Spatial attention is modulated by representational formats of spatial direction

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Introduction

Visual navigation cues support spatial navigation abilities

Spatial direction is extracted faster for schemas and words than scenes[1]

Is attention responsible for differences in extracting spatial direction?

Task

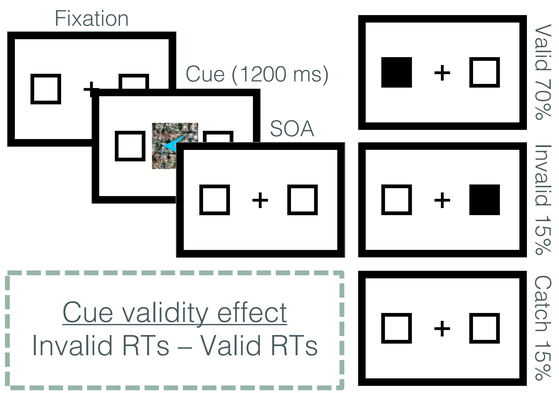
Directions: ahead, left, right
Formats: scene, schema, word

Ahead schema

Left scene

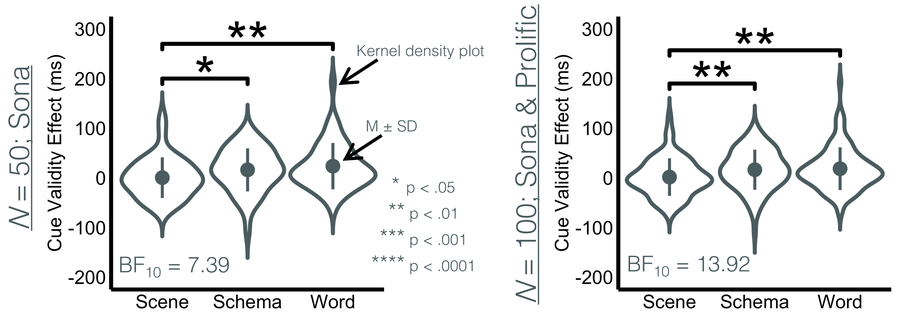
Right word

Spatial Cueing Paradigm[2]



Exp 1: Cue format

H1: Cue validity effects will be larger for schemas and words than scenes



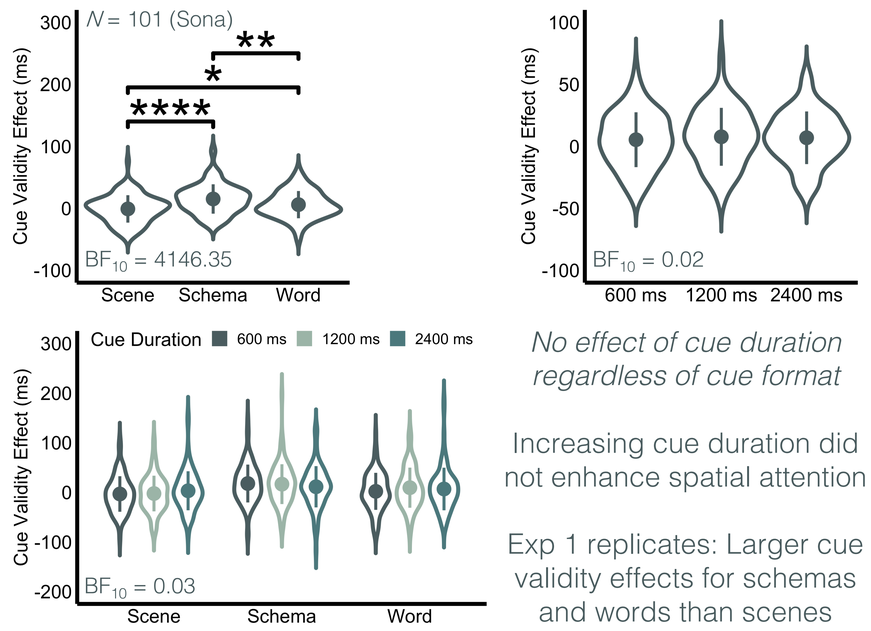
Larger cue validity effects for schemas and words than scenes

Scenes require more costly computations to decode direction

No effect of recruitment method (Sona vs. Prolific; *N* = 50 each)

Exp 2: Cue duration

H2: Longer cue duration will result in cue validity effect for scenes



No effect of cue duration regardless of cue format

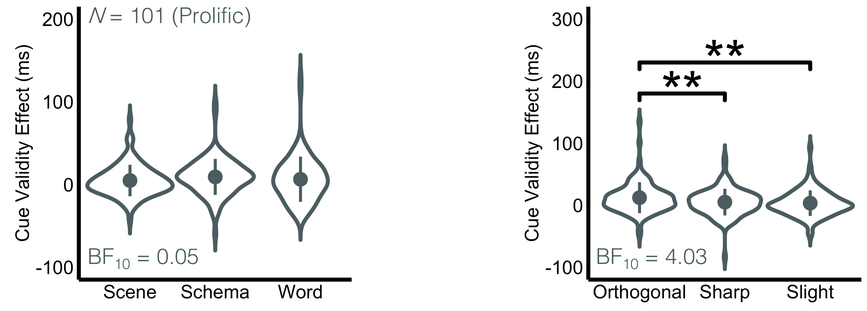
Increasing cue duration did not enhance spatial attention

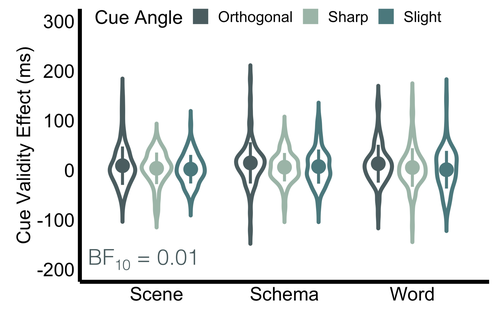
Exp 1 replicates: Larger cue validity effects for schemas and words than scenes

Exp 3: Cue angle

H3: Cue validity effects occur for orthogonal, not sharp or slight cues
Additional directions: sharp left, sharp right, slight left, slight right

Sharp left scene | Sharp right schema | Slight left word | Slight right scene





Larger cue validity effect for orthogonal cues than sharp and slight cues

Non-orthogonal cues may engage attention differently

No effect of cue format

Conclusion

Attention is allocated more efficiently with schemas and words, which may explain why direction is extracted faster for these formats

Schemas and words may be more effective supports for navigation

References, Funding, & Contact

[1]Weisberg, Marchette, & Chatterjee. (2018). *Journal of Neuroscience*
[2]Posner. (1980). *Quarterly Journal of Experimental Psychology*

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