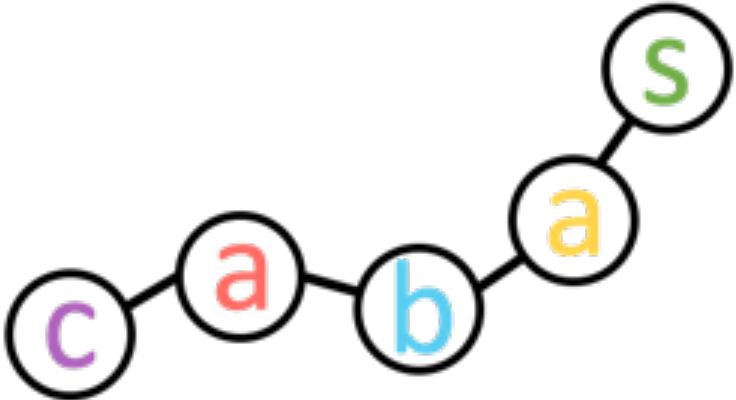


# Decreasing Behavior with Non-Punishment Procedures

**MODULE 8**

<b>Verbal Behavior About the Science (Content Expertise)</b>	<b>Signature</b>	<b>Date</b>
<p><b>Decreasing Behavior with Non-punishment Procedures</b> (or alternative) quiz to 90% mastery criterion from the list of acceptable readings attached to this rank. Supervisor specify alternative unit:</p> <hr/>		

