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BEHAVIORAL PRINCIPLES

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S-R LEARNING

Classical conditioning
The most basic form of learning; one stimulus comes to serve as a signal for the occurrence of a second stimulus (the response)


Stimulus – a physical event capable of affecting behavior

Very common type of learning, may play a role in everything from fears to racial prejudice

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PAVLOV & CLASSICAL CONDITIONING



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THE EXPERIMENT

Pavlov was researching the digestive process in dogs, when he came upon an interesting phenomenon

He would ring a bell at the same time as he was serving the dogs food; eventually, the dogs began to drool at just the sound of the bell

One stimulus became paired with another, one signaling the coming of the other

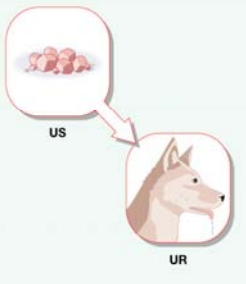
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NEW REFLEXES FROM OLD

Unconditioned stimulus (US)
Elicits a response in the absence of learning

Unconditioned response (UR)
The reflexive response to a stimulus in the absence of learning

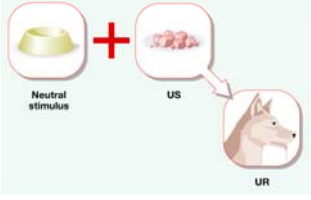


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NEW REFLEXES FROM OLD

A neutral stimulus is then regularly paired with an unconditioned stimulus



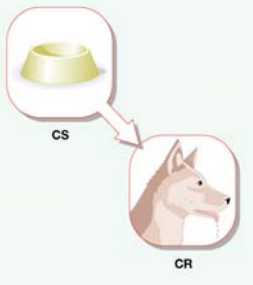
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NEW REFLEXES FROM OLD

Conditioned stimulus (CS)
An initially neutral stimulus that comes to elicit a conditioned response after being paired with an unconditioned stimulus

Conditioned response (CR)
Response to the CS



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Before conditioning: US (Food) → UR (Drool)
The unconditioned stimulus automatically causes an unconditioned response.

NS (Bell) → Nothing
The neutral stimulus causes no response.

During conditioning: NS (Bell) + US (Food) → UR (Drool)
The neutral stimulus is repeatedly paired with the unconditioned stimulus.

After conditioning: CS (Bell) → CR (Drool)
The neutral stimulus becomes a conditioned stimulus, which evokes a conditioned response.

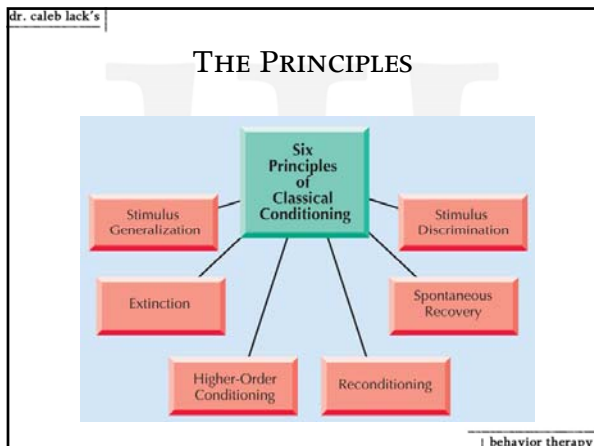
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Unbeknownst to most students of psychology, Pavlov's first experiment was to ring a bell and cause his dog to attack Freud's cat.

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THE PRINCIPLES

Acquisition is the process by which a CS acquires the ability to elicit a CR

Happens through repeated pairing of US with CS

Affected by the number of US-CS pairings the timing of those pairings, the intensity of the US or CS, and familiarity of the stimuli

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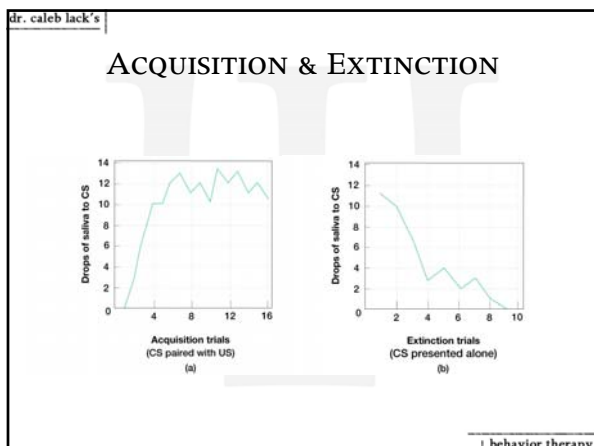
THE PRINCIPLES

