

# Object-based attention is modulated by shift direction and visual field quadrant

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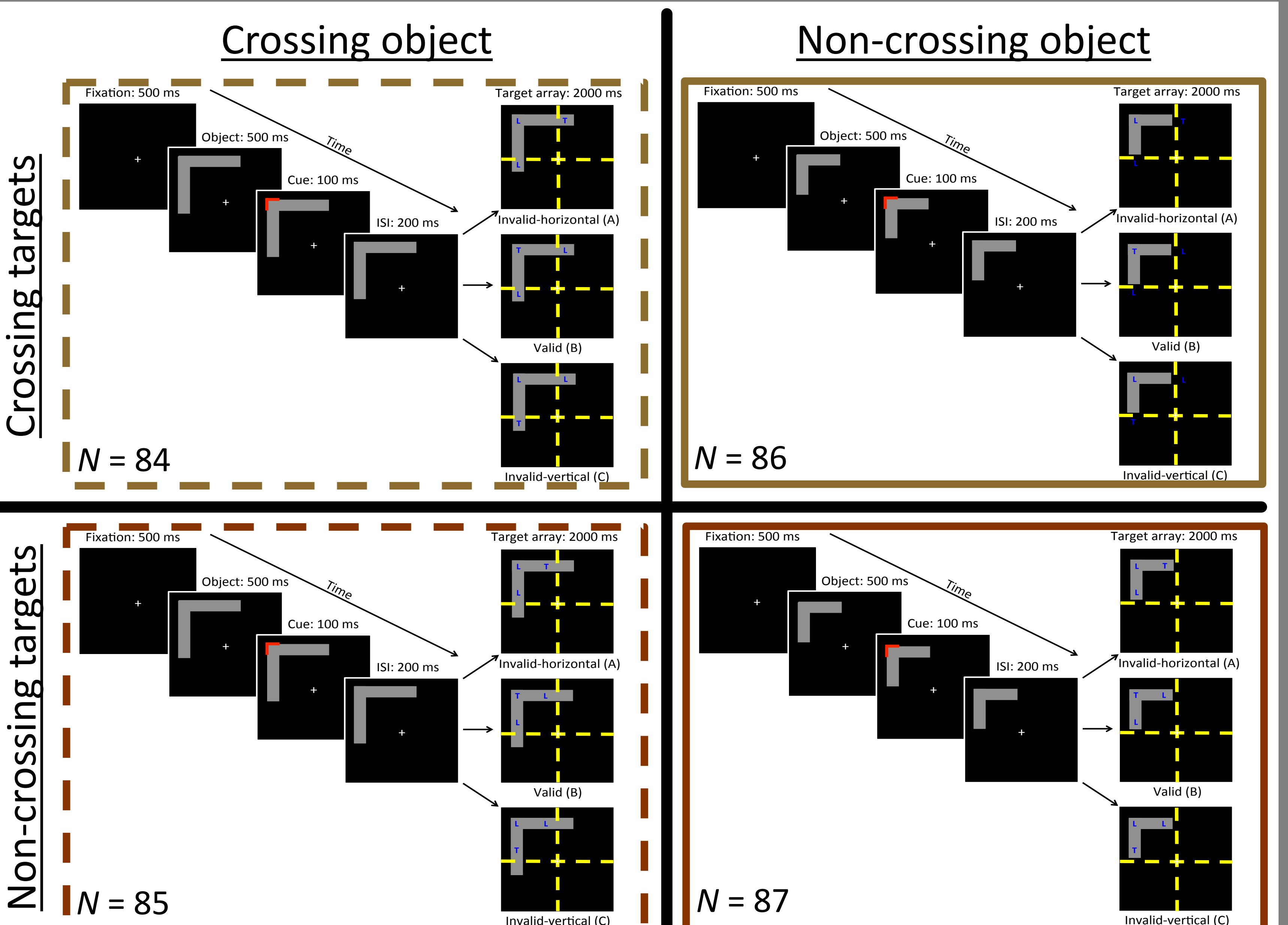
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## Introduction

