



Searching for a Relationship: How do Space and Feature-Based Attention Uniquely Contribute to Visual Search in a Sparse Display?

John Poquiz, Guangsheng Liang, & Miranda Scolari

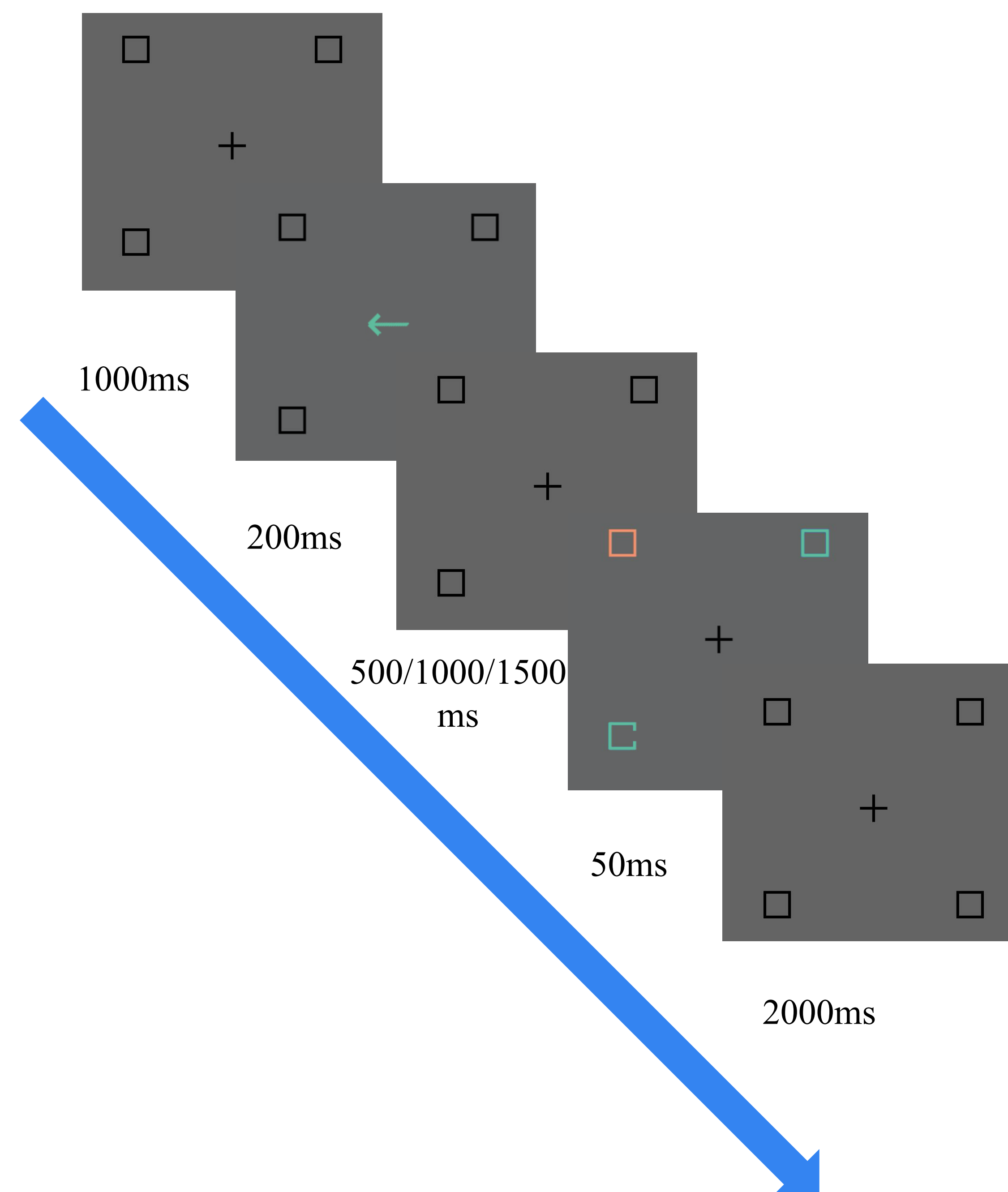
Department of Psychological Sciences, Texas Tech University



