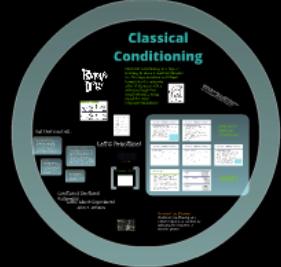


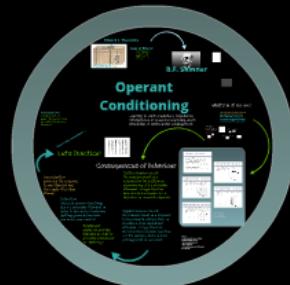
learning

response
latent
bandura
schedule
conditioning
classical
observational
imitation
stimulus
skinner
punishment
cognitive
operant
reinforcement
negative
positive
watson
attention

The Origins of Learning Theory



What happened next?



Is that all?



But wait...what
about Monkey
See, Monkey
Do?



learning

response
latent **bandura**
schedule
conditioning

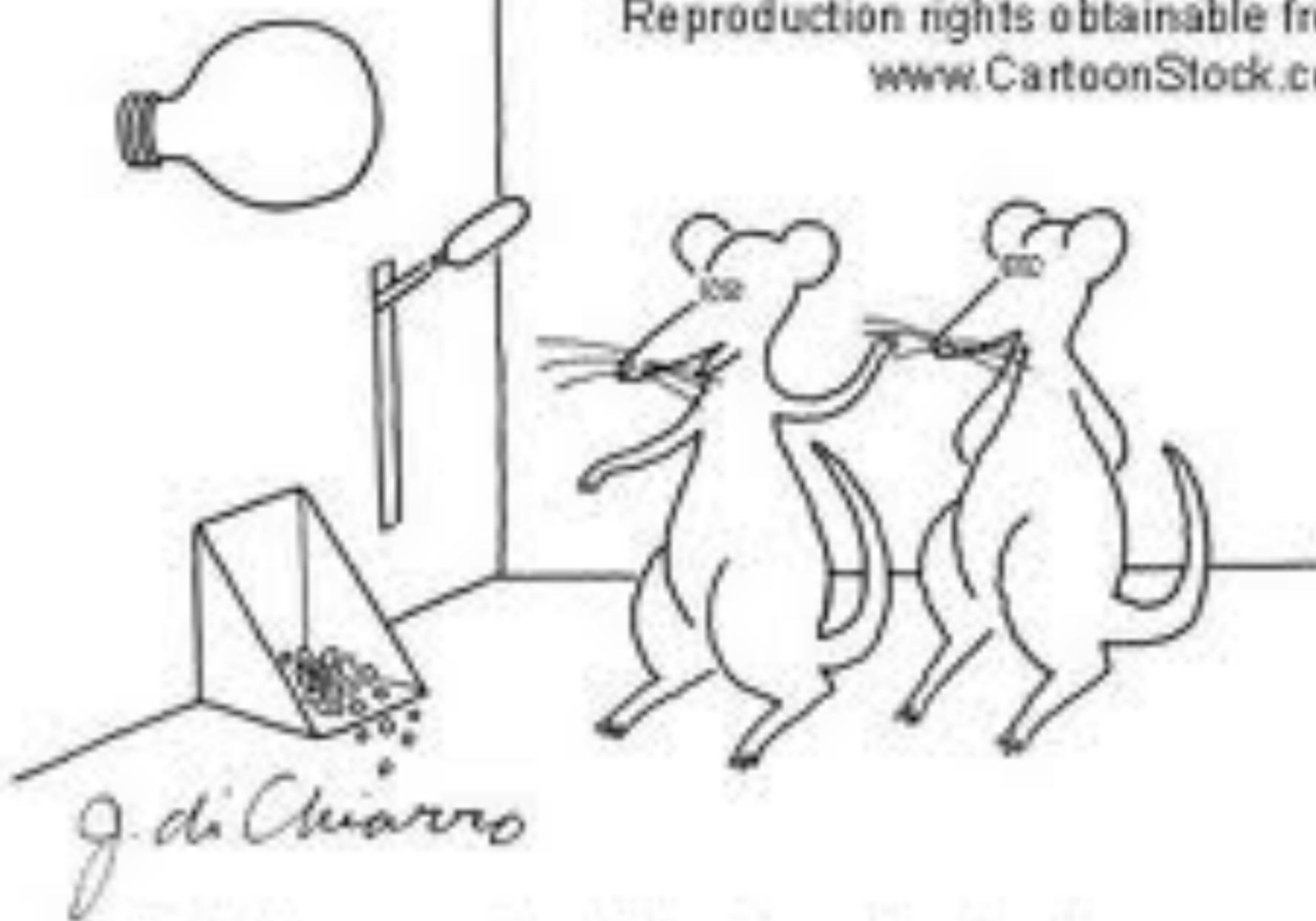
pavlov **classical**
observational
imitation
stimulus
skinner
punishment
cognitive
operant
watson
negative
reinforcement
positive
attention

What happened next?

Read Me:
Chapter 5 in Textbook

© Original Artist

Reproduction rights obtainable from
www.CartoonStock.com



"The light goes on. I pull the lever. The food comes.
It's a full life."

Search ID: jdin297

What is Learning:
a more or less permanent
change in behaviour that
is brought about by
experience or practice



What do I mean by

ence or practice

What do I mean by:

- More or less permanent?
- Change in behaviour?
- Resulting from Experience?

is brought about by
experience or practice

What do I mean by:

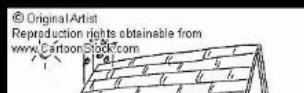
- More or less permanent?
- Change in behaviour?
- Resulting from Experience?