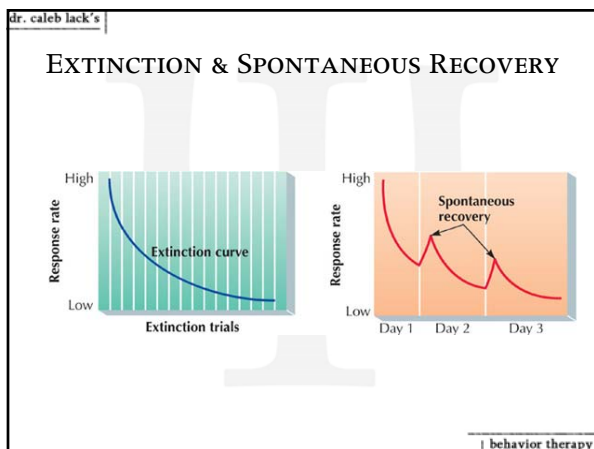
Extinction

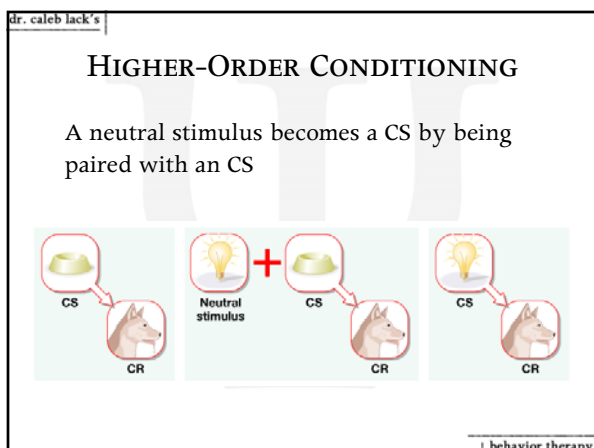
Process by which a CS loses the ability to elicit CR because it is no longer followed by the US

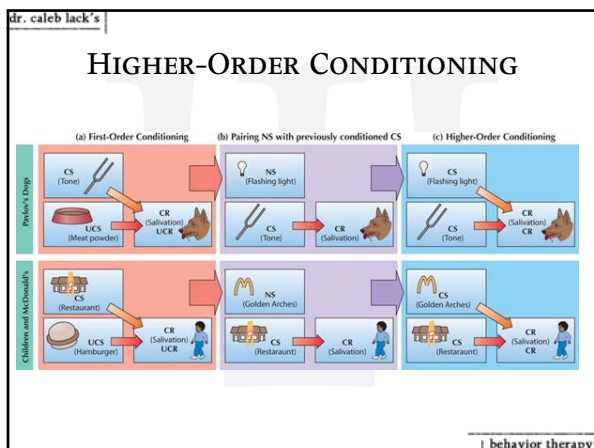
Not a perfect process, events such as **reconditioning** and **spontaneous recovery** hinder the extinction of CR

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THE PRINCIPLES

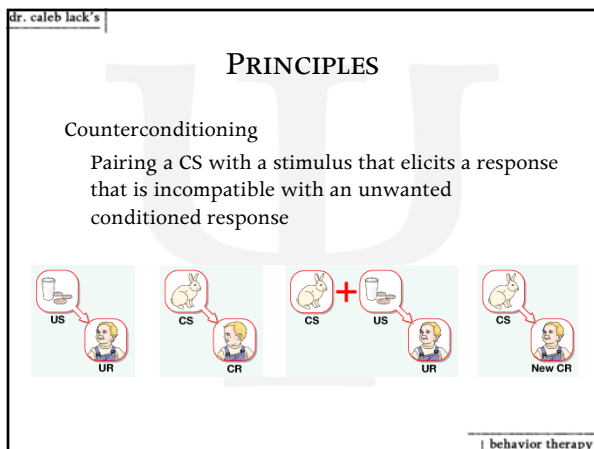
Stimulus generalization – the tendency of stimuli similar to a CS to evoke CR

