

Chapter 5

Part 1
(p.145-162)

A Behavioral View

- **Genotype-environmental interaction** leads to relatively stable patterns of behavior and relatively stable environments
 - Think of your own routine
 - Behavior selected by consequences- we continue to behave in ways that produce reinforcement and avoid punishers
 - Recognize how stable behavior is when you're plopped into a new environment
 - New job, foster placement (develop problems at school once they're in a good environment), study abroad, going to middle school
 - Huge amounts of variability occur
 - Disrupted behavior patterns a component of new learning

Learning as a Natural Selection Process

- Learning and natural selection are parallel processes
 - Selection metaphor
 - **Learning** involves the contingencies in **ontogenic** development.
 - **Natural selection** involves the contingencies in **phylogenetic** development.
- Requires:
 - **Variability** in learned behavior (again!!)
 - **Selection** of learned behavior
 - **Retention** of learned behavior

Learning as a Natural Selection Process

- Variation in learned behavior
 - Variability not the spice of life; it's the essence of life
 - Selection only works on behaviors that are actually emitted
 - Variability in genetics and behavior
 - All behavior is variable
 - More variable as we are first acquiring the behavior, then variability decreases
 - Variability occurs when learned behavior no longer produces reinforcing consequences (pattern disruption)
 - Recall study abroad example
 - Kids with Autism – tantrum
 - Shaping of inappropriate behavior

Learning as a Natural Selection Process

- Selection in learned behavior
 - Many behavioral options, selection is the process for what is kept
 - “best fit” = reinforcing consequences
 - Not always adaptive, just what consequences exist
 - Peers may provide consequences that “select” maladaptive behaviors

Learning as a Natural Selection Process

- Retention of learned behavior
 - **Phylogenetic selection** = retention in genes
 - **Ontogenetic selection** = retention in ????
 - Brain?
 - Interaction?
 - Functional stimulus and response classes?
 - Does it need to exist anywhere?
 - Feels good to “put” learning somewhere

Behavior-Environment Relations

- Remember, what changes is the relationship
- **Behavior** includes all of the things that we do:
 - Thinking, talking, writing, feeling, imagining, dreaming
 - And all are subject to the same principles of dynamic systems, whether **public (i.e., overt)** or **private (i.e., covert)**
- **Functional response class** (Ch 6)
 - Operant behaviors that produce the same consequence, regardless of their form.
- **Functional stimulus class**
 - The grouping of physically different stimuli according to the similar *effects they have on behavior*
 - Only interested in those stimuli that are functionally related to behavior
 - E.g., functional stimuli: parents calling "Nancy", "Nancy Marie!", gesture, whistle, dinner bell, "3, 2, 1...", "I have ice cream", street lights come on, scrapes her knees
 - All evoke Nancy's behavior of running to parents

Types of Learning

- **Habituation** and **Respondent Learning** are both specific to reflexes
- Note: remembering some examples of **reflexes** will help you understand these two types of learning and their significance. Here are just a few human reflexes:

Stimulus (UCS)	Involuntary Response (UCR)
Throat irritation	Cough; (if blockage) gagging, vomiting
Eye irritation	Tears
Loud noise; sudden movement toward organism, etc.	Protective movements. Head, arms, body, eyes move; heart rate increase
Emotional stress	Reddening of face
Food in mouth	Saliva release
Sexual stimulation	Pleasure, glandular & muscular responses
Sharp/hot object	Withdrawal
Puff of air to eye	Blink

Habituation

- A decrease or elimination of response to a particular stimulus as a result of repetitive presentations of that stimulus.
- Necessary criteria:
 1. Must be a decrement in responding
 2. This decrement must follow the repeated presentations of a particular stimulus
 3. It applies only to those stimulus-response relations commonly called *reflexes*
 4. Cannot be the product of other processes such as satiation or fatigue

What is an example of habituation?