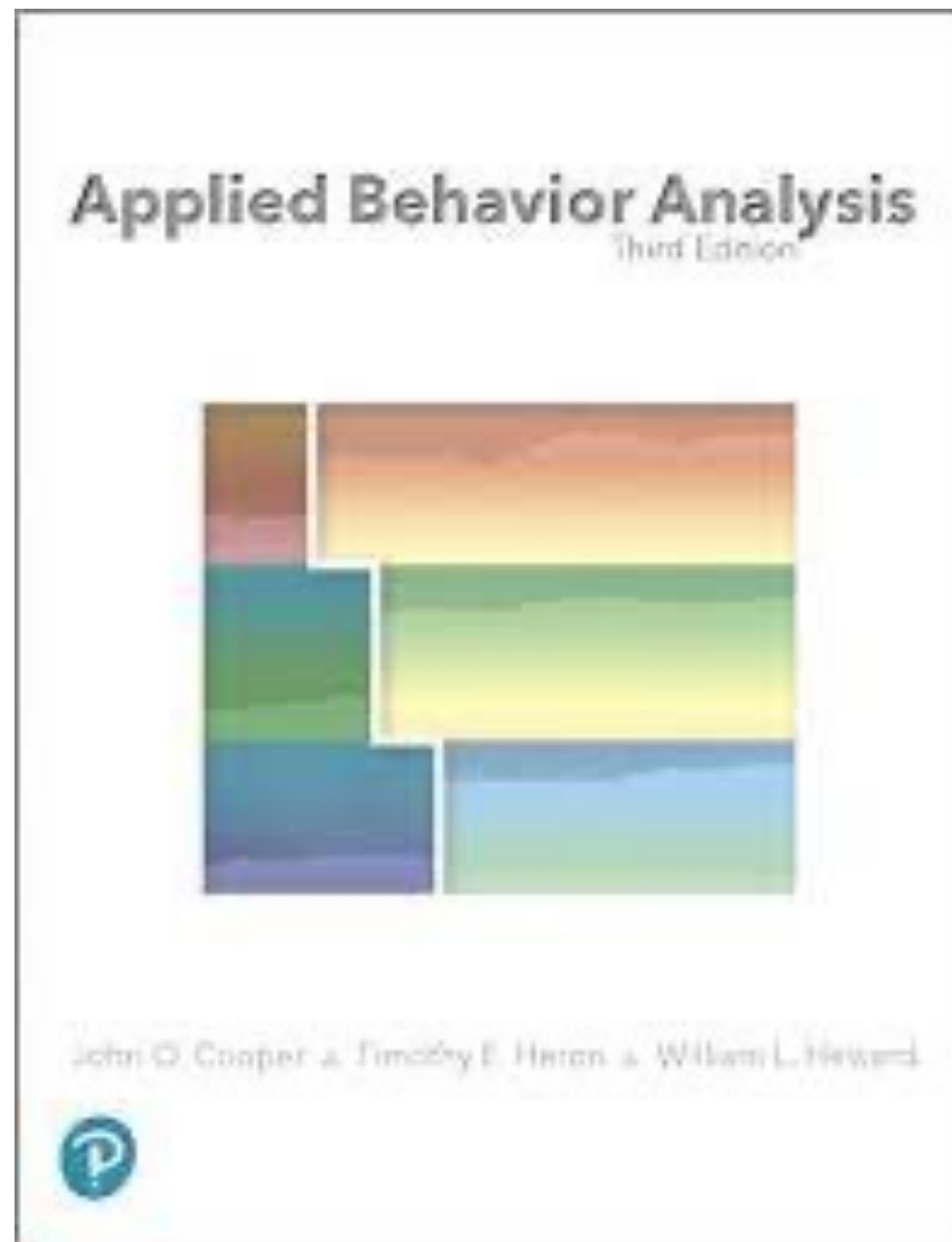
Teacher I:  
Module 8





Chapter 21/24:  
Extinction

Chapter 22/25:  
Differential  
Reinforcement



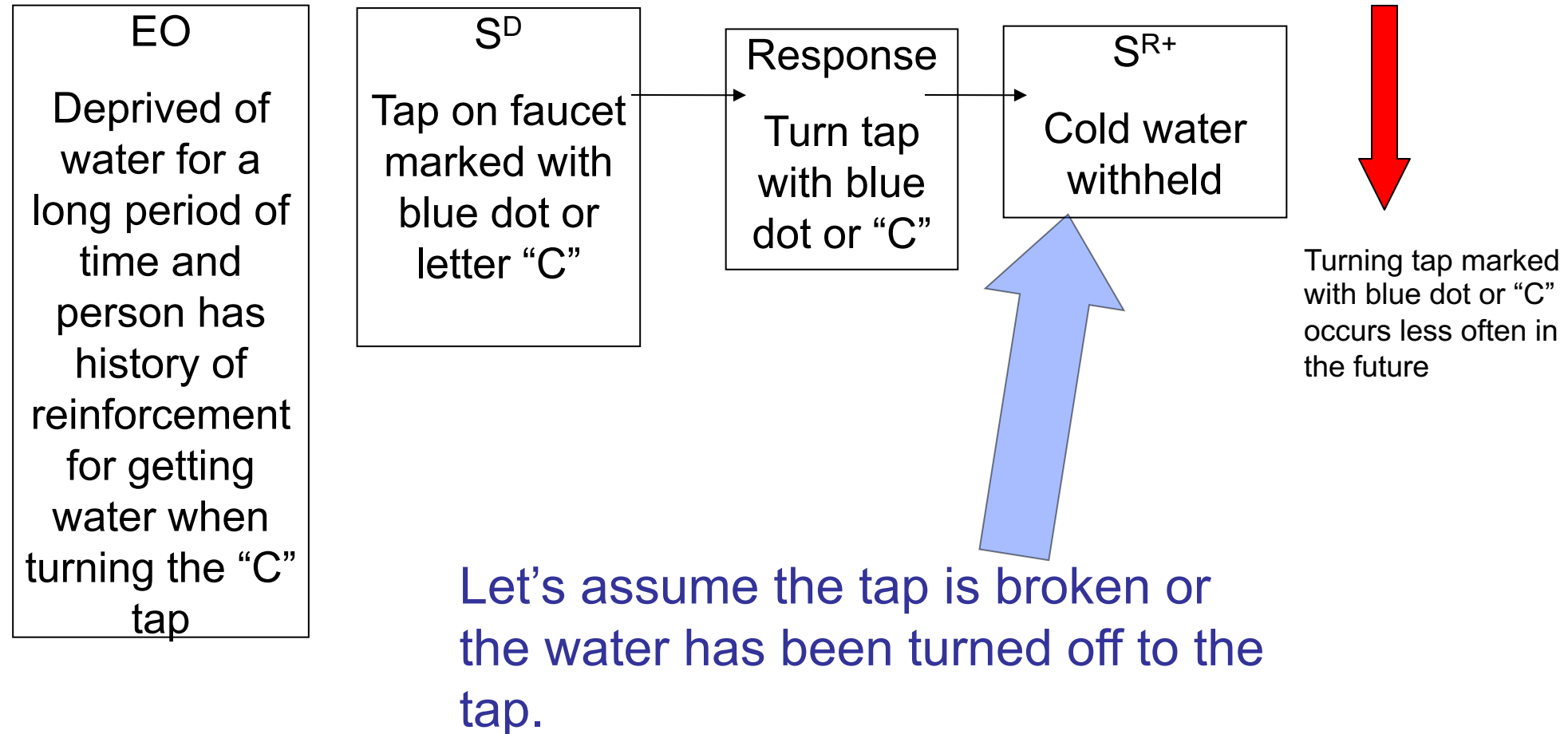
# Principles that Guide the Selection for Behavior Reduction

