of Reinforcement

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

Skinner's Experiments

Punishment

- Punishment
 - Positive punishment
 - Negative punishment

Ways to Decrease Behavior

Type of Punisher	Description	Examples
<i>Positive punishment</i>		
<i>Negative punishment</i>		

Skinner's Experiments

Punishment

- Punishment
 - Positive punishment
 - Negative punishment

Ways to Decrease Behavior

Type of Punisher	Description	Examples
<i>Positive punishment</i>	Administer an aversive stimulus	
<i>Negative punishment</i>		

Skinner's Experiments

Punishment

- Punishment
 - Positive punishment
 - Negative punishment

Ways to Decrease Behavior

Type of Punisher	Description	Examples
<i>Positive punishment</i>	Administer an aversive stimulus	Spray water on a barking dog; give a traffic ticket for speeding
<i>Negative punishment</i>		

Skinner's Experiments

Punishment

- Punishment
 - Positive punishment
 - Negative punishment

Ways to Decrease Behavior

Type of Punisher	Description	Examples
<i>Positive punishment</i>	Administer an aversive stimulus	Spray water on a barking dog; give a traffic ticket for speeding
<i>Negative punishment</i>	Withdraw a rewarding stimulus	

Skinner's Experiments

Punishment

- Punishment
 - Positive punishment
 - Negative punishment



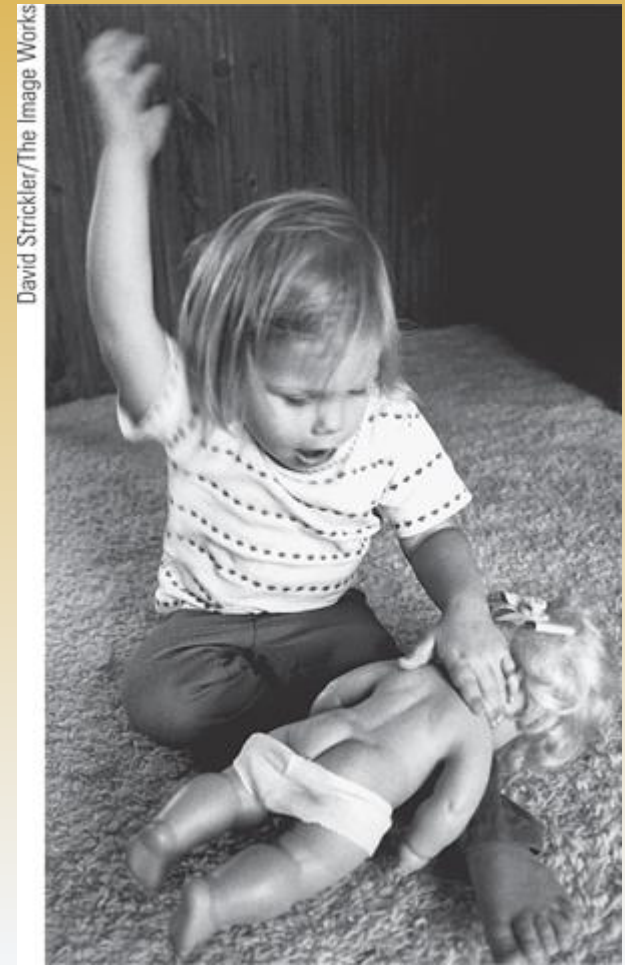
Ways to Decrease Behavior

Type of Punisher	Description	Examples
<i>Positive punishment</i>	Administer an aversive stimulus	Spray water on a barking dog; give a traffic ticket for speeding
<i>Negative punishment</i>	Withdraw a rewarding stimulus	Take away a teen's driving privileges; revoke a library card for nonpayment of fines