The Origins of Learning Theory

Pavolv's
dogs

Classical Conditioning

Classical conditioning is a type of learning in which a neutral stimulus (i.e. the experimenter's footsteps) brings about a response after it is paired with a



Classical conditioning is a type of learning in which a neutral stimulus (i.e. the experimenter's footsteps) brings about a response after it is paired with a stimulus (food) that would naturally bring about the same response (salivation)



[http://media.pearsoncmg.com/ph/hSS/livePsych/
media/interface/index.htm?atitle=Classical
%20Conditioning&id1=18_1&id2=18_2&Sid=18_1](http://media.pearsoncmg.com/ph/hSS/livePsych/media/interface/index.htm?atitle=Classical%20Conditioning&id1=18_1&id2=18_2&Sid=18_1)

Elements of Classical Conditioning

Elements of Classical Conditioning

Unconditioned Stimulus (UCS)

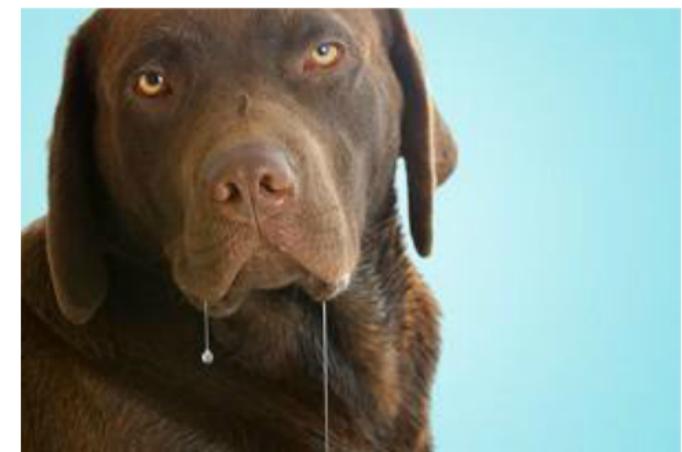
- A naturally occurring stimulus that leads to an involuntary response
- Unconditioned means ‘unlearned’
- This stimulus ordinarily leads to the reflex, or involuntary response
- In the case of Pavlov's dogs, the UCS is the food
- The dog is not trained to respond to the meat, the response is involuntary



Elements of Classical Conditioning

Unconditioned Response (UCR)

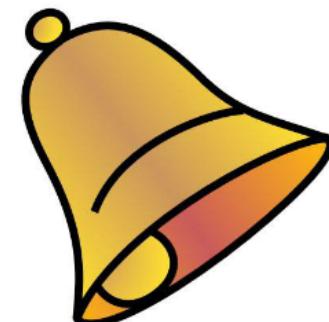
- Involuntary response to a naturally occurring event
- Not associated with previous learning
- A reflex response that occurs because of genetic ‘wiring’ in the nervous system
- In the case of Pavlov’s dogs, the UCR is the salivation that occurs when dogs are presented with food



Elements of Classical Conditioning

Neutral Stimulus (NS)

- ❑ Stimulus that has no effect on the desired response
- ❑ i.e. the bell is a neutral stimulus at the beginning of the experiment
- ❑ With repeated pairing with the unconditioned stimulus (the food) it will begin to get the same response that the unconditioned stimulus does (the salivating)
- ❑ That neutral stimulus becomes a conditioned stimulus



Elements of Classical Conditioning

Conditioned Stimulus (CS)

- ❑ Stimulus that becomes able to produce a learned reflex response by being paired with the original unconditioned stimulus
- ❑ In the case of Pavlov's dogs, the bell becomes the conditioned stimulus – the dogs began to salivate at the sound of the bell, because the bell had been paired with the food so many times
- ❑ The dogs learned that the sound of the bell meant that food was comingyum!



Elements of Classical Conditioning

Conditioned Response (CR)

- ❑ Sometimes referred to as the conditioned reflex
- ❑ Learned reflex response to a conditioned stimulus
- ❑ In the case of Pavlov's dogs, the conditioned response is the salivation
- ❑ It is the same response as the unconditioned response...the difference is what they are responding to...the UCR is the food whereas the CR is the bell...the dog learns to respond to the bell



What?

Before Conditioning

Neutral Stimulus (NS)



No Salivation



During Conditioning

Neutral Stimulus (NS)



Unconditioned Stimulus (UCS)



Unconditioned Response – (UCR)
Salivation



After Conditioning

Conditioned Stimulus (CS)



Conditioned Response – (CR)
Salivation



Basic Principles

1. The NS must come before the UCS – conditioning will not occur if the bell comes after the food
2. The NS and the UCS must come only seconds apart – conditioning will not occur if the interval is too long
3. The NS must be paired with the UCS several times (sometimes many times) before conditioning will occur
4. The NS has to be distinctive – not connected with the natural surroundings at all

And so...just to clarify:

PAVLOV'S DOG

Before Conditioning

Food
Unconditioned Stimulus

= Salivation
Unconditioned Response



PAVLOV'S DOG

Before Conditioning

Food	=	Salivation
<i>Unconditioned Stimulus</i>	=	<i>Unconditioned Response</i>

During Conditioning

Food + Bell	=	Salivation
<i>Unconditioned Stimulus</i>	=	<i>Unconditioned Response</i>

After Conditioning

Bell	=	Salivation
<i>Conditioned Stimulus</i>	=	<i>Conditioned Response</i>



In Pavlov's pioneering study, dogs learned that a stimulus (in this case, a bell) meant they were about to be fed. Starting with two things that are naturally paired salivating and being fed. Pavlov then added a third component by ringing a bell before feeding.

After a few trials, the dogs learned to associate the bell (stimulus) with being fed and would react by salivating (conditioned response) at the sound of the bell in anticipation of their food but without any food present.



the office

<http://vimeo.com/5371237>

- The Unconditioned Stimulus is
- The Unconditioned Response is
- The Conditioned Stimulus is
- The Conditioned Response is

An individual receives frequent injections of drugs, which are administered in a small examination room at a clinic. The drug itself causes increased heart rate but after several trips to the clinic, simply being in a small room causes an increased heart rate.

- The Unconditioned Stimulus is
- The Unconditioned Response is
- The Conditioned Stimulus is
- The Conditioned Response is

Jacob's date was wearing a very alluring cologne on their recent date. The date itself was quite passionate. The following day when Jacob gets into his car he smells the lingering scent of his date's cologne and is overwhelmed with a joyful feeling..

- The Unconditioned Stimulus is
- The Unconditioned Response is
- The Conditioned Stimulus is
- The Conditioned Response is

Let's Practice!



the office

<http://vimeo.com/5371237>

Classical Conditioning – Practice

John Watson conducted an experiment with a boy named Albert in which he paired a white rat with a loud, startling noise. Albert now becomes startled at the sight of the white rat.

- The Unconditioned Stimulus is
- The Unconditioned Response is
- The Conditioned Stimulus is
- The Conditioned Response is

Every time someone flushes a toilet in the apartment building, the shower becomes very hot and causes the person to jump back. Over time, the person begins to jump back automatically after hearing the flush, before the water temperature changes.

