This particular cigarette won't kill me: Pattern-setting to increase self-control

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(N.B. The data presented here hasn't been updated with the additional subjects that were run.)

Three notions of causality

Rachlin (forthcoming) uses a scheme derived from Aristotle's four causes.

A man swings a hammer…

- Efficient cause: …because he sees the nail.
  - An efficient cause is an antecedent of a consequence.
- Narrow final cause: …because he wants the nail head to be flush with the board.
  - A narrow final cause is a goal of some means.
- Wide final cause: …as part of building a house.
  - A wide final cause is a whole comprising a part.

Wide final causes

Wide final causes are nested: individual behaviors can be seen as constitutive of larger behaviors, which are spread out over longer periods of time.

A hierarchy that might apply for a man swinging a hammer:

- swinging a hammer
- hammering a nail
- joining one piece of wood to another
- building a floor
- building a house
- providing shelter for his family
- supporting his family
- being a good husband and father
- being a good person

Since each larger behavior may be seen as a "telos" (goal) of the constitutive behavior, Rachlin calls this perspective "teleological behaviorism".

Teleological Behaviorists Anonymous

Teleological behaviorism suggests a novel approach to increasing self-control.

"I know these [cigarettes] will kill me; I'm just not convinced that this particular one will kill me." —Jonathan Miller

Imagine if your choices regarding smoking (or some other bad habit) on a particular day would fix your choices for the rest of your life. Then how will you choose to smoke today?

What "self-control" is, in the teleological view, is organizing your behavior into larger (longer and more important) patterns.

Research question

Will people make better decisions (in the sense of maximizing expected long-term gain) when they're forced to repeat their choices in larger patterns?

The core task

Each trial, you can choose between:

- **I**: A 60% probability of winning 4 cents
- **D**: A 70% probability of winning 4 cents

After making a choice, you immediately see whether you won.

D is better than I, but you have to wait a random amount of time for it to become available.

If you pick I, you still have to wait (after you see the outcome, in this case) the same total amount of time.

Luhmann, Ishida, and Hajcak (2011) used a version of this task and found that 42% of choices overall were for I.

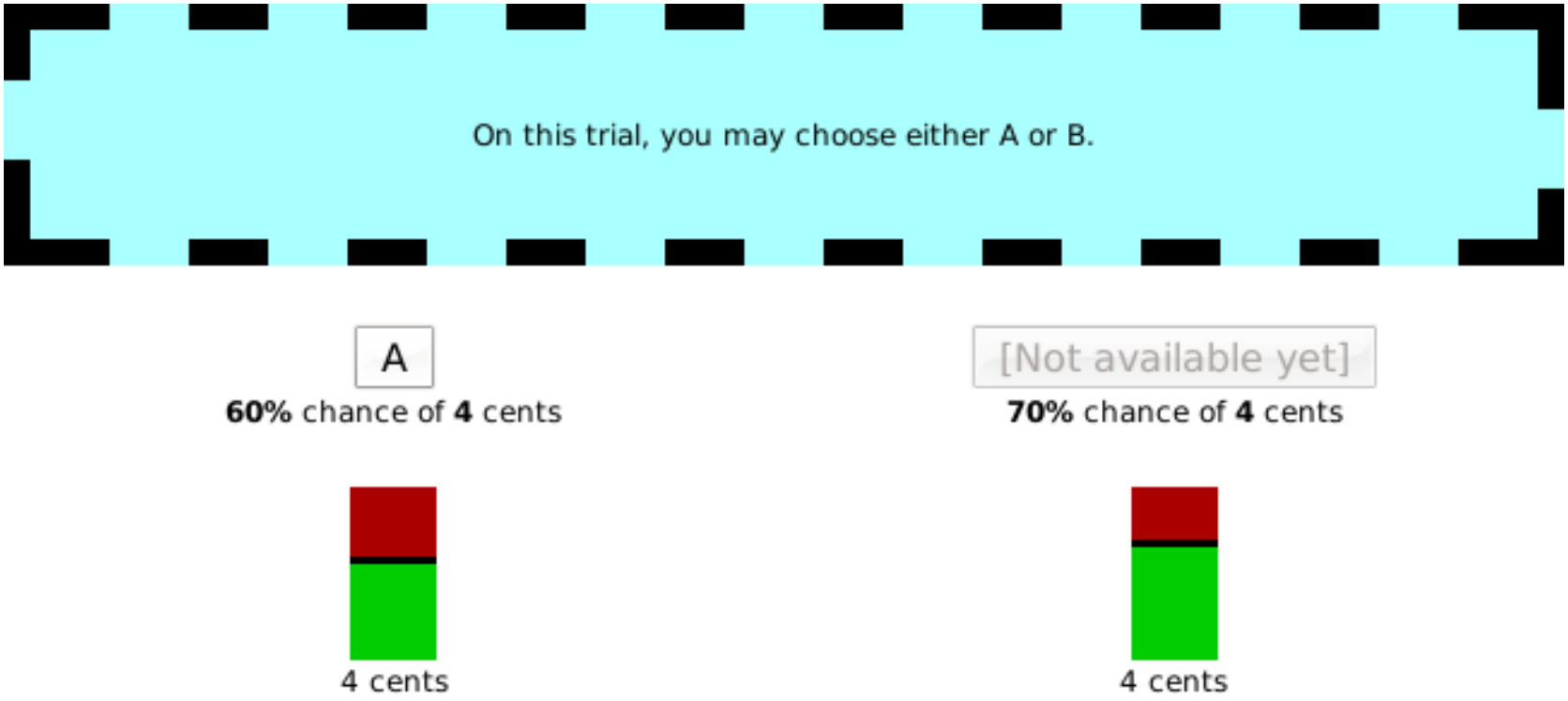
Patterning

Trials are organized into blocks of 3, and odd blocks and even blocks have differently colored backgrounds.

