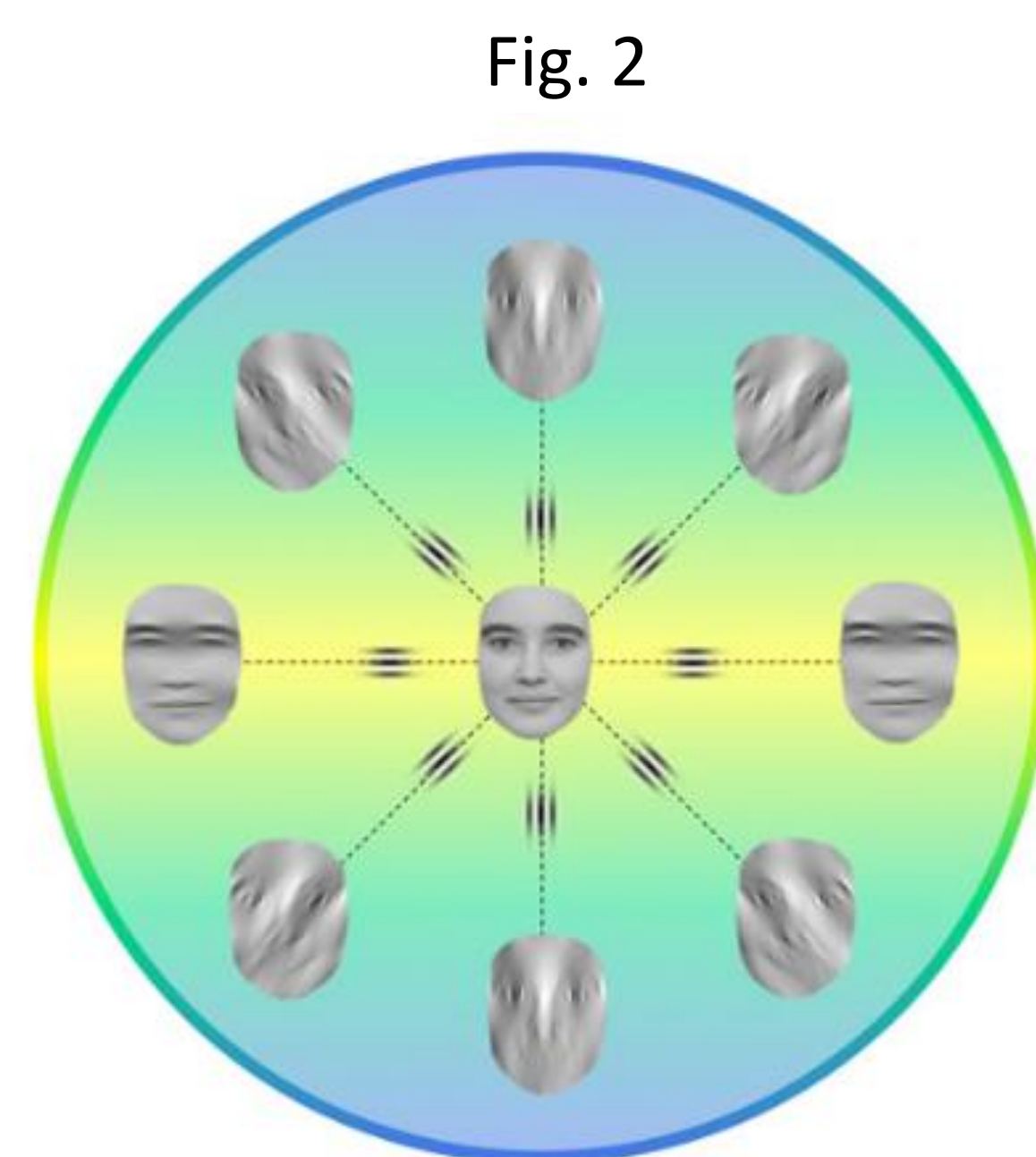
