Chapter 4 - continued
Characteristics of CS & Additional Phenomena

Effects on Conditioning of a CS

• We’ve discussed the effect of the CS-US pairing as being important.

• What properties of a CS itself determine the effectiveness of conditioning?
Properties of the CS

- Latent Inhibition
- Overshadowing
- Blocking

The last 2 conditioning Methods involve use of:
- **Compound Stimulus** -
  - Example: [light + tone] : shock → fear

Latent Inhibition

- Also called CS-preexposure effect.
- A familiar stimulus is
  - Training Phase 1: (preexposure)
    - Light (comes on periodically without any pairing)
  - Training Phase 2:
    - Light (NS) : Food (US) → Salivation (UR)
  - Test Phase
    - Light (NS) →

- Experience with a stimulus makes it harder to enter into a new and different association.
Real World Example

• Training Phase 1: (preexposure)
  – Fire alarm (falsely occurring a couple times a week)

• Training Phase 2:
  – Fire alarm (NS) : Emergency/Fire (US) → Fear (UR)

• Test Phase
  – Fire Alarm (NS) →

• We learn that redundant stimuli in the environment are not important and should be ignored.

Overshadowing

• In a compound stimulus,

• Typically, the more salient NS
Overshadowing Example

• Training Phase:
  – [dim light + bright light](NS) : shock (US) → fear (UR)
  – [dim light + bright light](CS) → fear (CR)

• Testing Phase
  – bright light (CS) →
  – dim light (NS) →

Overshadowing Real World Example

• Training Phase:
  – [Doctor + Nurse](NS) : bad health (US) → fear (UR)
  – [Doctor + Nurse](CS) → fear (CR)

• Testing Phase
  – Doctor (CS) →
  – Nurse (NS) →
Overshadowing Real World Example

• For cancer patients, sometimes they develop a taste aversion to food in general (stop eating). To prevent this...

• Training Phase:
  – [hospital food + novel flavor](NS) : chemotherapy (US) → sick (UR)
  – [hospital food + novel flavor](CS) → sick (CR)

• Testing Phase
  – novel flavor (CS) → sick (CR)
  – hospital food (NS) → no response

What determines salience?

• Characteristics of the stimulus.
  – Example: weak vs. strong

• Organism’s characteristics
  – Example:
    • for pigeons,
    • for rats,
    – (because of methods of foraging for food?)

• Relationship between CS & UR is important
  – Flavor → nausea
  – Light → nausea
Conclusions about Overshadowing

- Overshadowing -- sometimes coniguity between a NS and US is not enough to form a conditioned association.
- Overshadowing is the weakening of another stimulus association.
  - Typically, the more salient NS interferes with the conditioning of the less salient NS
  - If both NS are equally salient, then they tend to overshadow each other. Both have the same response, but it’s weaker than if they were conditioned alone.
- Training Phase:
  - [green light + red light](NS) : shock (US) → fear (UR)
  - [green light + red light](CS) → fear (CR)

• Testing Phase
  - green light (CS) → weak fear (CR)
  - red light (NS) → weak fear (CR)

Blocking

• An already established conditioned stimulus

• The compound stimulus consists of a CS and a NS paired with a US.
  - (in overshadowing is was two NS paired with a US)
Blocking Example

• Training Phase 1:
  – light (NS) : shock (US) → fear (UR)
  – light (CS) → fear (CR)

• Training Phase 2:
  – light (CS) + tone (NS): shock (US) → fear (UR)

• Testing Phase:
  – light (CS) → 
  – tone (NS) →

Blocking - Real World Examples

• Training Phase 1: You always eat and get sick at Grandma’s house.
  – Taste of pudding (NS): bad ingredient (US) → sick (UR)
  – Taste of pudding (CS) → sick (CR)

• Training Phase 2: A more festive holiday at Grandma’s house.
  – Taste of pudding (CS) + cookies (NS): bad ingredient (US) → sick (UR)

• Testing Phase: (later eating them on separate occasions)
  – Taste of pudding (CS) → sick (CR)
  – cookies (NS) → no response
Learned Inattention Hypothesis

- Why doesn’t conditioning occur on the NS?
- **Learned Inattention.**

- If we purposefully try to condition the NS in a new phase,

Training Phase 1:
- light (NS) : shock (US) $\rightarrow$ fear (UR)
- light (CS) $\rightarrow$ fear (CR)

Training Phase 2:
- light (CS)+tone (NS): shock (US) $\rightarrow$ fear (UR)

Testing Phase:
- light (CS) $\rightarrow$ fear (CR)
- tone (NS) $\rightarrow$ no response

Training Phase 3:
- tone (NS) : shock (US) $\rightarrow$ fear (UR)
- buzzing (NS) : shock (US) $\rightarrow$ fear (UR)

Testing Phase 2:
- tone (CS) $\rightarrow$ weak fear response (CR)
- buzzing (CS) $\rightarrow$ strong fear response (CR)