

Target location, rather than object location, drives the object-based attention shift direction anisotropy

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Introduction

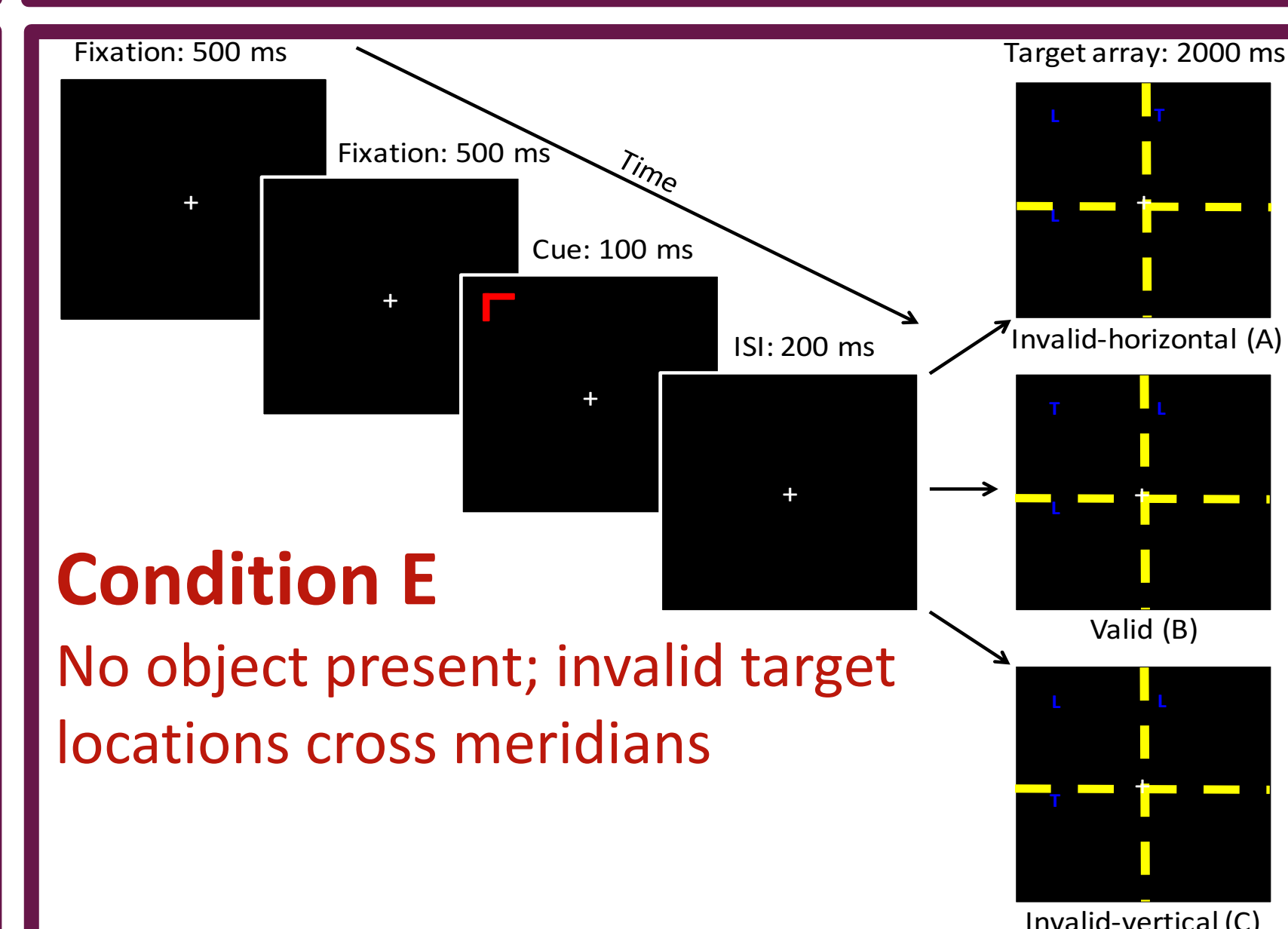
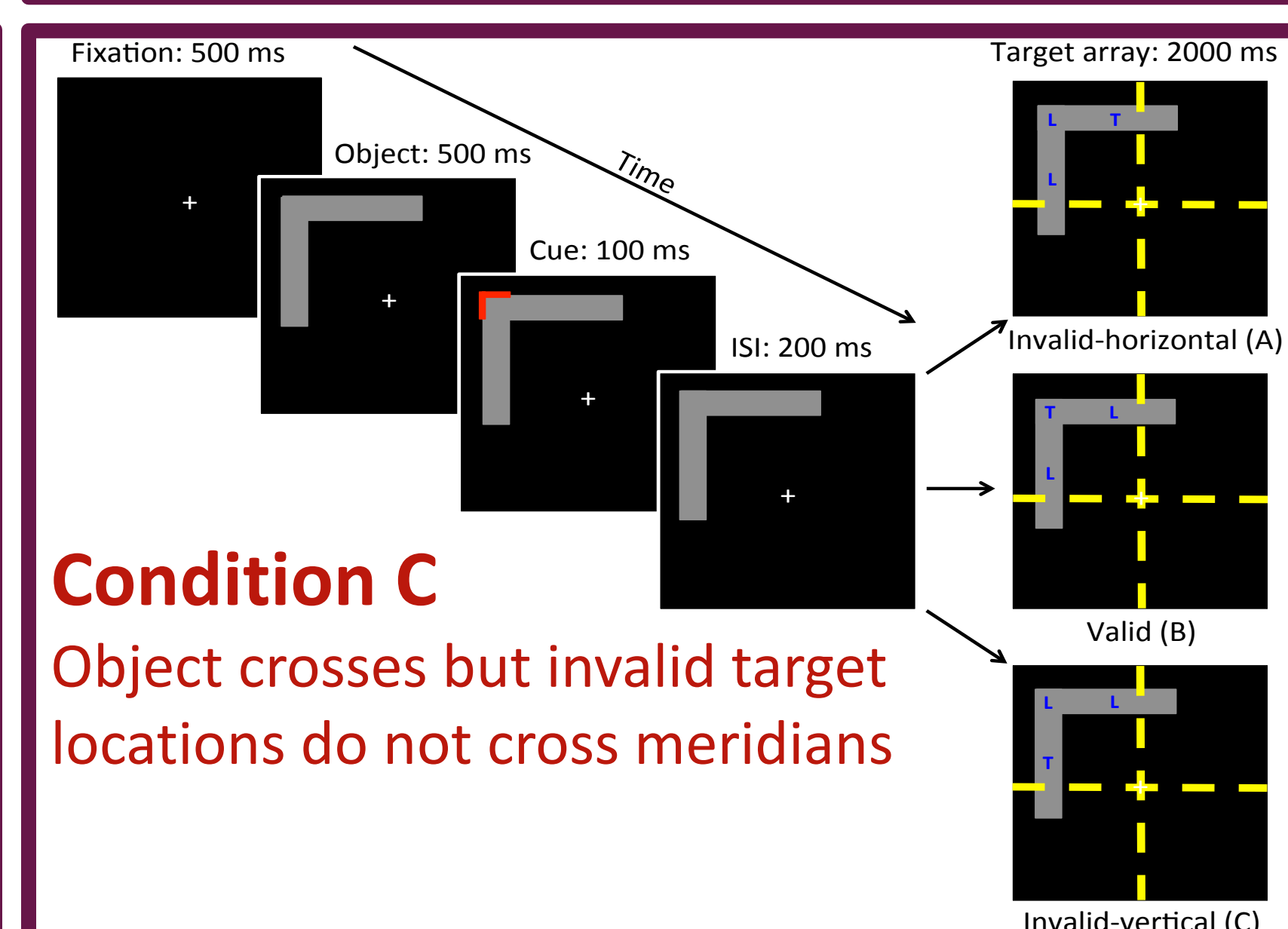
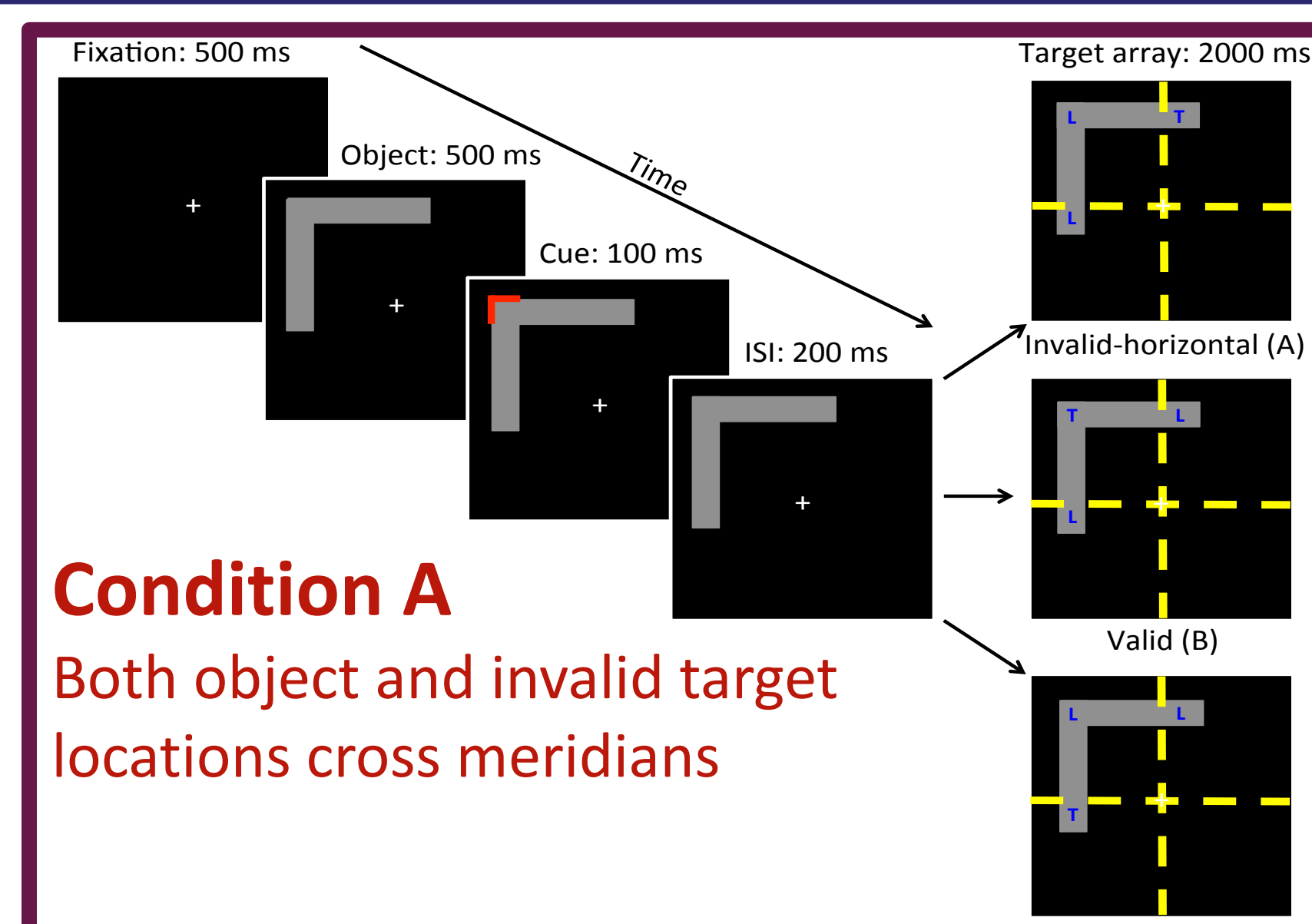
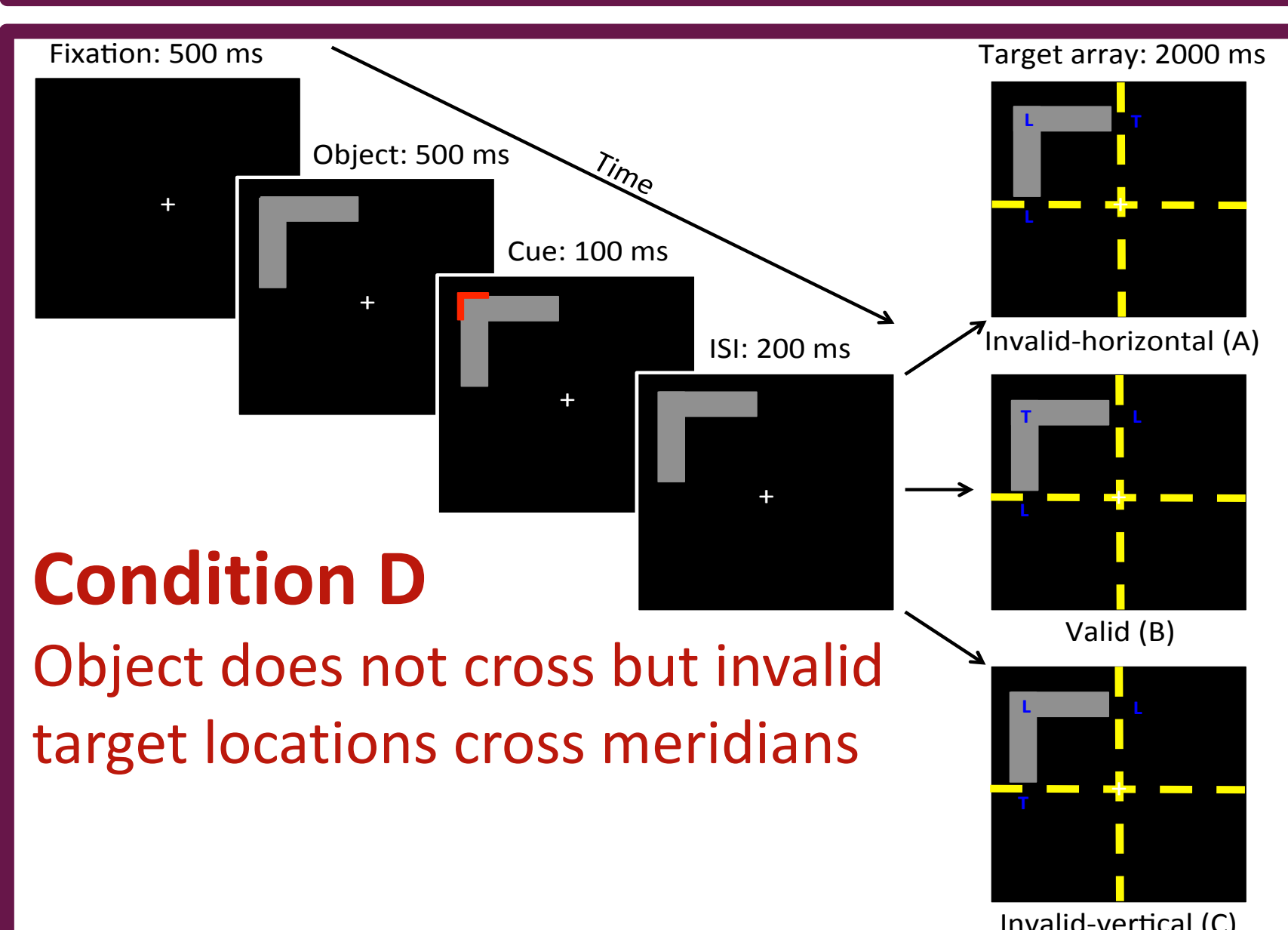
