Chapter 10 - Matching & Self Control Continued...

Explanations for Matching

- The matching law is merely a description of behavior. It does not say why a subject behaves the way it does.
- Why does that particular pattern of behavior occur when making choices?
  - Maximization:
  - Melioration:

Maximization

-
- can explain why subjects switch with concurrent VI-VI schedules but not with concurrent ratio schedules
- molecular and molar maximizing theories
  - molecular theories-
  - molar theories-

Melioration

- (to make better)
- matching behavior occurs because
- subjects are continuously attempting to better their current chances of receiving reward by switching to the other choice

Example

- Pigeon on a VI 1-min and VI 3-min schedule
  - It will spend most of its time on the VI 1-min (60 reinforcers/hr vs only 20 reinforcers/hr).
  - If it spends too much time on the VI 1-min key and samples the VI 3-min only occasionally, it may be reinforced every time it pecks the VI 3-min key.
  - The local rate of reinforcement therefore becomes higher than the VI 1-min key and the pigeon would shift its responding to the VI 3-min key.
  - Will keep shifting back and forth accordingly until both local rates of reinforcement are equal.

Problems with Melioration

1.

Examples:

- Salesperson in clothing store: spends a lot of time helping a "regular" and less time helping someone who has just stopped in for the first time. (The regular is an easy sale, but probably will buy something anyway.)
- Allocation of study time to different courses

Problems with Melioration

2.

- Examples: Hear good song occasionally on the radio. Purchase the CD and now play the song all the time. You now enjoy it less when you hear it than before.

Problems with Melioration

- Often the result of behavior being too strongly governed by immediate versus delayed consequences.
  - Examples: Go on an outing with friends this weekend (immediate reinforcer) instead of studying to get a good grade at the end of the semester (delayed reinforcer).
- Relates to self-control…

Self-Control Choices

- Small immediate reinforcer versus delayed larger reinforcer.
  - Impulsivity versus self-control
  - "Willpower"

Self-Control

- Skinner - not a matter of "willpower" but of
  - Eating ice-cream: tastes yummy (positive) but you gain weight (negative)
- Controlling Responses (Skinner) -
  - Example: Only purchase a small tub of ice-cream at the supermarket (controlling response), so you won't eat a huge amount later at home when you're hungry (controlled response).

Types of Controlling Responses

- Physical restraint -
  - Example: ice-cream purchase example
- Deprivation & satiation -
  - Examples: Don't buy anything new for yourself in the couple weeks leading up to your birthday.

Types of Controlling Responses

- Doing something else -
  - Example: Working on a project to keep from snacking at work.
- Self-reinforcement and self-punishment -
  - Examples: snap wrist with rubberband whenever you think of a cigarette (punisher). Allow yourself to go shopping when finish doing chores (reinforcer).
  - Problem: can "cheat" with reinforcers or punishers.

Self-Control: Temporal Issue

- Temporal Issue
  - Lack of self-control arises from the fact that our behavior is more heavily influenced by

	Immediate Consequence	Delayed Consequence
quitting	withdrawal	Improved health
smoking	Nicotine high	Deterioration of health

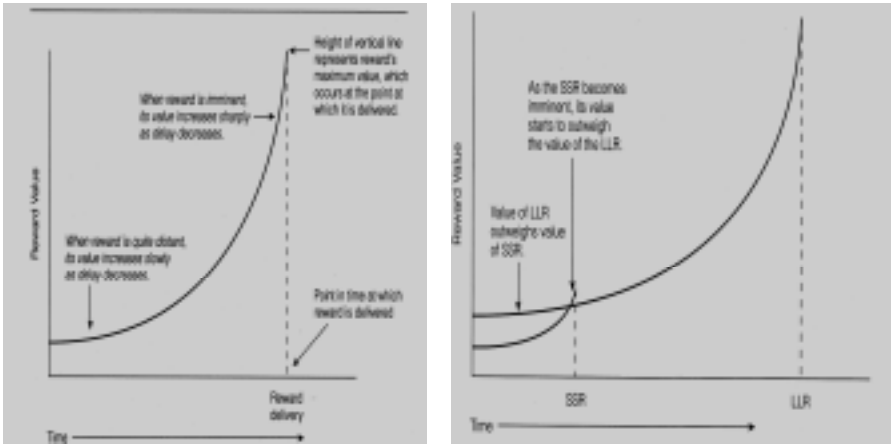
Self-control cont.

