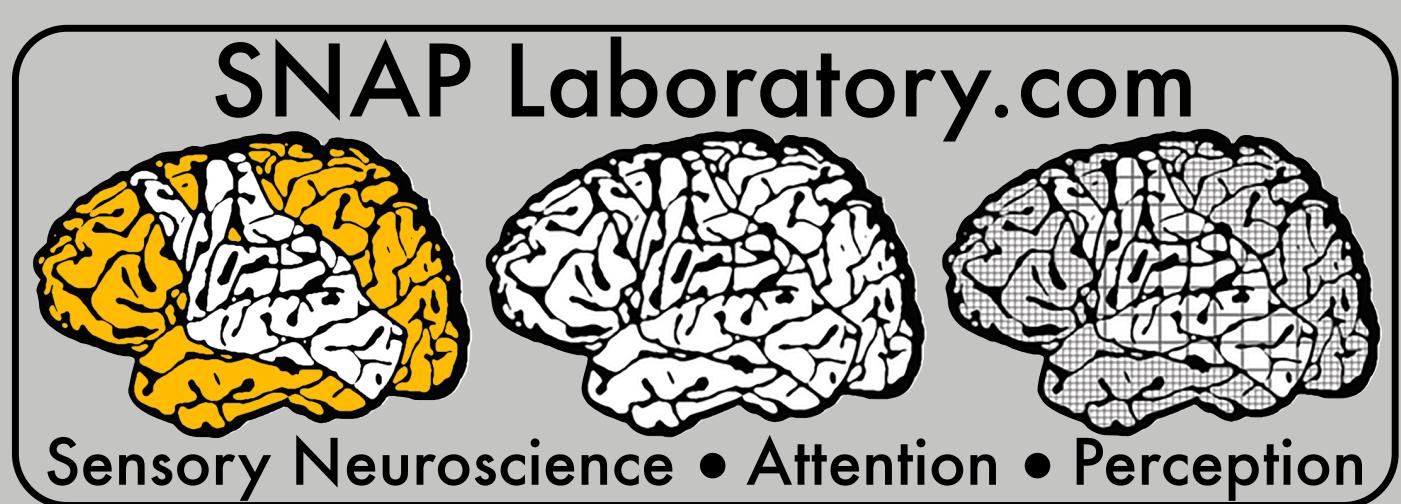
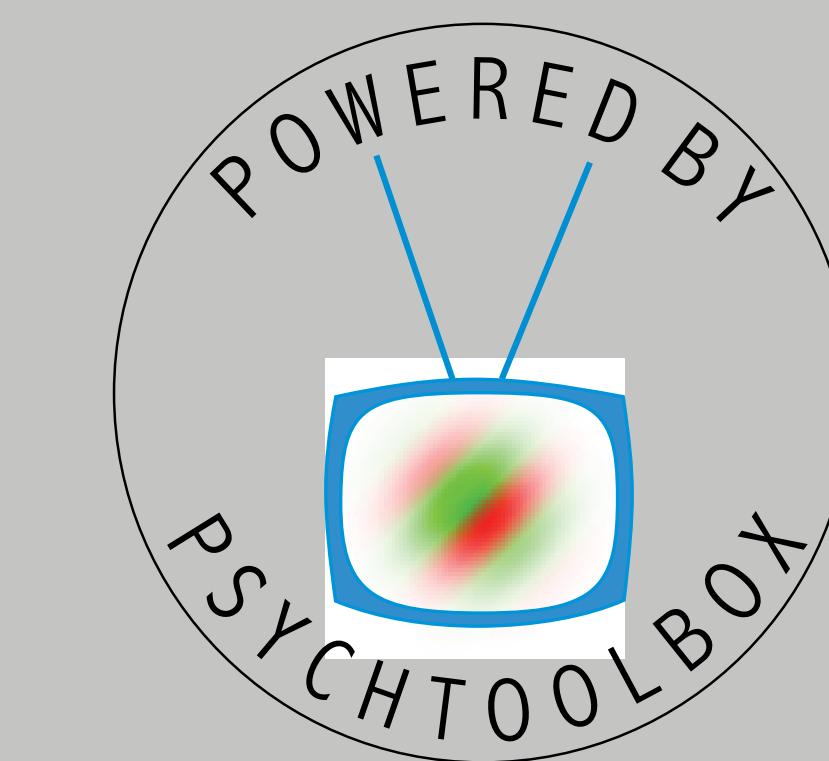