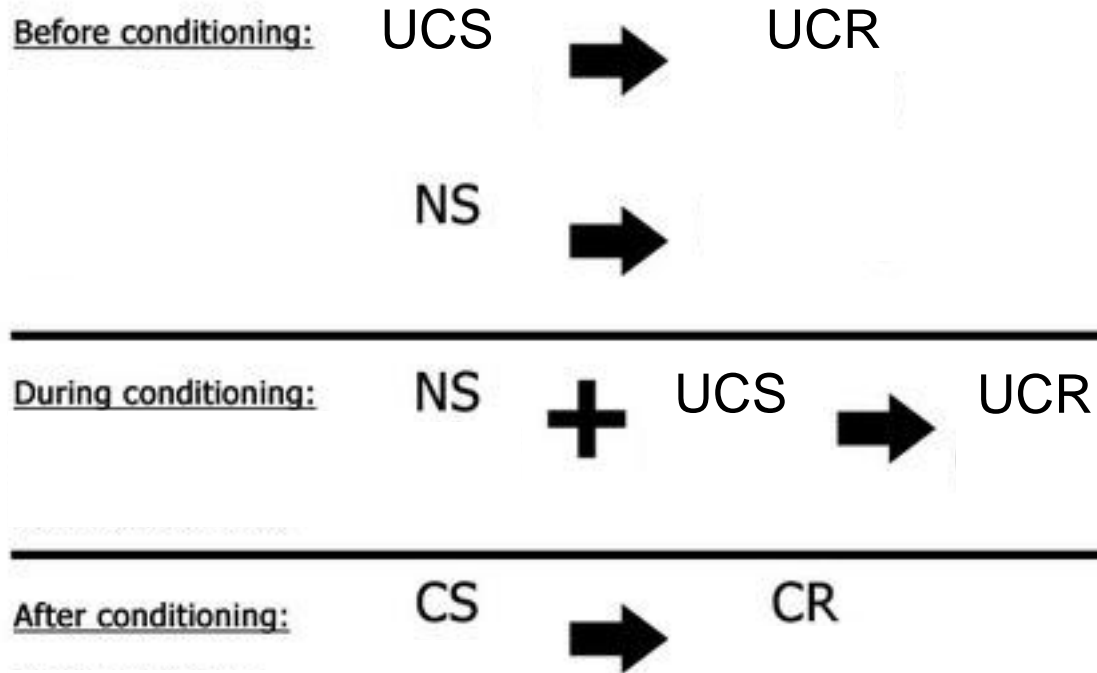
How can this response be:

- beneficial to the child?
- detrimental to the child?

Respondent Learning

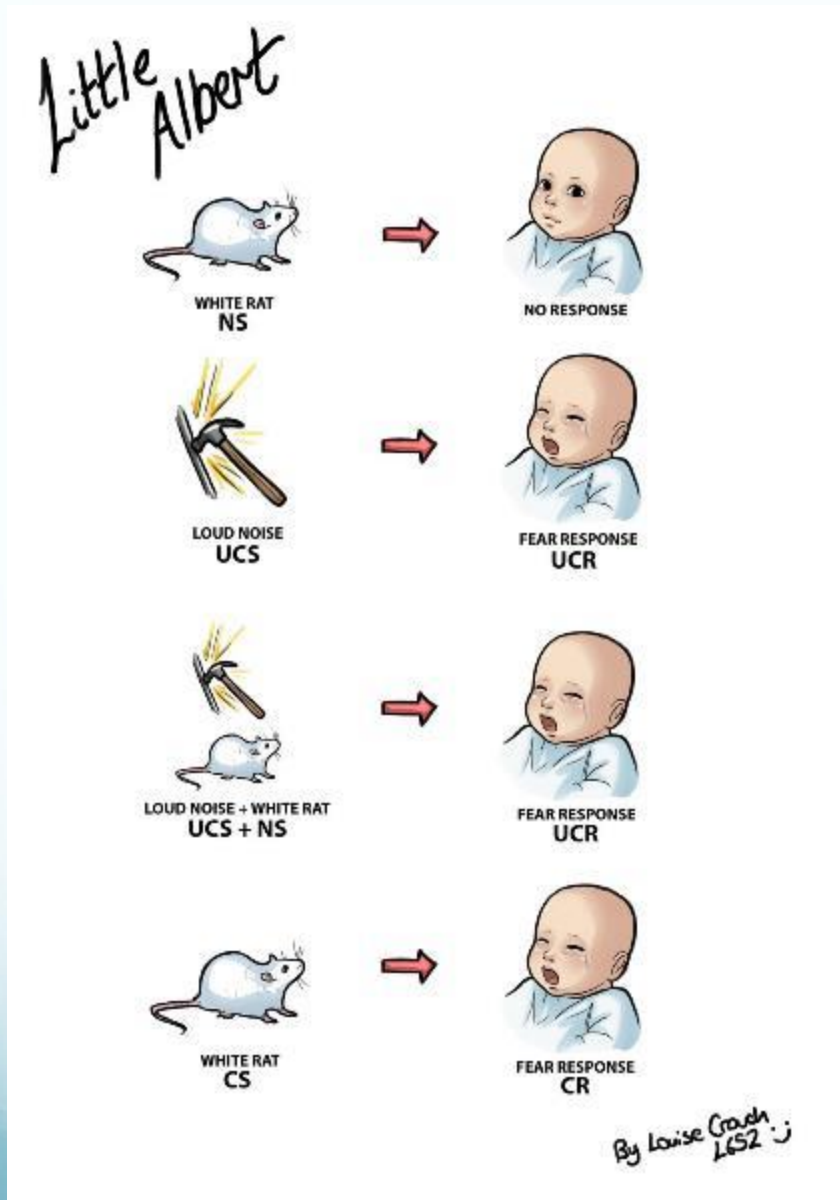
- Also known as:
 - **Classical conditioning**
 - **Pavlovian conditioning**
 - *Does the name “Pavlov” ring a bell?*