- Principle of least intrusive alternative
  - Select the intervention that is least intrusive
- Selected intervention should be based on the identified function of the challenging behavior

# Definition of Extinction

- Extinction is a procedure in which reinforcement of a previously reinforced behavior is discontinued; as a result, occurrences of that behavior decrease in the future.
  - Successful extinction requires correctly identifying the reinforcer maintaining the behavior or function of the behavior.

# Diagram of Extinction



Let's assume the tap is broken or the water has been turned off to the tap.

# Definition of Extinction

- Extinction is a procedure that provides zero probability of reinforcement
- The effectiveness of extinction is dependent primarily on the identification of reinforcing consequences and consistent application of the procedure
- Extinction does not require the application of aversive stimuli to decrease behavior.

# Definition of Extinction

- The extinction procedure does not prevent occurrences of a problem behavior.
- The environment is changed so that the problem behavior will no longer produce the maintaining consequences.



# Procedural and Functional Forms of Extinction

- Procedural forms of extinction involve “ignoring” the problem behavior.
  - Applications of the procedural form of extinction are often ineffective.
- Functional forms of extinction involve withholding the maintaining reinforcers.
  - When the extinction procedure is matched to the behavioral function, the intervention is usually effective.

# Extinction Procedures

- Take three distinct forms that are linked to behavior maintained by:
  - Positive reinforcement
  - Negative reinforcement
  - Automatic reinforcement

# Extinction of Behavior Maintained by Positive Reinforcement

- Behaviors maintained by positive reinforcement are placed on extinction when those behaviors do not produce the reinforcer.

## Example:

- In the playground during break time at school, Brian screams and shouts when he is left alone for more than a few minutes. After he screams and shouts the teachers have always gone over to him and asked if he was ok and what was wrong. The reason Brian engages in this behavior (the function of the behavior) is to obtain social attention from his teachers. If the teachers decided to no longer go over to Brian to give him attention when he screamed. The behavior then reduces in frequency as it no longer obtains the reinforcing consequences that it use to obtain.

# Extinction of Behavior Maintained by Negative Reinforcement

- Behaviors maintained by negative reinforcement are placed on extinction (also called escape extinction) when those behaviors do not produce a removal of the aversive stimulus
- The individual cannot escape from the aversive situation.
- Example (following the results of an FBA):
  - The therapist provided instructional prompts during the tasks. When Drew emitted problem behaviors following the instructional prompt, the speech therapist physically guided him to complete the tasks. Significant reduction in problem behaviors during match-to-sample tasks were documented.

