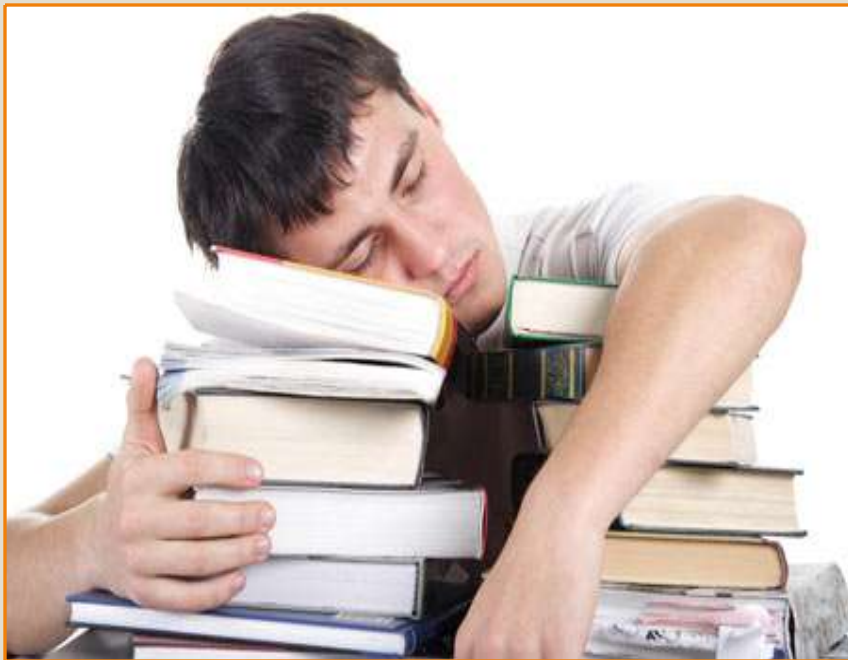


# Introductory Psychology: *Learning*



*Learning is when you learn something...?*



**AP PSYCHOLOGY: UNIT 5**

# Introduction: *Fact or Falsehood?*



- **Lowly animals, like sea snails, behave by instinct and are incapable of learning**
  - False
- **Humans are the only animals that can learn behaviors merely by observing others perform them**
  - False
- **The study of inner thoughts, feelings, and motives has always occupied a central place in psychology**
  - False

# Introduction: *Fact or Falsehood?*



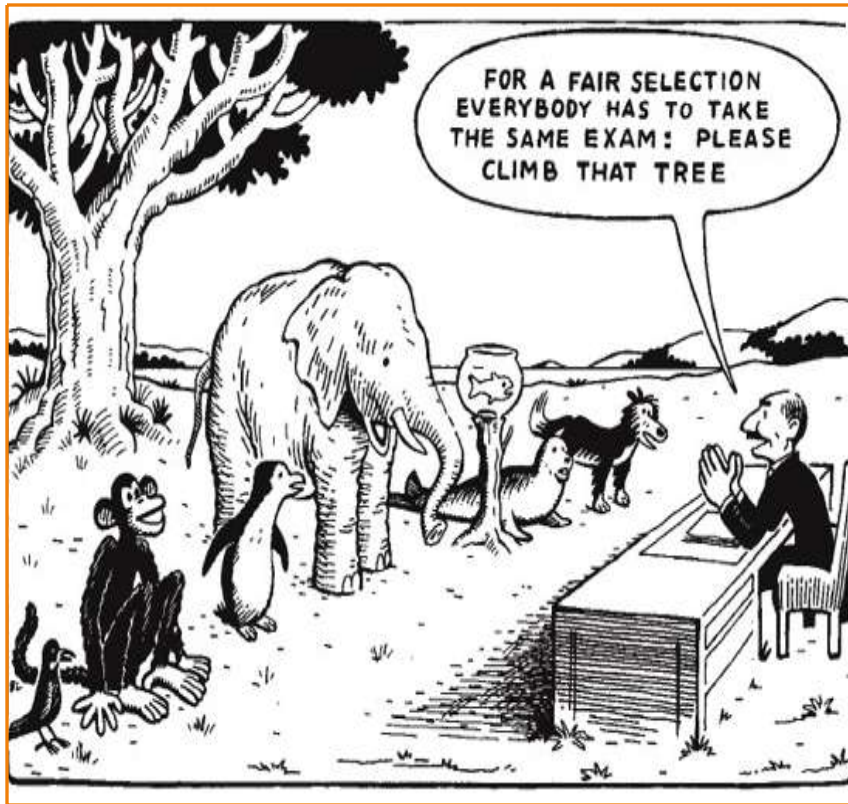
- **A person can be more readily conditioned to fear snakes and spiders than to fear flowers**
  - True
- **With training, pigeons can be taught to discriminate a Bach composition from a Stravinsky composition**
  - True
- **Negative reinforcement is another term for punishment**
  - False