Respondent Learning



Respondent Learning Example

- Little Albert
- <https://www.youtube.com/watch?v=5duLMjaTL0U>



Respondent Learning

- Lots of examples online!
 - "The Office" <http://vimeo.com/35754924>
- Some other examples:
 - Sound of flushing toilet, scalding hot shower
 - Crinkle of potato/corn chips bag
 - Marketing of products: lots of skin, dewy, "sexy" look
 - Shower scare
- What are your examples (relate it to a young child)?

Respondent Learning

- **Generalization**
- **Discrimination**
- **Respondent Extinction**
- While these are important (for a more advanced class), skip: Forward, Trace, and Backward Conditioning (for our class)

Respondent Learning

- Why does respondent learning matter?
 - It plays a critical role in helping the child successfully adapt to the environment.
 - Adaptive responses:
 - Avoid dog who attacked
 - Open mouth in presence of food
 - Maladaptive responses?
 - Helps to explain wide variety of emotional responses.
 - Crying, blush, anxiety, fearful, arousal, etc..
 - Can be trained and reversed!

Chapter 5

Part 2
(p.162-170)

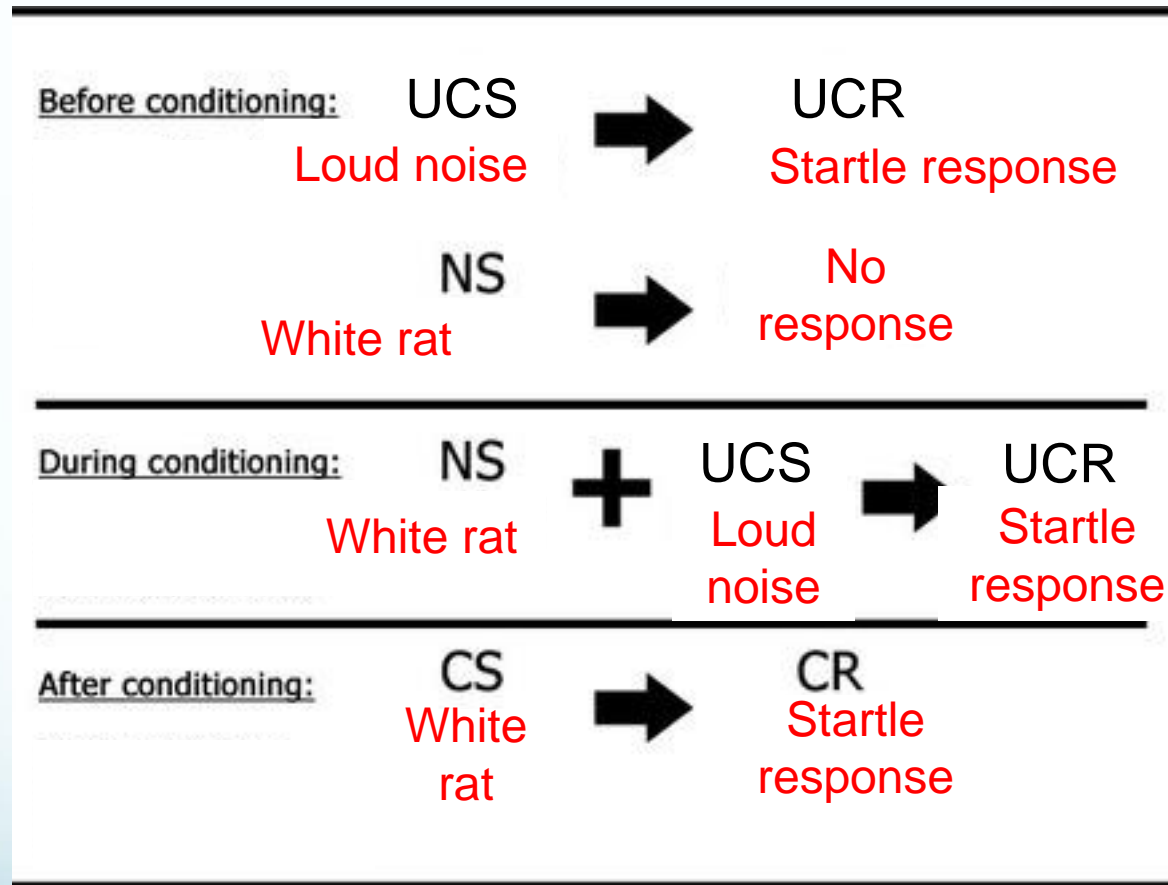
Treatment of Fears & Phobias

- Children's fears
 - Respondent conditioning may be to blame!