# Extinction of Behavior Maintained by Automatic Reinforcement

- Behaviors maintained by automatic reinforcement are placed on extinction by masking or removing the sensory consequence (sensory extinction)
  - Example: A child persisted in flipping a light switch on and off. The visual sensory consequence was removed by disconnecting the switch.
- Not a recommended treatment option for problem behavior, even self-stimulatory behaviors that are maintained by social consequences or negative reinforcement.

# Extinction Effects

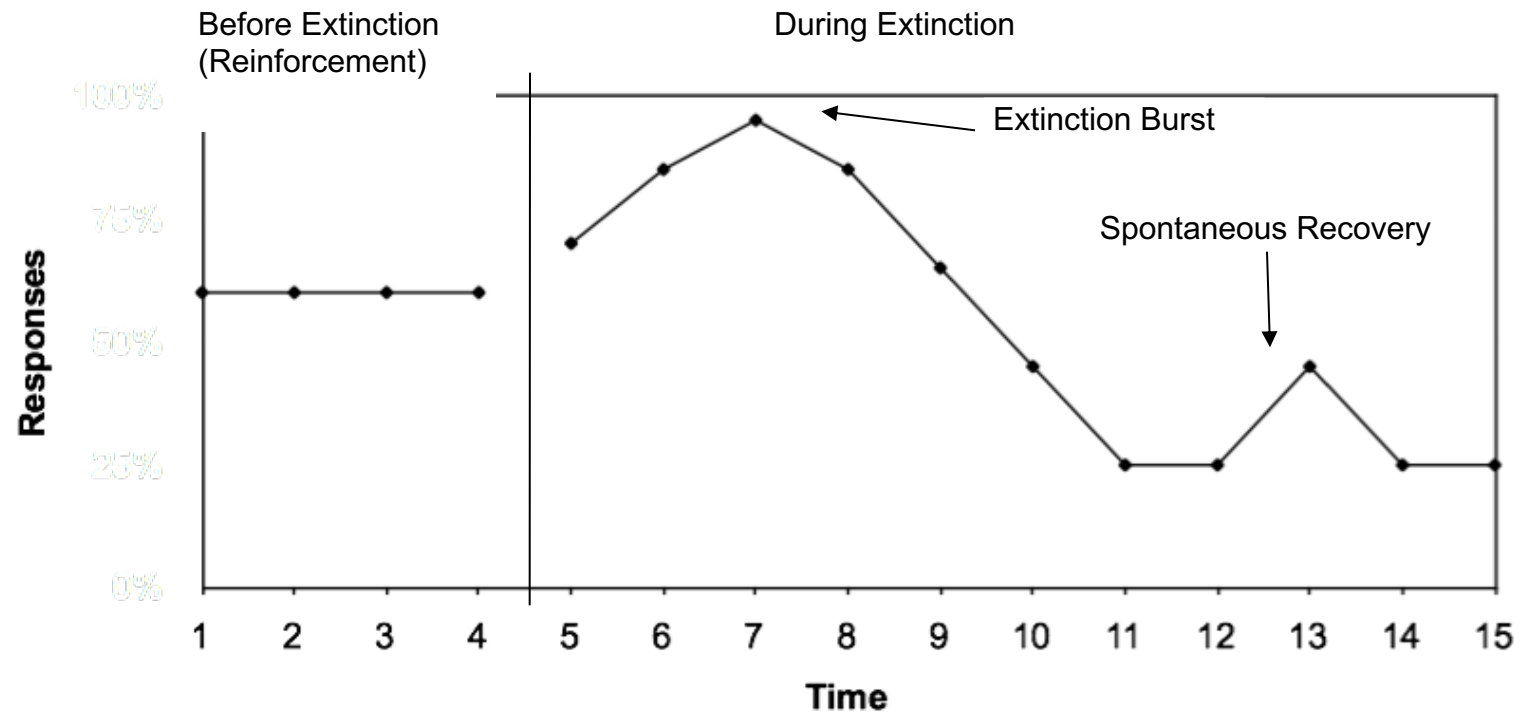
- Behaviors undergoing extinction are usually associated with effects in occurrence and topography of response.
- Common effects of extinction include:
  - Extinction burst
  - Response variation
  - Initial increase in response magnitude
  - Spontaneous recovery
  - Resurgence
  - Emotional outbursts and aggression

