

Operant conditioning: a learning theory of attachments

B.F. Skinner

You can quote me!
(In fact, you should.) "Behavior is a function of its consequences."

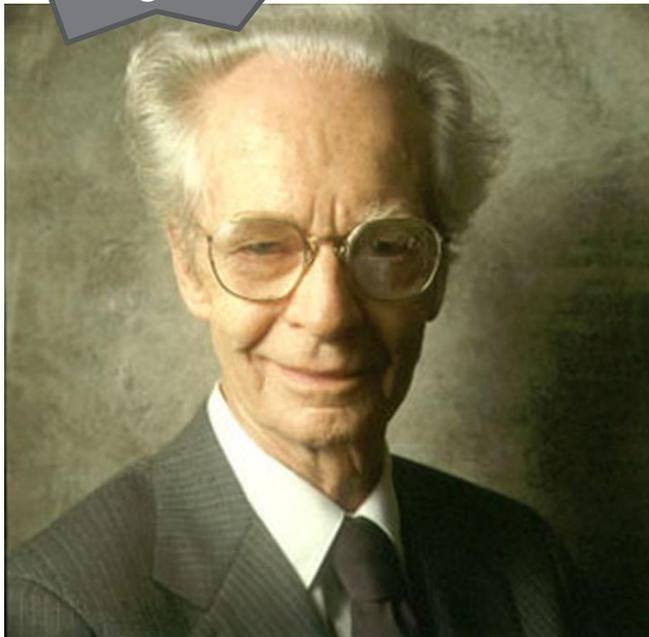
- The Mac Daddy of Operant Conditioning.
- Nurture guy through and through.
- Skinner's experiments extend **Thorndike's** thinking, especially his **law of effect**.

TERMS TO KNOW!

OPERANT = an action e.g. a rat pressing a lever in a Skinner box; a baby crying with hunger

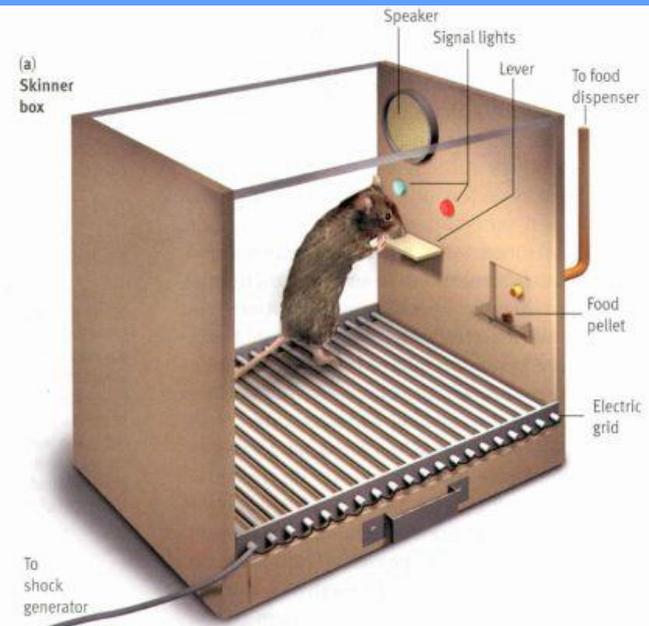
REWARD = the consequence of the action, e.g. the rat receiving food for pressing the lever; the baby being given food

This reward acts as a **REINFORCER**, because it causes the action to be repeated.