- The Unconditioned Stimulus is
- The Unconditioned Response is
- The Conditioned Stimulus is
- The Conditioned Response is

You eat a new food and then get sick because of the flu. However, you develop a dislike for the food and feel nauseated whenever you smell it.

- The Unconditioned Stimulus is
- The Unconditioned Response is
- The Conditioned Stimulus is
- The Conditioned Response is

An individual receives frequent injections of drugs, which are administered in a small examination room at a clinic. The drug itself causes increased heart rate but after several trips to the clinic, simply being in a small room causes an increased heart rate.

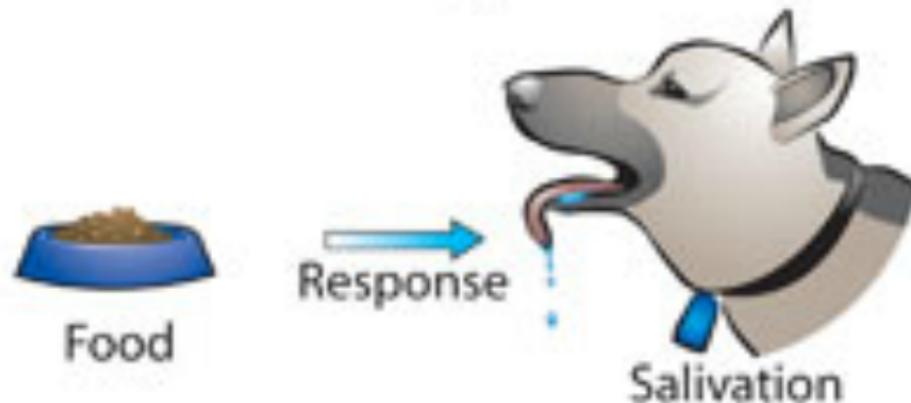
- The Unconditioned Stimulus is
- The Unconditioned Response is
- The Conditioned Stimulus is
- The Conditioned Response is

Jacob's date was wearing a very alluring cologne on their recent date. The date itself was quite passionate. The following day when Jacob gets into his car he smells the lingering scent of his date's cologne and is overwhelmed with a joyful feeling..

- The Unconditioned Stimulus is
- The Unconditioned Response is
- The Conditioned Stimulus is
- The Conditioned Response is

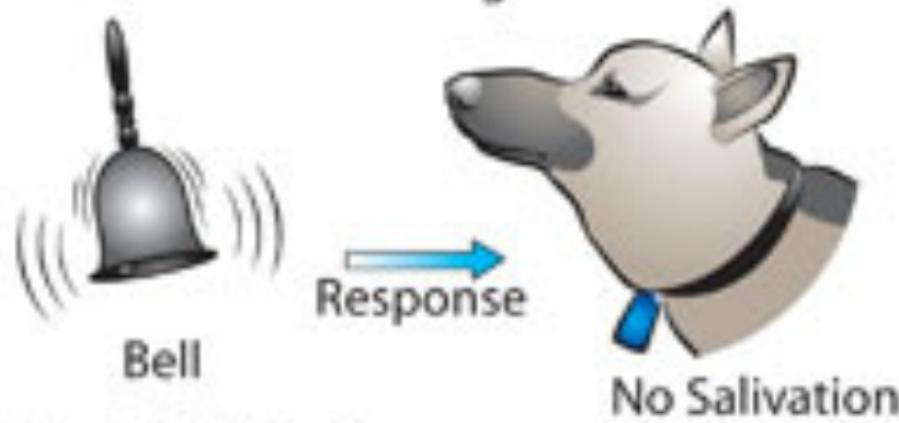
How Dog Training Works

1. Before Conditioning



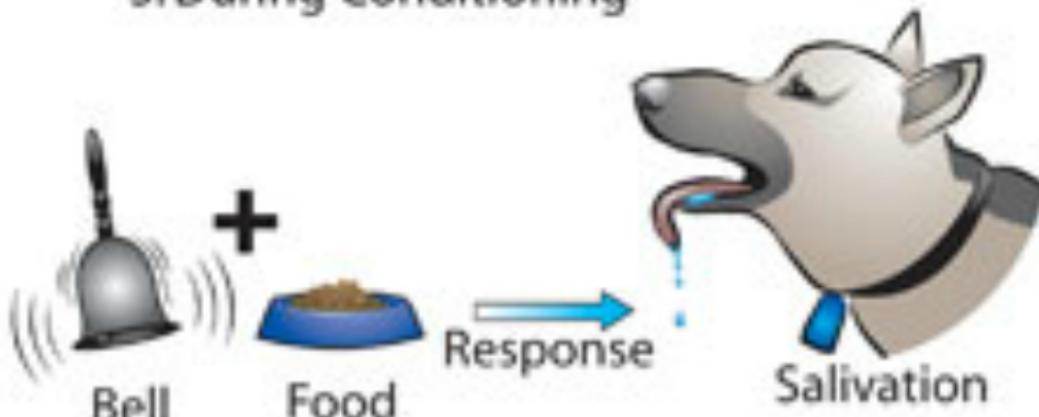
Unconditioned Stimulus

2. Before Conditioning



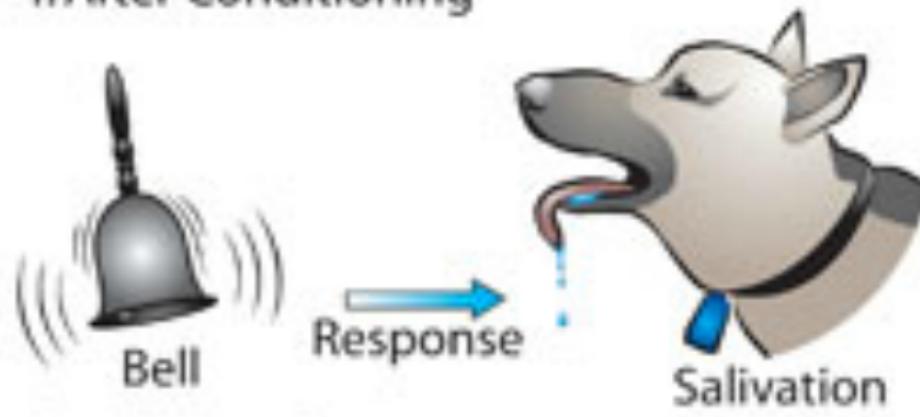
Neutral Stimulus

3. During Conditioning



Unconditioned Response

4. After Conditioning



Conditioned Stimulus

Conditioned Response

But that's not all...