# Extinction Burst

- An immediate increase in the frequency of the response after the removal of the positive, negative, or automatic reinforcement.
- “an increase in responding during any of the first three treatment sessions above that observed during all of the last five baseline sessions or all of baseline.” (Lerman, Iwata, & Wallace, 1999)

# Extinction Effects

- Extinction Burst





# Extinction Effects: What can you expect in the way of how the behavior will decrease?

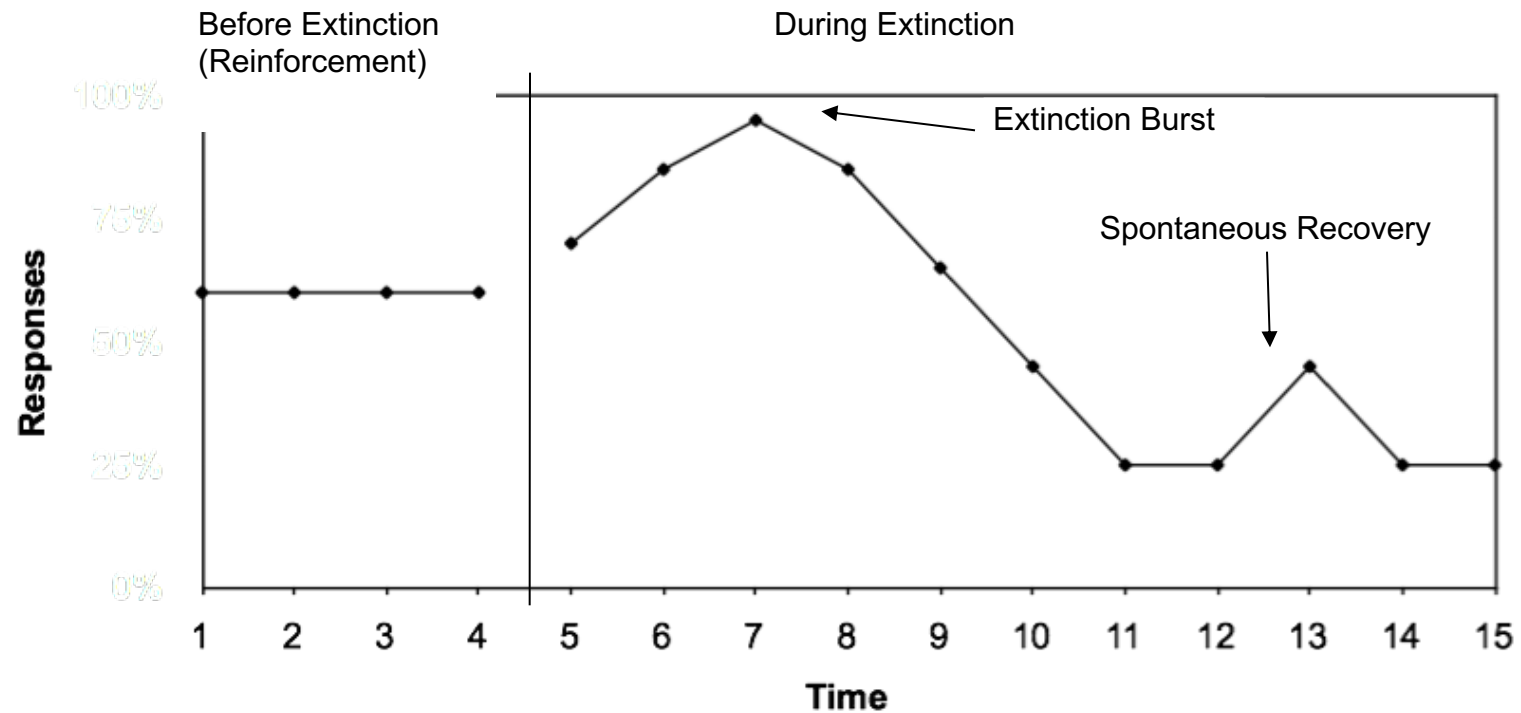
- Problem behaviors can worsen during extinction before they show improvement.
- Extinction bursts usually suggest that the reinforcer(s) maintaining the problem behavior was successfully identified, indicating that there is a good chance of an effective intervention