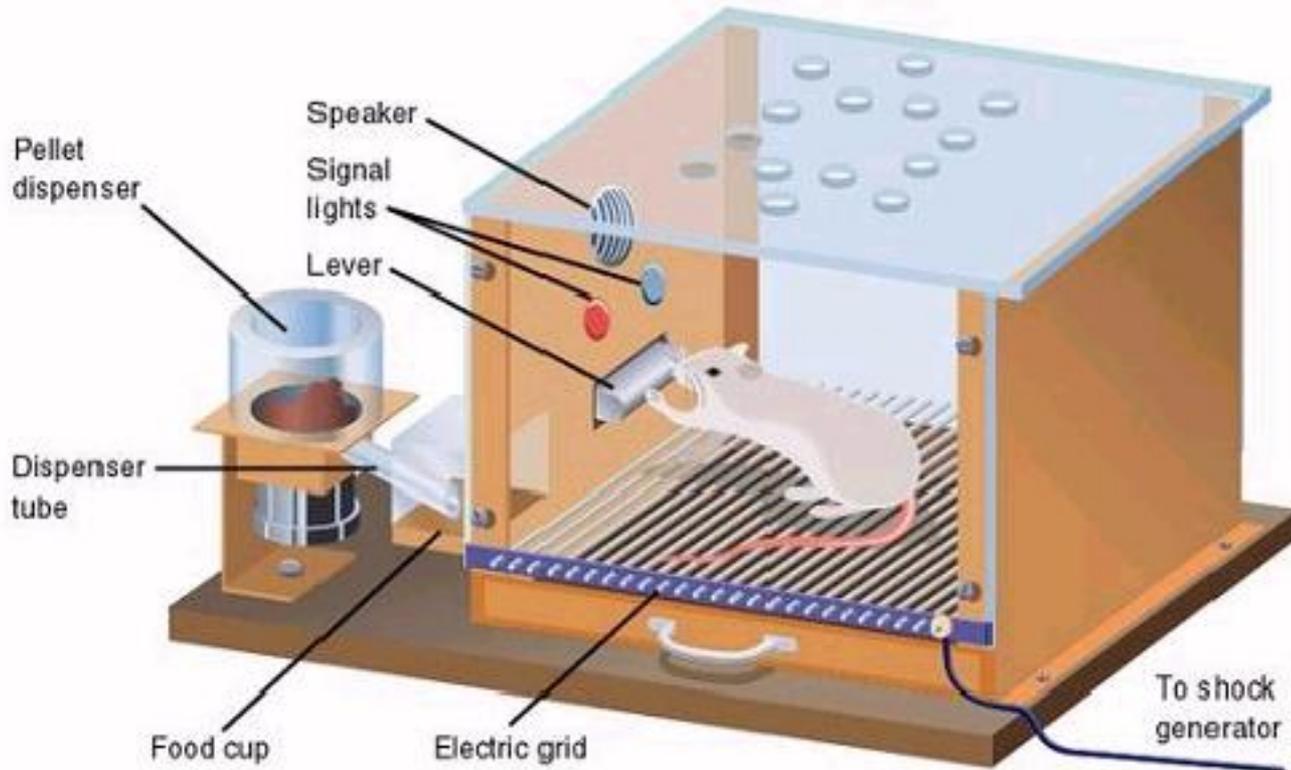
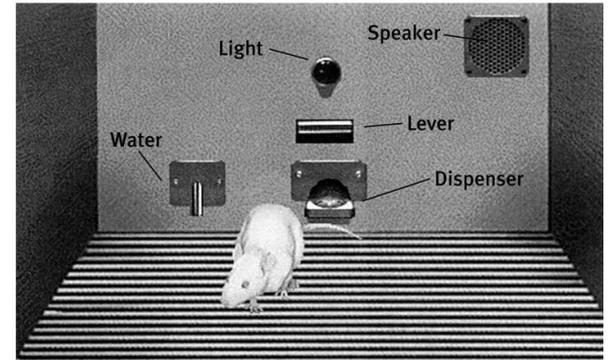


THE SKINNER BOX:

The piece of equipment designed by Skinner to demonstrate operant conditioning



Skinner Box



Operant conditioning: a learning theory of attachments

There is a food container on top of the box...

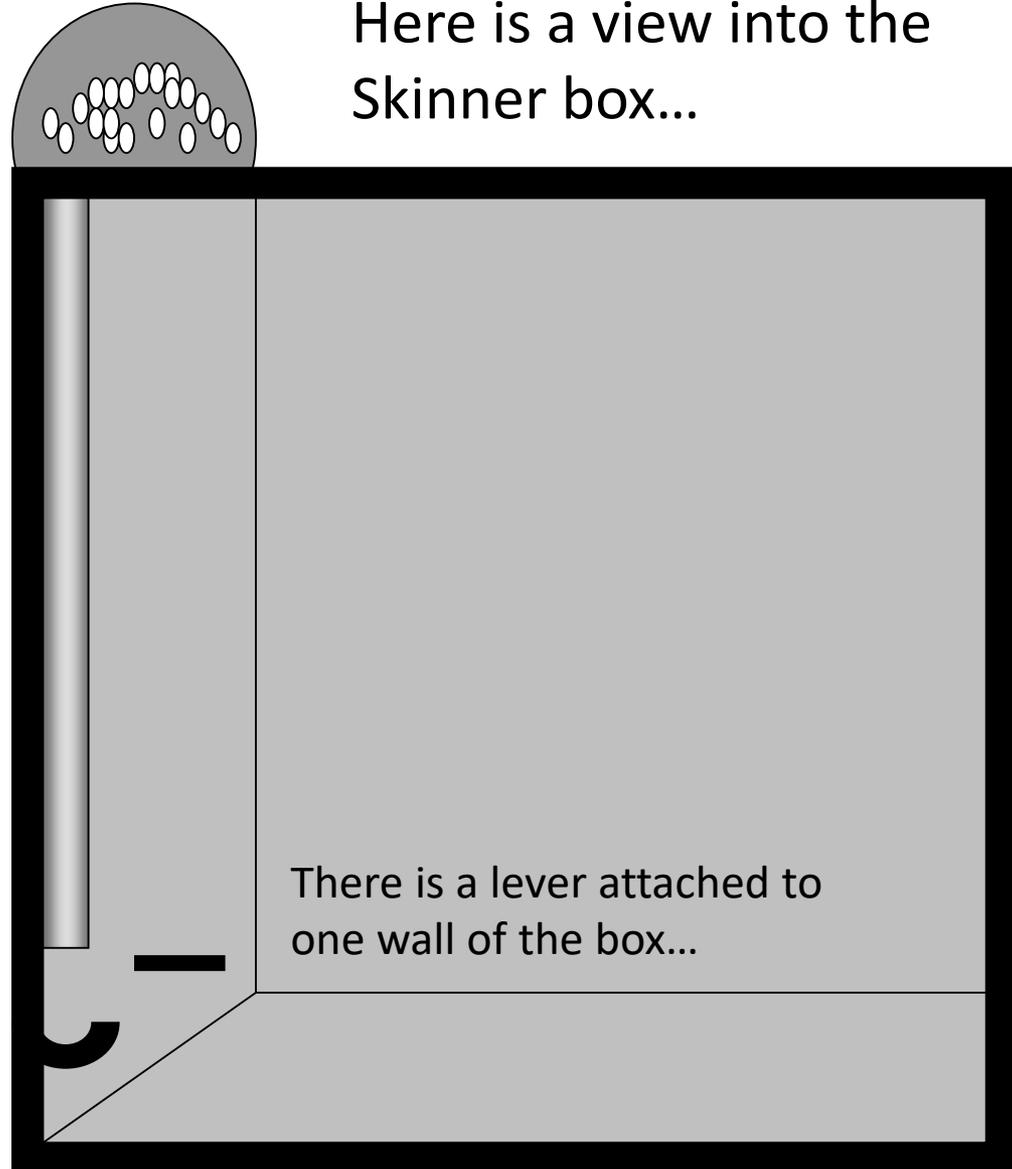
The food container is filled with sugar pellets...

