

Impatience in Timing Decisions: Effects and Moderation

Moojan Ghafurian* and David Reitter

Applied Cognitive Science Lab, College of Information Sciences and Technology,
The Pennsylvania State University, PA, USA

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* To whom correspondence should be addressed. E-mail: moojan@alumni.psu.edu

Abstract

Decisions on *when to act* are critical in many health care, safety and security situations, where acting too early or too late can both lead to huge costs or losses. In this paper, *impatience* is investigated as a bias affecting timing decisions, and is successfully manipulated and moderated. Experiment 1 ($N = 123$) shows that in different tasks with the same duration, participants perform better when acting early is advantageous, as compared to when acting late is. Experiment 2 ($N = 701$) manipulates impatience and shows that impatience induced by delays (a) affects timing decisions in the subsequent tasks, (b) increases a tendency to receive information faster, only for a few seconds, with cost and no gain, and (c) reduces satisfaction in the subsequent task. Furthermore, impatience is significantly moderated by showing fast countdowns during the delays. Experiment 3 ($N = 304$) shows that the mechanism behind this impatience moderation is altered time perception and presents trade-offs between duration perception and duration recall.

Keywords

Impatience, timing decisions, decision-making under uncertainty, delay, countdowns, time perception, duration recall, memory markers

Supplementary Material

Table S1.

Experiment 2 — cover story and description for the participants.

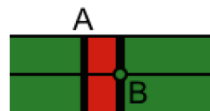
One of your friends is a little special: it's cookie monster!

The problem is that you have just bought some yummy cookies and you cannot hide them from him. Unfortunately you need to go to the kitchen and cook dinner, so you have to leave your friend alone with all the cookies until dinner is ready.

Your job is to figure out when and how often to check on him. Cookie monster will definitely start eating before you're done cooking dinner. The question is: when?

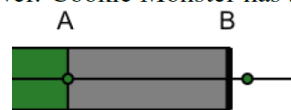
You will be busy in the kitchen, so you need to set different alarms and any time the alarm goes on, you go out immediately and check on him. You set the alarms before cookie monster visits you by clicking on the game bar.

After you set the times to check, the game starts with you being in the kitchen and the cookie monster being in the living room. In the following example the game is current and is at point B. Your latest check has been at point A, thus you don't know what has happened after that. Image below only shows a part of the game.



Whenever you check on him, it'll cost you 100 cookies (because he's upset with you, and you have to calm him down!). The screen shows what's happening: a green bar when he hasn't touched the cookies yet, and a red bar for when he's eating. You get these information anytime you check on cookie monster. The bar is gray when you are in the kitchen..

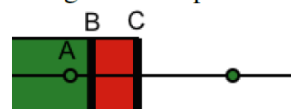
When you catch him after he's started eating, great. The game is over and **you will not be charged for the remaining checks after you catch the cookie monster**. Here you see a part of another game. In this example the game is over. Cookie Monster has started eating at point A and you have caught it at point B.



The game bar shows you the situation in the dining room. A red bar indicates that the cookie monster is eating cookies. It is green otherwise.

While the game is running, you won't see what cookie monster is doing live. You'll only get the news when you check on him. However, to get more up-to-date information, **you can choose to pay 200 cookies to see the game live**. To see what happens in the living-room **in real-time!**

Example below shows a part of a game, where the game is current and at point C, and the latest you have checked is at point A. Now you can see that the cookie monster has started eating at point B. This shows you the advantage of choosing the live option.



Everything happens really fast, so you're going to be in your kitchen for only a few seconds. In this HIT, we're paying you according to how many cookies you have left in the end. So, don't catch Cookie Monster too late, because once he starts eating, he'll eat the cookies with a constant pace.

It is very important to pay attention to the game. We check whether you are paying attention by asking you to press a button at the end of each round. you will lose your bonus if you fail to press "b" right after the round ends.

Summary: Every time that one of the alarms that you set rings, you go check cookie monster. It'll cost you 100 units. Your job is to check as soon as possible the cookie monster makes his play. The cookie monster will always play at some point. The game is over when you catch him or when the time is up. You'll play 6 short rounds of the game; the first one is a practice round. In each round you will be given the choice to pay 200 cookies to watch the game live. At the end of each game you have to press b, or click on the get bonus button as fast as you can to get the bonus.

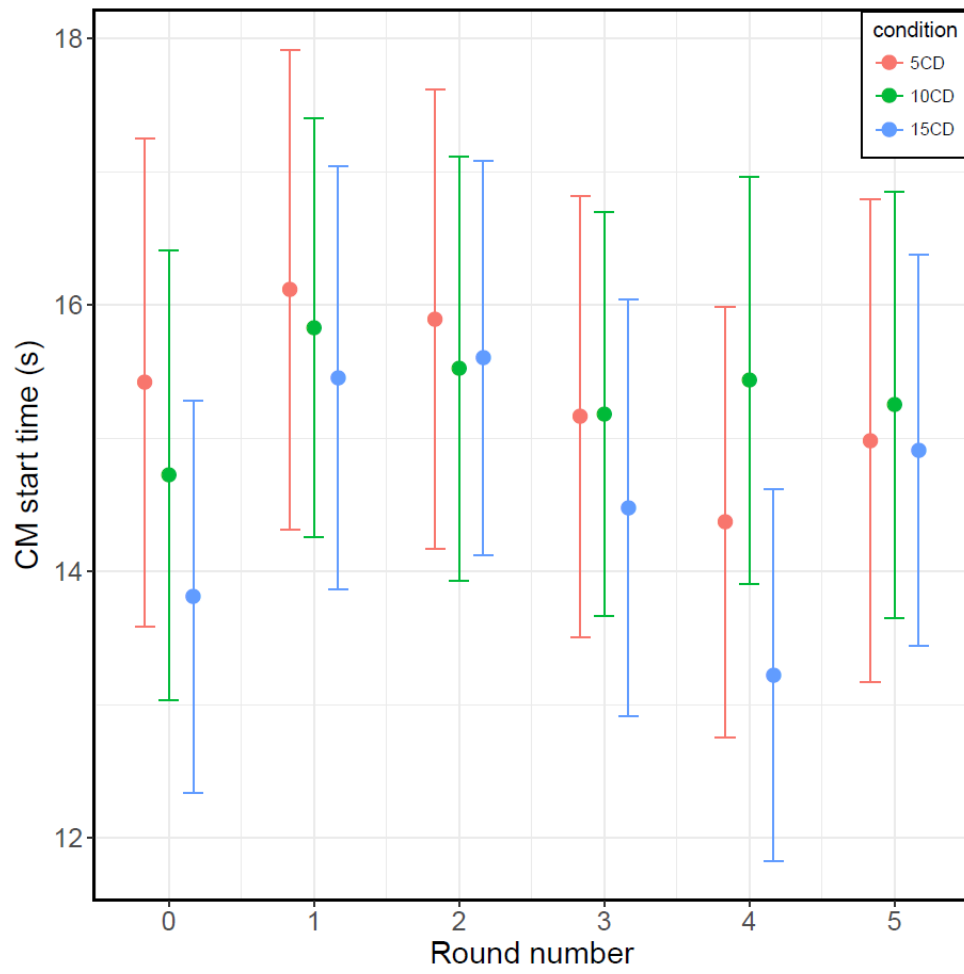


Figure S1. The time the Cookie Monster starts eating the cookies, per condition, and per round.