# Extinction Effects

- Spontaneous Recovery
  - The behavior that diminished during the extinction process recurs even though the behavior does not produce reinforcement
  - Short-lived and limited if the extinction procedure remains in effect.

# Extinction Effects

- Extinction Burst



# 10 Guidelines for Application of Extinction

Withholding all  
reinforcers  
maintaining the  
problem behavior

Withholding  
reinforcement  
consistently

Combining  
extinction with  
other procedures

Using instructions

Planning for  
extinction-  
produced  
aggression

Increasing the  
number of  
extinction trials

Including  
significant others  
in extinction

Guarding against  
unintentional  
extinction

Maintaining  
extinction-  
decreased  
behavior

When not to use  
extinction

# Combining Extinction with Other Procedures

- Combining Extinction with Other Procedures
  - The effectiveness of extinction may increase when it is combined with other procedures.
  - Differential reinforcement and antecedent procedures hold promise for reducing extinction effects such as bursting and aggression.

# When Not to Use Extinction

- Imitation

- Extinction can be inappropriate if the behavior placed on extinction are likely to be imitated by others.

- Extreme Behaviors

- Some behaviors are so harmful to self or others or so destructive to property that they must be controlled with the most rapid and humane procedure available.
- Extinction as a singular intervention is not recommended in such situations.

# Decreasing or eliminating problem behaviors

- Interventions based primarily on extinction or punishment are often effective; however, unwanted side effects may occur and alone, they do not strengthen or teach adaptive behaviors in which individuals can attain reinforcers.
- The following procedures have been developed that use differential reinforcement to diminish or eliminate problem behavior.