Stimulus Generalization

- the tendency to respond to a stimulus that is only similar (not exactly the same) to the original

Stimulus Generalization

- the tendency to respond to a stimulus that is only similar (not exactly the same) to the original conditioned stimulus with the conditioned response

Stimulus Discrimination

- the tendency to stop making a generalized response to a stimulus that is similar to the original conditioned stimulus because the similar stimulus is never paired with the unconditioned stimulus

Extinction

- the disappearance or weakening of a learned response following the removal or absence of the unconditioned stimulus

Spontaneous Recovery

- the reappearance of a learned response after extinction has occurred

In the early 1900s, Watson and his colleagues conducted a series of experiments on the development of emotional responses in infants. One of these experiments, known as the Little Albert experiment, involved exposing an infant named Albert to a white rat and a loud, sharp sound simultaneously. The infant developed a fear response to the rat, which was then generalized to other white, furry objects, such as a rabbit and a Santa Claus mask. This experiment demonstrated the principles of classical conditioning and the development of emotional responses in humans.

Conditioned Emotional Responses

Little Albert Experiment

John B. Watson

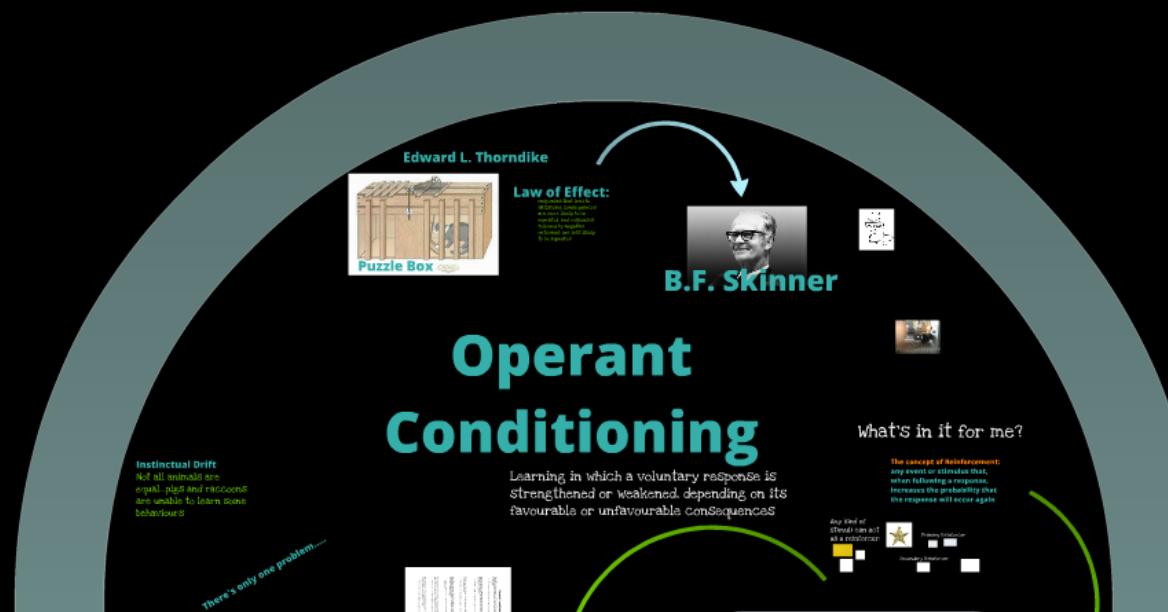


conhecido como "Pequeno Albert"

YouTube

Vicarious Conditioning:
Classical conditioning of a
reflex response or emotion by
watching the reaction of
another person

What happened next?



Edward L. Thorndike



Law of
responses satisfying
are more likely
repeated, a

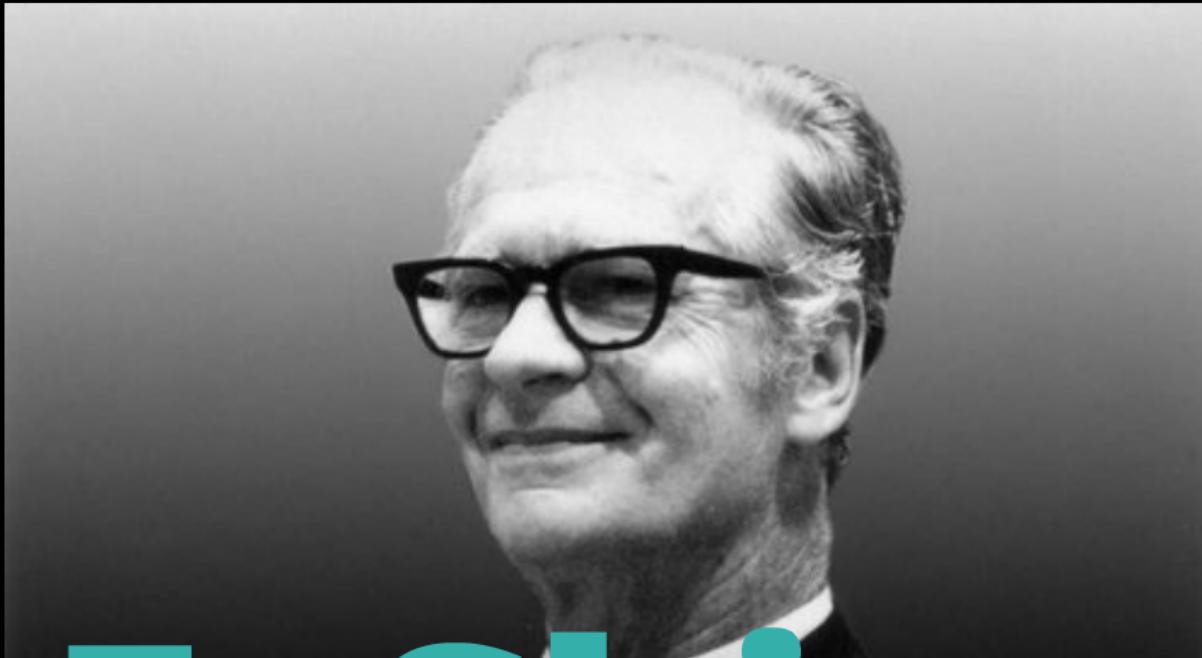


Puzzle Box



Law of Effect:

responses that lead to satisfying consequences are more likely to be repeated, and responses followed by negative outcomes are less likely to be repeated



B.F. Skinner

at





Puzzle Box

B.F. Skinn

Operant Conditioning

Learning in which a voluntary response is strengthened or weakened, depending on its favourable or unfavourable consequences





What's in it for me?