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



Operant Conditioning's Applications, and Comparison to Classical Conditioning

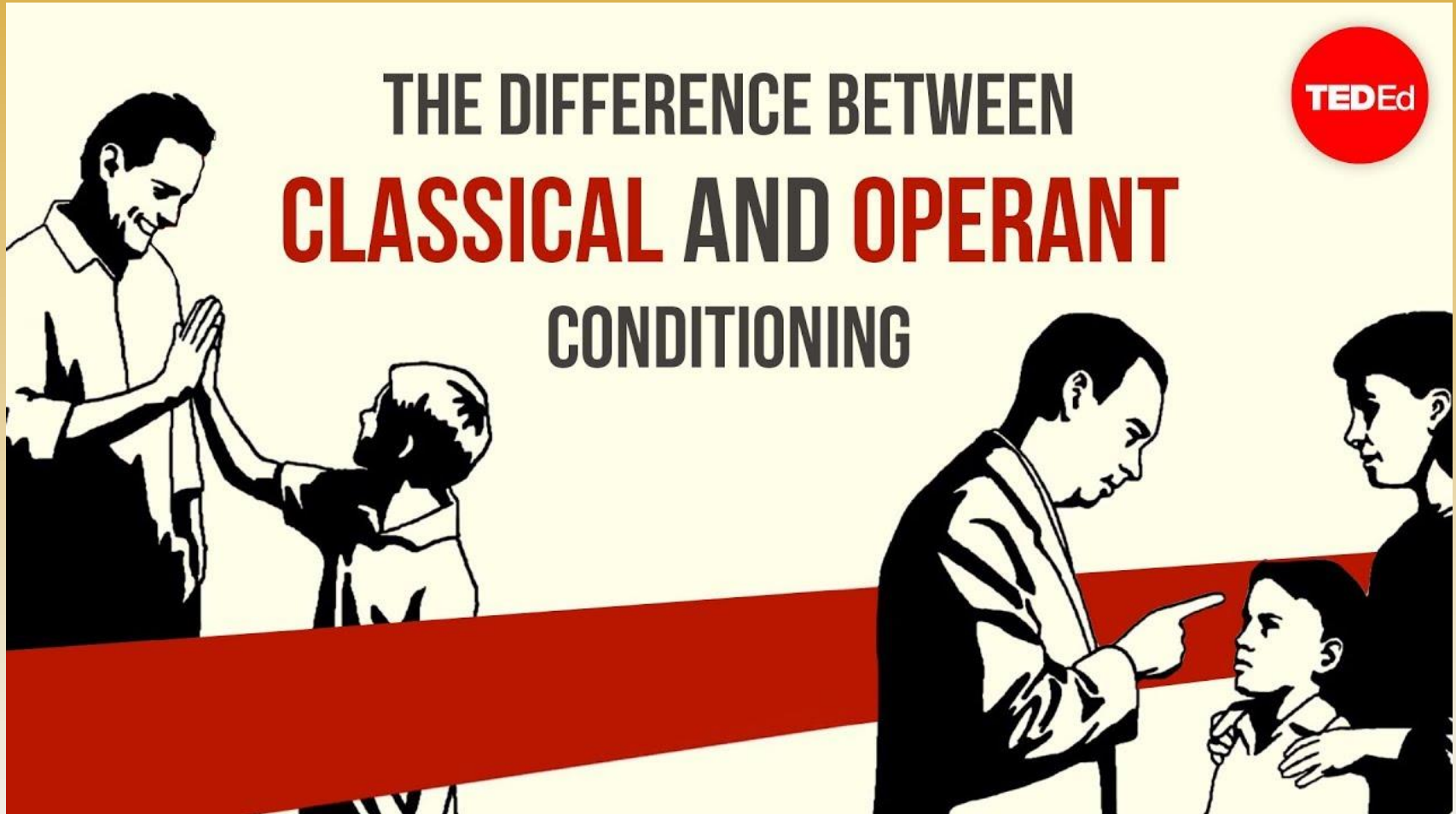


Application of Operant Conditioning

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



Contrasting Classical and Operant Conditioning



Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
<i>Basic idea</i>		
<i>Response</i>		
<i>Acquisition</i>		
<i>Extinction</i>		
<i>Spontaneous recovery</i>		
<i>Generalization</i>		
<i>Discrimination</i>		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
<i>Basic idea</i>	Organism associates events.	
<i>Response</i>		
<i>Acquisition</i>		
<i>Extinction</i>		
<i>Spontaneous recovery</i>		
<i>Generalization</i>		
<i>Discrimination</i>		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
<i>Basic idea</i>	Organism associates events.	Organism associates behavior and resulting events.
<i>Response</i>		
<i>Acquisition</i>		
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<i>Generalization</i>		
<i>Discrimination</i>		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
<i>Basic idea</i>	Organism associates events.	Organism associates behavior and resulting events.
<i>Response</i>	Involuntary, automatic.	
<i>Acquisition</i>		
<i>Extinction</i>		
<i>Spontaneous recovery</i>		
<i>Generalization</i>		
<i>Discrimination</i>		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
<i>Basic idea</i>	Organism associates events.	Organism associates behavior and resulting events.
<i>Response</i>	Involuntary, automatic.	Voluntary, operates on environment.
<i>Acquisition</i>		
<i>Extinction</i>		
<i>Spontaneous recovery</i>		
<i>Generalization</i>		
<i>Discrimination</i>		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
<i>Basic idea</i>	Organism associates events.	Organism associates behavior and resulting events.
<i>Response</i>	Involuntary, automatic.	Voluntary, operates on environment.
<i>Acquisition</i>	Associating events; NS is paired with US and becomes CS.	
<i>Extinction</i>		
<i>Spontaneous recovery</i>		
<i>Generalization</i>		
<i>Discrimination</i>		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
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<i>Extinction</i>		
<i>Spontaneous recovery</i>		
<i>Generalization</i>		
<i>Discrimination</i>		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
<i>Basic idea</i>	Organism associates events.	Organism associates behavior and resulting events.
<i>Response</i>	Involuntary, automatic.	Voluntary, operates on environment.
<i>Acquisition</i>	Associating events; NS is paired with US and becomes CS.	Associating response with a consequence (reinforcer or punisher).
<i>Extinction</i>	CR decreases when CS is repeatedly presented alone.	
<i>Spontaneous recovery</i>		
<i>Generalization</i>		
<i>Discrimination</i>		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
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<i>Spontaneous recovery</i>		
<i>Generalization</i>		
<i>Discrimination</i>		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
