Characterizing the Causes, Dynamics, and Consequences of Choice Deferral

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Introduction

People defer their choices in spite of the significat costs

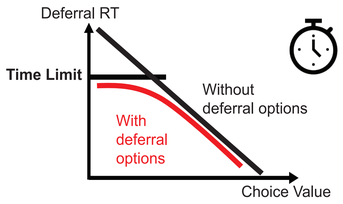
People avoid decisions when all options are bad or all options are similar.[1,2,3]
But **why do people defer when decisions are NOT avoidable?**

...because the choices take too long **(Time-Limit Model[4,5])**

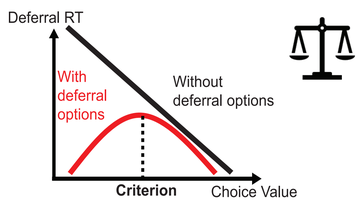
...because the choices aren't good enough **(Discrimination Model)**

And **how do people arrive at the decision to defer?**

Predictions of Time-Limit Model
Slower to defer low-valued choices
More likely to hit the **time limit** to defer



Predictions of Discrimination Model
Faster to defer low-valued choices
More evidence to defer when the choice value farther below certain **criterion**

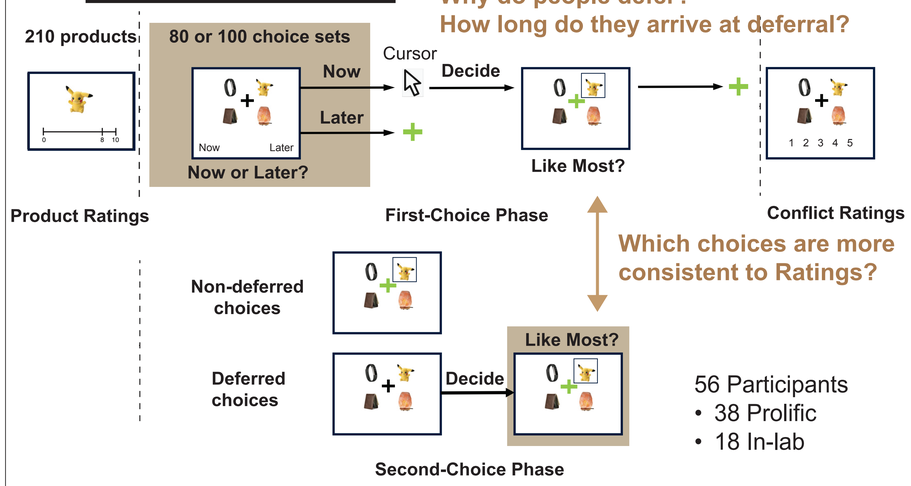


Few studies[5] measure how long it takes to defer (deferral RT).
None have characteized how deferral RT varies with choices.

Finally, what consequences does deferral have for choice and wellbeing?
Does it result in a better ultimate decision? Or reduced feelings of conflict?

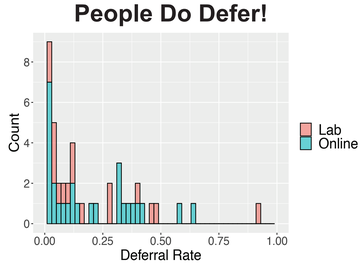
Deferral Task

Why do people defer?
How long do they arrive at deferral?



56 Participants
- 38 Prolific
- 18 In-lab

People Do Defer!



Deferrers (N=45) defer ~20% of choice sets
- Prolific: 27 out of 38 (~71%)
- In-lab: 18 out of 18 (100%)

Some people defer a lot, others don't!

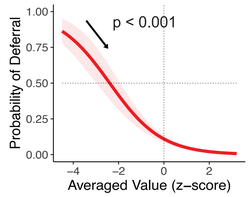
Rare Deferrer (N = 28)
- Deferral rates < ~20%
- Low criteria, most choices exceed criteria

Occasional Deferrer (N = 17)
- Deferral rates > ~20%
- High criteria, many choices fall below criteria

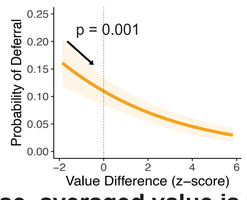
Why People Defer

Despite knowing they have to revisit those choices, people defer...