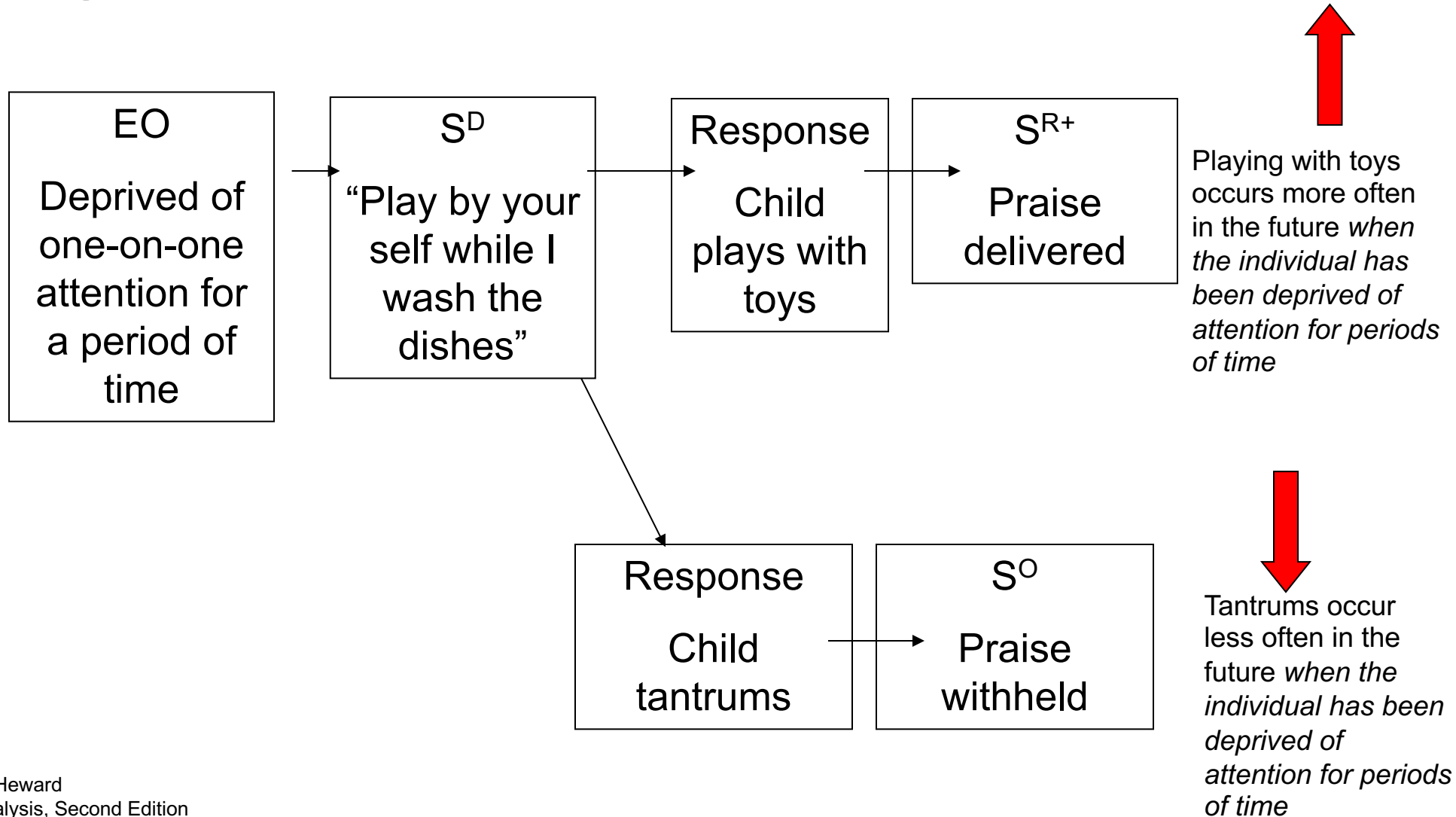
# Chapter 22: Differential Reinforcement



# Definition of Differential Reinforcement

- Reinforcing one response class
  - When dealing with reducing problem behavior, this involves
    - Reinforcing a behavior other than problem behavior
    - Reinforcing a reduced rate of problem behavior
- Withholding reinforcement for another

# Diagram of Differential Reinforcement



# DRI

- DRI: Differential Reinforcement of **Incompatible** Behavior
  - Reinforce a behavior that cannot occur with problem behavior
  - Withhold reinforcement for instances of problem behavior

# DRA

- DRA: Differential Reinforcement of **Alternative** Behavior
  - Reinforce occurrences of desirable alternative to problem behavior but that is not necessarily incompatible
  - Reinforcement is withheld for problem behavior

# Guidelines for Implementing DRI/DRA

- Select incompatible/alternative behavior
  - Already exists in repertoire
  - Requires equal or less effort than problem behavior
  - Emitted at a rate that provides sufficient opportunities for reinforcement
  - Likely to be reinforced in natural environment

# Guidelines for Implementing DRI/DRA

- Select potent reinforcers that can be controlled
  - Identify via stimulus preference assessment
  - Identify via functional behavior assessment
    - Use same consequence as is maintaining problem behavior for appropriate/incompatible behavior