Have one awesome bald, bearded teacher, so you seek out other bald, bearded teachers

Stimulus discrimination – the process by which we learn to respond to certain stimuli but not to others

You learn that not all bald, bearded teachers are awesome

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OPERATIONAL DEFINITION

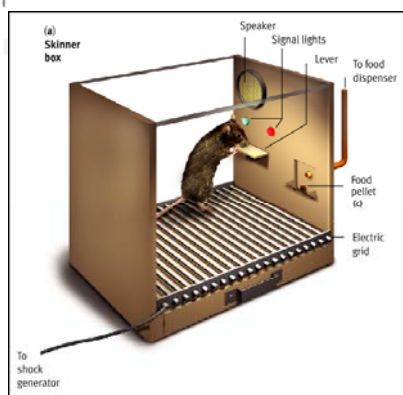
Operant conditioning – process where you learn to repeat behaviors that yield positive outcomes or permit them to avoid or escape negative outcomes

In other words, the chance that a behavior will occur depends on the consequences that follow

These chances can be increased by reinforcement or decreased by punishment

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CONSEQUENCES

A neutral consequence neither increases or decreases the probability that the response will recur

Reinforcement strengthens the response or makes it more likely to recur

Punishment weakens a response or makes it less likely to recur

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INCREASING BEHAVIOR

Reinforcement
Applying or removing a stimulus to increase the strength of a specific behavior

Positive reinforcers
Stimuli that strengthen responses that precede them
There are primary (food, water) and secondary reinforcers (money, praise)

Negative reinforcers
Stimuli that strengthen responses that cause avoidance of those stimuli

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NEGATIVE VS. POSITIVE REINFORCEMENT

Process	Behavior	Consequence	Effect on behavior
Positive reinforcement	 Response Press lever	 Rewarding stimulus presented Food delivered	Tendency to press lever increases
Negative reinforcement	 Response Press lever	 Aversive stimulus removed Shock turned off	Tendency to press lever increases

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DECREASING BEHAVIOR

Punishment
Applying or removing a stimulus decreases the strength of a behavior

Positive punishment
Occurs when behaviors are followed by aversive stimuli called punishers

Negative punishment
Occurs when behaviors are linked to loss of potential reinforcers

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THE PRINCIPLES

Shaping
Closer and closer approximations to desired behavior are required for positive reinforcement to be given

Chaining
A sequence of responses must be followed to gain a reward

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THE PRINCIPLES

Stimulus generalization
Stimuli that are similar to the original stimulus are more likely to trigger a response.

Stimulus discrimination
The tendency of a response to occur in the presence of one stimulus but not another

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THE SCHEDULES

There are different schedules of reinforcement used in operant conditioning

These schedules are rules determining when and how reinforcements will be delivered

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THE SCHEDULES

Continuous reinforcement
Every occurrence of a behavior is reinforced

Useful for strengthening new behavior
Every time you raise your hand in class, you get some candy

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THE SCHEDULES

Fixed-interval – a specific interval of time must elapse before a response will yield reinforcement
Such as a studying schedule

Variable-interval – a variable amount of time must elapse before a response will be reinforced
Surprise inspections at workplace

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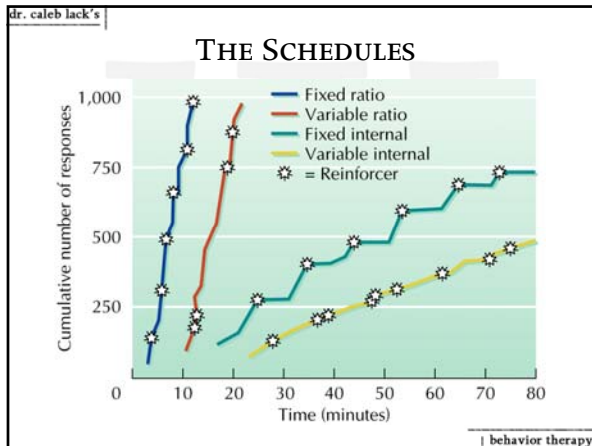
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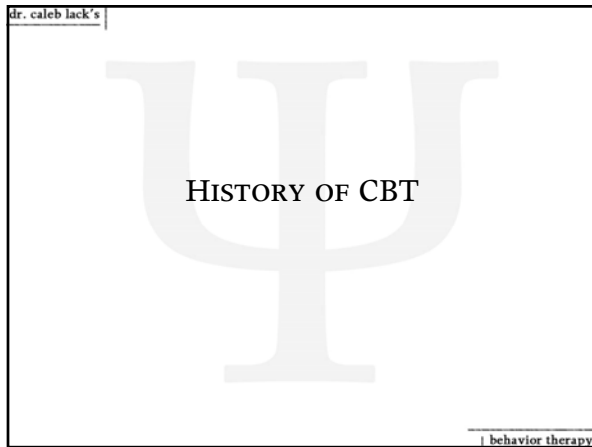
THE SCHEDULES