Introduction

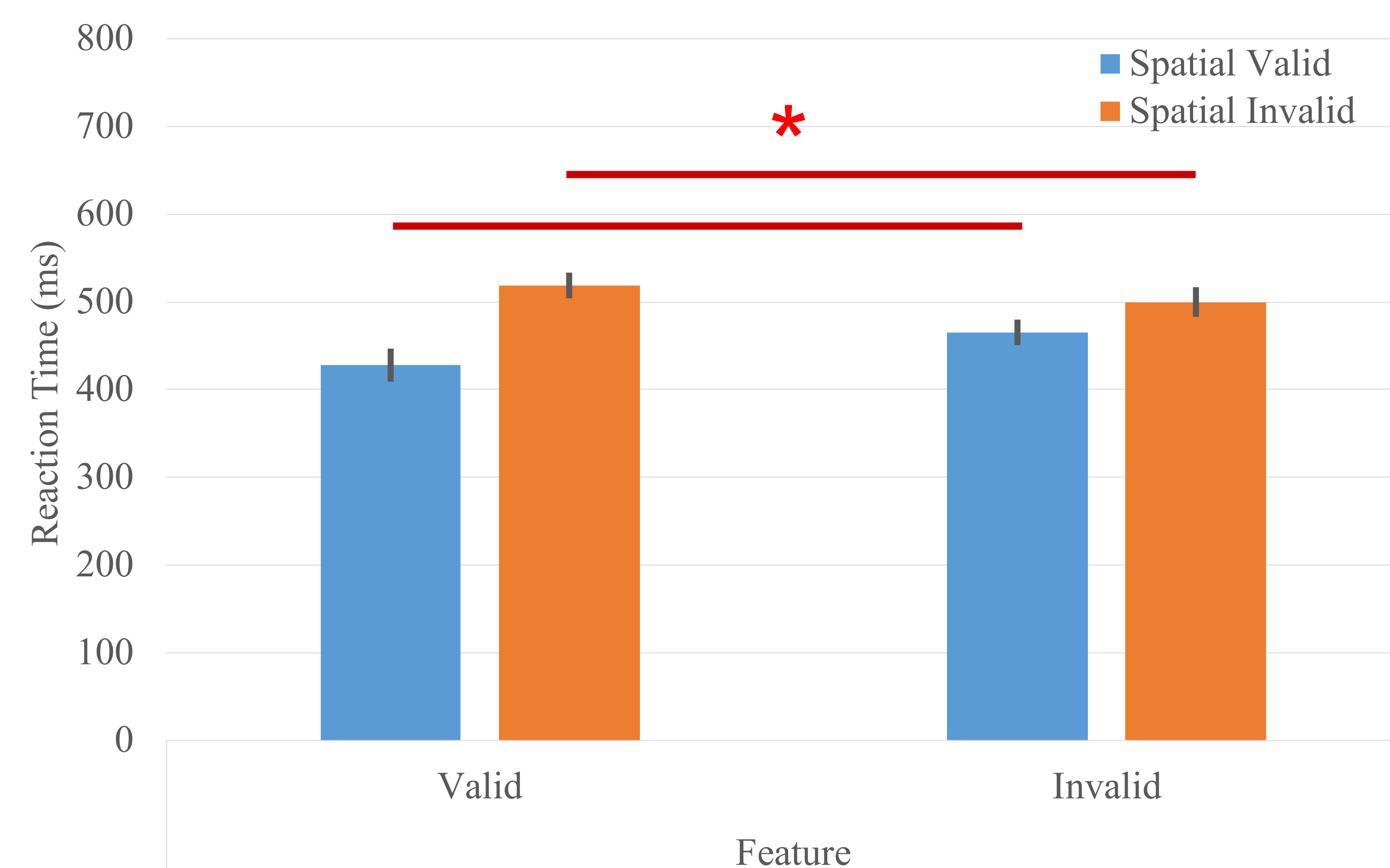
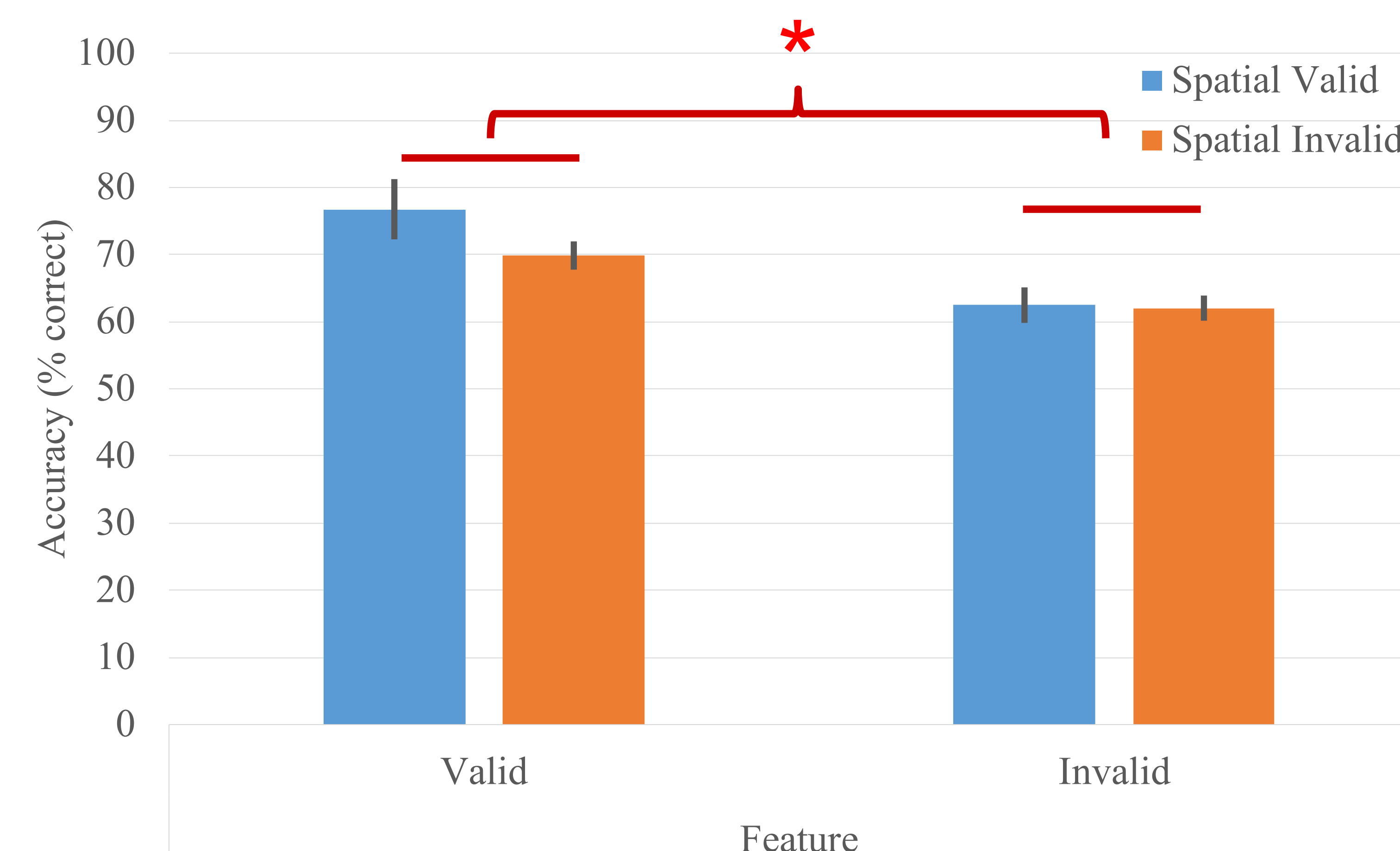
- Top-down attention filters out unwanted stimuli in order to attend to specific information and allow the ability to use preexisting knowledge
- Space-based attention (SBA) indicates relevant locations in our visual field
- Feature-based attention (FBA) enhances relevant properties of an object in our visual field
- SBA and FBA has shown to interact during decision making processes, but super-additive interactions during sensory level processing are not present
- How does SBA and FBA interact during sensory level processing?