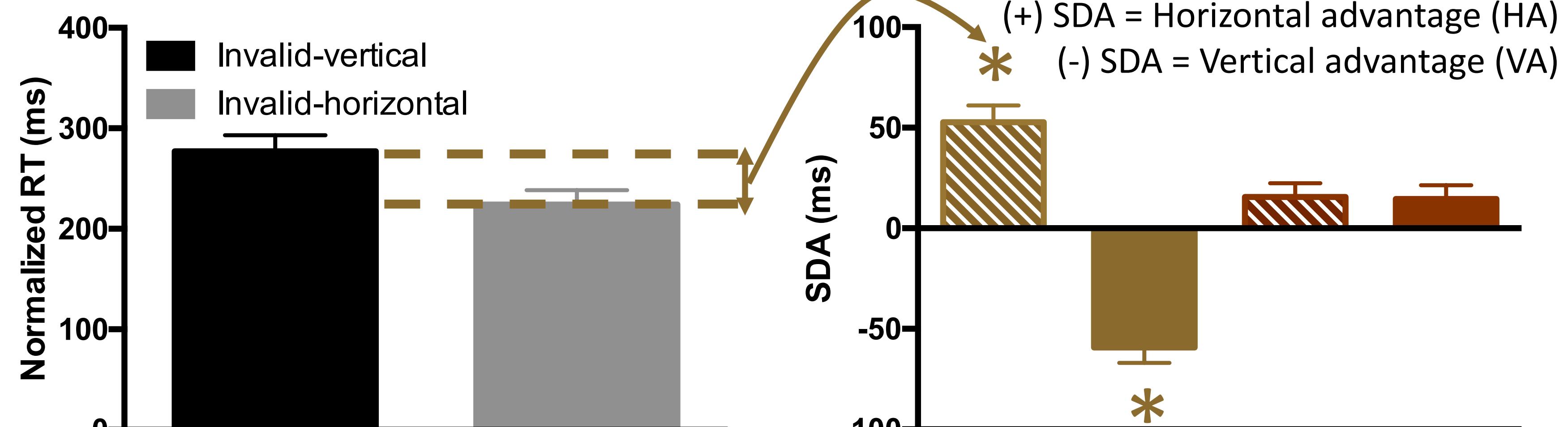
- Visually attended objects are afforded an enhancement of information relative to unattended objects, known as object-based attention (OBA)<sup>1,2</sup>
- OBA shifts are anisotropic (Shift Direction Anisotropy, SDA) and are more efficient along the horizontal meridian versus vertical meridian<sup>3-5</sup>