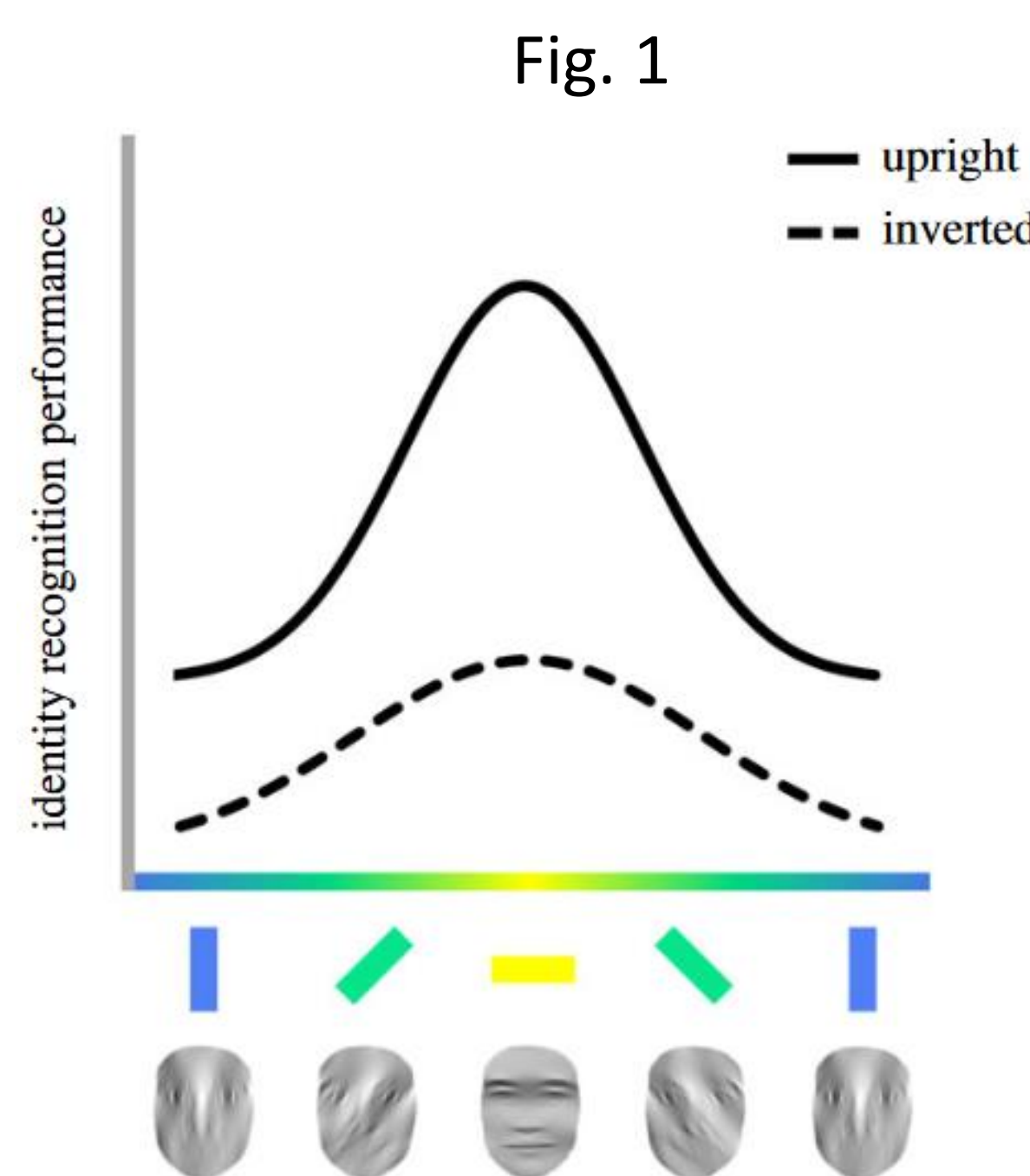