A tube leads from the food container to the tray...

There's a feeding tray attached to the wall, to catch food pellets...

Here is a view into the Skinner box...

There is a lever attached to one wall of the box...



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THE MOUSE!

A mouse is placed in the Skinner box. It has been fasted for 24 hours so it is hungry.

The mouse has never been in a Skinner box before.

It is allowed to explore the box.

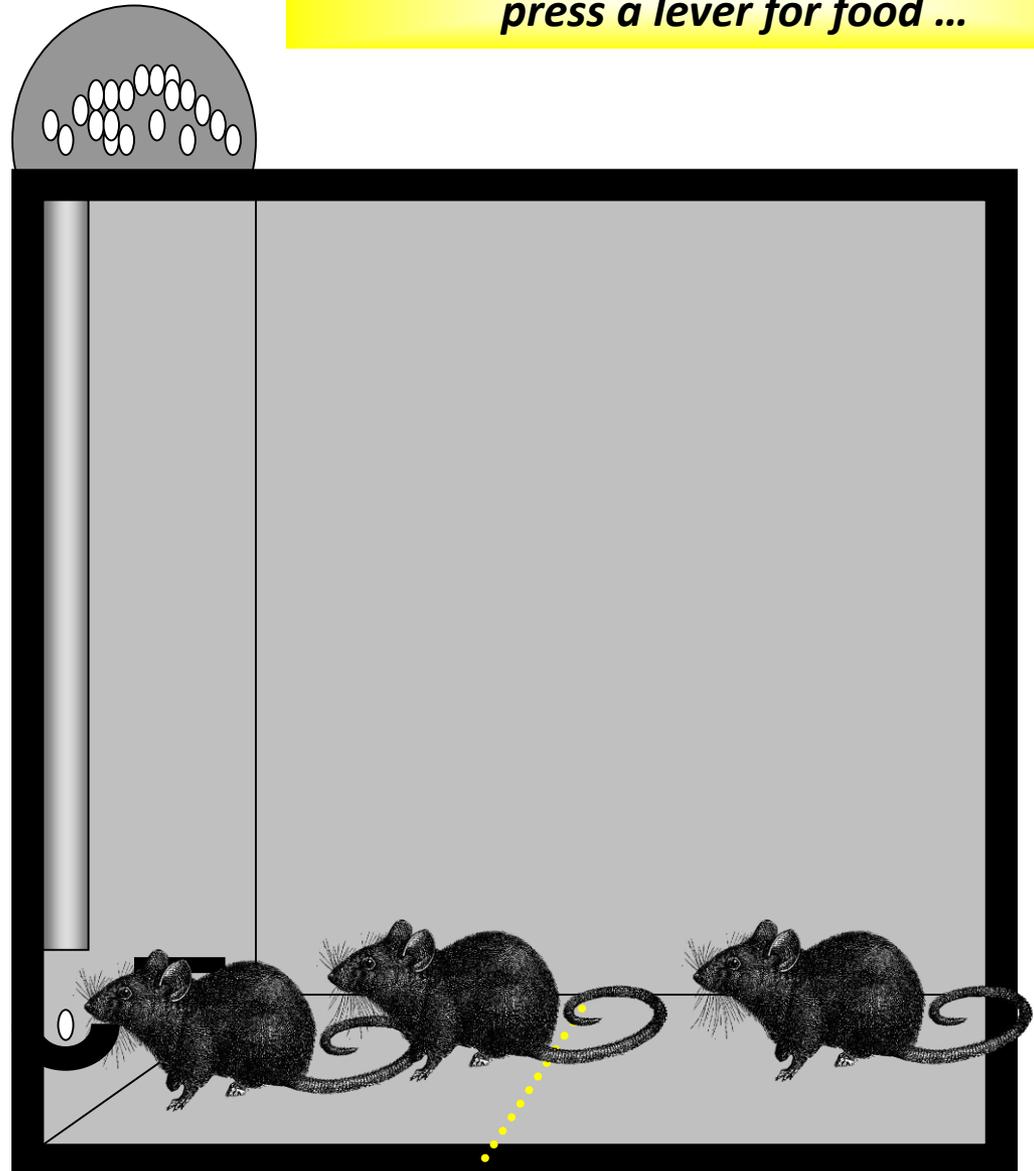
CONDITIONING BEGINS!