# Introduction: *Fact or Falsehood?*



- **Psychologists agree that punishment, regardless of its form, has little effect on behavior**
  - False
- **Animals learn only when rewards are given**
  - False
- **Animals can learn to make virtually any response if consistently rewarded for it**
  - False

# Learning: The Basics



## PART ONE

# Learning: *The Basics*



- **Unlike some animals, humans are not born with a 100% genetic blueprint for life...**
  - **Nature's most important gift to us may be our adaptability...**
    - ✦ **Our capacity to learn new behaviors enables us to cope with changing circumstances**



# Learning: *The Basics*



- **Learning**

- A relatively permanent change in ***behavior*** brought about by experience or practice
  - ✦ What does “*relatively permanent*” mean?
    - Upon learning, some part of the brain is physically changed to record what has been learned; a process for memory
  - ✦ How do we learn?
    - Seeing, doing, associating, etc.

# Learning: Classical Conditioning

When Pavlov's Dog Begs ...



## PART TWO

“If it makes your mouth water...”

PEANUTS



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# Learning: Classical Conditioning



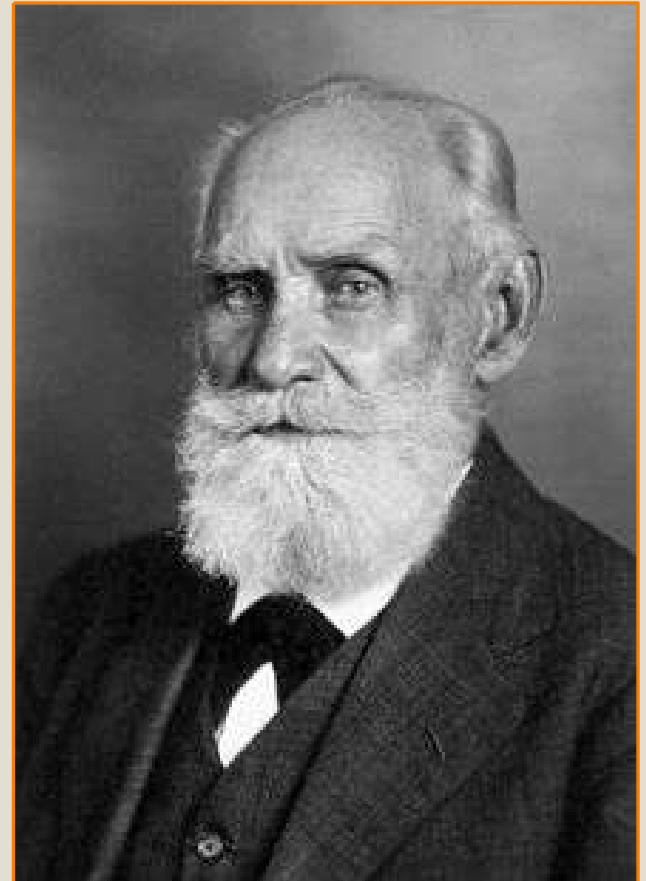
- **Classical Conditioning**
  - A type of learning where a stimulus gains the power to cause a response because it predicts another stimulus that already produces that response
    - ★ Form of learning by association; one of the simplest forms of learning
    - ★ Example
      - Flushing the toilet/shower



# Learning: Classical Conditioning



- **Ivan Pavlov (1849-1936)**
  - Russian physiologist
  - Initially interested in studying the digestive system of dogs
    - ✦ Classical conditioning
      - Unconditioned Stimulus (UCS)
      - Unconditioned Response (UCR)
      - Neutral Stimulus (NS)
      - Conditioned Stimulus (CS)
      - Conditioned Response (CR)



# Elements of Classical Conditioning



# Learning: Classical Conditioning



- **Unconditioned Stimulus (UCS)**
  - A naturally occurring stimulus that triggers an involuntary reflex/response