The concept of Reinforcement:
any event or stimulus that,
when following a response,
increases the probability that
the response will occur again

**The concept of Reinforcement:
any event or stimulus that,
when following a response,
increases the probability that
the response will occur again**



Any kind of
stimuli can act
as a reinforcer:







A+



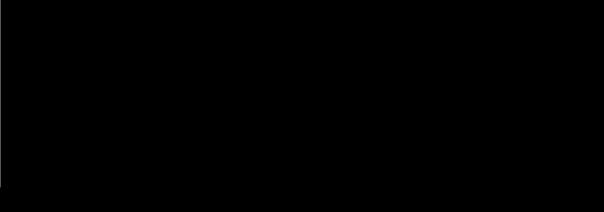


dreamstime[®]
com

Primary Reinforcer



ary Reinforcer



Secondary Reinforcer





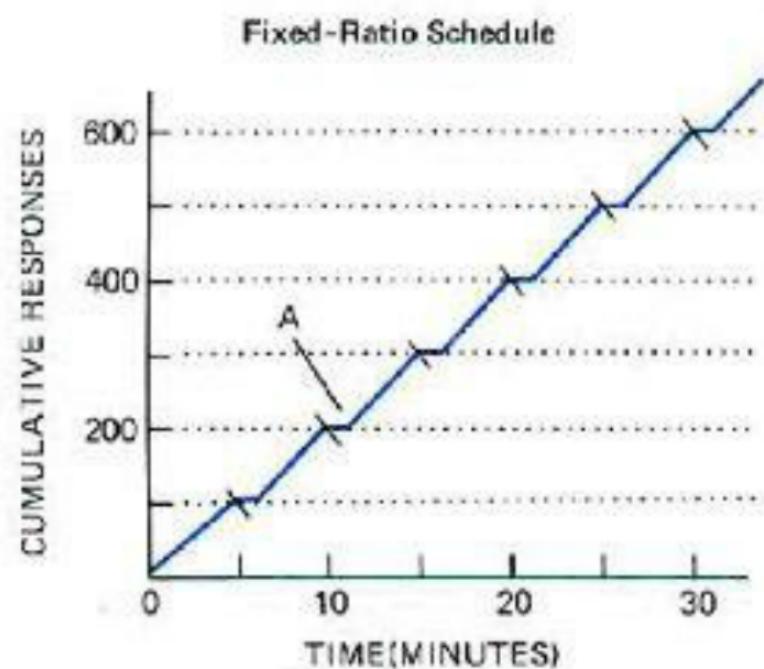
Schedules of Reinforcement

- Timing is everything
- Reinforcing each and every response is not necessarily the best for long-lasting learning
- **Partial reinforcement effect**
 - The tendency for a response that is reinforced after some, but not all, correct responses to be very resistant to extinction
- **Continuous Reinforcement**
 - The reinforcement of each and every correct response

Fixed Ratio Schedule of Reinforcement

- The number of responses required to receive each reinforcer will always be the same number
 - ▣ Buy 10, get one free

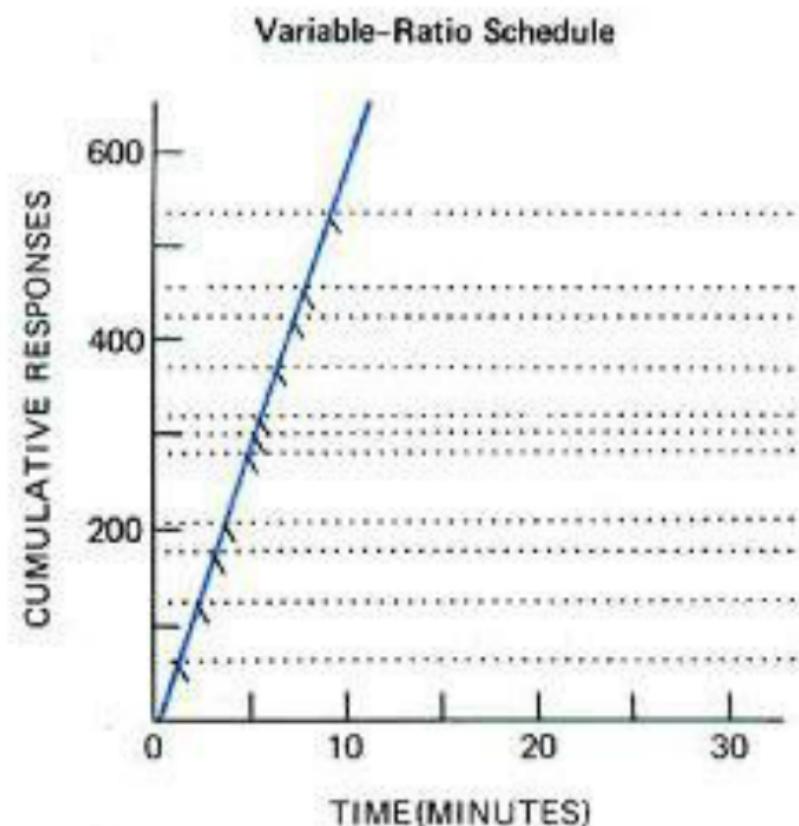
Fixed schedules are predictable and that allows for breaks



Variable Ratio Schedule of Reinforcement

- The number of responses required to receive the reinforcer changes from one trial to the next
 - ▣ Slot machines

