Separable effects of object-based attention: The same-object advantage and the shift direction anisotropy

Adam J. Barnas and Adam S. Greenberg

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

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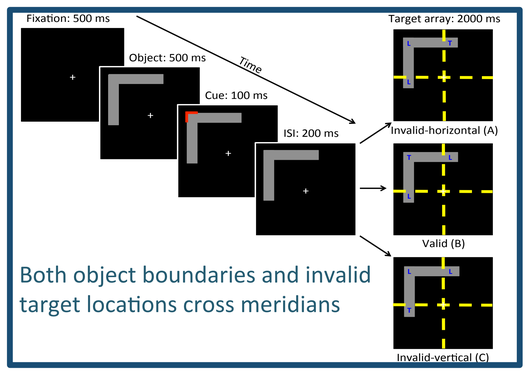
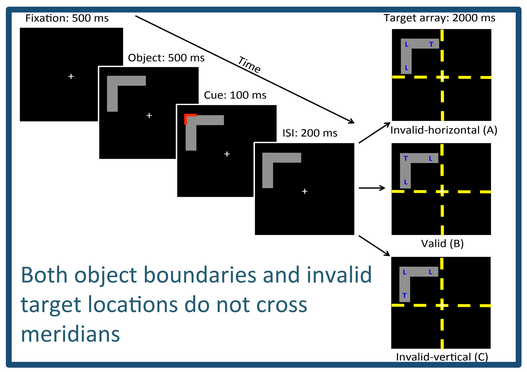
Introduction

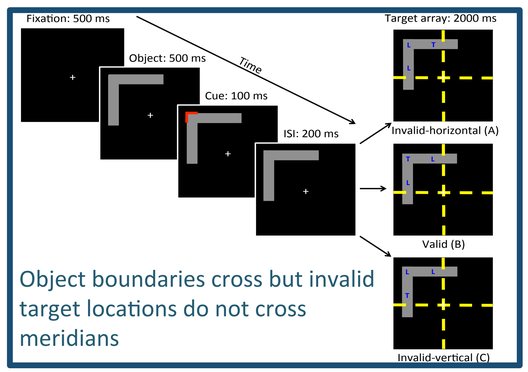
- Object-based attention (OBA) leads to preferential processing of visual information contained in/on an attended object vs. unattended object[1,2]
- Enhanced performance at invalidly-cued same-object location vs. invalidly-cued different-object location ➔ **same-object advantage**[1,2,3]
- Small (*M* = 10.3 ms) and inconsistent same-object advantages at group level are driven by small proportion of participants (approx. 7.5%)[3]
- Shifts of attention across the visual field meridians results in horizontal advantage ➔ **shift direction anisotropy (SDA)**[4,5]

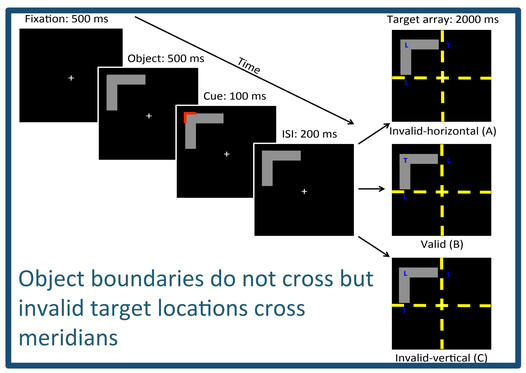
Is the same-object advantage separable from the SDA?