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<i>Acquisition</i>	Associating events; NS is paired with US and becomes CS.	Associating response with a consequence (reinforcer or punisher).
<i>Extinction</i>	CR decreases when CS is repeatedly presented alone.	Responding decreases when reinforcement stops.
<i>Spontaneous recovery</i>	The reappearance, after a rest period, of an extinguished CR.	
<i>Generalization</i>		
<i>Discrimination</i>		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
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<i>Response</i>	Involuntary, automatic.	Voluntary, operates on environment.
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<i>Generalization</i>		
<i>Discrimination</i>		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
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<i>Extinction</i>	CR decreases when CS is repeatedly presented alone.	Responding decreases when reinforcement stops.
<i>Spontaneous recovery</i>	The reappearance, after a rest period, of an extinguished CR.	The reappearance, after a rest period, of an extinguished response.
<i>Generalization</i>	The tendency to respond to stimuli similar to the CS.	
<i>Discrimination</i>		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
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<i>Spontaneous recovery</i>	The reappearance, after a rest period, of an extinguished CR.	The reappearance, after a rest period, of an extinguished response.
<i>Generalization</i>	The tendency to respond to stimuli similar to the CS.	Organism's response to similar stimuli is also reinforced.
<i>Discrimination</i>		

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
<i>Basic idea</i>	Organism associates events.	Organism associates behavior and resulting events.
<i>Response</i>	Involuntary, automatic.	Voluntary, operates on environment.
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<i>Extinction</i>	CR decreases when CS is repeatedly presented alone.	Responding decreases when reinforcement stops.
<i>Spontaneous recovery</i>	The reappearance, after a rest period, of an extinguished CR.	The reappearance, after a rest period, of an extinguished response.
<i>Generalization</i>	The tendency to respond to stimuli similar to the CS.	Organism's response to similar stimuli is also reinforced.
<i>Discrimination</i>	The learned ability to distinguish between a CS and other stimuli that do not signal a US.	

Contrasting Classical and Operant Conditioning

Comparison of Classical and Operant Conditioning

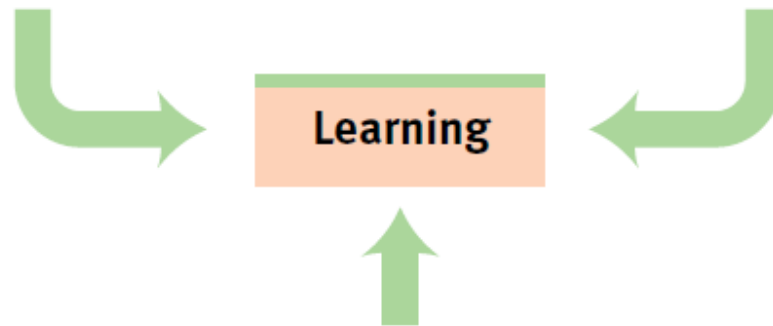
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<i>Spontaneous recovery</i>	The reappearance, after a rest period, of an extinguished CR.	The reappearance, after a rest period, of an extinguished response.
<i>Generalization</i>	The tendency to respond to stimuli similar to the CS.	Organism's response to similar stimuli is also reinforced.
<i>Discrimination</i>	The learned ability to distinguish between a CS and other stimuli that do not signal a US.	Organism learns that certain responses, but not others, will be reinforced.