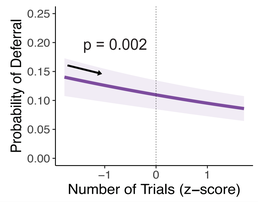
...when options are overall low in value



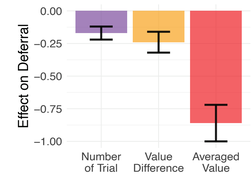
... when options are similar to one another



... earilier in the experiment

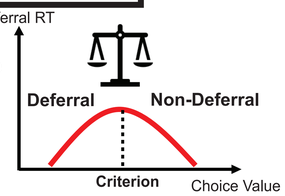


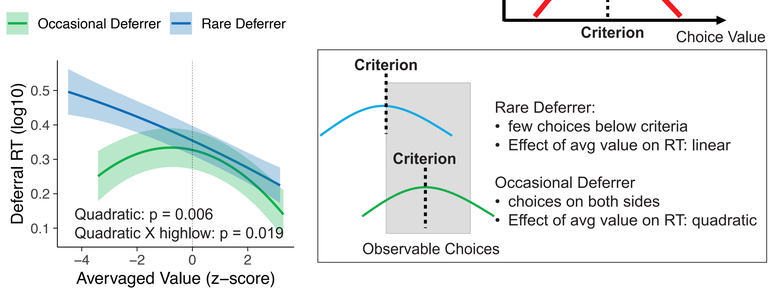
Of these, averaged value is the strongest predictor of deferral



How People Choose to Defer

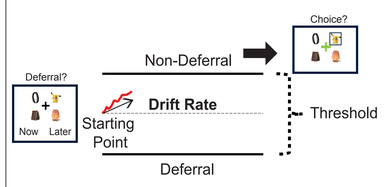
Consistent with the Discrimination Model, participants who were willing to defer were faster to defer low-value relative to high-value choice sets.





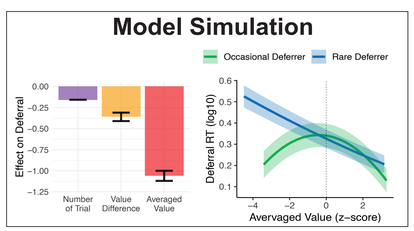
Process Model

We implement the Discrimination Model of deferral as **a drift-diffusion process**, which can **generate** deferral choices and RTs!



Drift Rate
= Dicriminability*(Choice Value - Criterion)

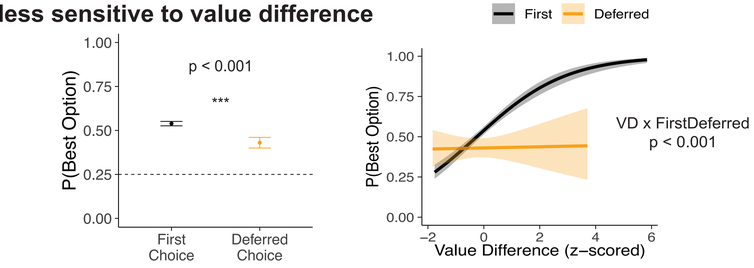
Model Simulation



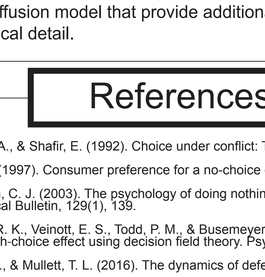
This model helps characterize multiple processes underlying deferral:
- **Evaluation:** How is the choice set evaluated as a whole?
  - Choice value is a weighted sum of option values, biased toward the best option.
- **Discrimination:** How is the choice value compared with a criterion?
  - Criteria and discriminability vary across indivduals.
- **Evolution:** How does the discrimination process change over the experiment?
  - As the task proceeds, participants require less evidence for non-deferral.

Consequences of Deferral

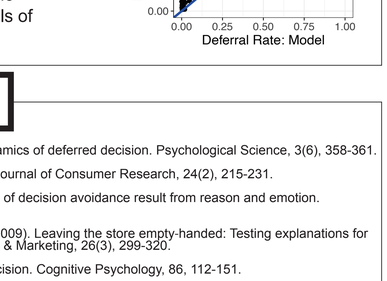
Decisions that were deferred ended up being less consistent and less sensitive to value difference



Deferred choice sets are reported as more conflicting



Occasional deferrers experience less conflict for low-value choice sets in particular



Conclusions

By combining computational modeling and a novel choice task, we showed that deferral is guided largely by a dynamic evaluation of the choice set as a whole.

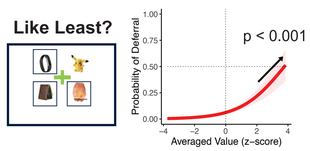
Participants accumulate evidence about the overall value of their options and defer choosing if that value falls below a certain criterion, resulting in the fastest deferral choices when the set value is especially high or low.

Despite being afforded additional time, deferred choices are less likely to arrive at the participant's originally most-preferred option.

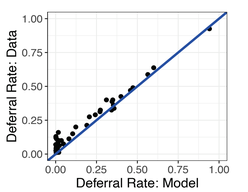
Ongoing Work

- **Deferral Depends on One's Choice Goal**
  When asked to remove the item they like the least, people reverse their criteria to defer for high-value rather than low-value options.

Like Least?



- **Individual Difference in Choice Deferral**
  Our process model of deferral can capture individual deferral behavior, paving the way for studying individual differences.



- **Biologically-Plausible Models of Deferral**
  We will explore alternative process models to the drift-diffusion model that provide additional levels of biological detail.

References

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