**Is the SDA driven by a specific shift direction, and does the SDA vary with visual field quadrant?**

## Method

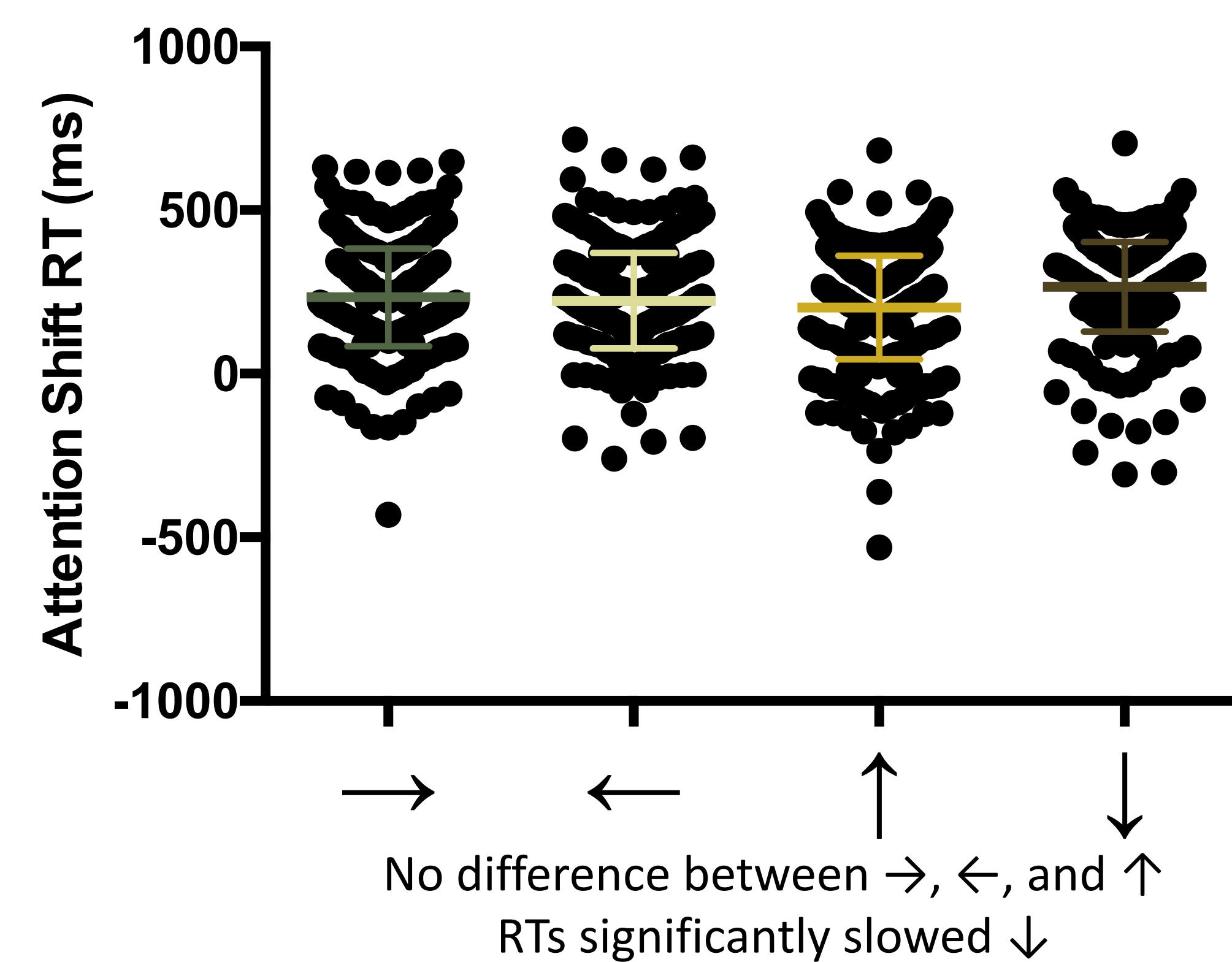
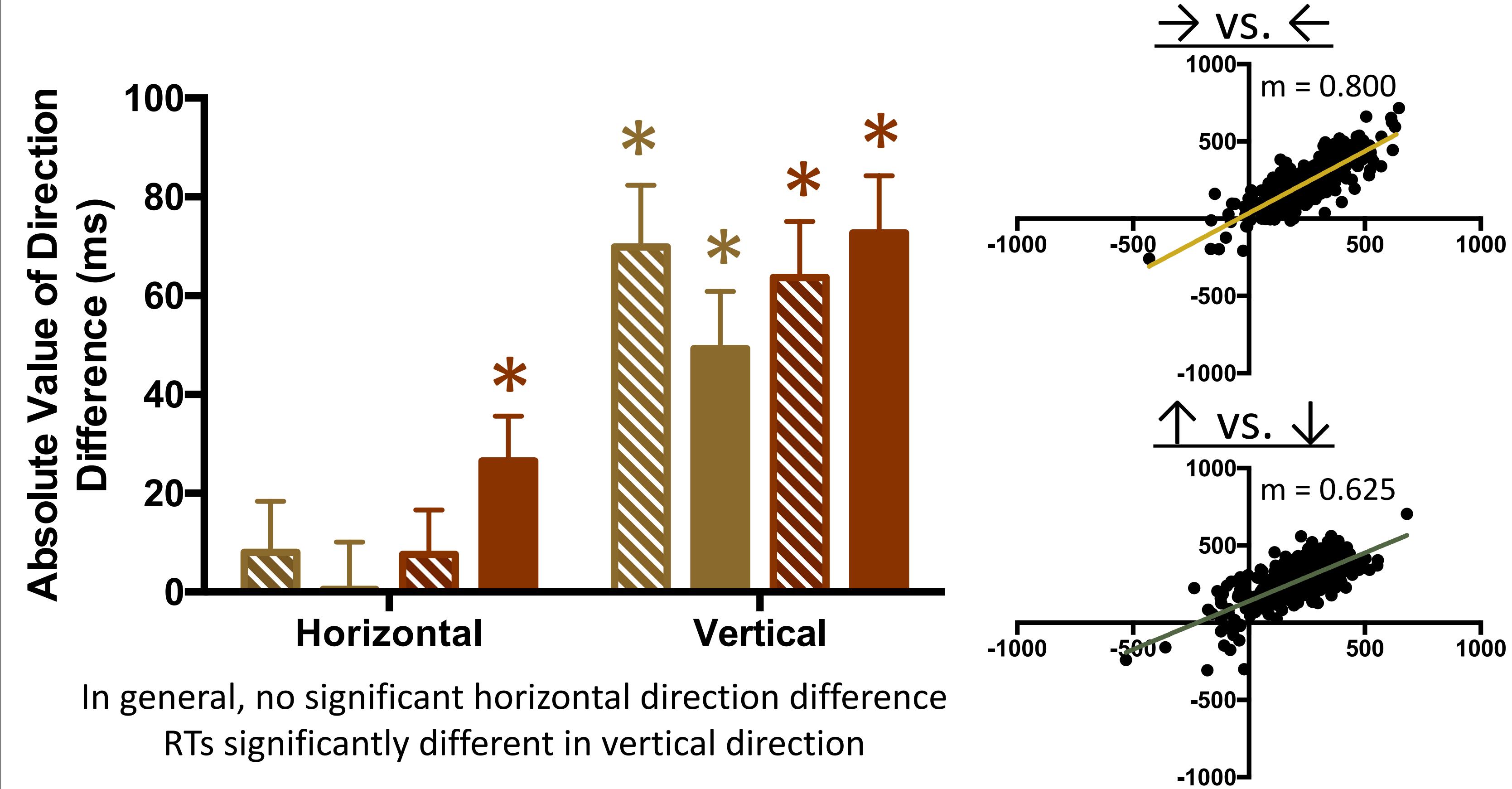