Object-Based Attention Shift Direction Efficiency: Behavior and a Model

Adam J. Barnas and Adam S. Greenberg

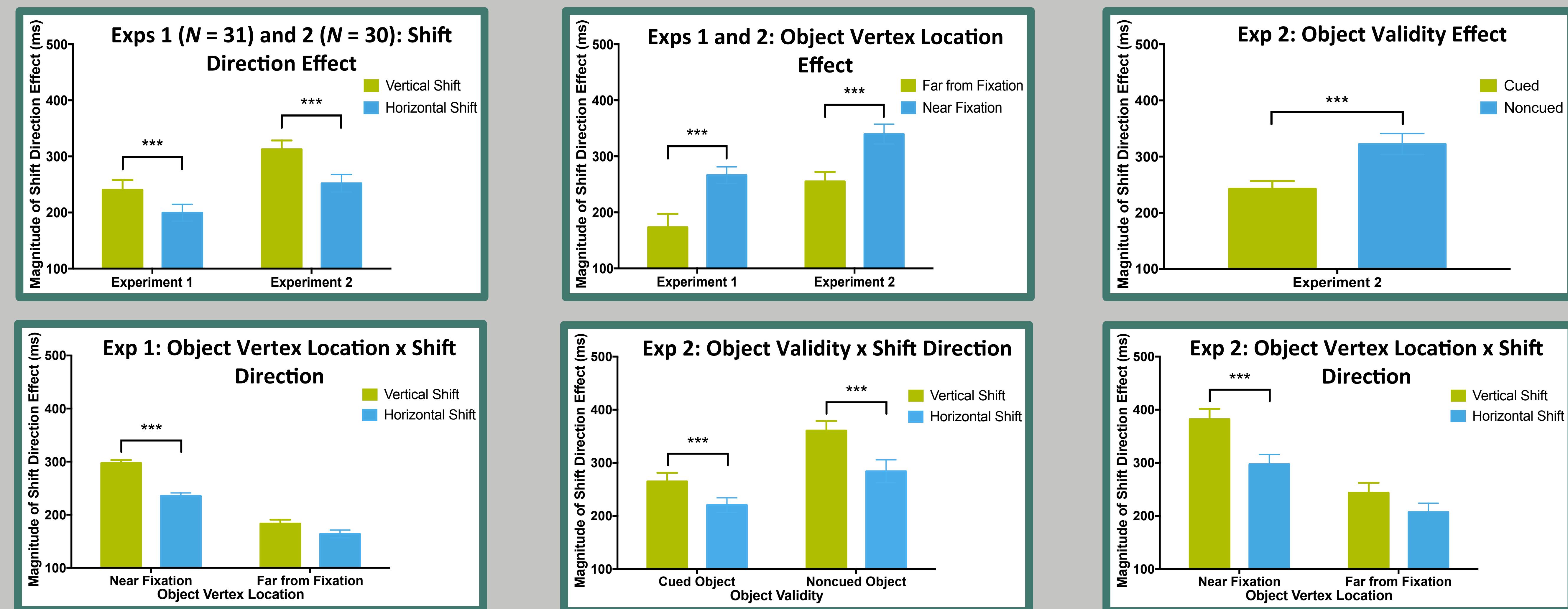
Department of Psychology, University of Wisconsin-Milwaukee, Milwaukee, WI