 - Examples: fear animals (remember Little Albert), doctors, darkness, strangers, heights... and what else?
 - Remember, this conditioning must involve **UCS** → **UCR**!

Note: Fears may be due to operant conditioning, but let's keep it respondent now.
Be sure to know the difference between the two types of conditioning!

Respondent Conditioning

Fears/Phobias Example



Treatment of Fears & Phobias

- How can we treat these fears and phobias?
 - Two ways:
 - Counterconditioning
 - Systematic Desensitization
- Is there a difference between these two types of treatment?

Counterconditioning

- The conditioned stimulus (CS) is paired with an unconditioned stimulus (UCS) that elicits an unconditioned response (UCR) response opposite (*or counter*) to the conditioned response (CR).
 - *What would be a counter response to fear?*
 - *Remember, it has to involve a UCS and a UCR.*

Counterconditioning

Before: CS → CR

UCS → UCR

During: CS + UCS → UCR

After: CS → CR

Systematic Desensitization



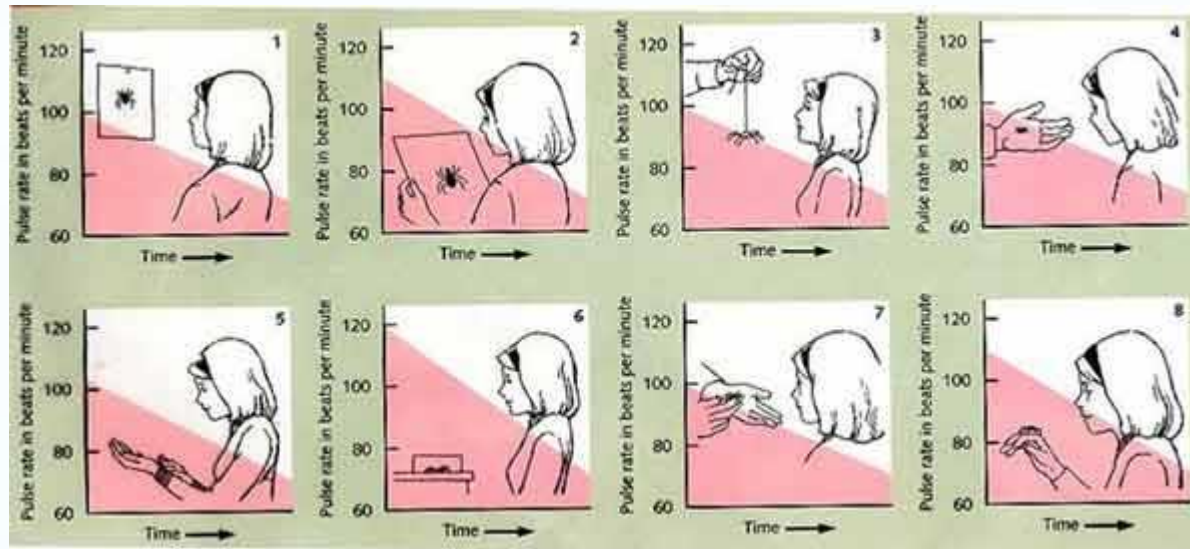
Systematic Desensitization

- If the CS is not experienced without the UCS, extinction will not occur.
- Need to present the CS (systematically) without the UCS to extinguish the CR.