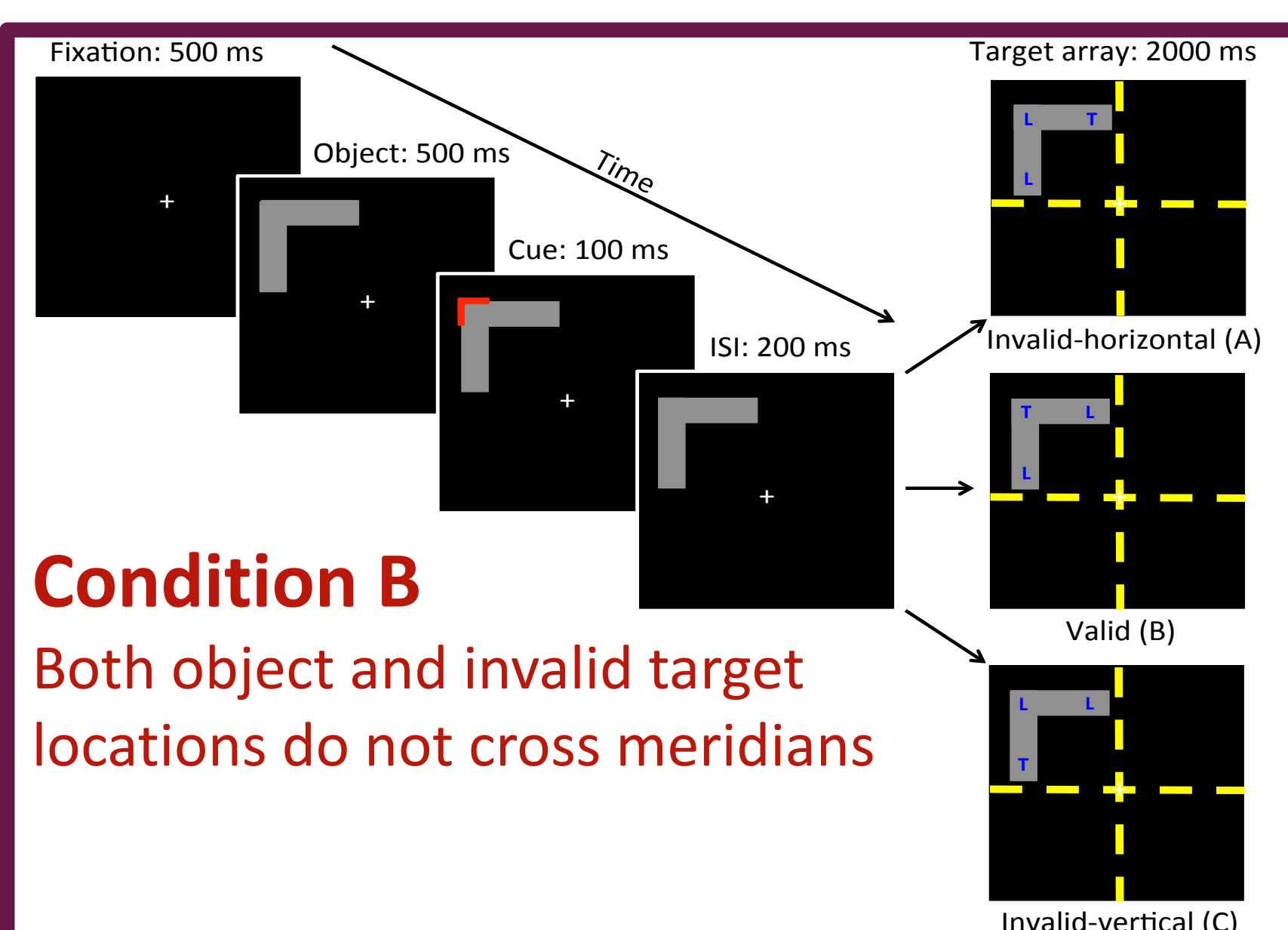
- Object-based attention (OBA) leads to preferential processing of visual information contained in/on an attended object vs. unattended object^{1,2}
- Shifting *between* and *within* objects is more efficient along horizontal vs. vertical meridian³, producing a shift direction anisotropy (SDA)⁴