The researcher imagines a line dividing the floor of the box in half.

Each time the mouse moves into the half of the floor nearest the lever, the researcher releases a sugar pellet into the feeding tray.

The mouse is attracted to the tray by the sugar pellet, and feeds.

How to operantly condition a mouse to press a lever for food ...



The Skinner box...

Operant conditioning: a learning theory of attachments

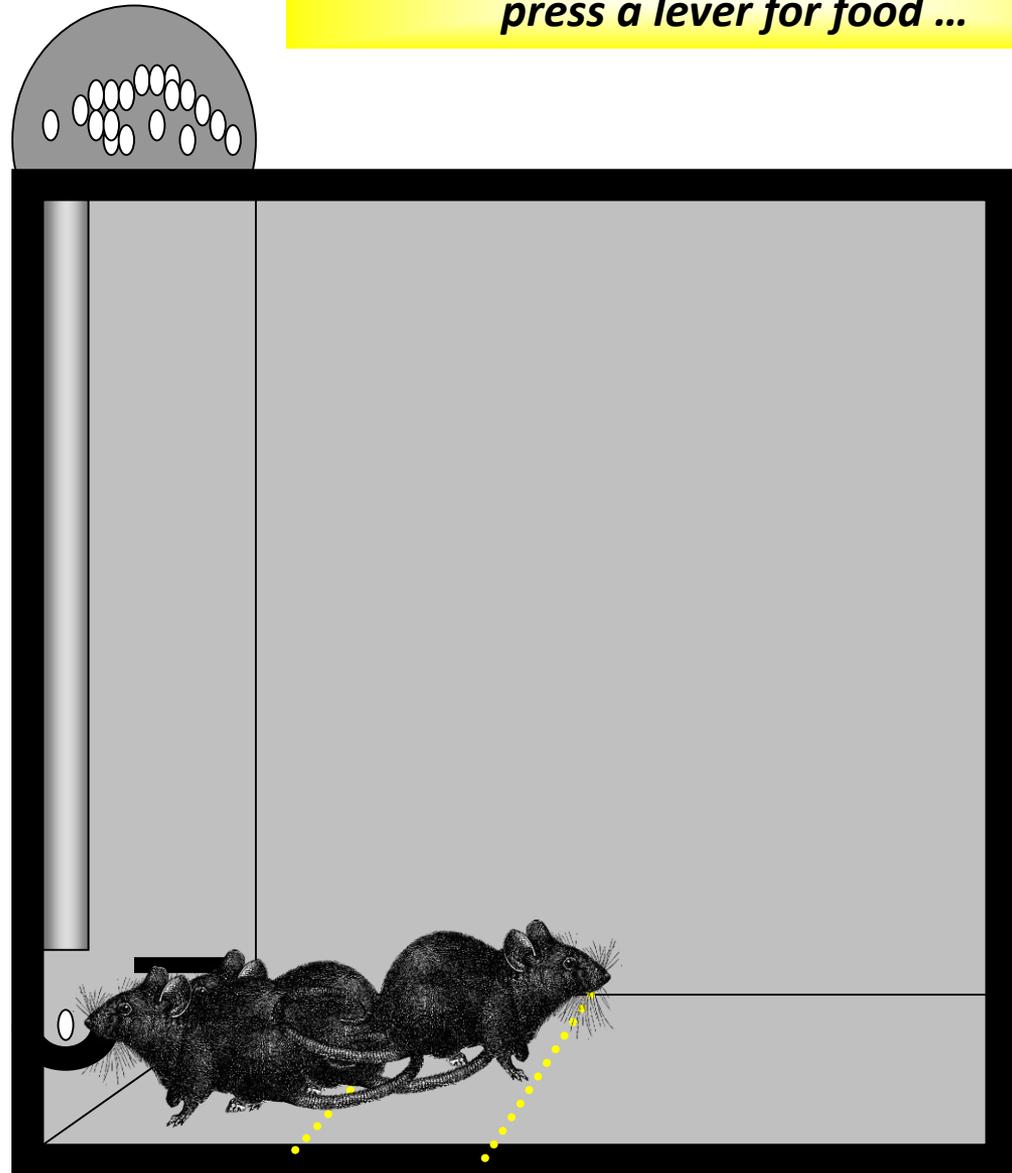
CONDITIONING CONTINUES!