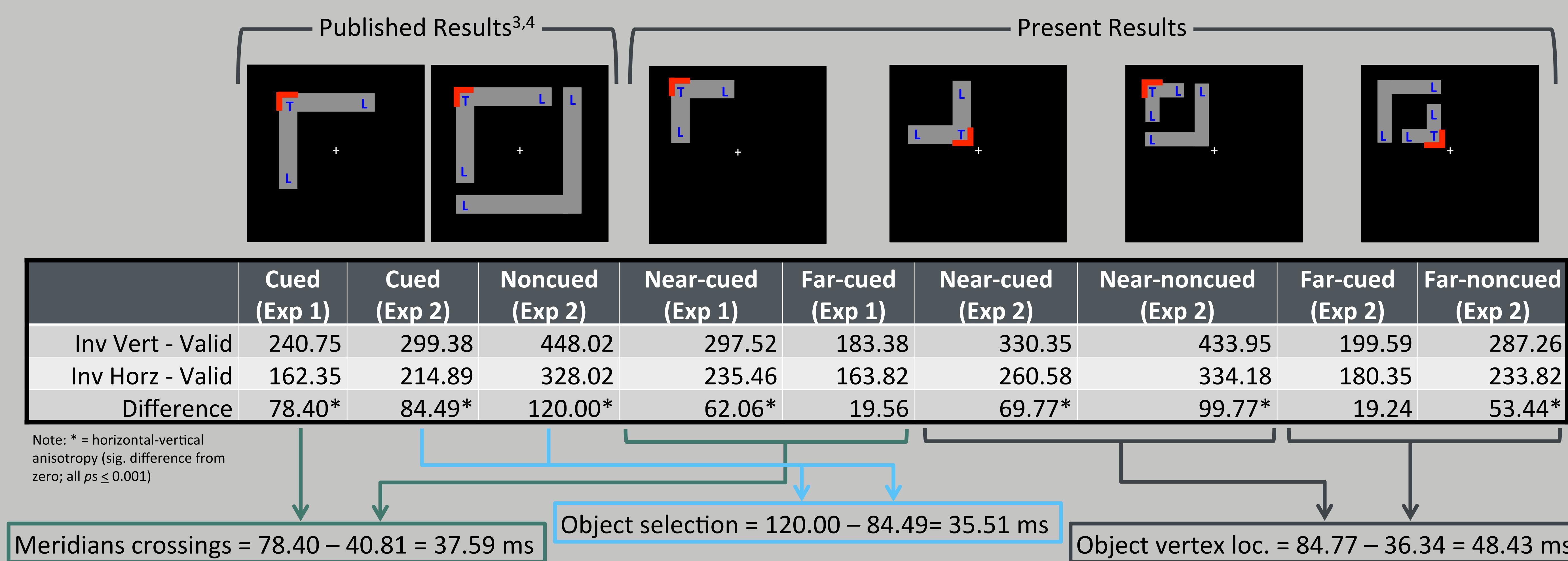
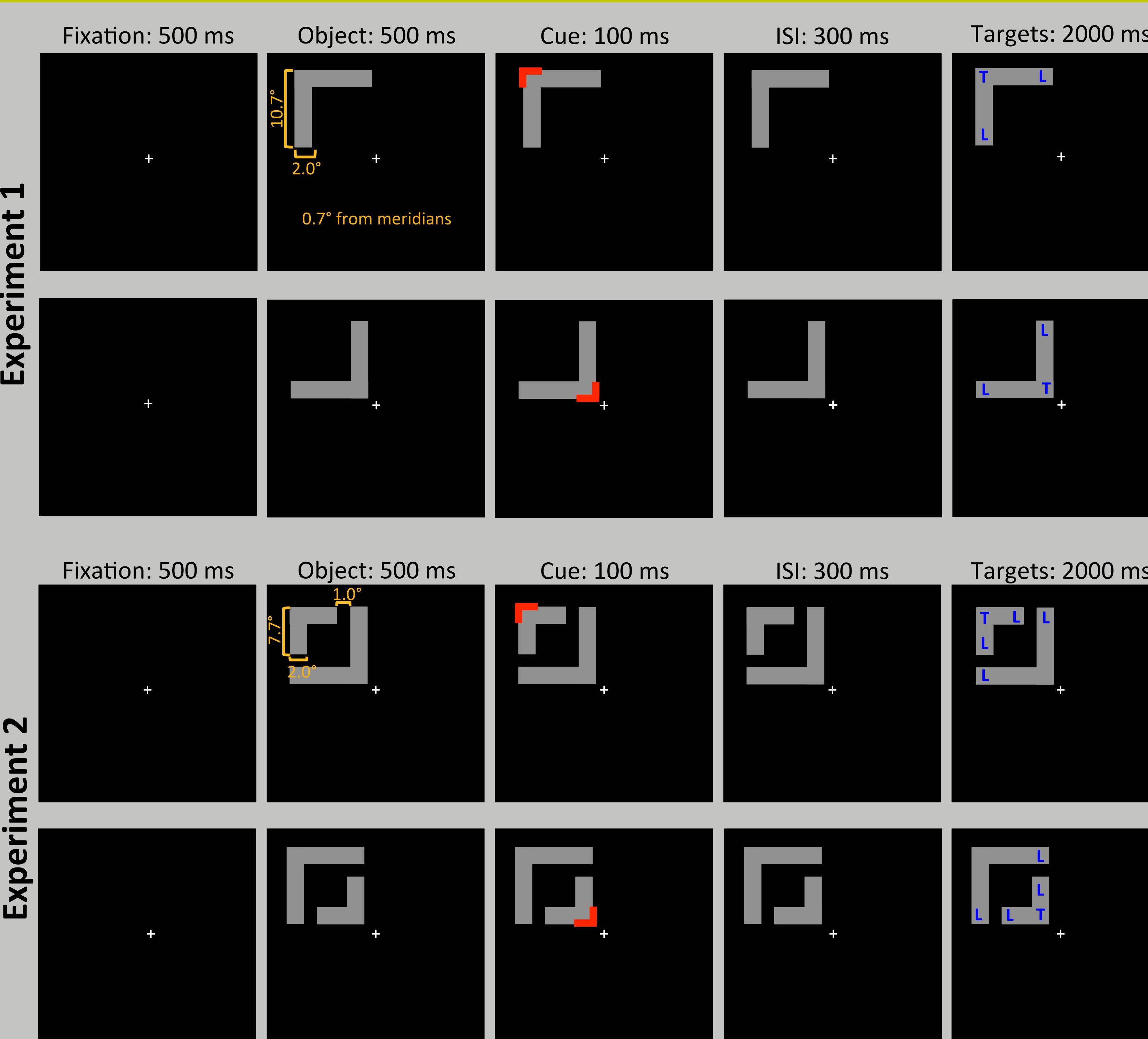
Introduction