Fixed-ratio – reinforcement occurs only after a fixed number of responses have occurred
Being paid for every ten license plates you stamp

Variable-ratio - reinforcement occurs only after a variable number of responses have been performed
Slot machines and other games of chance

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EVOLUTION OF CBT

Three primary stages

1. Initial emergence of behavior therapy
2. Growth of cognitive therapy
3. Merging of BT and CT

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STAGE ONE

Behavior therapy emerged independently in the US and UK in the 1950s

Brits focused on outpatient anxiety/fear and based more on classical conditioning

Americans focused on institutionalized patients and were based more on Skinnerian conditioning and techniques

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US BEHAVIOR THERAPISTS

Radically behavioral in their outlook

Lindsley – verbal responses in psychiatric patients

Krasner – further verbal conditioning

Lovaas – autism treatment

Ayllon & Azrin – token economy systems

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UK BEHAVIOR THERAPISTS

Both psychiatrists and psychologists were integral in the development

Critical of Skinner's theories, more Pavlovian or Hullian, and accepting of genetic factors

Hans Eysenck's critiques of psychoanalysis

Joseph Wolpe's systematic desensitization

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COMMON GROUND

Despite the differences, US & UK BT had much in common

- Concentrated on "behavioral problems"
- Change in behavior was both necessary and sufficient to cure problems
- Psych problems were result of faulty learning
- Strict empirical approach to treatment

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COMMON GROUND

Led to merging of two approaches in the 1970s, with a subsequent emphasis on effectiveness research

Many successes in Stage One, but notable failures as well

- Depression
- Addictive problems

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STAGE TWO

Beck's cognitive therapy for depression made huge impact on the field, as the aversion to cognitive concepts waned in the 1980s

Emphasis and empiricism and the inclusion of behavioral concepts helped speed acceptance

Beck & Ellis' work seen more as supplements than competitors to BT

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BECK VS. ELLIS

Ellis' work

- Was more directly linked to BT
- Had an earlier recognition of link between thoughts and emotions
- Were more loosely formulated and anecdotal

Beck's work

- Highly testable
- Focused on treatment of depression
- Became more popular, both for clinical use and outcome research

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COGNITIVE THERAPY

There is a strong disconnect between cognitive *therapy* and cognitive *science*

- Emphasis on conscious processes
- Lack of emphasis on subjectivity of experiences
- Lack of emphasis on how mood impacts attention

This is being closed however, as more psychologists become involved in cross-disciplinary research

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STAGE THREE

With the merging of cognitive and behavioral therapies, interesting exchanges occur

- Emphasis on empiricism and conducting outcome research (from BT) has been kept
- CT is supplying more *content* to BT, in the form of client explanations, wishes, fears, and understanding
- CT allows for expanded explanatory power for psychological problems (e.g., OCD, panic)

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STAGE THREE

Merging also raises new theoretical questions

- Causality links between thoughts, emotions, and behaviors
- What are the key mechanisms of change, both in BT and CT?
- How best to track cognitive changes and when they produce improvement?

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BEHAVIORIZING PSYCHOLOGY

As with the gap between cognitive therapy and cognitive science, many feel there is a gap between behavior therapy and behavioral science

This can lead to a number of issues for behavior therapists, both in practice and theory

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NOT JUST ONE

Many different kinds of behaviorism

- Radical behaviorism (RB) / Skinner
- Cognitive-social behaviorism / Bandura
- Psychological behaviorism / Staats

Each is similar, but also have fundamental differences

Which one a therapy or theory is based on will impact it greatly

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