<u>Pavlov's Dogs</u>		<u>The Toilet-Shower Problem</u>	
UCS	Food	UCS	Scalding hot water
UCR		UCR	
NS		NS	
CS		CS	
CR		CR	

# Learning: Classical Conditioning



- **Unconditioned Response (UCR)**
  - An involuntary reflex/response to a naturally occurring or unconditioned stimulus
    - ✦ The relationship between the UCS and UCR **must be reflexive and not learned**

<u>Pavlov's Dogs</u>		<u>The Toilet-Shower Problem</u>	
UCS	Food	UCS	Scalding hot water
UCR	Salivation	UCR	Jump
NS		NS	
CS		CS	
CR		CR	

# Learning: Classical Conditioning



- **Conditioned Stimulus (CS)**

- A stimulus that eventually produces a learned reflex response by being paired with the original unconditioned stimulus (USC)

- ✦ The CS must be a **neutral stimulus before conditioning occurs**; originally known as the *Neutral Stimulus (NS)*

<u>Pavlov's Dogs</u>		<u>The Toilet-Shower Problem</u>	
UCS	Food	UCS	Scalding hot water
UCR	Salivation	UCR	Jump
NS	Bell	NS	Yelling "flush!"
CS	Bell	CS	Yelling "flush!"
CR		CR	

# Learning: Classical Conditioning



- **Conditioned Response (CR)**

- The learned reflex response to a conditioned stimulus
  - ✦ Generally, the **CR replicates the UCR** in terms of behavior (though the CR may be slightly weaker)

<u>Pavlov's Dogs</u>		<u>The Toilet-Shower Problem</u>	
UCS	Food	UCS	Scalding hot water
UCR	Salivation	UCR	Jumping
NS	Bell	NS	Yelling "flush!"
CS	Bell	CS	Yelling "flush!"
CR	Salivation	CR	Jumping



# Just Remember...

Unconditioned – UNLEARNED

Conditioned – LEARNED

Before conditioning

**FOOD (UCS)**

**SALIVATION (UCR)**



**BELL**

**NO RESPONSE**



During conditioning

**BELL + FOOD (UCS)**

**SALIVATION (UCR)**



After conditioning

**BELL (CS)**

**SALIVATION (CR)**





# Putting It All Together



# Learning: Classical Conditioning

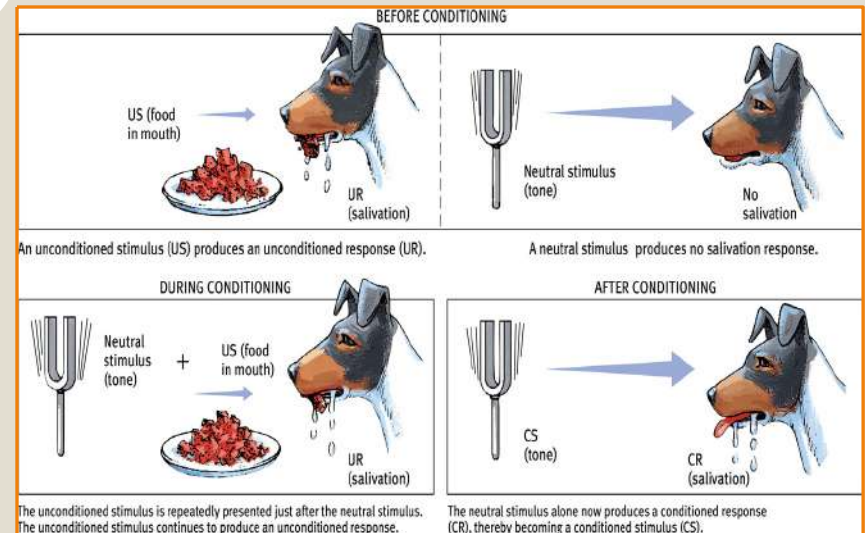


- **Acquisition**

- The process of developing a learned response

- ✦ Occurs when a neutral stimulus (NS) is repeatedly paired with an unconditioned stimulus (UCS)

- The subject learns a new response (CR) to a previously neutral stimulus (CS)