This process is repeated several times. At first the mouse continues exploring the whole box.

But before long, the mouse is staying in the half of the box nearest the feeding tray.

Now the researcher becomes more demanding, and imagines a line even nearer the lever - he stops giving the mouse food pellets, unless the mouse stays in this area.

How to operantly condition a mouse to press a lever for food ...



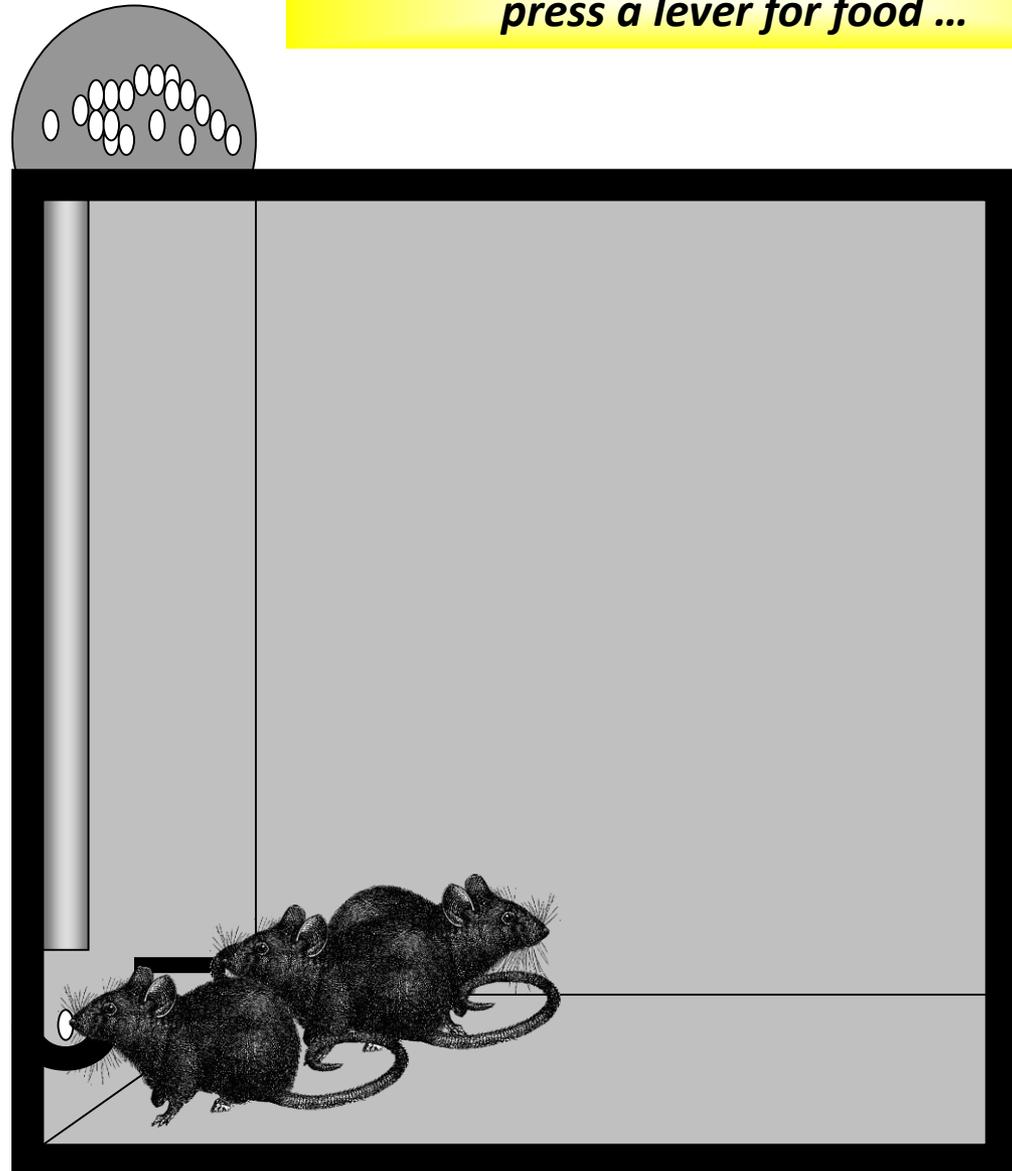
The Skinner box...

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CONDITIONING CONTINUES!

Next, the researcher will only give food if some part of the mouse's body is touching the lever - at this stage, it doesn't matter which part.