# Guidelines for Implementing DRI/DRA

- Reinforce incompatible/alternative behavior immediately and consistently
- Withhold reinforcement for problem behavior
  - Some “mistakes” may be tolerable
- Combine with other procedures

# DRO

- Differential Reinforcement of **Other** Behavior
  - Deliver reinforcer whenever the problem behavior has not occurred for a specific time
  - “Reinforcement for *not* responding”



# Forms of DRO

- Fixed-interval DRO (FI-DRO)
  - Omission requirement is applied at the end of successive time intervals of equal duration
    - To apply:
      - Establish interval
      - Deliver reinforcement at end of interval if problem behavior didn't occur during the interval
      - If problem behavior occurs, reset interval

# Forms of DRO

- Variable-interval DRO (VI-DRO)
  - Omission requirement is applied at the end of successive time intervals of variable and unpredictable durations
    - To apply:
      - Establish variable interval schedule
      - Deliver reinforcement at end of interval if problem behavior didn't occur during the interval
      - If problem behavior occurs, reset interval

# Forms of DRO

- Fixed-momentary DRO (FM-DRO) and Variable-momentary DRO (VM-DRO)
  - Omission requirement is applied *only* at the end of successive time intervals of fixed or variable durations (contingency not in place during interval)
    - To apply:
      - Establish interval
      - Deliver reinforcement at end of interval if problem behavior didn't occur at the end of the interval

# What type of DRO to use?

- Interval more widely used than momentary
- Interval more effective for more suppressing problem behavior
- Momentary may be most useful for maintaining reduced levels of problem behavior

# Guidelines for Using DRO

- Recognize limitations
  - Reinforcement provided if absence of target problem behavior.
    - If another, nontargeted problem behavior occurs, it is reinforced.
      - May need to shorten interval
      - May need to include other problem behaviors in definition

# Guidelines for Using DRO

- Recognize limitations
  - With Momentary DROs, reinforcement is delivered if problem behavior is not occurring at end of interval, *even if it occurred throughout the majority of the interval*
    - Change to interval DRO
    - Shorten interval

# Guidelines for Using DRO

- Set initial DRO intervals that assure frequent reinforcement
  - Calculate mean baseline interresponse time (IRT)
  - Set interval that is equal to or slightly less than mean IRT
- Do not inadvertently reinforce other undesirable behaviors
  - Make rule: must have absence of target problem behavior *and* other inappropriate behaviors

# Guidelines for Using DRO

- Gradually increase the DRO interval
  - Three options:
    - Increase by constant duration of time
    - Increase intervals proportionately
    - Increase based on learner's performance
- Extend to other settings and times of day
- Combine with other procedures



# DRL

- Differential Reinforcement of **Low Rates** of Responding
  - Use to decrease the frequency of the occurrence of a behavior, but not eliminate it all together

# DRL

- Full-session DRL
  - Reinforcement is delivered at the end of a session if during the entire session, the target behavior occurred equal to or fewer times than a predetermined criterion
- Interval DRL
  - Divide the total session into a series of equal intervals of time
  - Provide reinforcement at the end of each interval in which the number of occurrences of target behavior is equal to or below predetermined criterion

# Guidelines for Using DRL

- Recognize limitations
  - DRL is slow and does not reduce a behavior quickly
- Choose most appropriate DRL procedure
  - Spaced responding is the only DRL procedure that delivers reinforcement immediately following response and maintains lower rates
  - Use full-session and interval DRO when it is okay to have either no or low rates of target behavior

# Guidelines for Using DRL

- Use baseline data to guide selection of initial response or IRT limits
  - Set at mean baseline or slightly lower
- Gradually thin the DRL schedule
  - Full-session DRL: set new criterion based on learner's current performance
  - Interval DRL: gradually decrease number of responses per interval
- Provide informational feedback to the learner
  - Enhance effectiveness by helping learner monitor performance