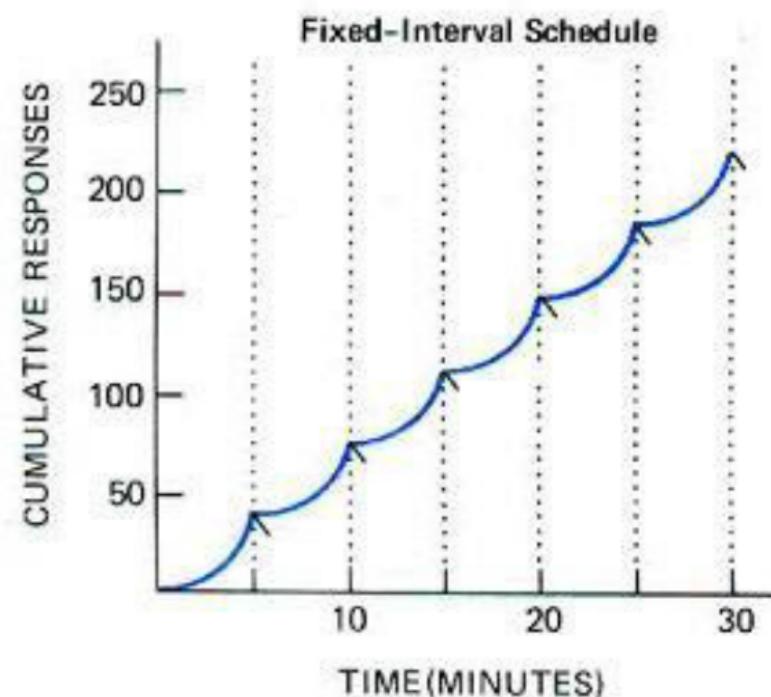
The graph is much smoother because the rat is taking no rest breaks – it doesn't know how many times it will have to push the lever to get the next food pellet. Unpredictability makes the responses more or less continuous!



Fixed Interval Schedule of Reinforcement

- Reinforcer is received after a certain, fixed interval of time has passed
 - ▣ Test in week 5

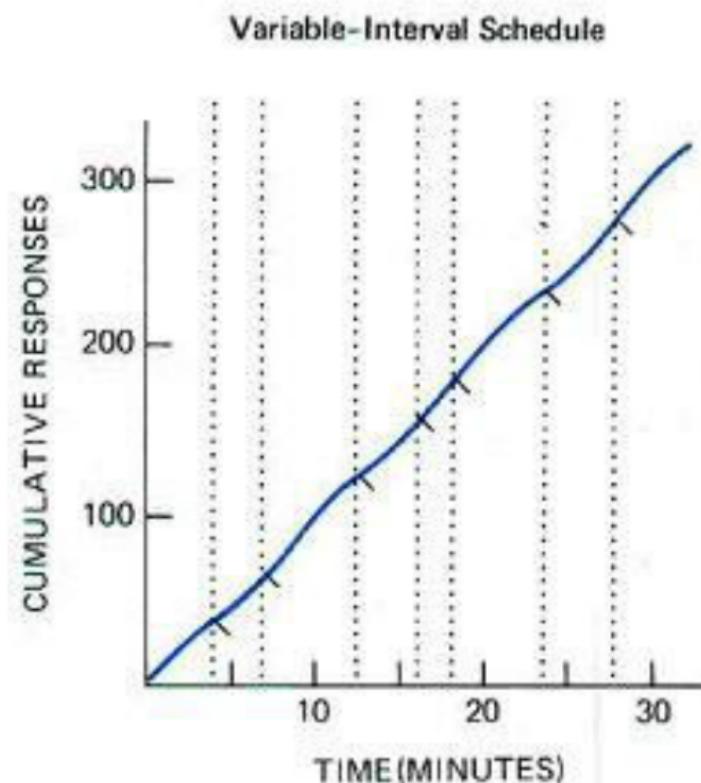
The number of responses doesn't matter – only that at least one response has been made during the interval. Eventually the rat will start pushing the lever only at the end of the interval of time – causing the scalloping pattern!



Variable Interval Schedule of Reinforcement

- The interval of time after which the organism must respond in order to receive a reinforcer changes from one time to the next
 - Pop quiz

The rat can't predict how long the interval is going to be, so it pushes the bar more or less continuously



Variable schedules of reinforcement are highly resistant to extinction!

http://
media.pearsoncmg.com/ph/
hSS/livePsych/media/
interface/index.htm?
atitle=Operant
?/20Conditioning&id1=19_1&id2=1
9_2&Sid=19_1

tice!

Operant Conditioning – Practice

Your father gives you a credit card at the end of year if you've done well in college because you did so well. As a result, your grades continue to get better in your second year.

- The credit card is a positive/reinforcing reinforcement because:

Your car has a dent. You take it to the mechanic and say if you want the car repaired without touching the dent itself. You become less likely to have the car damaged the next time.

- The car repair is a positive/reinforcing reinforcement because:

A driver in a driving lesson to stand up on a chair and jump through a hoop to receive a gold star.

- The gold star is a positive/reinforcing reinforcement because:

A professor has a policy of exempting students from the final exam if they maintain perfect attendance during the quarter. His students attend classes consistently.

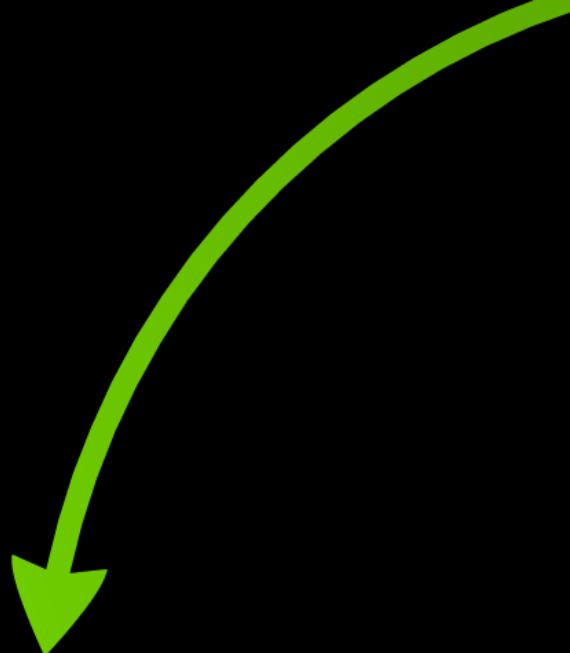
- The exemption from the final exam is a positive/reinforcing reinforcement.

You cheat in the ride because you're on a pay telephone and need a quarter. You find yourself cheating after responses over the next few days.

