

# Learning

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Classical & Operant Conditioning

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# Class Poll

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Do you remember your prom song?

Have you ever lied to a teacher  
(and kept doing it)?

# What is learning?

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Reading, listening, taking notes

We also learn through associations  
&  
with rewards and punishments


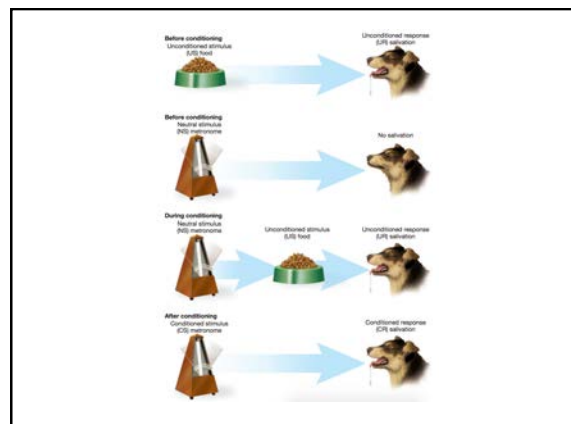
# Classical Conditioning

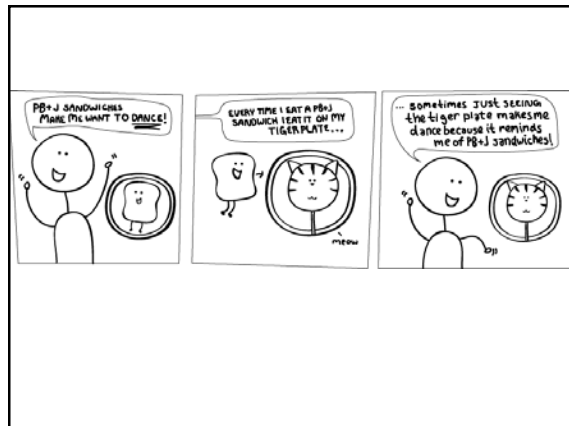
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Learning by Association

# Classical Conditioning

- Associating one thing to another
- Not a “natural” association
- We have to train the association




# Operant Conditioning

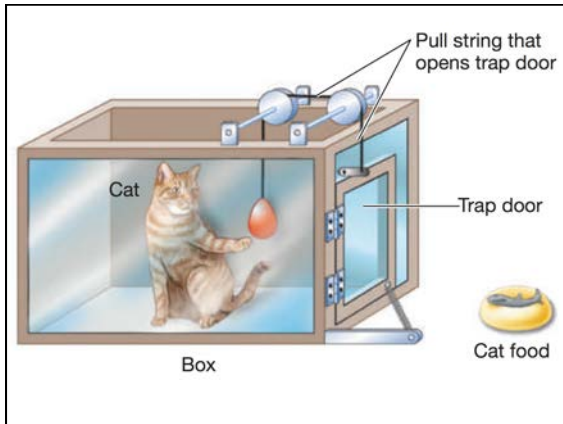
Learning Through Consequences



## Operant Conditioning


- Something good happens: behavior increases
- Something bad happens: behavior decreases





### What's the Difference?

- Classical Conditioning
  - Learning by association
  - Pairing a "neutral" stimulus with a reflexive response
  - No rewards or punishments
- Operant Conditioning
  - Learning by consequences
  - Increasing or decreasing behavior with rewards and punishments



# It's Prom Night!


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Classical Conditioning in Pooja's Life




## It's Prom Night!

Prom <small>(unconditioned stimulus)</small>	➔	Enjoyment <small>(unconditioned response)</small>
Prom + Song <small>(association)</small>	➔	Enjoyment <small>(unconditioned response)</small>
Song <small>(conditioned stimulus)</small>	➔	Enjoyment <small>(conditioned response)</small>



## Generalization vs Discrimination


- Generalization: a response that occurs for one thing will occur with similar things
- Discrimination: a response that occurs for one thing will *not* occur with similar things



## Nostalgic Music

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Do we generalize or discriminate?



## Practice Your Violin!


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Operant Conditioning in Pooja's Life




## Practice Your Violin!

Apathy	➔	Scolded by Teacher	➔	Decrease Apathy
Forge Parent Notes	➔	Praise by Teacher	➔	Keep Forging...



## Operant Conditioning

- Something good happens: behavior increases
  - Praise for sharing a snack
  - Chores reduced for sharing a snack
- Something bad happens: behavior decreases
  - Spanking for drawing on the walls
  - Toys taken away for drawing on the walls



## Operant Conditioning

Positive and negative is *not* whether something is good or bad  
It's whether something is added or removed

	Something ADDED	Something REMOVED
<b>Reinforcement:</b> <i>increases</i> behavior		
<b>Punishment:</b> <i>decreases</i> behavior		

## Operant Conditioning

Sharing a snack ➡ Get praise ➡ Sharing increases

	Something ADDED	Something REMOVED
<b>Reinforcement:</b> <i>increases</i> behavior	Positive Reinforcement: Get something you want!	
<b>Punishment:</b> <i>decreases</i> behavior		

## Operant Conditioning

Sharing a snack ➡ Chores reduced ➡ Sharing increases

	Something ADDED	Something REMOVED
<b>Reinforcement:</b> <i>increases</i> behavior	(Positive Reinforcement)	Negative Reinforcement: Avoid something you don't want!
<b>Punishment:</b> <i>decreases</i> behavior		

## Operant Conditioning

Draw on walls ➡ Spanking ➡ Drawing decreases

	Something ADDED	Something REMOVED
<b>Reinforcement:</b> <i>increases</i> behavior	(Positive Reinforcement)	(Negative Reinforcement)
<b>Punishment:</b> <i>decreases</i> behavior	Positive Punishment: Get something bad!	

## Operant Conditioning

Draw on walls ➡ Take toys away ➡ Drawing decreases

	Something ADDED	Something REMOVED
<b>Reinforcement:</b> <i>increases</i> behavior	(Positive Reinforcement)	(Negative Reinforcement)
<b>Punishment:</b> <i>decreases</i> behavior	(Positive Punishment)	Negative Punishment: Lose something good!

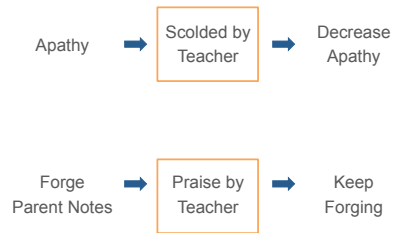
## Operant Conditioning

Positive and negative is *not* whether something is good or bad

It's whether something is added or removed

	Something ADDED	Something REMOVED
Reinforcement: <i>increases</i> behavior	Positive Reinforcement	Negative Reinforcement
Punishment: <i>decreases</i> behavior	Positive Punishment	Negative Punishment

## Practice Your Violin!



## Create Your Own!

What are examples of classical and operant conditioning in your life?

## Create Your Own!

- For classical conditioning, identify:
  - Your unconditioned stimulus and response
  - Your conditioned stimulus and response
  - Whether your behavior generalizes or discriminates
- For operant conditioning, identify:
  - Whether your behavior is changed by positive/negative/reinforcement/punishment



## What is learning?

- Define it yourself!
- How do you learn?
- What are examples of classical and operant conditioning in your life? (hint: it's all around you)
- Slides and resources: [poojaagarwal.com/berklee](http://poojaagarwal.com/berklee)
- Next up: cognitive learning and mental processes

