Suppose DM is looking left:

Where

In gains, suppose values range from 1 to 5. In losses, suppose values range from -5 to -1. These contexts are considered separately for min(V) and max(V).

Case 1

Consider a trial where . Then, .

Consider a trial where . Then, .

According to Smith and Krajbich (2019, Psych Sci) and Shevlin et al. (2022, PNAS), we would expect .

Case 2

Consider a trial where . Then, .

Consider a trial where . Then, .

Now, we would expect .

at . So if we were to limit our data to only the observations where left and right values are equal and then plot response time as a function of the absolute value of either option, separately for gain and loss conditions, then we should see two lines that cross at roughly 3. We should also see faster RTs in losses than in gains when absolute value equals 1, and faster RTs in gains than in losses when absolute value equals 5. See the silly example right below (y = RT, x = Absolute Value when Left and Right are Equal).

As you can see in the figures below, we’re not seeing this pattern in the data.

Numeric

A graph showing different colored lines

Description automatically generated

Dots

A graph showing different colored lines

Description automatically generated

For the numeric data, it actually looks like response times might be increasing as values are getting larger, which if we only consider gains is inconsistent with the Smith an Shevlin papers mentioned above. But, I could draw a straight horizontal line through those standard error ribbons, so maybe I’m reading too much into it.

I’m not sure I would read too much into the dots data since the value difference between left and right are so close together that I’d imagine we’re extremely zoomed into the center of the psychometric curve and unlikely to see meaningful effects.