## Previous Results

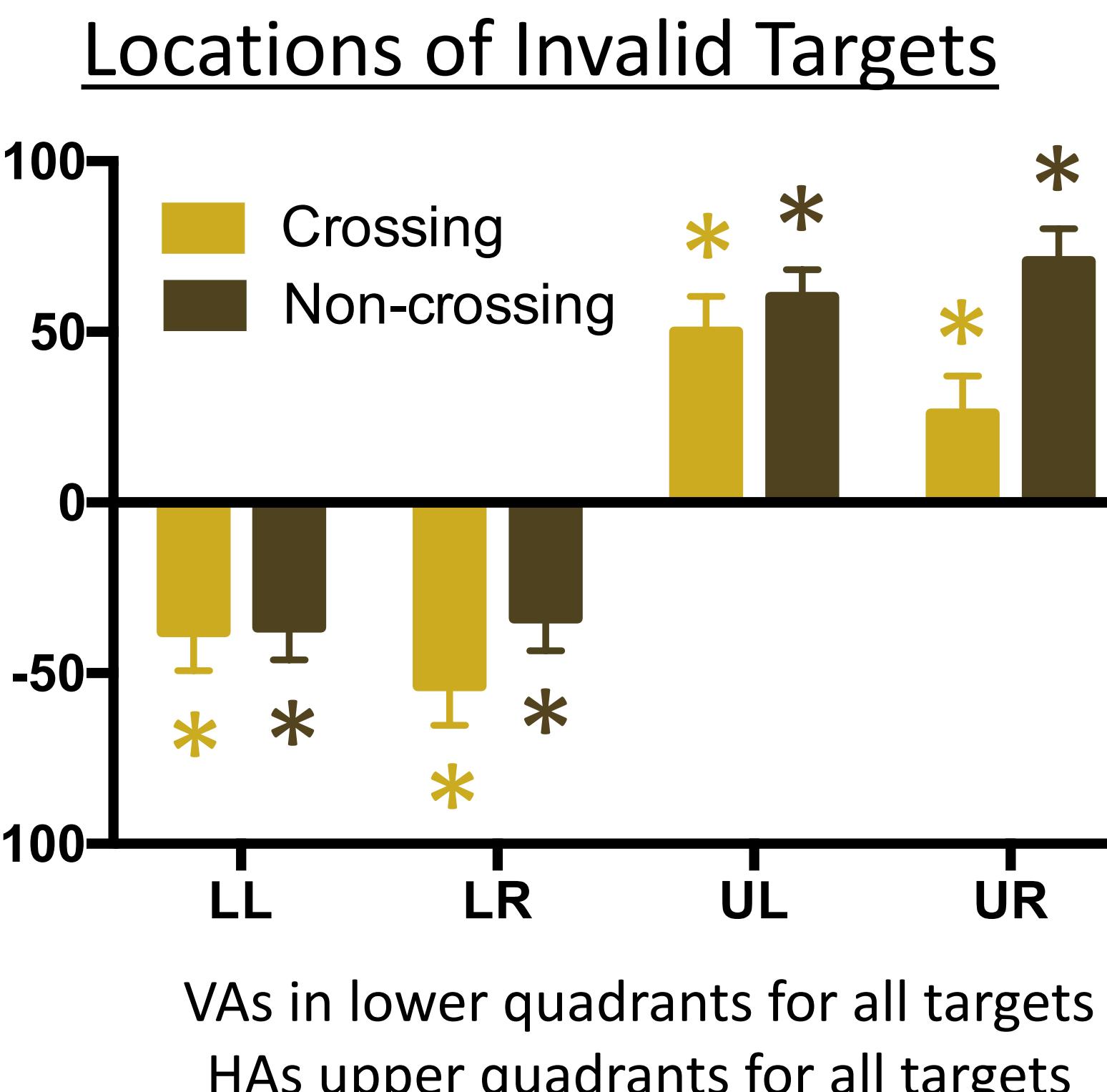
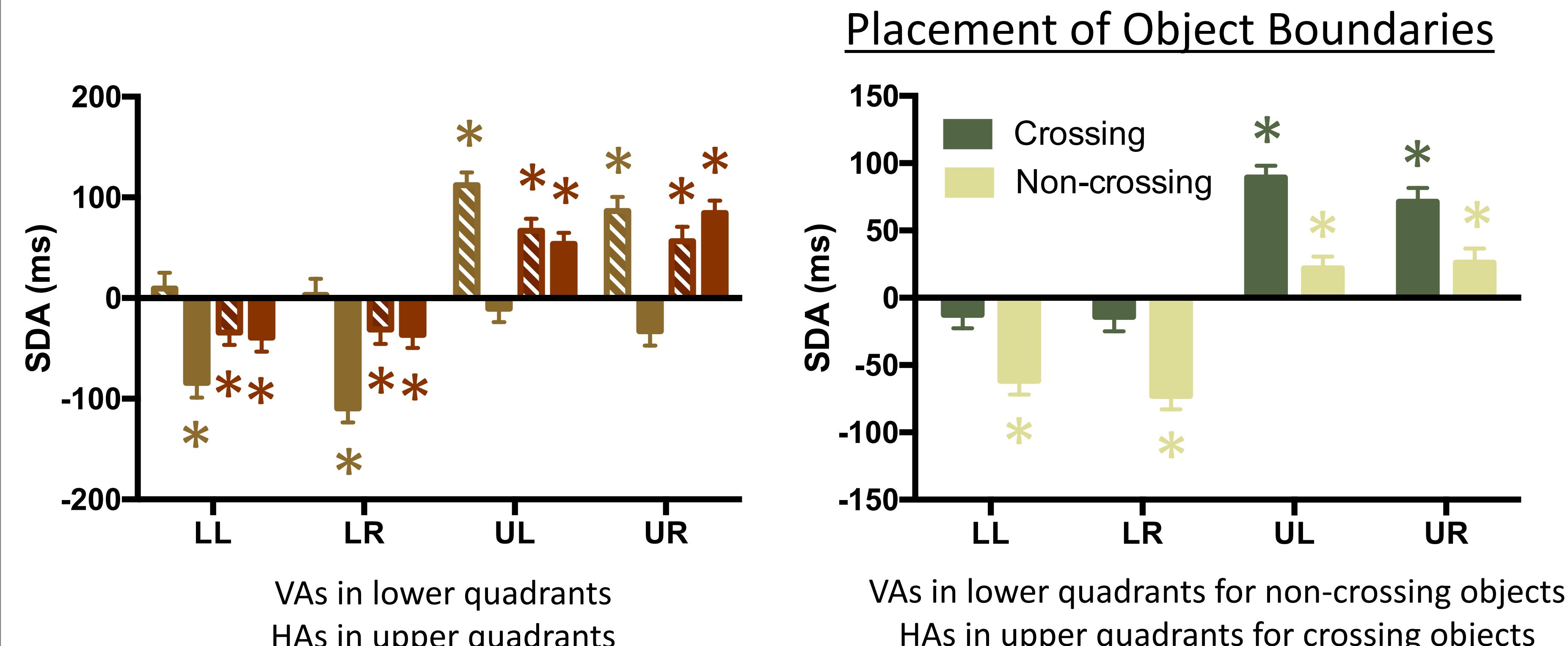


## Current Results

### Shift Direction Results



### Visual Field Quadrant Results



## Discussion & Conclusion

- In addition to a *general* horizontal advantage, the SDA emerges from a *specific impairment when shifting top-to-bottom*
- The SDA is also **modulated by visual field quadrant** and depends on:
  - Whether attentional selection is object-based or non-object-based
  - Placement of object boundaries, not locations of invalid targets
- These findings support a neurobiological explanation of the SDA based on the representation of the visual fields in visual cortex

## References

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- Pilz, K. S., Roggeveen, A. B., Creighton, S. E., Bennett, P. J., & Sekuler, A. B. (2012). *PLoS One*
- Barnas, A. J., & Greenberg, A. S. (2016). *AP&P*
- Barnas, A. J., & Greenberg, A. S. (in prep)

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