Biology, Cognition, and Learning



Chris Schmidt/Getty Images

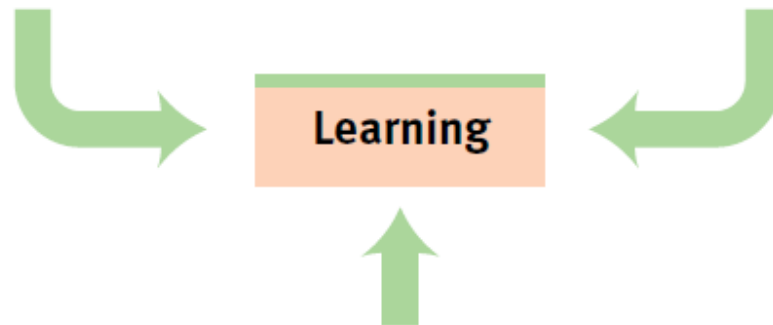
Biological Constraints on Conditioning



Biological Constraints on Conditioning

Biological influences:

- genetic predispositions
- unconditioned responses
- adaptive responses



Biological Constraints on Conditioning

Biological influences:

- genetic predispositions
- unconditioned responses
- adaptive responses

Psychological influences:

- previous experiences
- predictability of associations
- generalization
- discrimination

The diagram illustrates the factors influencing learning. It features two boxes at the top: a light blue box on the left for 'Biological influences' and a light purple box on the right for 'Psychological influences'. Both boxes have a green header. Below these boxes, a central orange box labeled 'Learning' is positioned. Three green arrows point towards this central box: one from the bottom left, one from the bottom right, and one from the bottom center. The arrows from the left and right boxes are L-shaped, indicating a flow from the boxes down and then towards the central 'Learning' box.

Learning

Biological Constraints on Conditioning

Biological influences:

- genetic predispositions
- unconditioned responses
- adaptive responses

Psychological influences:

- previous experiences
- predictability of associations
- generalization
- discrimination

Learning

```
graph TD; A[Biological influences] --> C[Learning]; B[Psychological influences] --> C; D[Social-cultural influences] --> C;
```

The diagram illustrates the factors influencing learning. It features a central orange box labeled 'Learning'. Three green arrows point towards this central box: one from the top-left (Biological influences), one from the top-right (Psychological influences), and one from the bottom (Social-cultural influences). Each influence is contained within a colored box: light blue for biological, light purple for psychological, and light yellow for social-cultural.

Social-cultural influences:

- culturally learned preferences
- motivation, affected by presence of others

Biological Constraints on Conditioning

Limits on Classical Conditioning

- John Garcia
 - Conditioned Taste Aversion
 - Biologically primed associations



Cognition's Influence on Conditioning



Chris Schmidt/Getty Images

Cognition's Influence on Conditioning

Cognitive Processes and Operant Conditioning

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



Influences on Conditioning

Biological and Cognitive Influences on Conditioning		
	Classical Conditioning	Operant Conditioning
<i>Biological predispositions</i>		
<i>Cognitive processes</i>		

Influences on Conditioning

Biological and Cognitive Influences on Conditioning

	Classical Conditioning	Operant Conditioning
<i>Biological predispositions</i>	Natural predispositions constrain what stimuli and responses can easily be associated.	
<i>Cognitive processes</i>		

Influences on Conditioning

Biological and Cognitive Influences on Conditioning

	Classical Conditioning	Operant Conditioning
<i>Biological predispositions</i>	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.
<i>Cognitive processes</i>		

Influences on Conditioning

Biological and Cognitive Influences on Conditioning

	Classical Conditioning	Operant Conditioning
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<i>Cognitive processes</i>	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.