Methods



Results

- Valid SBA and FBA cues resulted to high accuracy and fast reaction times
- SBA resulted to fast reaction times but low accuracy relative to FBA
- FBA resulted to slow reaction times but high accuracy relative to SBA



Analysis

- SBA and FBA interact independently during sensory level processing
- SBA independently influences the reaction time
- FBA independently influences the accuracy
- Both SBA and FBA are interacting separately to directly enhance the reaction times and accuracy when they are both valid cues

Discussion

- Reaction time and accuracy is influenced by SBA and FBA independently
- Individual differences during the top-down search can favor one cue over the other
- It is inconclusive to determine that SBA and FBA interact together during perception because of the small sample size
- There are social implications specifically in marketing advertisements because of the use of video promotions to the public on social media platforms. SBA and FBA interactions can make perception and manage attention more efficiently, thus saving time and money for these companies

References

- White, A. L., Rolfs, M., & Carrasco, M. (2015). Stimulus competition mediates the joint effects of spatial and feature-based attention. *Journal of vision*, 15(14), 7-7.
- Liang, G., & Scolari, M. (in press). Limited interactions between space- and feature-based attention in visually sparse displays. *Journal of Vision*.

Acknowledgements

I would like to thank the Honors College Undergraduate Research Scholars Program supported by the CH and Helen Jones Foundations.