How to operantly condition a mouse to press a lever for food ...



The Skinner box...

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CONDITIONING CONTINUES!

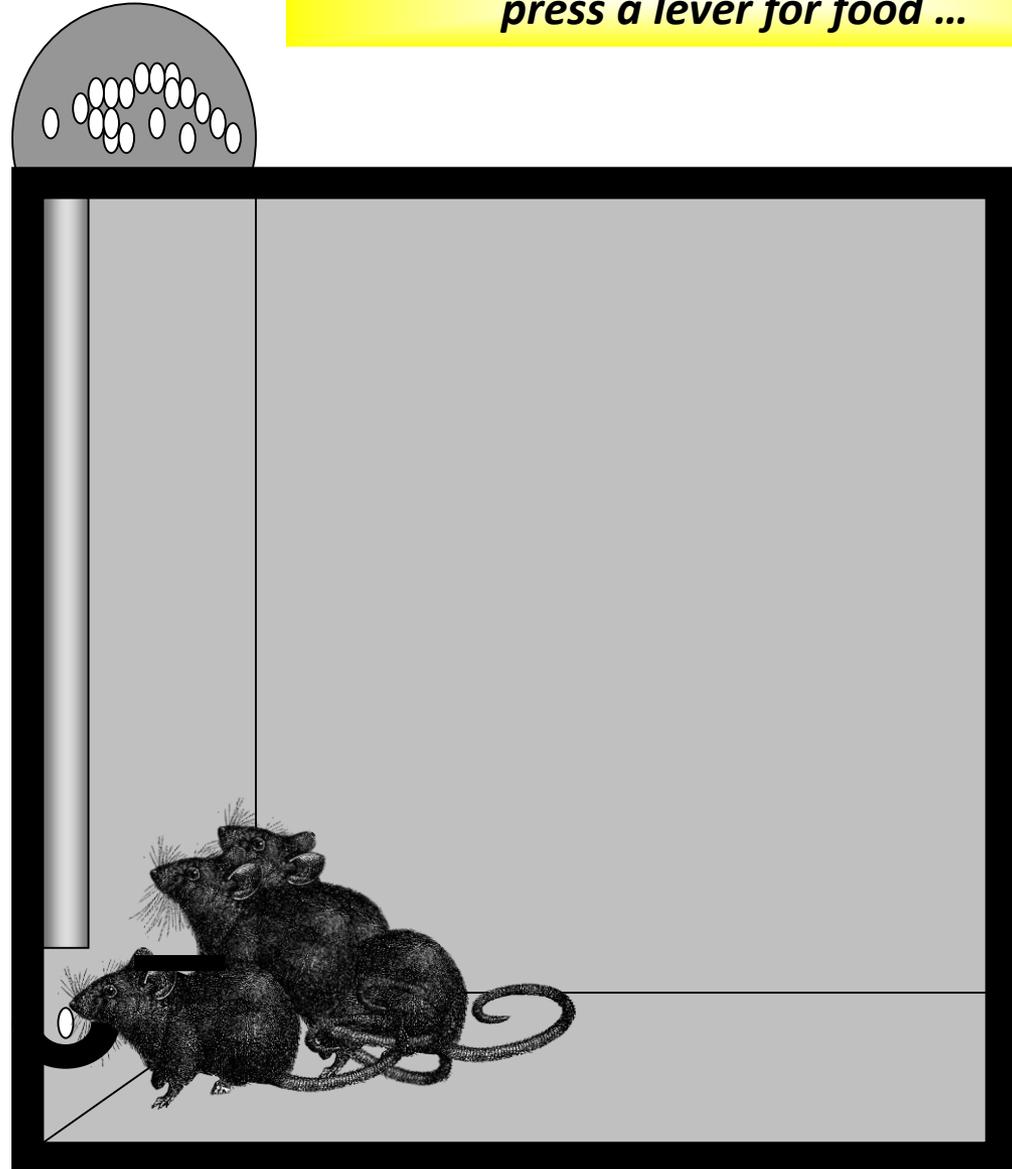
When the mouse is spending all its time touching the lever with the front part of its body, the researcher stops giving food.

It isn't long before the mouse accidentally touches the lever with his feet, and presses it.

When the lever is pressed, food is automatically delivered.

The mouse will continue pressing the lever whenever he wants food.

How to operantly condition a mouse to press a lever for food ...



The Skinner box...

Operant conditioning: a learning theory of attachments

Summary of operant conditioning of the mouse ...



Mouse performs action:
presses lever



Mouse receives reward:
food relieves hunger



The reward REINFORCES the action, so
the mouse REPEATS it

FACT!

- A reward which makes a good situation even better is called a POSITIVE REINFORCER.
- A reward which takes away an unpleasant situation is called a NEGATIVE REINFORCER.

THINK!

- For the mouse in the example above:
- Say whether food is a positive or a negative reinforcer.
 - Be able to explain your decision.