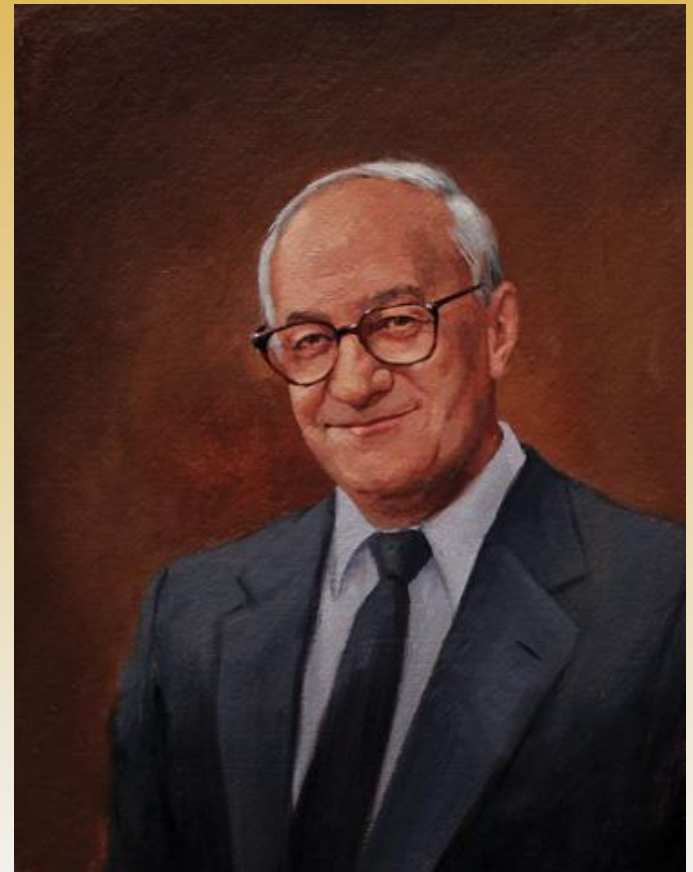
Learning by Observation



JGI/Jamie Grill/Getty Images

Mirrors and Imitation in the Brain

- Observational learning
 - Social learning
 - Modeling
 - Bandura's Bobo Doll Experiment



Mirrors and Imitation in the Brain

- Mirror neurons

Wellcome Department of Imaging Neuroscience/
Science Source



Pain

Empathy

Applications of Observational Learning



JGI/Jamie Grill/Getty Images

Applications of Observational Learning

Prosocial versus Antisocial Effects

- Prosocial effects
- Antisocial effects



Stanislav Solntsev/Getty Images

The End

Definition Slides

Learning

= the process of acquiring new and relatively enduring information or behaviors.



Habituation

= an organism's decreasing response to a stimulus with repeated exposure to it.



Associative Learning

= learning that certain events occur together. The events may be two stimuli (as in classical conditioning) or a response and its consequence (as in operant conditioning).



Stimulus

= any event or situation that evokes a response.



Cognitive Learning

= the acquisition of mental information,
whether by observing events, by watching
others, or through language



Classical Conditioning

= a type of learning in which one learns to link two or more stimuli and anticipate events.



Behaviorism

= the view that psychology (1) should be an objective science that (2) studies behavior without reference to mental processes. Most research psychologists today agree with (1) but not with (2).



Neutral Stimulus

= in classical conditioning, a stimulus that elicits no response before conditioning.



Unconditioned Response (UR)

= in classical conditioning, an unlearned, naturally occurring response to the unconditioned stimulus (US), such as salivation when food is in the mouth.



Unconditioned Stimulus (US)

= in classical conditioning, a stimulus that unconditionally – naturally and automatically – triggers a response (UR).



Conditioned Response (CR)

= in classical conditioning, a learned response to a previously neutral (but now conditioned) stimulus (CS).



Conditioned Stimulus (CS)

= in classical conditioning, an originally irrelevant stimulus that, after association with an unconditioned stimulus (US), comes to trigger a conditioned response (CR).



Acquisition

= in classical conditioning, the initial stage, when one links a neutral stimulus and an unconditioned stimulus so that the neutral stimulus begins triggering the conditioned response. In operant conditioning, the strengthening of a reinforced response.



Higher-Order Conditioning

= a procedure in which the conditioned stimulus in one conditioning experience is paired with a new neutral stimulus, creating a second (often weaker) conditioned stimulus. For example, an animal that has learned that a tone predicts food might then learn that a light predicts the tone and begin responding to the light alone. (Also called *second-order conditioning*.)



Extinction

= the diminishing of a conditioned response; occurs in classical conditioning when an unconditioned stimulus (US) does not follow a conditioned stimulus (CS); occurs in operant conditioning when a response is no longer reinforced.



Spontaneous Recovery

= the reappearance, after a pause, of an extinguished conditioned response.



