

Testing multiple metrics for saccadic facilitation in a cueing task

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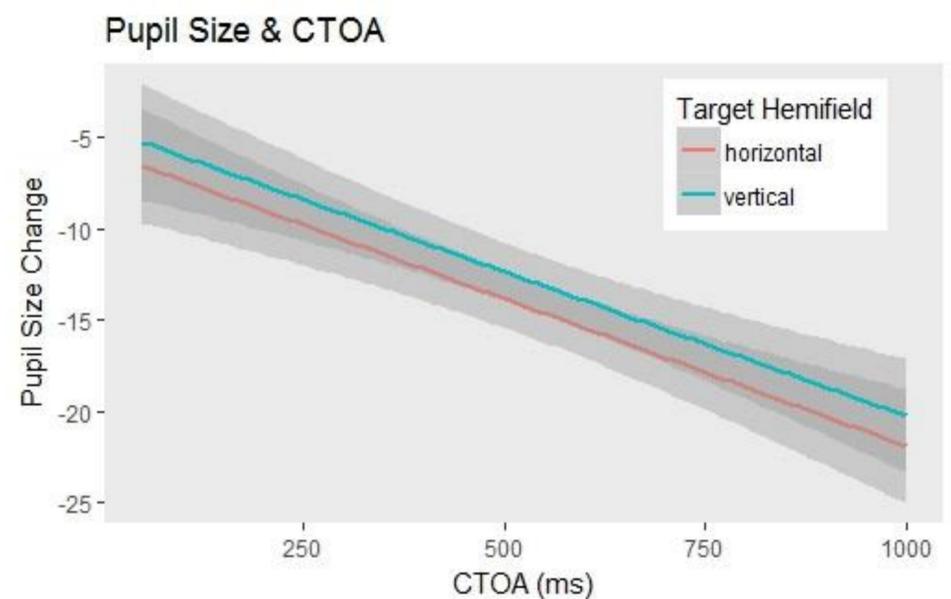
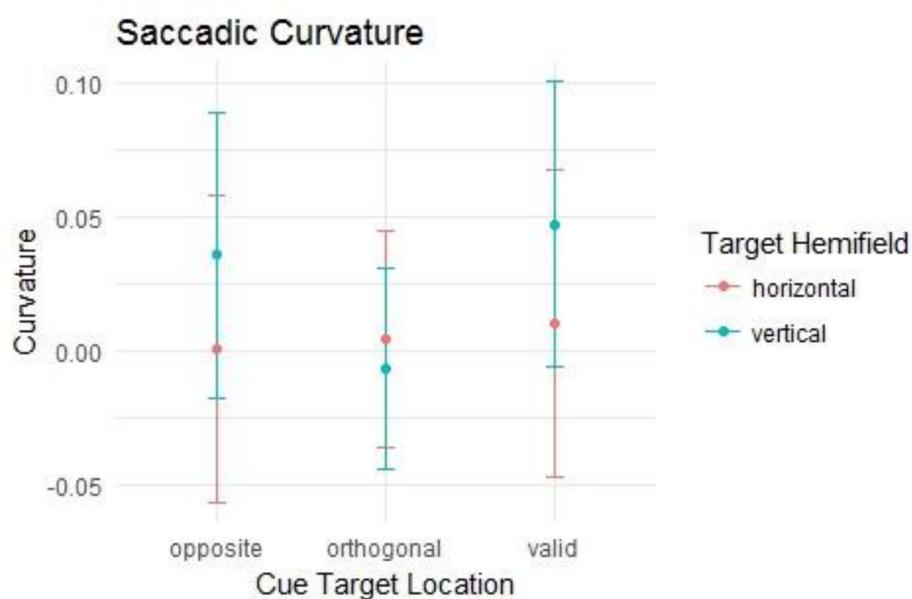
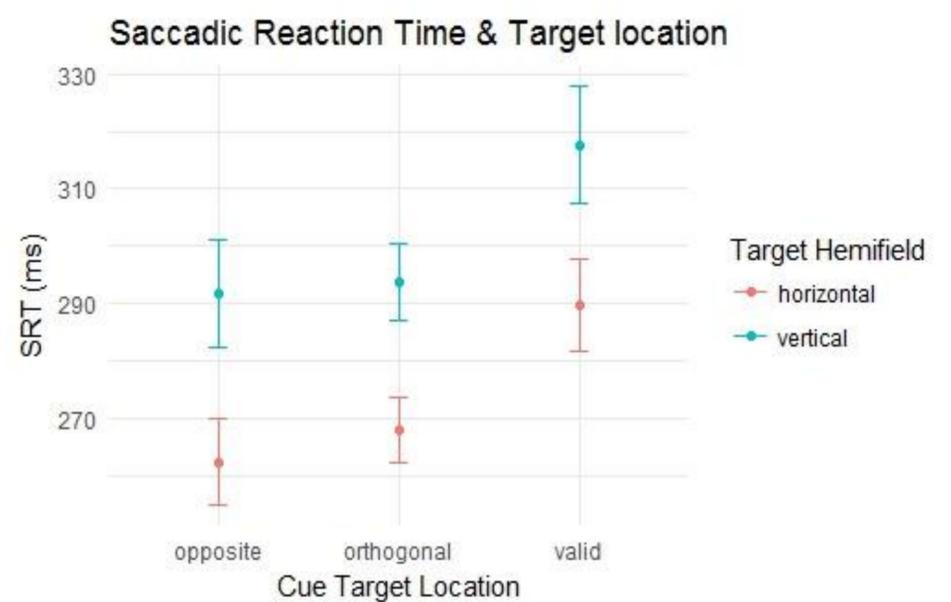
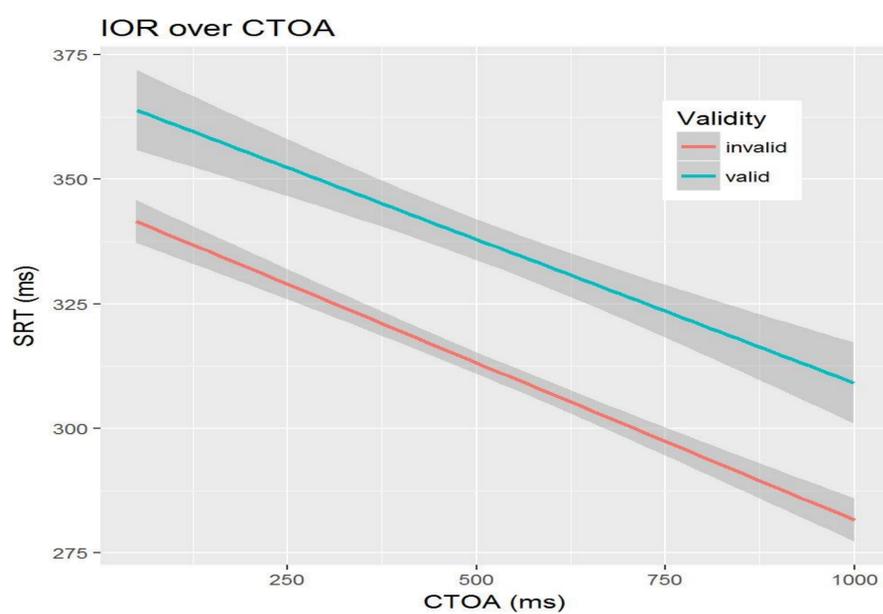
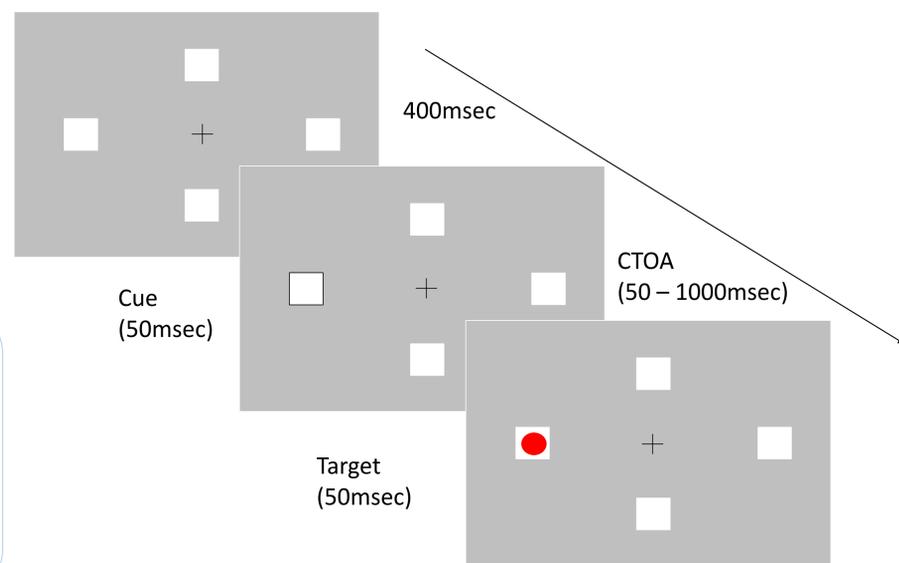
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Introduction:

We studied orienting of attention at cued and uncued locations using exogenous cueing paradigm (Posner & Cohen, 1984). The task was to make saccades to a target at any of the four locations (top, bottom, left and right) around the central fixation cross. We measured facilitation and inhibition of return (IOR) using different saccadic metrics – reaction time (RTs), trajectories, micro-saccades and pupil size.

We look at:

- Independent Variables – Cue target onset asynchrony (CTOA), hemi-field and relative location of cue vs target
- Dependent Variables – Saccadic reaction time (SRT), saccadic curvature, microsaccades and pupil size
- Using linear mixed effects model for analysis



We find that:

- Preliminary analysis shows a robust IOR with no evidence of early facilitation at any CTOA
- Saccades are faster in horizontal hemifield vs vertical hemifield at three different cue-target locations
- Interaction seen between saccadic curvature and cue target location
- No significant effect of pupil size (pre & post cue onset) in predicting attention
- Further analysis in progress for relation between micro-saccades and attention

We conclude that:

- Random, continuous cue target onset asynchrony (CTOA) could be the reason for lack of facilitation and strong inhibition of return (IOR) at the cued locations
- We see no evidence of early attention at validly cued location using alternate measures

Our findings are in line with the study by MacInnes (2016) which also does not find facilitation for either manual or saccadic responses.

References

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