Introduction

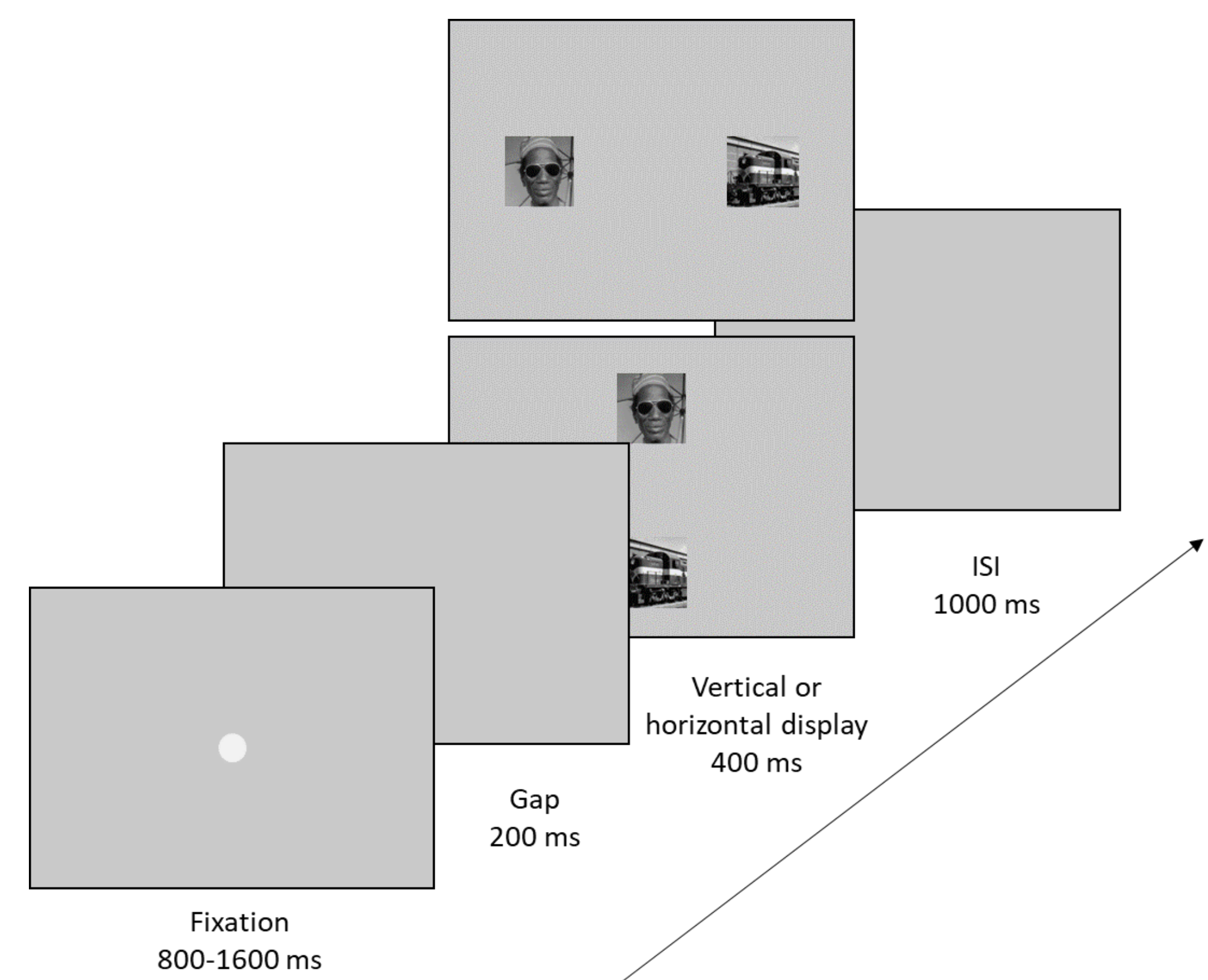
- Saccadic choice studies have demonstrated that faces are more rapidly and accurately fixated in the periphery than other stimuli, such as objects or scenes^[1,2,3]
- Such ultra fast saccades towards faces are typically measured with lateral stimulus presentation, i.e., stimulus placed along the horizontal meridian^[4,5,6]
- Face recognition preferentially relies on horizontally-oriented visual cues (Fig. 1)^[7]
- Roux-Sibilon et al. (2023) recently found that face-selective mechanisms are more engaged along the horizontal meridian compared to the vertical meridian^[10] likely due to the combined influence of the radial biases^[8,9] and the horizontal tuning of face recognition (Fig. 2)

To what extent do peripheral radial biases contribute to ultra fast saccades towards faces along the horizontal meridian?