- The quarter would be a positive/reinforcing reinforcement because:

Your child is allowed to have a soft drink after dinner. In this situation, you are more likely to give your child a soft drink after dinner.

- The soft drink is a positive/reinforcing reinforcement because:



ConSequences of Behaviour

Positive Reinforcement:
the reinforcement of a response by the addition or experiencing of a pleasurable stimulus - brings about an increase in a response (i.e. a high five for correct response)

Influences of Behaviour

Positive Reinforcement:
the reinforcement of a response by the addition or experiencing of a pleasurable stimulus - brings about an increase in a response (i.e. a high five for correct response)

Negative Reinforcement:
the reinforcement of a response
by the removal, escape from, or
avoidance of an unpleasant
stimulus - brings about an
increase in a response (you take
out the garbage, and you don't
get nagged at or yelled at)

ur Currew)

Punishment:
adding an aversive
stimulus in order to
decrease a behaviour
(i.e. spanking)

ly it to other

Extinction:

when you remove something, like a pleasurable stimulus, in order to decrease a behaviour (getting grounded because you broke your curfew)

Punishment:

adding an aversive

Generalization:
you learn the response
to one stimulus and
then apply it to other
stimuli

Extinction:

There's only one problem.

Let's Practice!

Correct!

Operant Conditioning – Practice

Your father gives you a credit card at the end of your first year in college because you did so well. As a result, your grades continue to get better in your second year.

- The credit card is a positive/negative reinforcement because:

Your car has a red, flashing light that blinks annoyingly if you start the car without buckling the seat belt. You become less likely to start the car without buckling the seat belt.

- The flashing light is a positive/negative reinforcement because:

A lion in a circus learns to stand up on a chair and jump through a hoop to receive a food treat.

- The food treat is a positive/negative reinforcement because:

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.

- The exemption from the final exam is a positive/negative reinforcement because:

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.

- The quarter would be a positive/negative reinforcement because:

Your hands are cold so you put your gloves on. In the future, you are more likely to put gloves on when it's cold.

- The consequence is a positive/negative reinforcement because:

There's only one problem.....

Let's do it!

Instinctual Drift

Not all animals are equal...pigs and raccoons are unable to learn some behaviours

Is that all?

But what about

Conditioned Emotional Responses
Little Albert Experiment
John B. Watson

Vicarious Conditioning:
Classical conditioning of a reflex response or emotion by watching the reaction of another person

what?



Latent Learning:

New behaviour that has been learned but is not demonstrated until reinforcement is provided

Edward Tolman

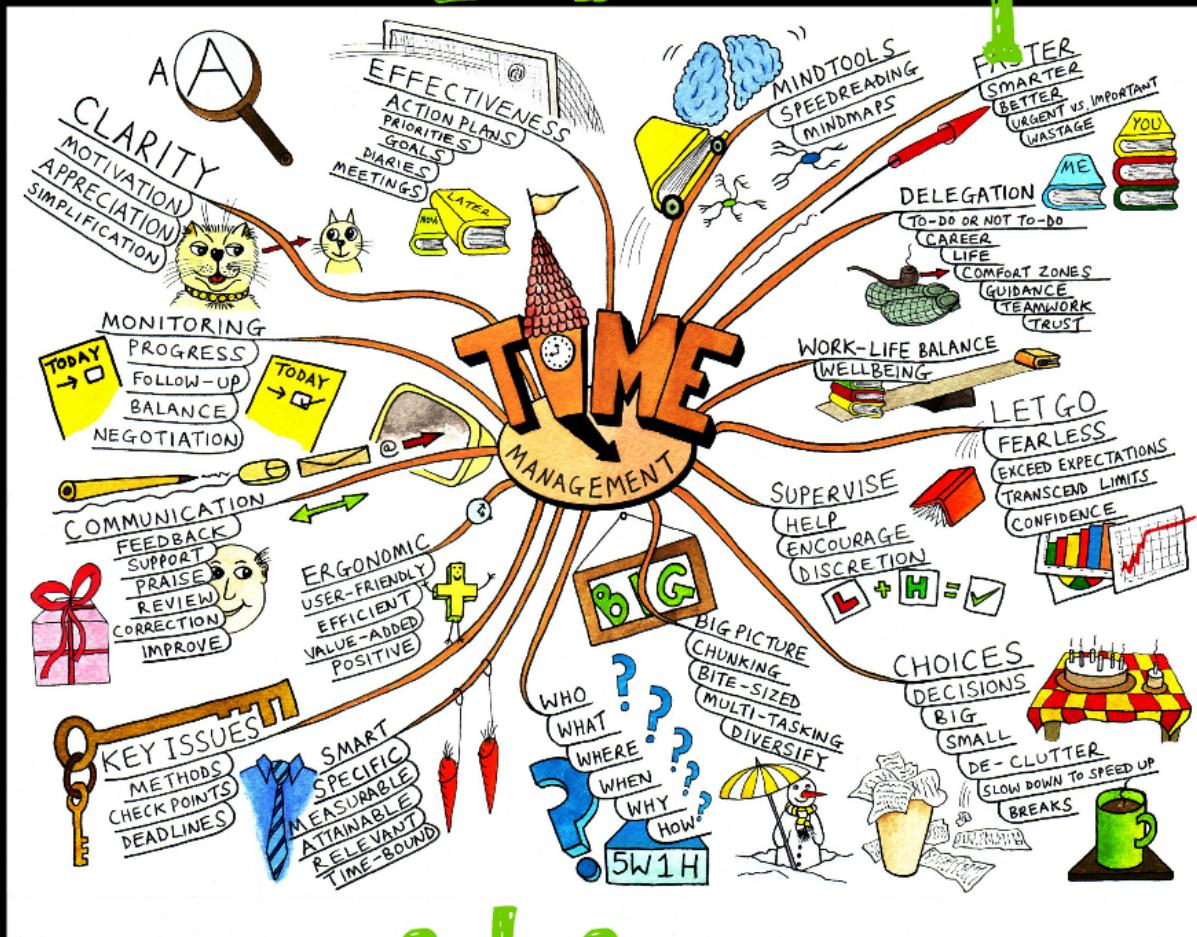
the rats simply didn't demonstrate their learning because there was no reason to. the learning had remained hidden or latent until there was a reason to demonstrate their learning - a reward



How does this refute Operant Conditioning principles?