Skinner Box



Reinforcers

- A **reinforcer** is anything that **INCREASES** a behavior.

Positive Reinforcement:

- The addition of something pleasant after a desired response

Negative Reinforcement:

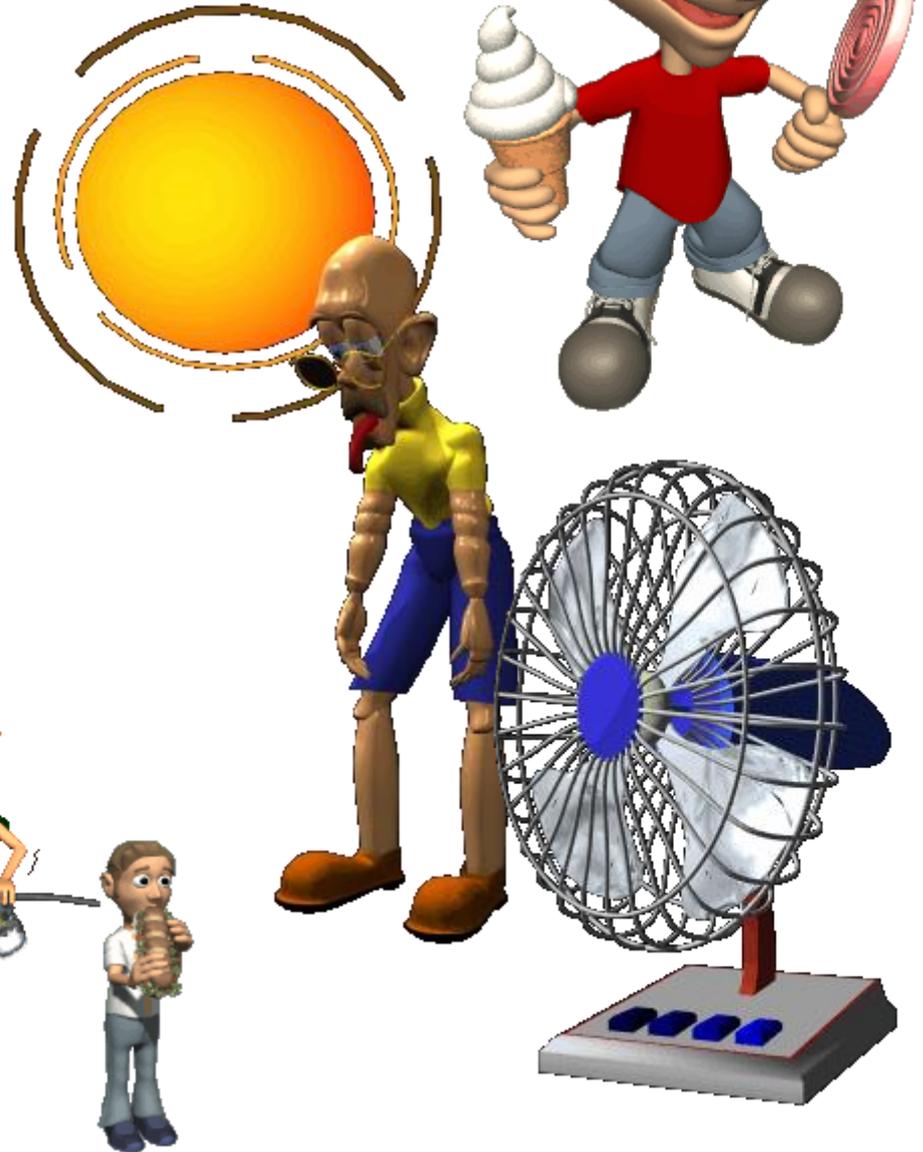
- The removal of something unpleasant after a desired response.

- Two types of NR - (AKA - Aversive control)

- Escape Learning

- Avoidance Learning

(Getting kicked out of class versus cutting class)



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Reinforcement

Positive reinforcement comes in many forms.

- A *concrete* reinforcer is something tangible that can be seen.
- A *social* reinforcer is a gesture from another person in response to a behavior.
- An *activity* reinforcer is an opportunity to engage in a fun activity. People will do something they don't enjoy for a chance to do something that they do enjoy.

Primary v. Secondary Reinforcers

Primary Reinforcer

- Things that are in themselves rewarding.
- Serves a biological need

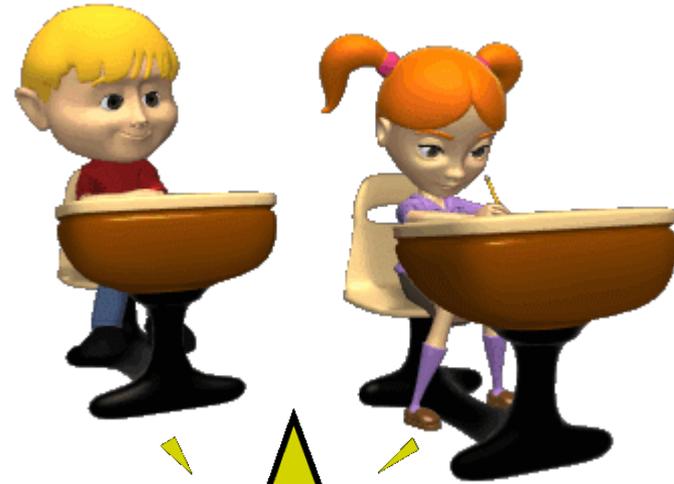
Secondary Reinforcer

- A stimulus that gains its reinforcing power through its association with a primary reinforcer.
- Examples include money, clicker noise when training animals