Generalization

= the tendency, once a response has been conditioned, for stimuli similar to the conditioned stimulus to elicit similar responses.



Classical Conditioning

= a type of learning in which one learns to link two or more stimuli and anticipate events.



Operant Conditioning

= a type of learning in which behavior is strengthened if followed by a reinforcer or diminished if followed by a punisher.



Law of Effect

= Thorndike's principle that behaviors followed by favorable consequences become more likely, and that behaviors followed by unfavorable consequences become less likely.



Operant Chamber

= in operant conditioning research, a chamber (also known as a *Skinner Box*) containing a bar or key that an animal can manipulate to obtain a food or water reinforcer; attached devices record the animal's rate of bar pressing or key pecking.



Reinforcement

= in operant conditioning, any event that strengthens the behavior it follows.



Shaping

= an operant conditioning procedure in which reinforcers guide behavior toward closer and closer approximations of the desired behavior.



Discriminative Stimulus

= in operant conditioning, a stimulus that elicits a response after association with reinforcement (in contrast to related stimuli not associated with reinforcement).



Positive Reinforcement

= increasing behaviors by presenting positive reinforcers. A positive reinforcer is any stimulus that, when *presented* after a response, strengthens the response.



Negative Reinforcement

- = increases behaviors by stopping or reducing negative stimuli, such as shock. A negative reinforcer is any stimulus that, when *removed* after a response, strengthens the response
- Note: negative reinforcement is NOT punishment.



Primary Reinforcer

= an innately reinforcer stimulus, such as one that satisfies a biological need.



Conditioned Reinforcer

= a stimulus that gains its reinforcing power through its association with a primary reinforcer; also known as a *secondary reinforcer*.



Reinforcement Schedule

= a pattern that defines how often a desired response will be reinforced.



Continuous Reinforcement

= reinforcing the desired response every time it occurs.



Partial (intermittent) Reinforcement

= reinforcing a response only part of the time; results in slower acquisition of a response but much greater resistance to extinction than does continuous reinforcement.



Fixed-Ratio Schedule

= in operant conditioning, a reinforcement schedule that reinforces a response only after a specific number of responses.



Variable-Ratio Schedule

= in operant conditioning, a reinforcement schedule that reinforces a response after an unpredictable number of responses.



Fixed-Interval Schedule

= in operant conditioning, a reinforcement schedule that reinforces a response only after a specific time has elapsed.



Variable-Interval Schedule

= in operant conditioning, a reinforcement schedule that reinforces a response at unpredictable time intervals.



Punishment

= an event that tends to *decrease* the behavior that it follows.



Biofeedback

= a system for electronically recording, amplifying, and feeding back information regarding a subtle physiological state, such as blood pressure or muscle tension.



Respondent Behavior

= behavior that occurs as an automatic response to some stimulus.



Operant Behavior

= behavior that operates on the environment, producing consequences.



Cognitive Map

= a mental representation of the layout of one's environment. For example, after exploring a maze, rats act as if they have learned a cognitive map of it.



Latent Learning

= learning that occurs but is not apparent until there is an incentive to demonstrate it.



Insight

= a sudden realization problem's solution.



Intrinsic Motivation

= a desire to perform a behavior effectively for its own sake.



Extrinsic Motivation

= a desire to perform a behavior to receive promised rewards or avoid threatened punishment.



Coping

= alleviating stress using emotional, cognitive, or behavioral methods.



Problem-Focused Coping

= attempting to alleviate stress directly – by changing the stressor or the way we interact with that stressor.



Emotion-Focused Coping

= attempting to alleviate stress by avoiding or ignoring a stressor and attending to emotional needs related to one's stress reaction.



Learned Helplessness

= the helplessness and passive resignation an animal or human learns when unable to avoid repeated aversive events.



External Locus of Control

= the perception that chance or outside forces beyond our personal control determine our fate.



Internal Locus of Control

= the perception that you control your own fate.



Self-Control

= the ability to control impulses and delay short-term gratification for greater long-term rewards.



Observational Learning

= learning by observing others. Also called *social learning*.



Modeling

= the process of observing and imitating a specific behavior.



Mirror Neurons

= frontal lobe neurons that some scientists believe fire when performing certain actions or when observing another doing so. The brain's mirroring of another's action may enable imitation and empathy.



Prosocial Behavior

= positive, constructive, helpful behavior.
The opposite of antisocial behavior.