Mind Map



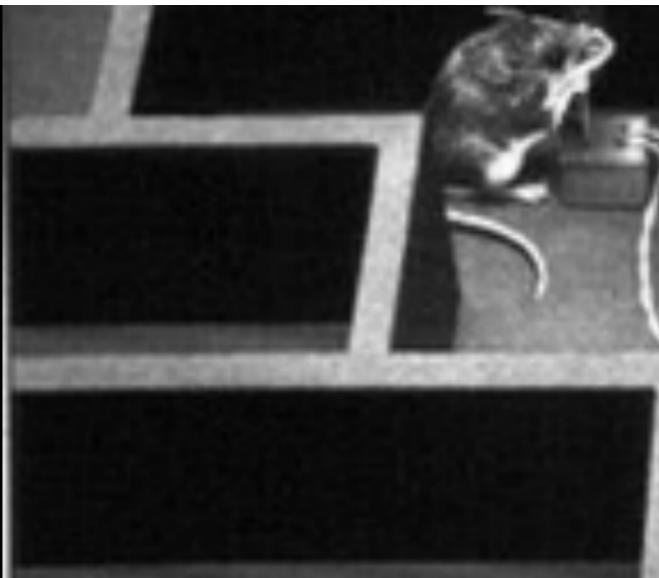
Cognitive Map



Latent Learning:

New behaviour that has
been learned but is not
demonstrated until
reinforcement is provided

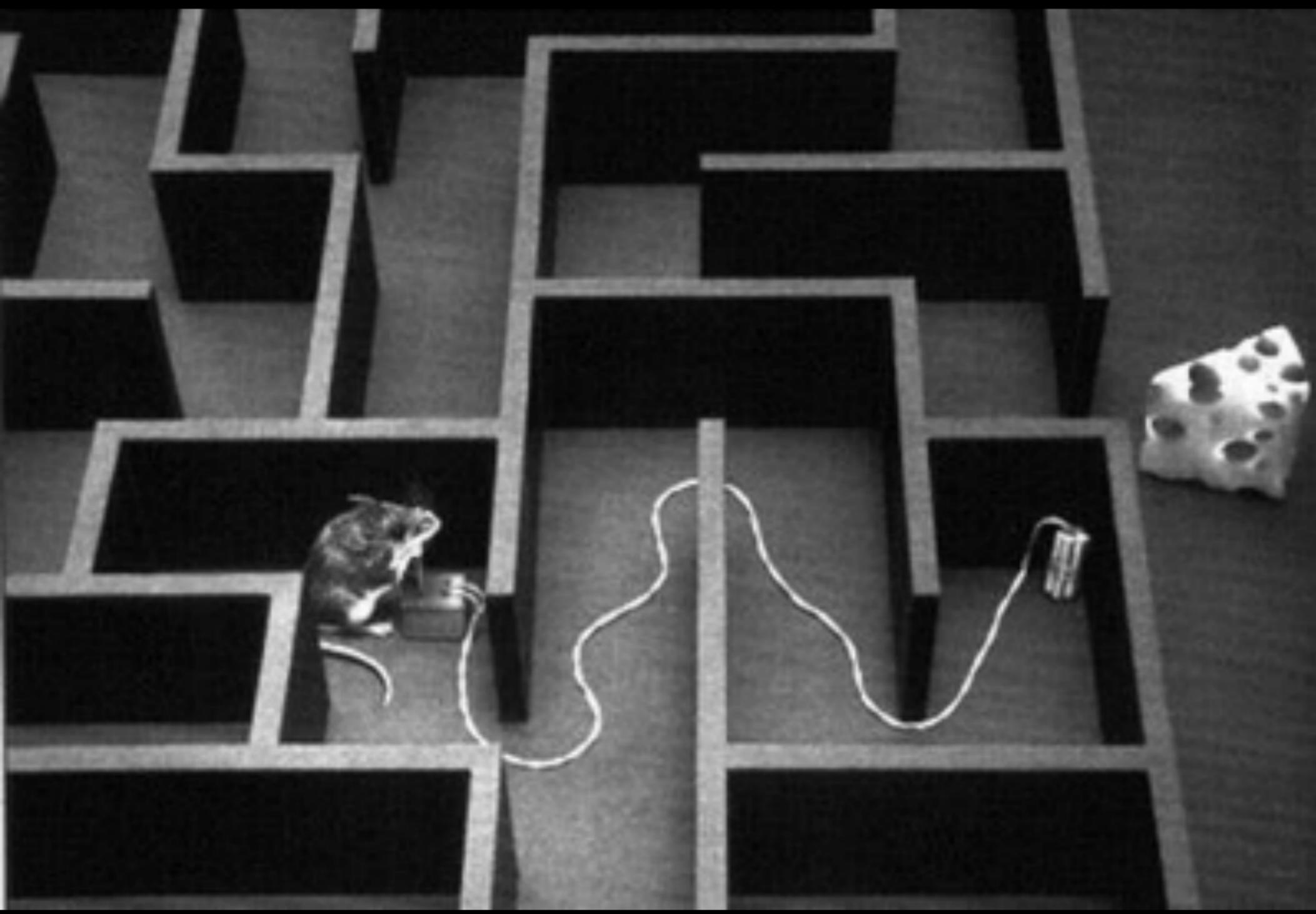
is provided



Edward Tolman

the rats simply didn't
demonstrate their learning
because there was no
reason to... the learning

How does
Operant
principles



the rats simply didn't demonstrate their learning because there was no reason to... the learning had remained hidden, or latent, until there was a reason to demonstrate their learning - a reward!

How does this refute
Operant Conditioning
principles?

But wait...what about Monkey

See, Monkey

Do?

ObServational
Learning
Albert Bandura



Observational Learning Albert Bandura



4	Ele
<input type="checkbox"/>	Ob
	eler
1.	f
2.	f
3.	I
4.	I
<input type="checkbox"/>	Ob
	lear
	bra





YouTube

4 Elements of Observational Learning

- Observational learning requires the presence of 4 elements:
 1. **Attention:** paying attention and perceiving most critical features of another's behaviour
 2. **Memory:** remembering this behaviour
 3. **Imitation:** reproducing the action
 4. **Motivation:** being motivated to learn and carry out the behaviour
- Observational learning is good in cases where other learning techniques would not be the best idea e.g. brain surgery