- **Control**: The subject can always choose freely.
- **Within-block patterning**: The subject can choose freely on trial 1 of each block, then must repeat that choice on trials 2 and 3.
- **Across-block patterning**: The subject can choose freely in odd blocks, but must repeat these choices (on the same trials) in even blocks.
- **Across-block forced D**: The subject can choose freely in odd blocks, but must choose D for every trial in even blocks.

There are 60 trials (20 blocks) total.

Screenshot


On this trial, you may choose either A or B.
A
60% chance of 4 cents
4 cents
[Not available yet]
70% chance of 4 cents
4 cents

Quiz

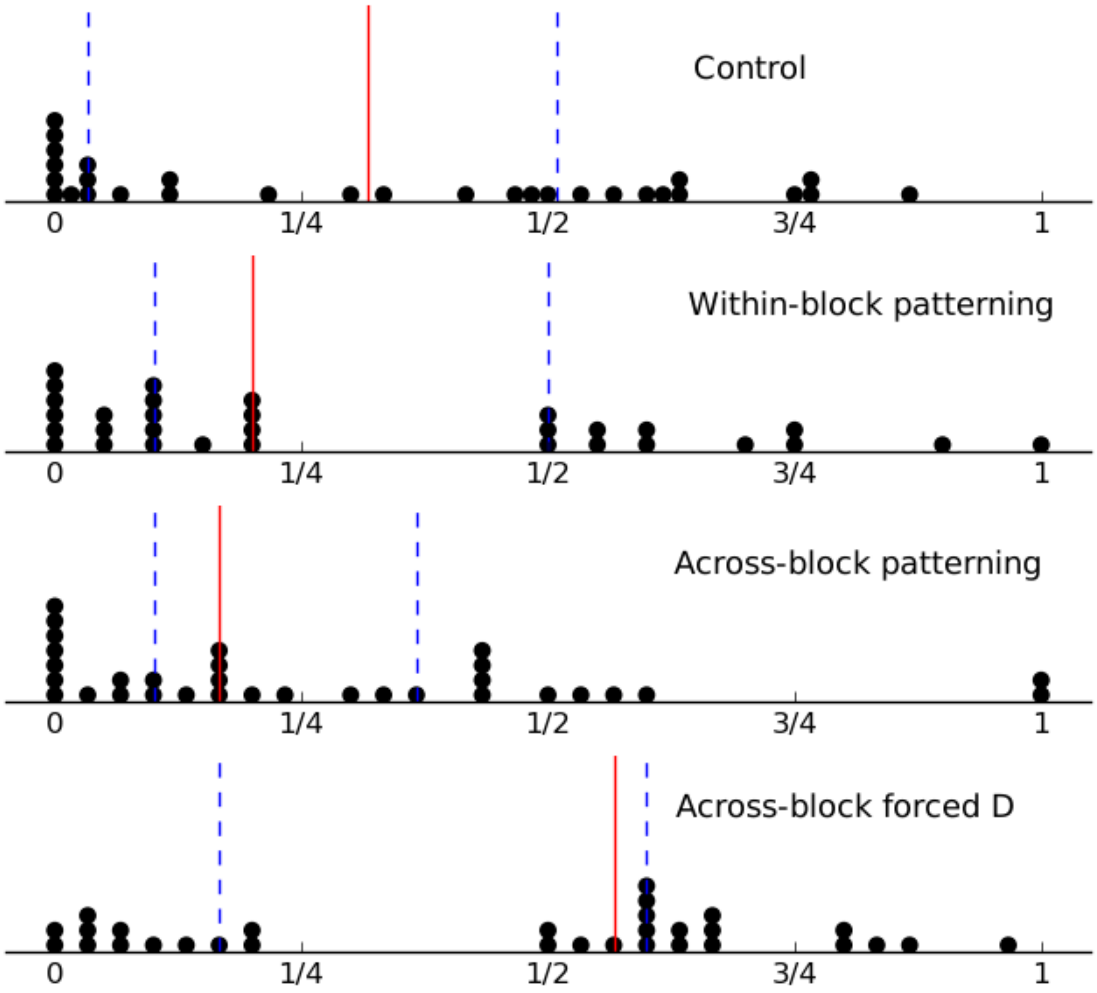
Understanding of the instructions is measured and reinforced with a pop quiz.

1. Compared to B, A's chance of paying out is
   - lower
2. Which gamble gives you more money when you win the gamble?
   - They give the same amount of money
3. Which option can you choose as soon as a trial starts?
   - A
4. Which option will allow you to complete the study faster?
   - Neither; it makes no difference

Results so far

- 136 subjects
  - Minus 12 subjects who chose I late on 3 or more trials
- Errors on the quiz are very common (only 55% got every question right)
  - 10 got the better-probability question wrong.
  - 27 got the better-amount question wrong.
  - 20 got the immediate-availability question wrong.
  - 26 got the faster-completion question wrong.

Proportion of free choices for I



Last third only