Attentional Choice Biases in Losses Involve Range Normalization and Look Like Choices Between Gains

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# Abstract

Simple choices between positively-valued options are common in our daily lives and are susceptible to robust attentional choice biases. However, we also encounter choices between negatively-valued options. We find that in choices between losses, the same attentional choice biases from the gain domain still remain. This is inexplicable with attentional discounting, unless the value comparison process involves some form of range normalization. We also find causal evidence that attentional manipulations affect value-based decisions.

# Introduction

Motivation > Literature Review > Research Question > Short Description of Experiments > Hypotheses > Preview the Results

[[fig\_task\_dots] [fig\_task\_numeric] [fig\_task\_food]]

# Results

## Basic Psychometrics

[[fig\_psychometric\_gl] [fig\_rt\_gl] [fig\_nfix\_gl]]

## Fixation Process

[[fig\_firstbest\_gl] [fig\_fixdurtype\_gl] [fig\_netfix\_gl]] \*I want to cut out first and middle fixation durations wrt difficulty\*

## Computational Model

Same old description of the aDDM. Add an explanation for how aDDM predicts net fixation bias and last fixation bias. [[fig\_addm\_example\_gain] [fig\_addm\_example\_loss] [fig\_addm\_nfb] [fig\_addm\_lfb]]

## Choice Biases (Study 1, 2, and 3)

[[fig\_nfb] [fig\_lfb]]

## Range Normalized aDDM (RNaDDM)

Brief descriptions of the different models we tried. Most of the details should go into supplementary.

[tab\_model\_comparison]

[tab\_addm\_groupestimates]

[[fig\_rnaddm\_individualestimates] [fig\_rnaddm\_simulations]]

## Attentional Manipulations

[[fig\_psychometric\_fixcross] [fig\_netfix\_fixcross] [fig\_lfb\_fixcross]]

# Methods

## Participants

Pool over all studies:

Age: minimum, mean, maximum

Gender: number Female, Male, Non-Binary, Abstain

Race: number Asian, Black, Hispanic, Middle Eastern, Native American, White

## Task

## Eye-Tracking

[txt\_average\_missing\_trials\_dots]

[txt\_average\_missing\_trials\_numeric]

[txt\_average\_missing\_trials\_food]

## Inference Strategy

## Model Fitting

[txt\_addm\_timestep]

[txt\_addm\_statestep]

## Simulations

[txt\_n\_simulated\_datasets]

## Regressions

[txt\_regression\_burnin]

[txt\_regression\_samples]

# Discussion

# Significance Statement