- Self-control –

- Impulsiveness –

Ainslie-Rachlin Model

- Preference for self-control versus impulsive choice shifts over time.
- Value of reward is hyperbolic function of delay
  - Value of reward increases more sharply
  - Which do you prefer? SSR or LLR?
    - $500 now or $1,000 in two years
    - $500 in four years or $2,000 in six years



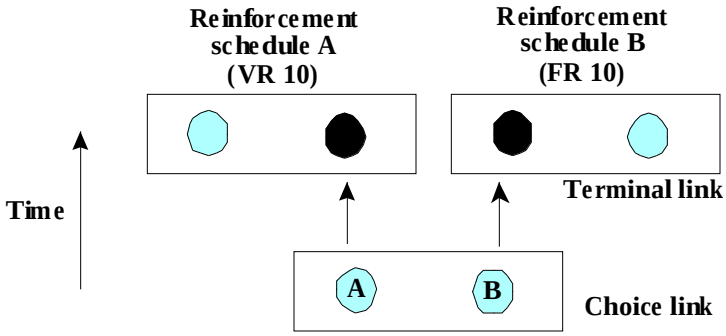
Changing the Shape of Delay for the Larger Later Reward

- Biological factors
  - pigeons & rats more affected by a few seconds of delay (not humans)
  - Temperament differences between humans
- Age -
- History of delayed rewards -
- Availability of other reinforcers -
- Chaining or setting up subgoals -

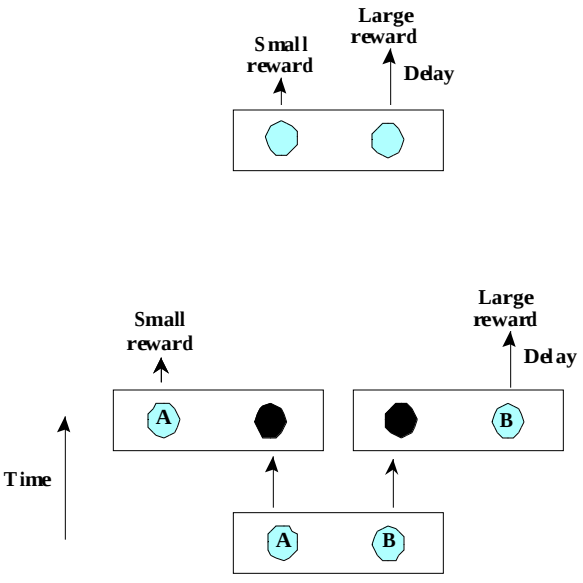
Improving Self-Control- choice with commitment

- In a standard concurrent schedule of reinforcement, two (or more) response alternatives are available at the same time and the subject is free to switch from one to the other at any time
- However, in some (real-life) situations, choosing one alternative makes other alternatives unavailable
- In these cases, the choice may involve assessing complex, long-range goals
- Can study these types of situations in the lab using a Concurrent-chain schedule of reinforcment

Concurrent-chain schedule



- Pecking the left key in the choice link puts into effect reinforcement schedule A in the terminal link. Pecking the right key in the choice link puts into effect reinforcement schedule B in the terminal link.



Direct-choice procedure -

Concurrent-chain procedure -

Commitment Response cont.

- Good behavioral technique to try and control future behavior.
  - Example: Give a deposit to reserve a room in a hotel. Done to assure that the reservation will be kept.
  - Tell parent in the morning to not pick you up until 4 pm so you have to stay at school and study.

Cognitive Mechanisms in Self-control

- Coping strategies in delayed reinforcement:
  - Delay of gratification studies - typically done with children.
  - Michael Mischel - marshmallow studies
    - Method: children told they can have one marshmallow now, or wait until the experimenter returns and can then have 2 marshmallows.
    - Results:
      -
      -

Cognitive Factors cont.

- Strategies children came up with showed that Cognitive factors are involved.
  - Children covered their eyes or looked away
  - Walked around the room
  - Played or started singing
- Follow-up: the children who came up with tactics to help delay gratification were generally doing much better when 17 years old. (more positive, self-motivating, persistent, etc.)
- Kids who couldn't wait were more troubled, stubborn, indecisive, mistrustful, and less self-confident.