Method





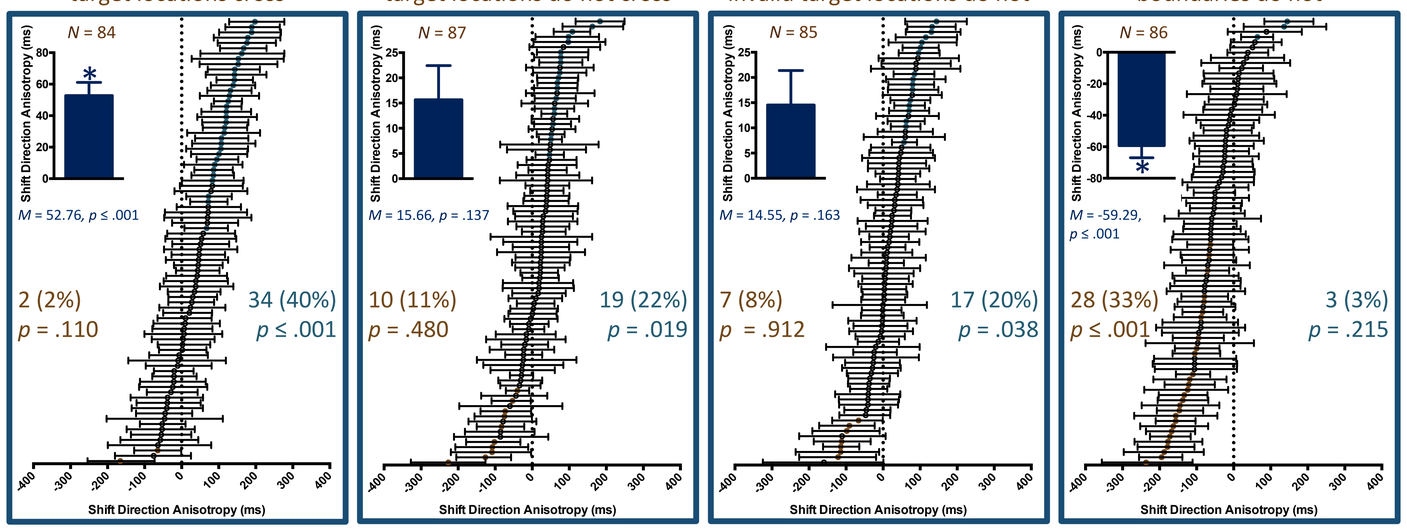




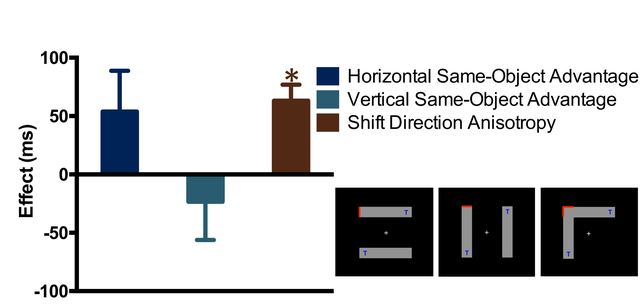
960 trials • 60% valid trials • 20% invalid trails • 20% catch trials

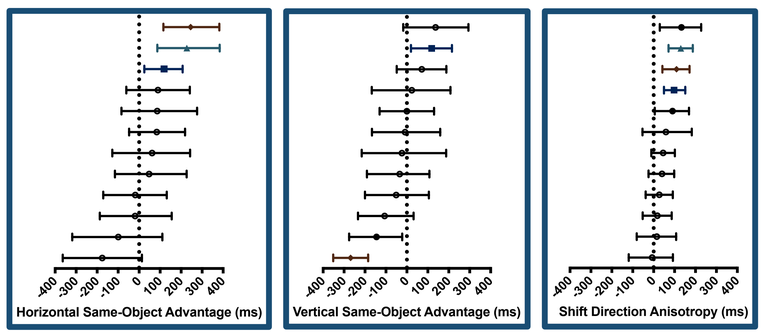
Note: objects and target array placement not drawn to scale; Dashed yellow lines indicate horizontal and vertical meridians and were not visible to participants

Results



Negative SDA = Vertical advantage (invalid-vertical RT < invalid-horizontal RT) Positive SDA = Horizontal advantage (invalid-horizontal RT < invalid-vertical RT)





Discussion & Conclusion

- Minority of participants exhibited SDA despite large group effects
- SDA sufficiently, but not categorically, modulated by meridians
- Larger proportion exhibited SDAs relative to same-object advantage
- Low prevalence of SDA and objects-based effects within participants

The same-object advantage and SDA appear to be separable effects of object-based attention

References

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Acknowledgments

• We thank Souriyo Dishak, Dick Dubbelde, and Erin VandenBosch for assisting with data collection
• This research was supported by the United States-Israel Binational Science Foundation (Grant No. 2013400) and the UWM Research Growth Initiative

Reprint request: ajbarnas@uwm.com