- Object-based attention (OBA) leads to preferential processing of visual information within the boundaries of a selected object
- Recent work demonstrated larger OBA effects for horizontal rectangles than vertical rectangles¹
 - These effects were eliminated when controlling for attention shifts across the visual field meridians²
 - Reallocation of OBA was faster horizontally than vertically when objects cross the visual field meridians^{3,4}
- Here, we aimed to further elucidate the modulatory role of the visual field meridians on OBA and to model the underlying components contributing to the efficiency of the shift direction

Results



Method



Discussion

Behavioral results lead to a model of the shift direction efficiency magnitude that accounts for effects of meridian crossings (horizontal vs vertical; ~40 ms), object validity (cued vs noncued; ~40 ms), and object vertex location (near vs far from fixation; ~50 ms)

These three parameters may be critical determinants of the often-reported difference in the efficiency of the shift direction in OBA

References

- Pilz et al. (2012). *PLOS One*
- Greenberg et al. (2014). *Journal of Vision*
- Barnas & Greenberg. (2015). *Journal of Vision*
- Barnas & Greenberg. (2016). *AP&P*

Acknowledgments

- We thank Dick Dubbelde and Grace Nicora for their assistance with data collection and also Shahd Al-Janabi for her insightful comments
- This research was supported by the United States-Israel Binational Science Foundation Grant No. 2013400 (A.S.G.)

Reprint requests: ajbarnas@uwm.edu