Token Economy

- Every time a desired behavior is performed, a token is given.
- They can trade tokens in for a variety of prizes (reinforcers)
- Used in homes, prisons, mental institutions and schools.



Premack Principle



Backstreet's cheeseburgers might be a great positive reinforcer for me, but it would not work well on a vegetarian.

- *preferred* behaviors can be used to reinforce *unpreferred* behaviors.
- Is the reinforcer wanted...or at least is it more preferable than the targeted behavior?

Immediate & Delayed Reinforcers

- **Immediate Reinforcer:** A reinforcer that occurs instantly after a behavior. A rat gets a food pellet for a bar press.
- **Delayed Reinforcer:** A reinforcer that is delayed in time for a certain behavior. A paycheck that comes at the end of a week.



“Whining Billy”

Billy: Could you tie my shoes?

Dad: (Continues reading paper)

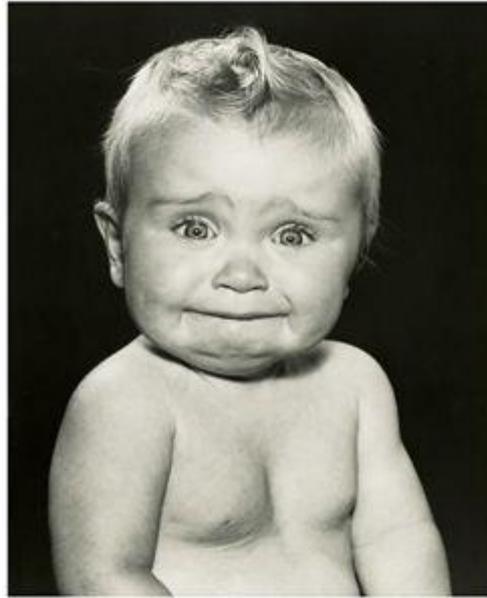
Billy: Dad, I need my shoes tied.

Dad: Uh, yeah, just a minute.

Billy: DAAAAD! TIE MY SHOES!!

Dad: How many times have I told you not to whine? Now which shoe do we do first?

Punishment



Meant to decrease a behavior.

Positive Punishment

- Addition of something unpleasant.

Negative Punishment (Omission Training)

- Removal of something pleasant.

Punishment works best when it is immediately done after behavior and if it is harsh!



1. What are the two **main points** that distinguish taste aversion from classical conditioning?
2. What are the 2 primary components of the Premack Principle?
3. The operant chamber used to train animals to associate their behaviors with rewards or punishments is commonly known as

4. In a weight management class, participants earn points for every healthy meal they eat and every period of exercise they complete. Later these points result in refunds of their class fees. This situation is best described as
 - a. Positive punishment
 - b. Token economy
 - c. Activity reinforcement
 - d. extinction

Reinforcement or punishment?

- Negative reinforcement strengthens a behavior by subtracting a negative stimulus.
 - Taking an aspirin to eliminate a headache.
- Punishment weakens a behavior by adding a negative stimulus or removing a positive stimulus.

When deciding whether it is pos. or neg. reinforcement, or pos. or neg. punishment, take the following steps:

1. Identify the behavior that is being targeted.
2. Determine if the behavior is strengthened or weakened. *(reinforcement or punishment established.)*
3. *Identify the consequence/stimulus that followed the targeted behavior.*
4. *Was the consequence/stimulus added or removed? (positive or negative established.)*

Reinforcement or punishment?

- A professor has a policy of exempting students from the final exam if they maintain perfect attendance during the quarter. His students' attendance increases dramatically.
- Is this reinforcement or punishment?
- Is it negative or positive?

Reinforcement or punishment?

- You check the coin return slot on a pay telephone and find a quarter. You find yourself checking other telephones over the next few days.
- Is this reinforcement or punishment?
- Is it negative or positive?

Reinforcement or punishment?

- Gail was late to work one morning, so she drive over the speed limit through a school zone. As a result, she got pulled over by a police officer and received a ticket.
- Is this reinforcement or punishment?
- Is it negative or positive?

Reinforcement or punishment?

- Billy and Sally were fighting about who gets to use the new video game system before bedtime. Mom got so upset, that she said neither could play and sent them to bed.
- Is this reinforcement or punishment?
- Is it negative or positive?