# Learning: Classical Conditioning



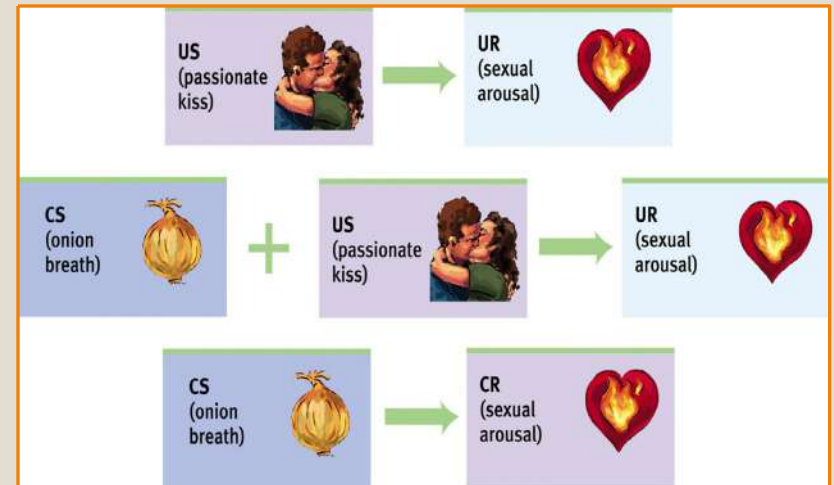
- **Necessities in Classical Conditioning**

- The CS *must come before* the UCS

- \*\*\*If Pavlov rang the bell just after he provided the dogs with food, they wouldn't have become conditioned

- The CS & the UCS *must come very close together*

- ★ Ideally no more than 5 seconds apart



# Learning: Classical Conditioning



- **Necessities in Classical Conditioning**
  - The NS must be paired with the UCS *several times* before conditioning can take place
  - The CS is usually *distinctive* from other competing stimuli



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# Learning: Classical Conditioning

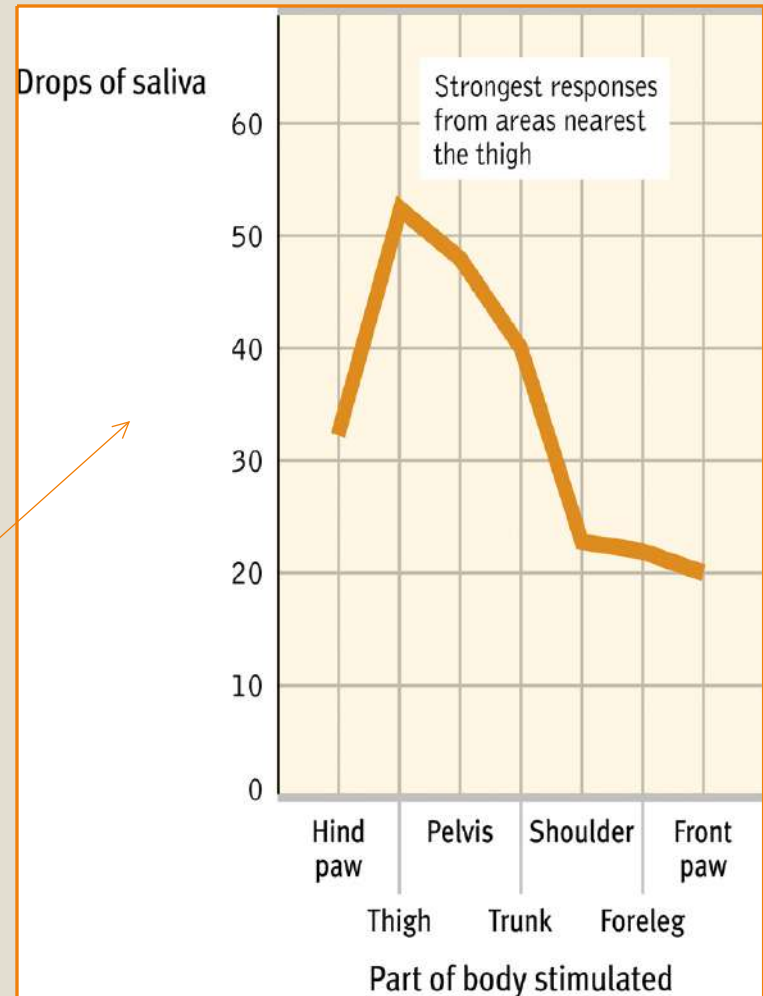


- **Stimulus Generalization**

- The process by which an organism produces the same response to two similar stimuli

- ✦ The more similar the substitute stimulus, the stronger the generalized response

