Announcements

- Next Aplia due Monday
- Exam Next Wednesday (April 2)
- Review session Next Monday (Mar 31)
  5:30 pm, room 130 ILC
Submit Your Best Hiccup Cure!

We all know that hiccups can be more distracting than someone talking incessantly about her boyfriend while sitting behind you in class, so help us out and share your best sure-fire cure for the hiccups!

Sure-fire Hiccup Cure: *
Cognition & Emotion

E. Cognition in depression

1. Distorted cognitions create depression
2. Cognitive distortions (or errors)
   a. Overgeneralization
   b. Selective abstraction
   c. Magnification & Minimization
   d. All or Nothing thinking
3. Therapy: Changing cognitions changes emotions
4. Sadder but Wiser phenomenon
Sadder but Wiser Study (Alloy and Abramson)

Press Button A or Button B.

After each press…
   Light Turns on (Win 25 cents)
or
   Light remains dim (No Win)

"How much control did you have?"

No relationship between button pushed and winning!
Nondepressed people may suffer either from illusions of control or noncontrol, depending on the circumstances. These illusions help them to see themselves and their world with a "rosy glow" and may help them persist when things go wrong.
On to the next topic
Learning

When I think back on all the CRAP I learned in High School
A simple illustration of learning
I. Overview and general issues

A. What the heck is learning? = the ability to modify behavior after exposure to a situation.

*Learning is a relatively permanent change in an organism’s behavior due to experience.*

B. Theories of learning must reconcile that we have "hard-wired" reflexes, yet are capable of modifying those reflexes

*Experience-dependent neural plasticity!*
I. Overview and general issues

C. Today, associative learning
   1. This can range from very simple to terribly complex
   2. Can explain some very interesting phenomena:
      a. Training animals
      b. Superstitious behavior
      c. Phobias (irrational fears): more later
I. Overview and general issues

3. Two types of associative learning:
   a. Classical: learn that one event is followed by another
   b. Operant: learn that a response you make will be followed by a consequence
Stimulus-Stimulus Learning (Classical)

Learning to associate one stimulus with another.
Response-Consequence Learning (Operant)

Learning to associate a response with a consequence.

(a) Response: balancing a ball
(b) Consequence: receiving food
(c) Behavior strengthened
I. Overview and general issues

4. Similarities between the types of learning:

   both **Behavioral**

   a. Simple learning of associations are the building blocks

   b. Simple laws govern all learned behaviors

   c. Learning is best understood by examining causes external to the organism (no need to look inside the black box)
A. Ivan Pavlov

1. History: There was a problem in Pavlov's experiments

2. Pavlov therefore decided to study this phenomenon of salivation before food presentation

B. Pavlov's "Classical" CC experiment: Tone turned on before meat powder presented
Before Conditioning

Conditioned Stimulus (CS)

Tone

UnConditioned Stimulus (UCS)

Food

No Response or Irrelevant Response

UnConditioned Response (UCR)

Drool!
During Conditioning

Conditioned Stimulus (CS)
- Tone

Animal Learns that Tone Precedes Delivery of Food! Some Drool Possible…

UnConditioned Stimulus (UCS)
- Food

UnConditioned Response (UCR)
- Drool!
After Conditioning

Conditioned Stimulus (CS)
Tone

Conditioned Response (CR)
Drool!!

UnConditioned Stimulus (UCS)
Food

UnConditioned Response (UCR)
Drool!
Conditioning With Smiles and Smarties

Conditioned Stimulus (CS)

Conditioned Response (CR)

UnConditioned Stimulus (UCS)

UnConditioned Response (UCR)
Applications of CC

A. Little Albert
   A. Furry White Rat (CS)
   B. Paired with Loud Gong (UCS)
   C. Fear following Loud Noise (UCR)
   D. Fear then followed White Rat (CR)
   E. Generalized to other fuzzy harmless things
Applications of CC

A. **Little Albert** (http://www.youtube.com/watch?v=9hBfnXACsOI)
   A. Furry White Rat (CS)
   B. Paired with Loud Gong (UCS)
   C. Fear following Loud Noise (UCR)
   D. Fear then followed White Rat (CR)
   E. Generalized to other fuzzy harmless things