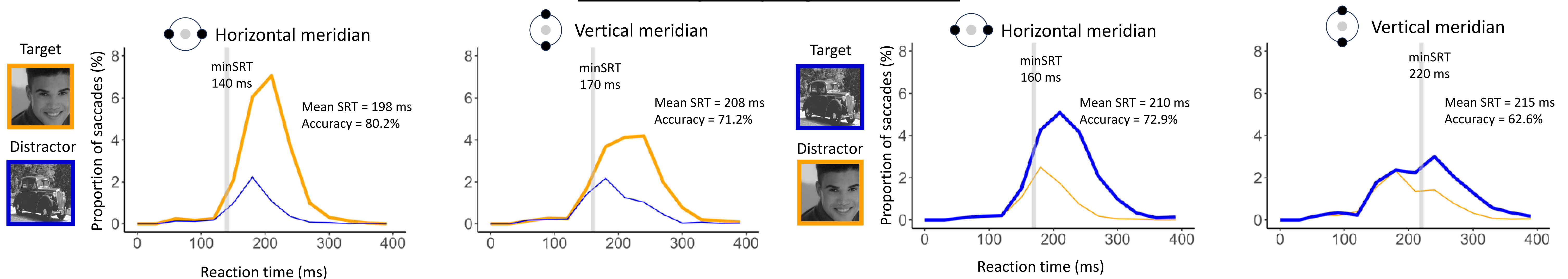
Task

- The procedure and task are similar to previous saccadic-choice studies^[1,2,3,4] except that the stimuli are displayed at 15° of eccentricity either along the vertical or the horizontal meridian.
- The stimuli are drawn from Guyader et al.^[2] and encompass a collection of 240 images divided between human faces and vehicles. These images showcase variations in both size and perspective and cover 8° of visual angle.
- The participants are instructed to saccade as fast and accurately as possible towards a category of image which is predefined as target (either faces or vehicles)