- Pavlov's Stimulation Experiment



# Learning: *Classical Conditioning*



- **Stimulus Discrimination**

- The process by which an organism produces different responses to two similar stimuli
  - ✦ The subject learns that one stimuli predicts the UCS while the other does not

# Learning: Classical Conditioning



- **Extinction**

- The disappearance/diminishing of a learned response
  - ✦ Occurs as the CS loses its power to trigger the CR
    - The continual presentation of the CS alone will weaken the association between the two stimuli

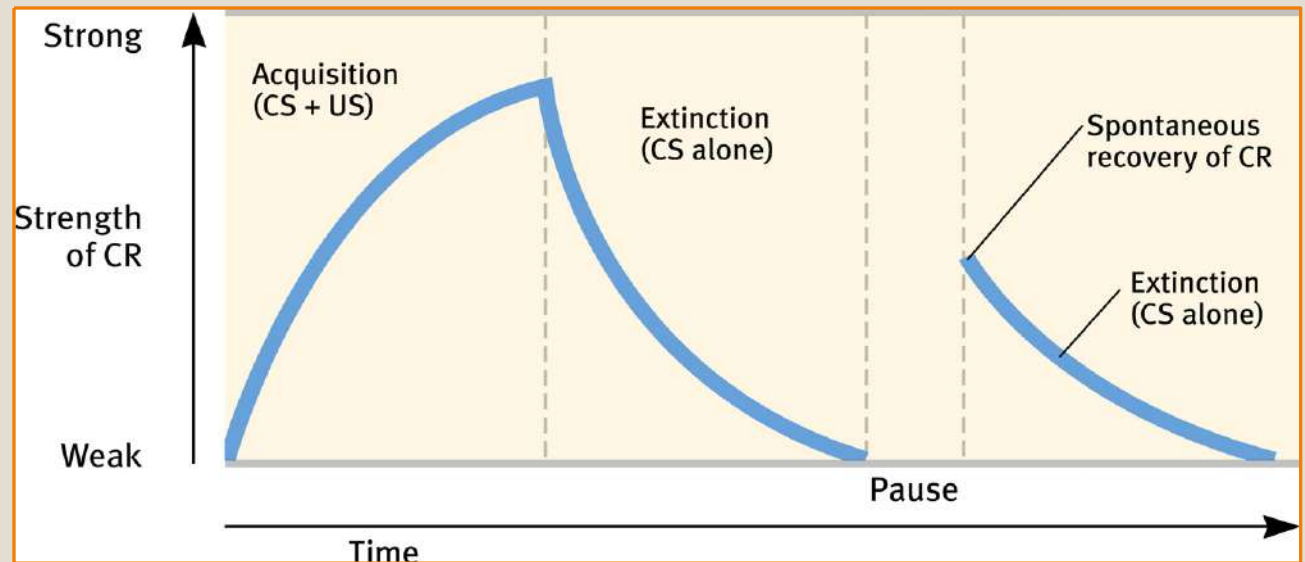
# Learning: Classical Conditioning



- **Spontaneous Recovery**

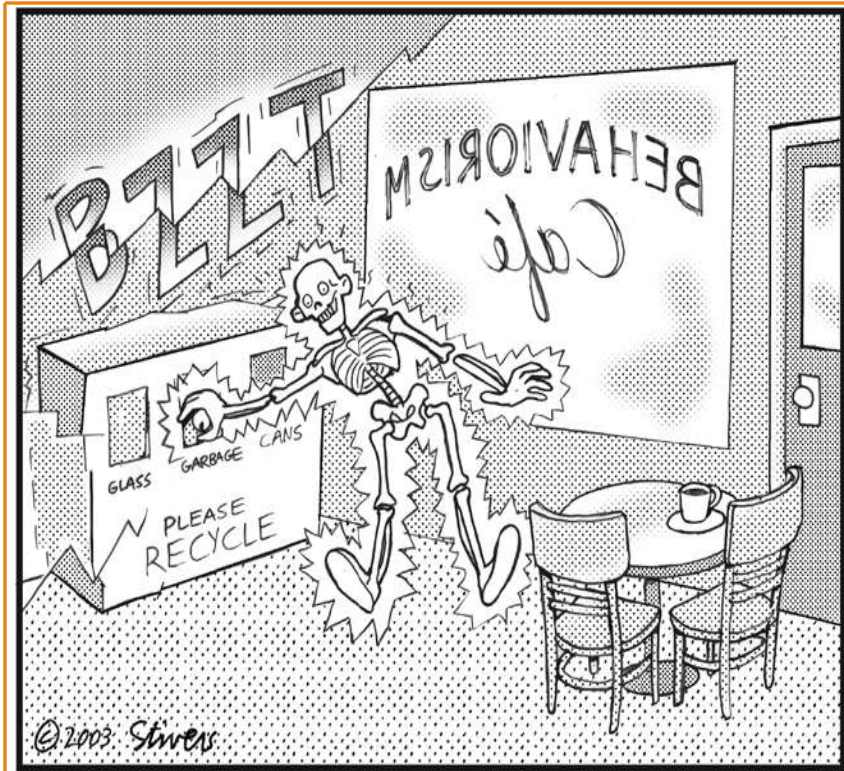
- The reappearance, after a pause, of an extinguished conditioned response