B. **Heroin and Needles: Overdoses in unusual environments**
Conditioning and Drug Tolerance: I

Conditioned Stimulus (CS)

- Environment
- Room, Friends, Music, etc

None Initially

UnConditioned Stimulus (UCS)

- Heroin

Euphoria

UnConditioned Response (UCR)
Conditioning and Drug Tolerance: II

Conditioned Stimulus (CS)
Environment
Room, Friends, Music, etc

Conditioned Response (CR)
Compensatory Response as Conditioning Occurs

UnConditioned Stimulus (UCS)
heroin

UnConditioned Response (UCR)
Euphoria
Conditioning and Drug Tolerance: III

Conditioned Stimulus (CS)
- Environment
  Room, Friends, Music, etc

Conditioned Response (CR)
- Compensatory Response
  Grows Larger

UnConditioned Stimulus (UCS)
- heroin

UnConditioned Response (UCR)
- Euphoria
  is smaller
Conditioning and Drug Tolerance: IV

Conditioned Stimulus (CS)
Environment
Room, Friends, Music, etc

Conditioned Response (CR)
Compensatory Response
Is Large

UnConditioned Stimulus (UCS)

UnConditioned Response (UCR)
Euphoria returns!

Heroin – increased dose
Conditioning and Drug Tolerance: V

New Environment
Not conditioned

No Conditioned Response (CR)
No Compensatory Response

UnConditioned Stimulus (UCS)
Heroin – Big dose again

UnConditioned Response (UCR)
OVERDOSE
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Another Example...
And it happens again!
And again!
F. Other comments on CC

1. Initially, CS elicits only an OR, or nothing
2. R is defined by what elicits it
3. There is nothing unique about the CS, except that it is paired with the UCS
G. Extension of the basic phenomenon of CC

1. Temporal sequencing of UCS & CS is important
   a. Best is "Delayed Conditioning", CS precedes UCS by ~ .5 seconds
      \[
      \begin{align*}
      \text{CS} & \quad \text{-------------} \\
      \text{UCS} & \quad \text{-------------}
      \end{align*}
      \]
   b. Less effective are Simultaneous and Trace conditioning;
      (1) Simultaneous: both onset and offset at same time
      \[
      \begin{align*}
      \text{CS} & \quad \text{-------------} \\
      \text{UCS} & \quad \text{-------------}
      \end{align*}
      \]
      (2) Trace: CS on and off before UCS on
      \[
      \begin{align*}
      \text{CS} & \quad \text{-------------} \\
      \text{UCS} & \quad \text{-------------}
      \end{align*}
      \]
   c. Reason for less effectiveness is that CS must predict UCS
G. Extension of the basic phenomenon of CC

2. Some basic phenomena of CC

a. Extinction

(1) if no longer pair CS and UCS, the CR will diminish and then disappear
It’s not her
It’s not her
It’s not her
It’s not her
It’s not her
Ex-girlfriends in black Jettas
Everywhere I go, there it is
When I take a stroll, there she is
When I'm out the door, what I'm looking for
Same looking car that I saw 12 seconds ago

They're so popular you can't get away
Girls drive 'em in Encino
And they drive 'em in LA
Some are different, some are older
And their bodystyle is changed
But my heart will still jump
Because to me, they look the same

Ex-girlfriends, black Jettas
Ex-girlfriends, black Jettas
Ex-girlfriends, black Jettas
Ex-girlfriends, black Jettas
G. Extension of the basic phenomenon of CC

2. Some basic phenomena of CC

a. Extinction
   (1) if no longer pair CS and UCS, the CR will diminish and then disappear
   (2) However, the CR can return:
       (a) Spontaneous recovery
       (b) Reconditioning: must repair

b. Stimulus Generalization

c. Discrimination: learn to differentiate two similar CS's: CS+ and CS-
Generalization
G. Extension of the basic phenomenon of CC

2. Some basic phenomena of CC

a. Extinction

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Discrimination