**X-Coordinates Analysis**

*Note:* HLSF paper has response trajectories remapped rightward (so xpos = 1 is selected response) but my trajectories are mapped leftward (so xpos = -1 is selected response). This can be flipped later to match the HLSF paper, if we pursue this model. Also, I have 101 timesteps rather than 100. This can also be changed.

**SUMMARY – Rate (pos, neg) x Load (low, high) x Load Domain (emotion, neutral):**

There is a significant effect of rate, such that faces rated as negative had smaller maximum deviations than positive ratings.

There is a significant effect of load, such that maximum deviation is *smaller* for high load compared to low load. This does not match the previous analysis with only load as a predictor, which showed that maximum deviation is *larger* for high load compared to low load. We may want to discuss this a bit… but I’ve done a little bit of searching and it looks like this is a type of suppressor effect resulting from the inclusion of additional predictors.

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There is a significant rate x load interaction (figure below), such that under low loads (across both domains) positive ratings showed larger maximum deviations than negative ratings (p = .005; all p’s tukey adjusted). Further, positive ratings during high load had larger maximum deviations than negative ratings during low loads (p = .021). There is also a trend for negative ratings during low load to have smaller maximum deviations than negative ratings during high load (p = .056). This means that negative ratings during low load tend to have smaller maximum deviations (i.e., more direct trajectories) than other conditions.

There is a significant three-way interaction as well. Negative ratings during low, neutral load trials had smaller deviations than positive ratings during low (p = .027) and high (p = .005) emotional loads. Positive ratings under high load had smaller deviations for neutral compared to emotional load trials (p = .045). Negative ratings during low, emotional trials had smaller deviations than positive ratings during high, emotional loads. There were also two trends: (1) on trials with low, neutral loads positive ratings showed a trend towards larger deviations than negative ratings (p = .098) and (2) on trials with low, emotional trials positive ratings showed a trend towards larger deviations than negative ratings (p = .094).

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**SUMMARY – Rate (pos, neg) x Load (low, high) x Load Domain (emotion, neutral) x Time:**

Less negative coordinates == more spatial attraction to unselected response

There was a significant conditional effect of rate, such that negative ratings tended to have more negative x coordinates (i.e., more direct trajectory).

There was a significant conditional effect of domain, such that trials with emotional working memory loads had less negative x coordinates (i.e., more attraction towards unselected responses).

There was a significant conditional effect of load, such that high load trials had more negative x coordinates (i.e., more direct trajectory).

The dummy coded time bin variables showed that the middle portion of the trial (40-60% of time steps) had less negative x coordinates than both the intermediary and start/finish time bins, suggesting that the largest deviations occurred during this time bin (both p’s < .001).

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Description automatically generated]()There was a significant rate x load interaction. During low load trials, positive ratings showed less negative coordinates (i.e., more spatial attraction towards unselected response) than negative interpretations (p < .001). Additionally, trials rated as negative during low load showed more negative coordinates (i.e., more direct trajectory) than both positive ratings during high load (p < .001) and negative ratings during high load (p < .001). All other comparisons were non-significant.

There was a significant rate x bin (Middle vs. Start/end) interaction. X coordinates were less negative during the middle portion of the trial (p’s < .001). During the middle portion, positive ratings showed more attraction (less negative x cords) towards the unselected response. There was no difference between positive and negative ratings in the start/end time bin (p = .925).

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Similarly, there was an interaction of domain x bin (Middle, Start/End). X coordinates were less negative during the middle portion of the trial (p’s < .001) and during the middle time bin trials with emotional working memory loads showed less negative coordinates (i.e., more attraction towards unselected response) than neutral loads (p < .001). There was no difference between the x coordinates of each wm domain during the start/end portion of the trial (p = .980).

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There was a significant load x bin (Middle, Start/end) interaction. Again, x coordinates were less negative in the middle portion of the trial (p’s < .001). High WM load trials showed less negative x coordinates than low WM load trials during the start/end portions of the trial, suggesting more attraction towards the competing response (p = .0079). There was no significant difference between high and low load trials during the middle portion of the trial (p = .391).

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There was a significant rate x load x bin (middle, start/end) interaction. This revealed less negative x coordinates during the middle time bin (p’s < .001). The only **non-significant** comparison within the middle timebin was between positive and negative rated trials during high load. Other comparisons are highlighted in the figure below. There were no significant differences in the start/end time bin, although there was a trend towards high load trials that were rated as positive to show less negative x coordinates (i.e., more response competition) than low load trials rated as positive (p = .069).

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trend

There was a significant domain x load x bin (middle, intermediary) interaction. X coordinates during the middle timebin were less negative than those during the intermediary timebin (p’s < .001). During the middle portion of the trial, low emotional loads showed less direct trajectories than low neutral trials (p = .007). High load neutral trials showed more direct trajectories than low load emotional trials (p = .002). There was a trend for low load emotional trials to have more direct trajectories than high load emotional trials (p = .086), but this did not reach traditional significance. Additionally, during the intermediary time bin, low load neutral trials were marginally more direct than high load emotional trials (p = .051) and low load emotional trial trajectories were more direct than high load emotional trials (p < .001).

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