The Role of Scene Context in the Guidance of Attention Based on Object-Location Associations

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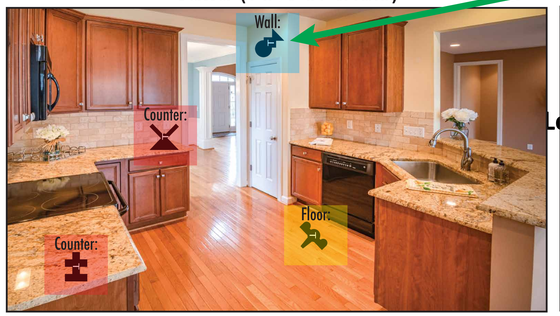
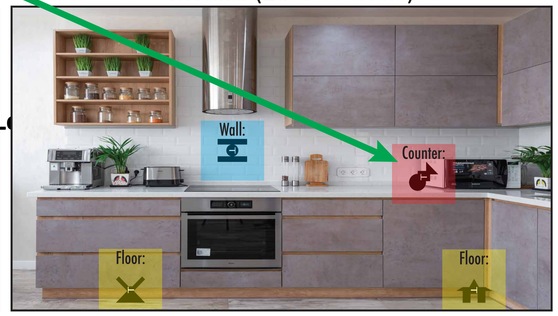
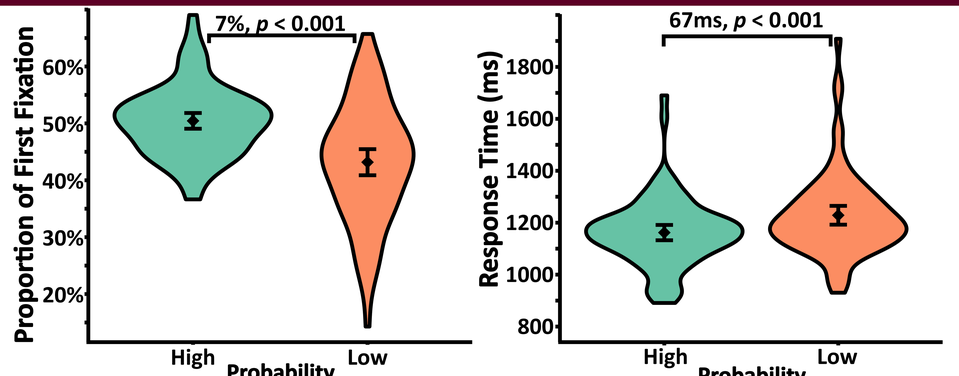
Experiment 1

Target: Association: Wall

Valid (75% of trials) **Invalid** (25% of trials)







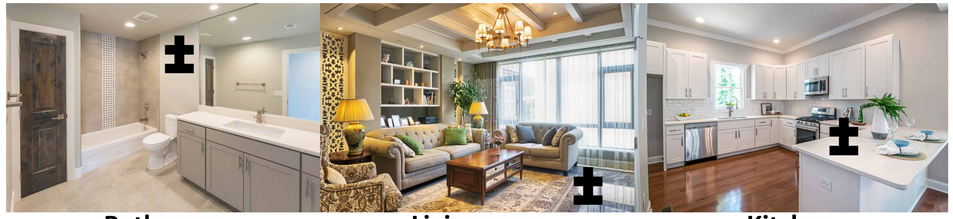
- **Results:** Participants were more efficient at locating a target when it appeared in its *associated location* within a scene.
- **Discussion:** This suggests that object-location associations can be formed in the *absence of semantic information*.

Experiment 2

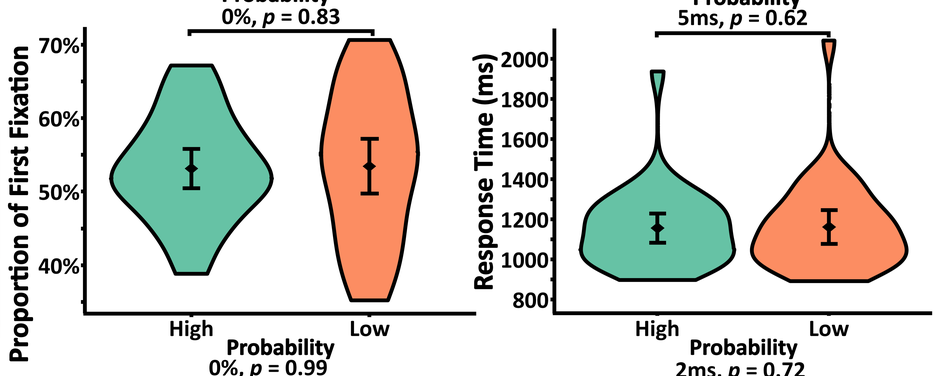
Target:

Association: Varies across context type

Association: Wall | Association: Floor | Association: Counter



Bathroom | Livingroom | Kitchen



- ***Results:** Participants were unable to learn the object-location associations when the association varied across contexts.*
- **Discussion:** This suggests that these associations may *generalize across contexts.*

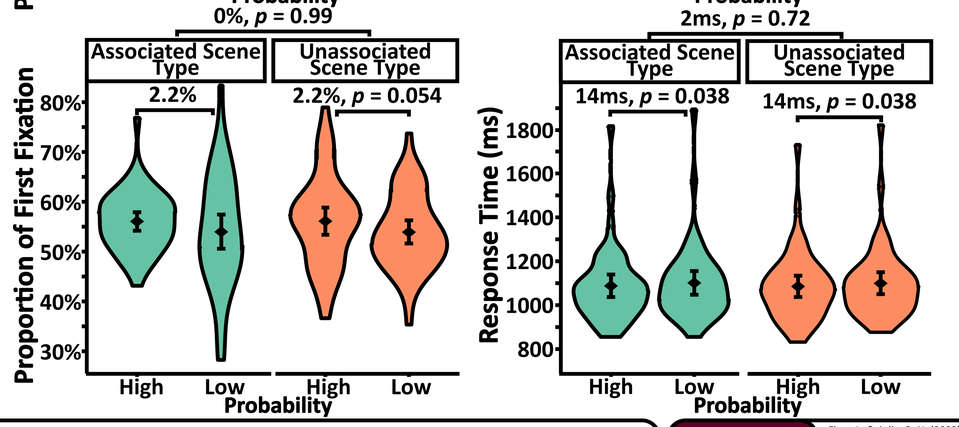
Experiment 3

Target:

Association: Each target has an associated location in one scene type but not the other.

Association: Wall | Association: None

Bathroom | Livingroom



- **Results:** Participants were able to learn the object-location associaitons in the associated scene type and *generalized* this learning to the scene type *without associations*.
- **Discussion:** This suggests that these object-locations associations are *generalized across scene type*.

Conclusion

- Statistical learning can be used to form object-location associations in the absence of semantic information.
- These object location associations are generalized across contexts.

References

- Fiser, J., & Aslin, R. N. (2002). Journal of Experimental Psychology: Learning, Memory, and Cognition, 28(3), 458–467.
- Corbetta, M., & Shulman, G. L. (2002). Nature Reviews Neuroscience, 3(3), Article 3.
- Turk-Browne, N. B., Jungé, J. A., & Scholl, B. J. (2005). Journal of Experimental Psychology: General, 134(4), 552–564.
- Torralba, A., Oliva, A., Castelhano, M. S., & Henderson, J. M. (2006). Psychological Review, 113(4), 766–786.
- Brockmole, J. R., & Le-Hoa Võ, M. (2010). Attention, Perception, & Psychophysics, 72, 1803-1813.