Does the SDA caused by the visual field meridians depend upon the locations/positions of targets, objects, or both?

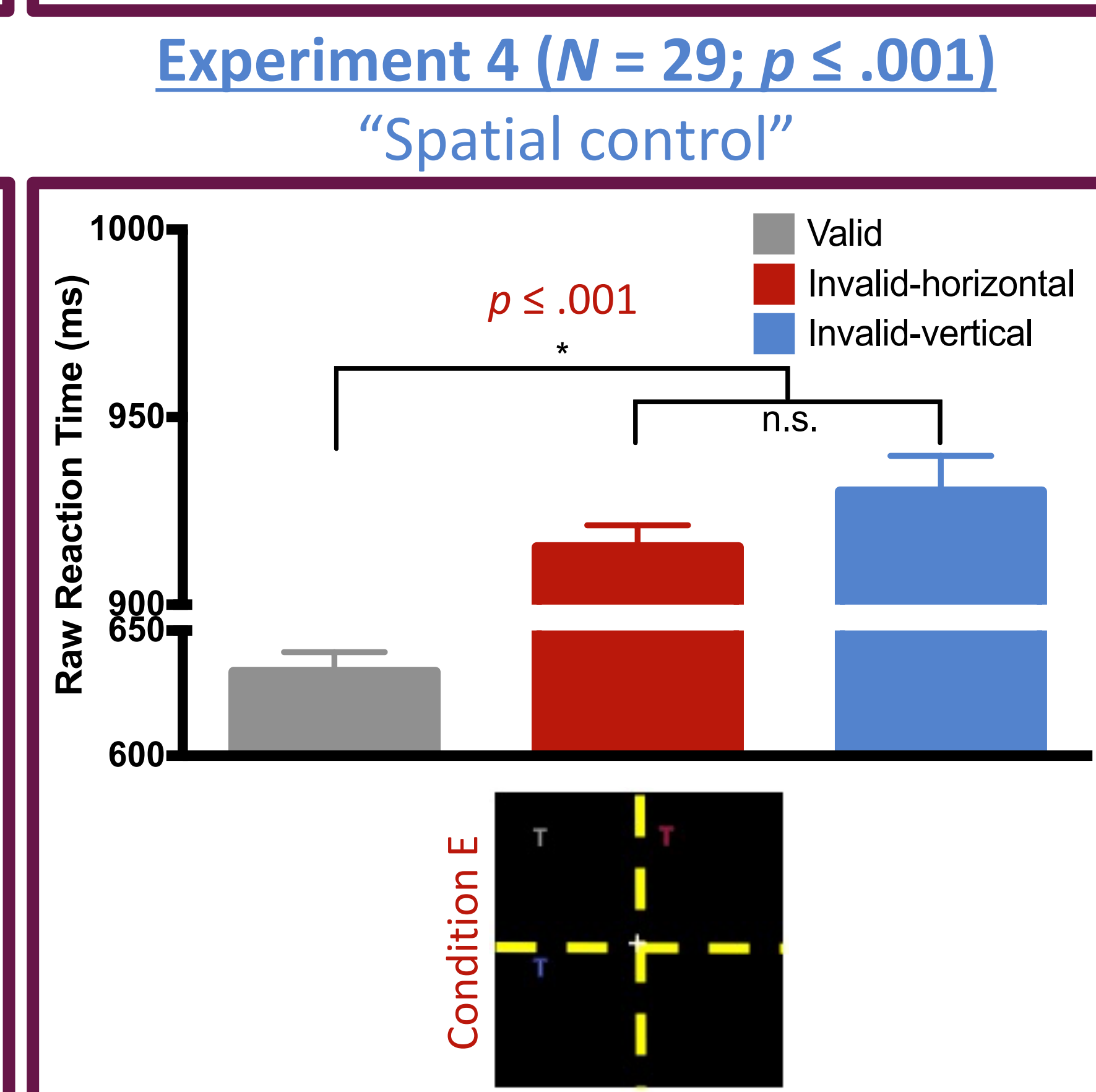
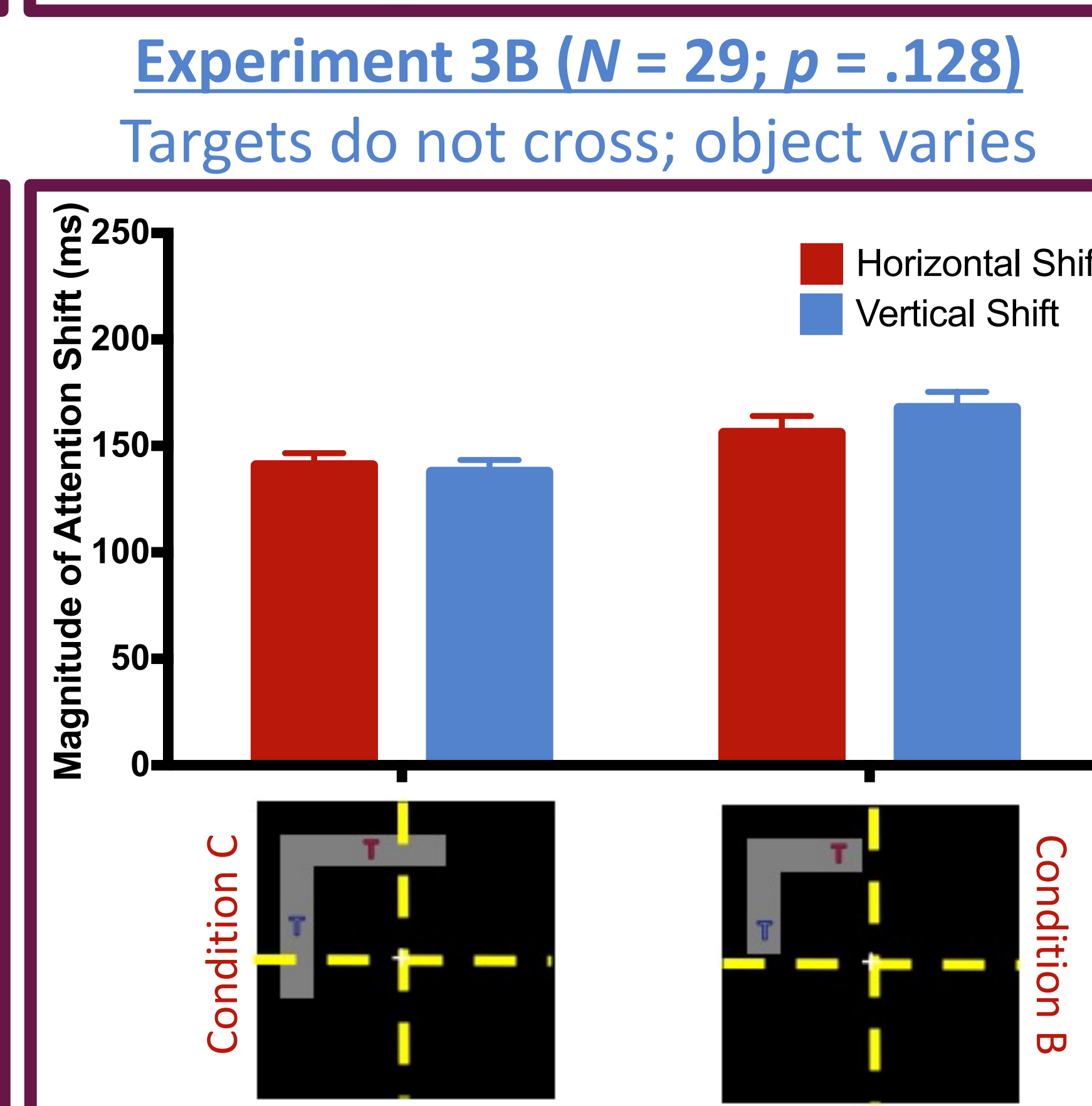
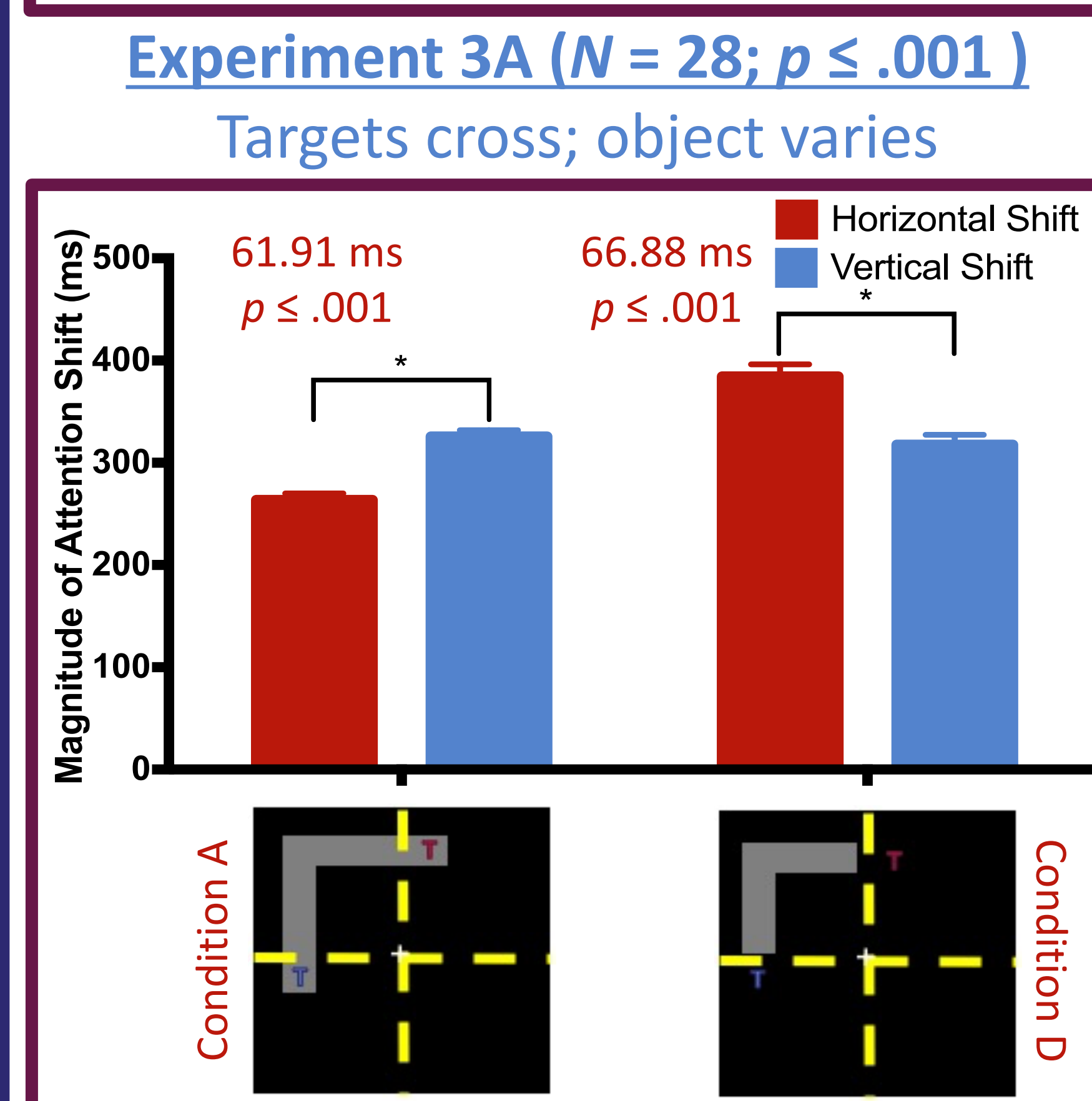
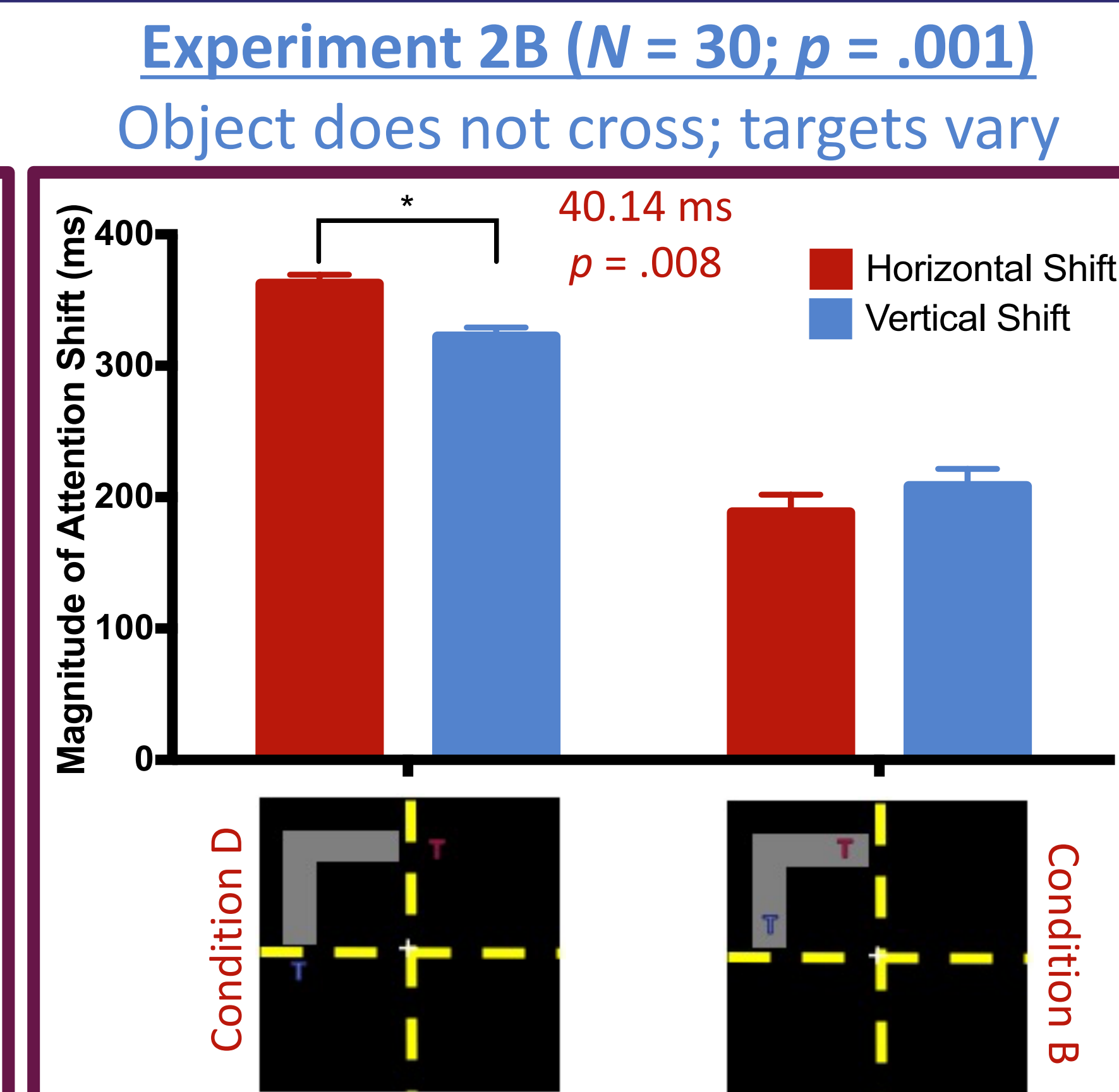
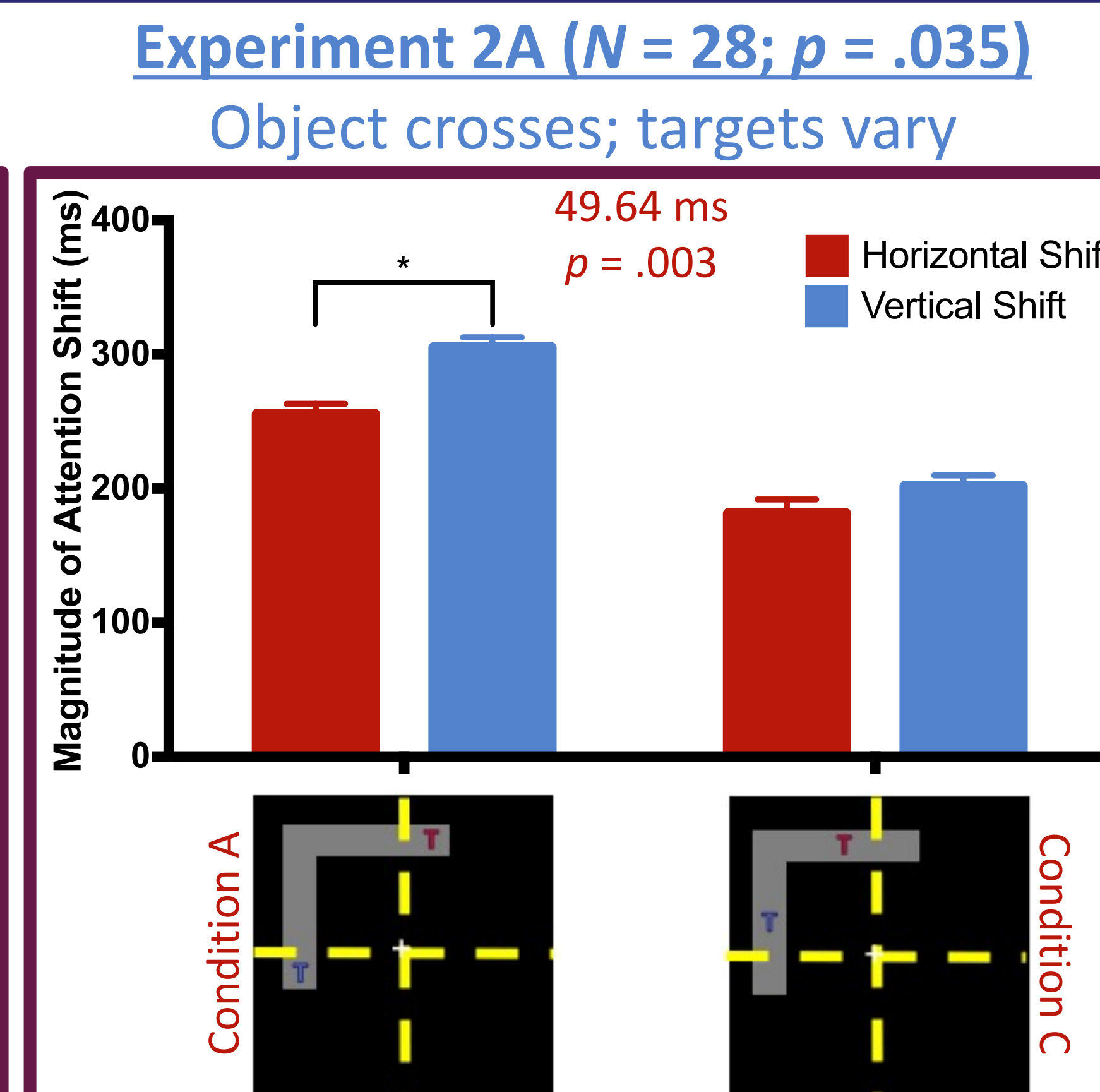
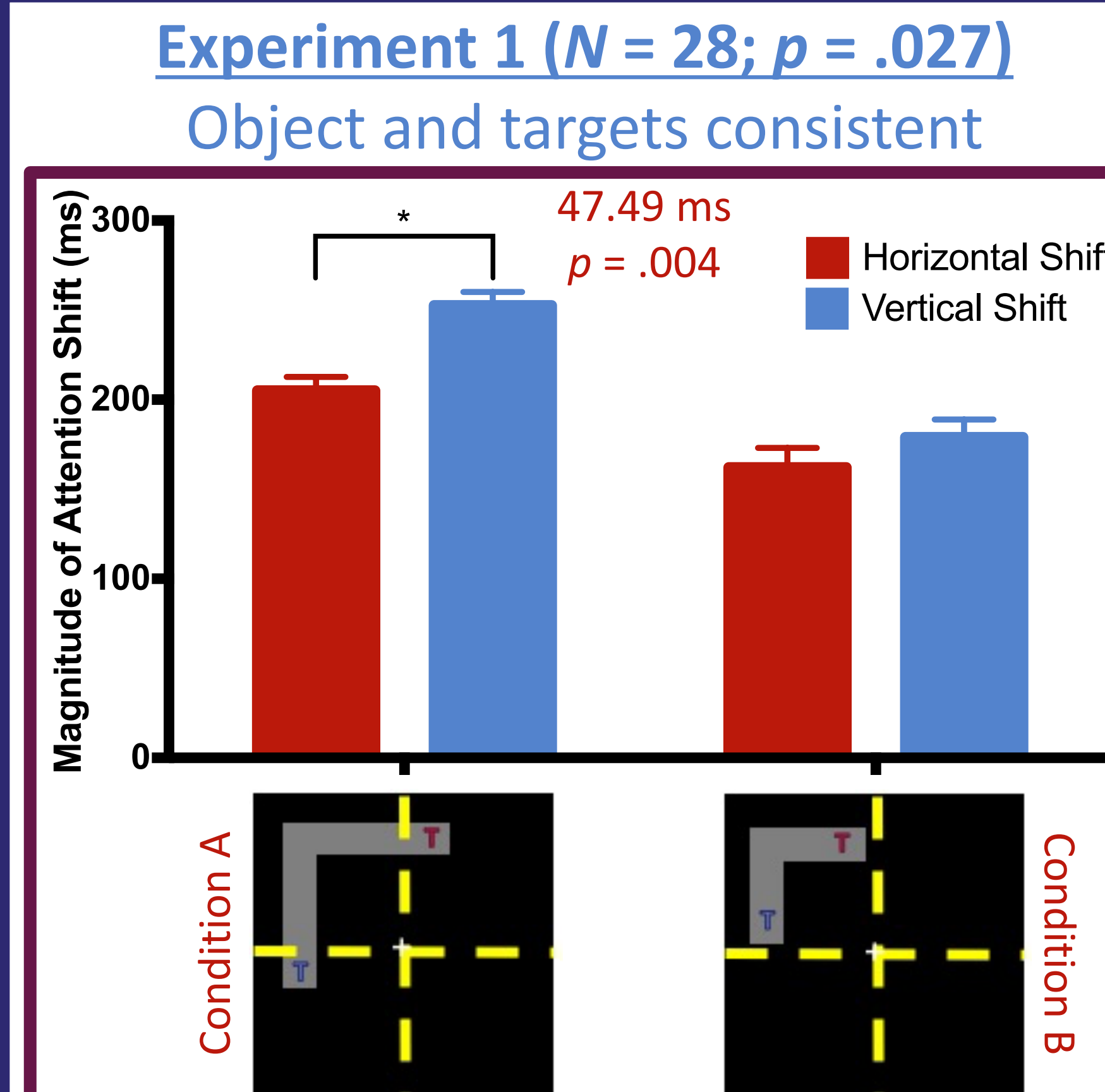
Method

	Condition				
	A	B	C	D	E
Experiment 1	✓	✓			
Experiment 2A	✓		✓		
Experiment 2B		✓		✓	
Experiment 3A	✓			✓	
Experiment 3B		✓	✓		
Experiment 4					✓

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



Results



Discussion & Conclusion

- SDA when target locations required shift across meridians; No SDA when locations did not require shift across meridians, regardless of object position
- SDA not explicitly caused by objects that cross meridians⁴, but is driven by invalid target location, rather than object position, relative to meridians

Pattern of performance supports attentional prioritization strategy⁵; attention processes prioritize *specific* locations, not all locations within a cued object

References

- Duncan, J. (1984). *JEP: General*
- Egley, R., Driver, J., Rafal, R. D. (1994). *JEP: General*
- 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*
- Shomstein, S., & Yantis, S. (2002). *Percept & Psychophys*

Acknowledgments

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