- ✦ After a rest period, an extinguished CR spontaneously recovers, but if the CS persists alone, the CR will become extinct again





# Learning: *Behaviorism*



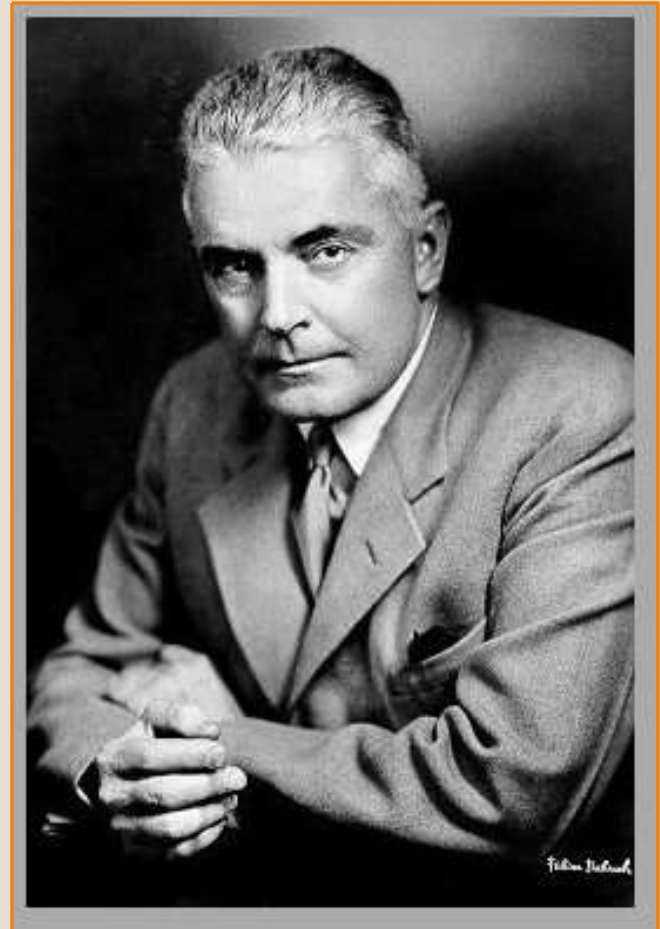
## PART THREE



# Learning: Behaviorism



- **Classical conditioning eventually led to the study of *behaviorism***
  - Both Pavlov & Watson considered the consciousness, or the mind, unfit for the scientific study of psychology
    - ★ (May have underestimated the importance of cognitive processes and biological constraints...)



# Learning: Behaviorism



- **Founded by John B. Watson**
  - Behaviorism focused on **objective and observable** acts; “nurture”
  - By manipulating a stimulus, a psychologist can control a learner’s behavioral response
    - ✦ Today, most believe that learning is the result of cognition, which is influenced by both nature and nurture



# Learning: Behaviorism



- **John B. Watson & Rosalie Rayner (1920)**
  - Sought to explain that fears/phobias can be explained through classical conditioning
    - ✦ Established a fear of rats in an 11-month old, Albert
    - ✦ Led to questions about experimental ethics



# Learning: Behaviorism



- **The Experiment**
  - NS: **White rat** (initially elicited no response)
  - UCS: Loud noise
  - UCR: Crying/fear
    - ✦ Loud noise (UCS) paired with rat (NS)...creates...
  - CS: White rat
  - CR: Crying/fear/Nate
- **In this case, Albert's fear is known as a **conditioned emotional response (CER)****
- **What about white rabbits? Fur coats? Santa?**