Behavior	Fear rating
Look at photo of a spider	10
Hold and look at photo of a spider	25
Look at toy spider	50
Look at toy spider in therapist's hand	60
Hold toy spider	70
Look at real spider in glass box	80
Look at real spider in therapist's hand	90
Hold real spider	100

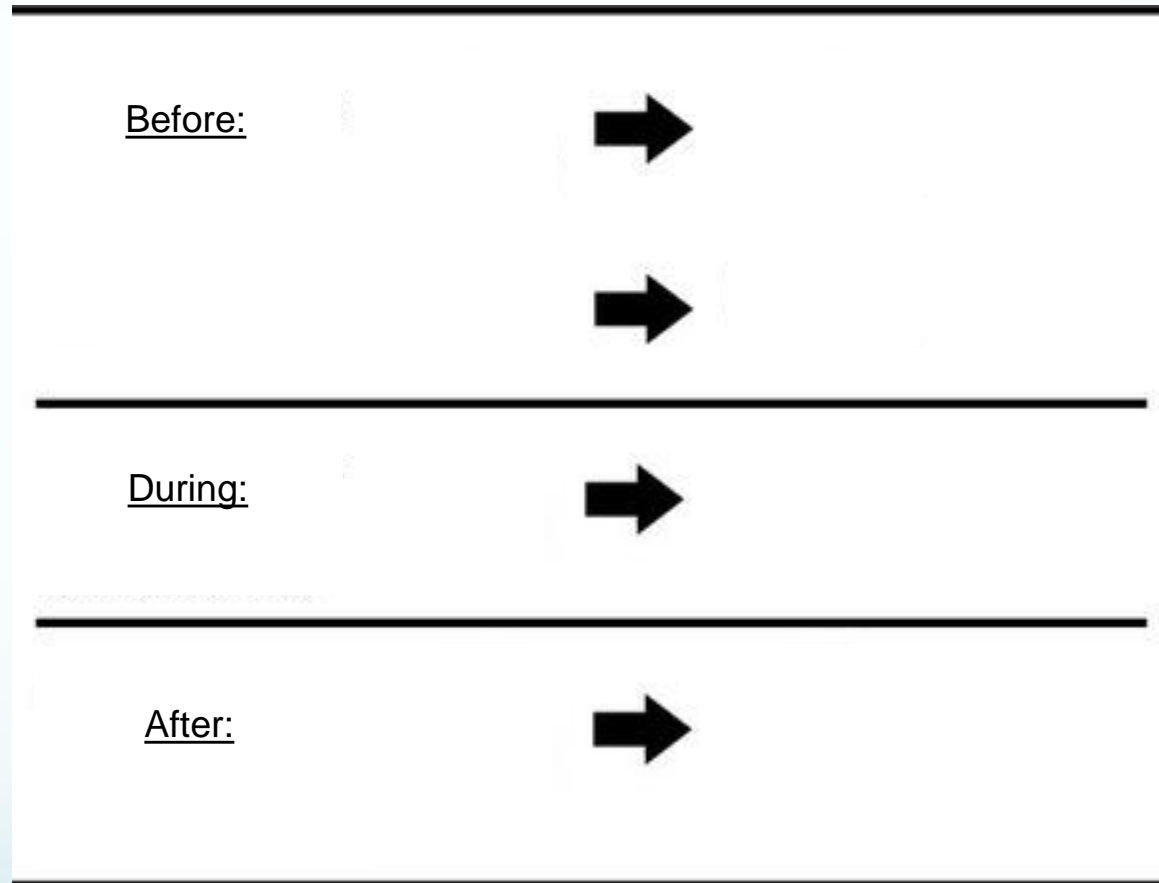
1. Create hierarchy of stimuli, ranking the intensity of the fear produced by each stimulus from most to least.

Systematic Desensitization



2. Contact the first stimulus in the hierarchy (with lowest intensity of response or “fear rating”) until the response is extinguished.
3. Then present next stimulus in hierarch until response is extinguished.
4. Then next, and next, and next (in same manner), until the last stimulus is also desensitized (i.e., extinguished).

Systematic Desensitization



- How do we complete this diagram? Do we need to add more to it?

Operant Behavior

- Defined by its effects on the environment. Think “consequences!”
 - Major changes are brought about by the environment
 - How most voluntary behaviors are learned
- Operant behavior is *emitted* in an environment but not *elicited* by any stimulus in that environment

The distinction between operant and respondent can sometimes be confusing because there are many operant-respondent relationships.

- Remember, operants may originate as reflexes (e.g., crying for parent’s attention; or some other consequence... grocery store checkout line)

Operant Behavior

- Response classes
 - Every individual occurrence or instance of a response may have the same function
 - This will be elaborated on in the next chapter

Operants vs. Respondents

- Make a table of the differences (pp. 168-170):
 - Emitted vs elicited
 - Consequences vs antecedents
 - Wide range of behaviors vs reflexes
 - New behaviors vs existing behaviors
- Can you clearly explain the differences and expand upon these terms?
- Bonus Video: TED-Ed [Classical vs operant conditioning](https://www.youtube.com/watch?v=H6LEcM0E0io)
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