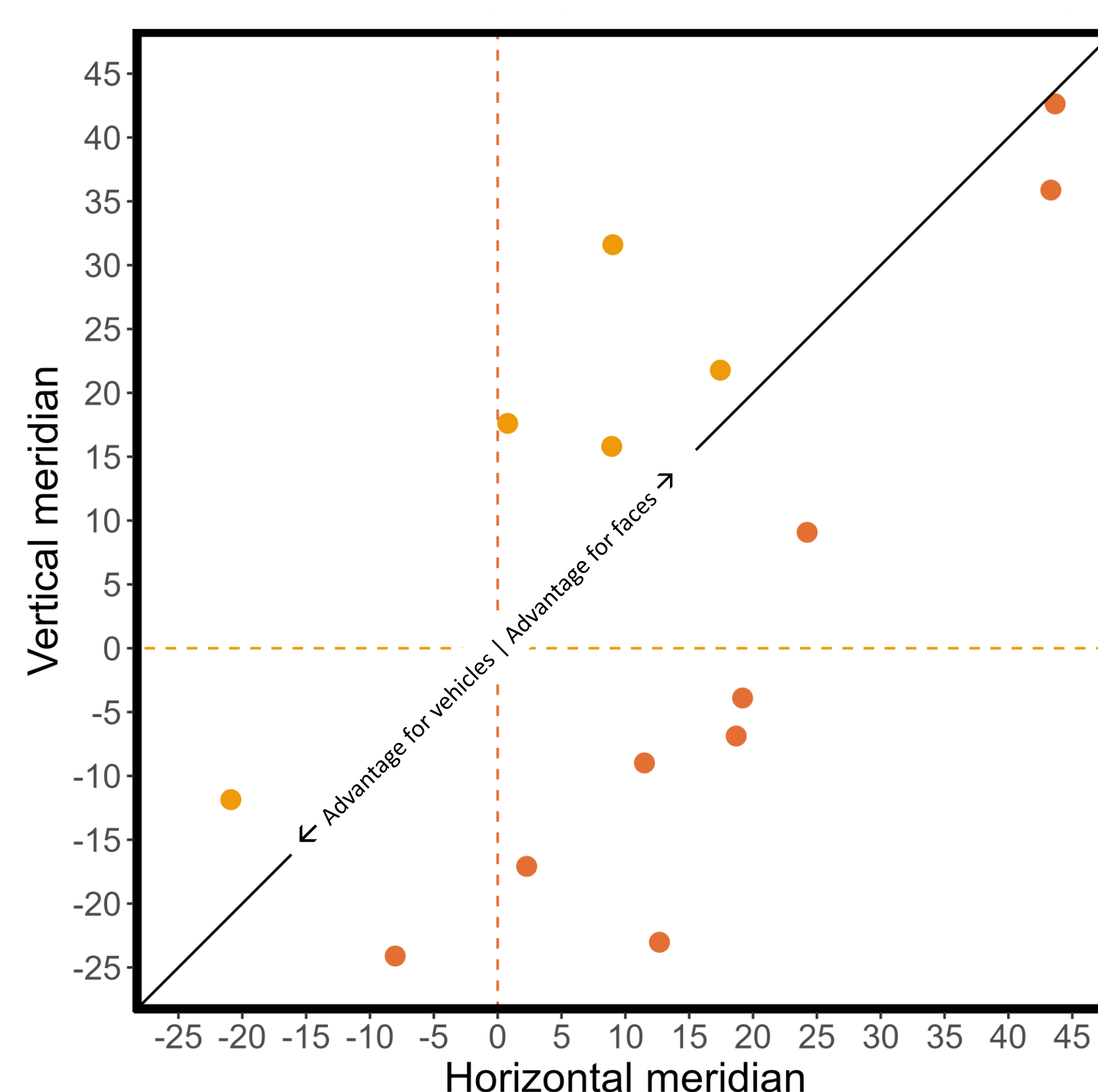


Saccadic reaction times (SRT)

