

Foundations, Part II: Skinner

Evaluation

- Midterm (30%)
- Final (35%)

- Weekly reading responses (15%)
- Book review (20%)

- Experimental participation

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Weekly reading responses

- Each Monday, in class, you will get a question or questions
- You need to write a reply, between 300 - 500 words
- Must be emailed to your TF by midnight Saturday
- Late submissions will not be accepted
- Pass/fail -- the replies have to be clearly written, have to answer the question(s), and have to show some grasp of the material, usually from the readings

Weekly reading responses

- There will be 10 responses, each worth 1.5% of your grade
- If you get no reply from your TF, you are doing fine. If you fail (or don't submit a response), your TF will contact you
- The responses are expected to be your own work

Reading Response #1

- Give a Freudian explanation for alcoholism. Then give a behaviorist explanation. Finally, invent a behaviorist treatment to get people to stop drinking

Who is my TF?

A - Ch	Sunny Bang, sunjung.bang@yale.edu
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Foundations, Part II: Skinner

Freud meets Darwin:
Why would an unconscious
evolve?

Deception

How to be a good liar

Self-deception

Behaviorism

1. Emphasis on learning

Behaviorism

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2. Anti-mentalism

unscientific = desires, wishes, goals,
beliefs, emotions, etc.

scientific = observables:
stimulus, response, environment, etc.

Behaviorism

1. Emphasis on learning
2. Anti-mentalism
unscientific = desires, wishes, goals, beliefs, emotions, etc.
scientific = observables:
stimulus, response, environment, etc.
3. No differences across species

Three learning principles that are said to explain everything

The simplest form of learning: Habituation

What is it?

-- a decline in the tendency to respond to stimuli that are familiar due to repeated exposure

e.g., clock ticking, traffic noise, trains

What's it for?

-- An adaptive mechanism to keep us focusing on new objects and events

Classical conditioning

What is it?

-- the learning of an association between one stimulus and another stimulus

Classical conditioning

Unconditioned

Inborn and innate

UStimulus --> Uresponse

US -> UR

Conditioned

Learned through association

Cstimulus -> Cresponse

CS -> CR

Classical conditioning

- Repeated pairings of US and CS will give rise to a CR response
- Reinforced trials vs. unreinforced trials
- Experimental extinction

Classical conditioning

- Repeated pairings of US and CS will give rise to a CR response
- Reinforced trials vs. unreinforced trials
- Experimental extinction
- Stimulus generalization

The scope of classical conditioning

- Crabs, fish , cockroaches, etc.
- Humans
 - Fear
 - Hunger
 - Sex
 - Fetishes

What is classical conditioning for?

Old theory: Association

Classical conditioning is strongest when UCS and CS are simultaneous

UCR and CR are identical

What is classical conditioning for?

Better theory: Preparation

Sensitivity to a cue that an event is about to happen allows you to prepare for that event

1. Optimal timing between CS and UCS?
CS immediately before UCS (bell then food)
2. Nature of the CR?
Preparation for the US (saliva)

Instrumental conditioning

What is it?

-- learning the relationships between actions and rewards/punishments

What's it for?

-- learning what works and what doesn't

(classical: passive; instrumental: voluntary)

LAW OF EFFECT:

The tendency to perform an action is increased if rewarded; weakened if it is not.

**Skinner:
Extending operant
conditioning**

How to train a pig

- Positive reinforcement
- Negative reinforcement
- Punishment

How to train a pig to dance

- Shaping

How to train a pig to dance for poker chips

Link up the chips to an innate reward
through classical conditioning

How to train a pig to dance ... forever

- Schedules of reinforcement

Fixed vs. Variable

Ratio vs. Interval

The Partial Reinforcement Effect

How to make people dance

Behaviorism:
Scientific assessment

Is it true that everything is learned?

- No, there is considerable evidence for innate (unlearned) knowledge

Is it true that talking about mental states is unscientific?

- No
 - other sciences (e.g., physics) talk about unobservables
 - it makes sense to explain a complex and intelligent mechanism in terms of internal representations

Is it true that animals need reinforcement and punishment to learn?

No

Is it true that there are no special constraints on learning?

No,

- Natural responses
- Food aversion (Garcia effect)
taste & nausea vs.
taste & electric shock
- Phobias

Chomsky's critique:

When it comes to humans,
behaviorist notions are so
vague as to pure story-telling,
not science.

Unfalsifiable

Why do we?

- Talk to ourselves
- Imitate sounds
- Create art
- Give bad news to an enemy
- Fantasize about pleasant situations

Skinner: It's all reinforcement

- Talk to ourselves
- Imitate sounds
- Create art
- Give bad news to an enemy
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Chomsky: Vague, unfalsifiable

- Talk to ourselves
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The legacy of behaviorism

- Richer understanding of some important learning mechanisms
- Powerful techniques for training, especially for non-verbal creatures