Distribution of SRT by Target and Meridian

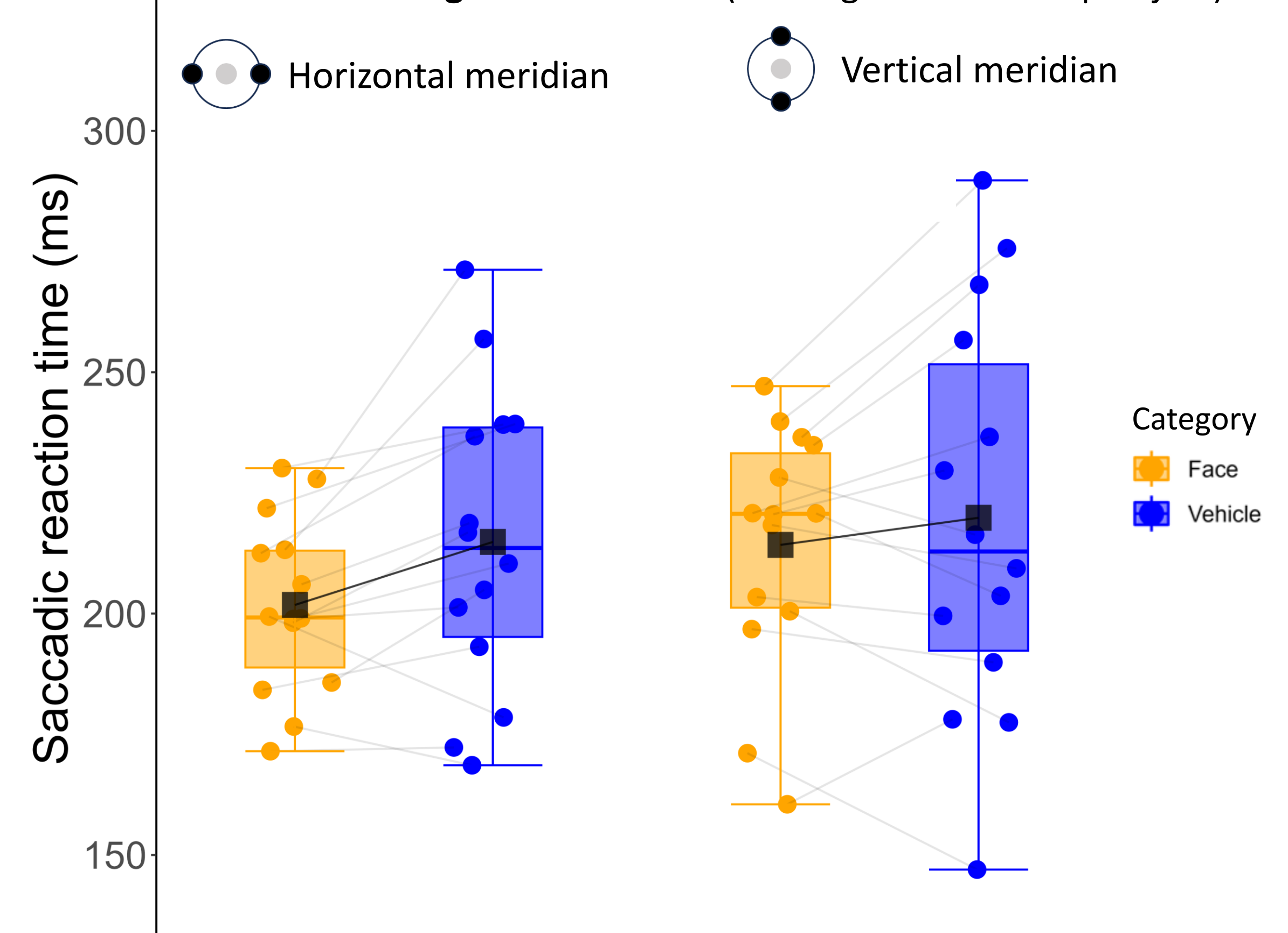


Face advantage (SRT_{vehicle} – SRT_{face}) in ms



Dispersion of SRT by Target and Meridian (LMM)

$$SRT \sim 1 + \text{target} * \text{meridian} + (1 + \text{target} + \text{meridian} | \text{subject})$$



- Fourteen healthy adults participated (Mean age = 22.5 (+/- 3.91); eleven right-handed; 11 women)
- Trials with an SRT inferior to 50 ms or where a blink occurred during stimulus presentation were discarded from analysis. This resulted in removing 7.55% of the trials.
- Minimum saccadic reaction time (minSRT)** was determined by dividing the latency distribution into 10-ms bins. If five consecutive bins showed significantly more correct than incorrect responses (χ^2 test, $p < .05$), the first was considered the minSRT.
- Mean SRT** indicates a face advantage in 12 out of 14 participants; and a stronger face advantage along the horizontal than the vertical meridian in 8 participants.
- Linear mixed effects model (LMM)** shows a significant main effect of target, i.e., faster saccades towards faces than vehicles and a significant interaction between target and meridian, i.e., a stronger face advantage along the horizontal than vertical meridian.

Conclusion

Our **preliminary findings** indicate that:

- Saccades are faster and more accurate towards faces than vehicles both along the horizontal and vertical meridians.
- Presenting stimuli along the vertical meridian severely reduces the accuracy of saccadic behavior both towards faces and vehicles.
- Decreased saccadic accuracy along the vertical meridian prevents the interpretation of minSRT.
- Comparisons of mean SRT shows that the saccadic advantage for faces is more robust along the horizontal meridian than along the vertical meridian

The fact that the saccadic advantage for faces is stronger along the horizontal than the vertical meridian supports past findings that the radial bias is maintained at high-level perception stages and suggests a role in triggering ultra-fast saccades towards faces along the horizontal meridian.

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