

# Influence of Spatial versus Orientation Probability on Perceptual Estimations



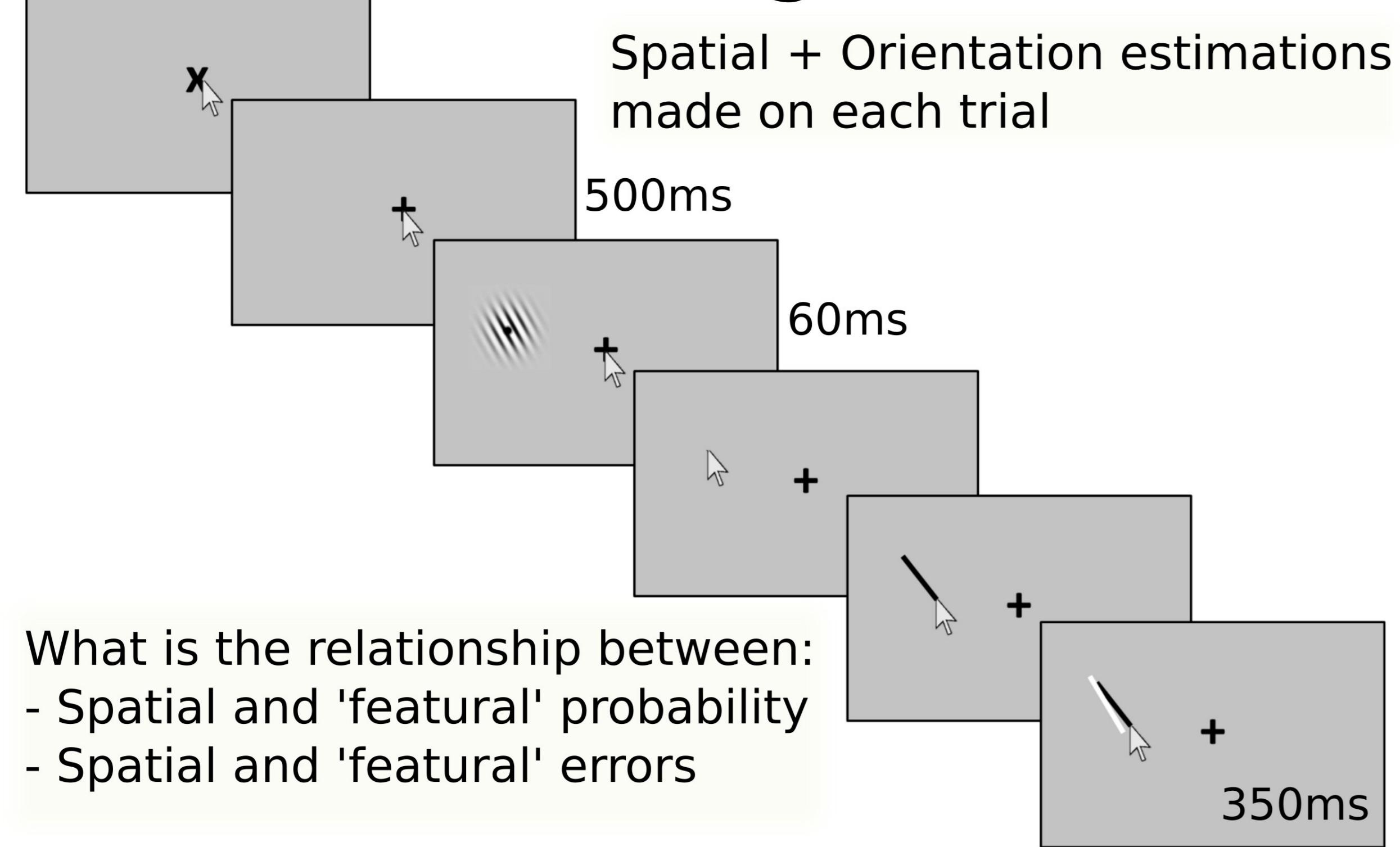
psychology

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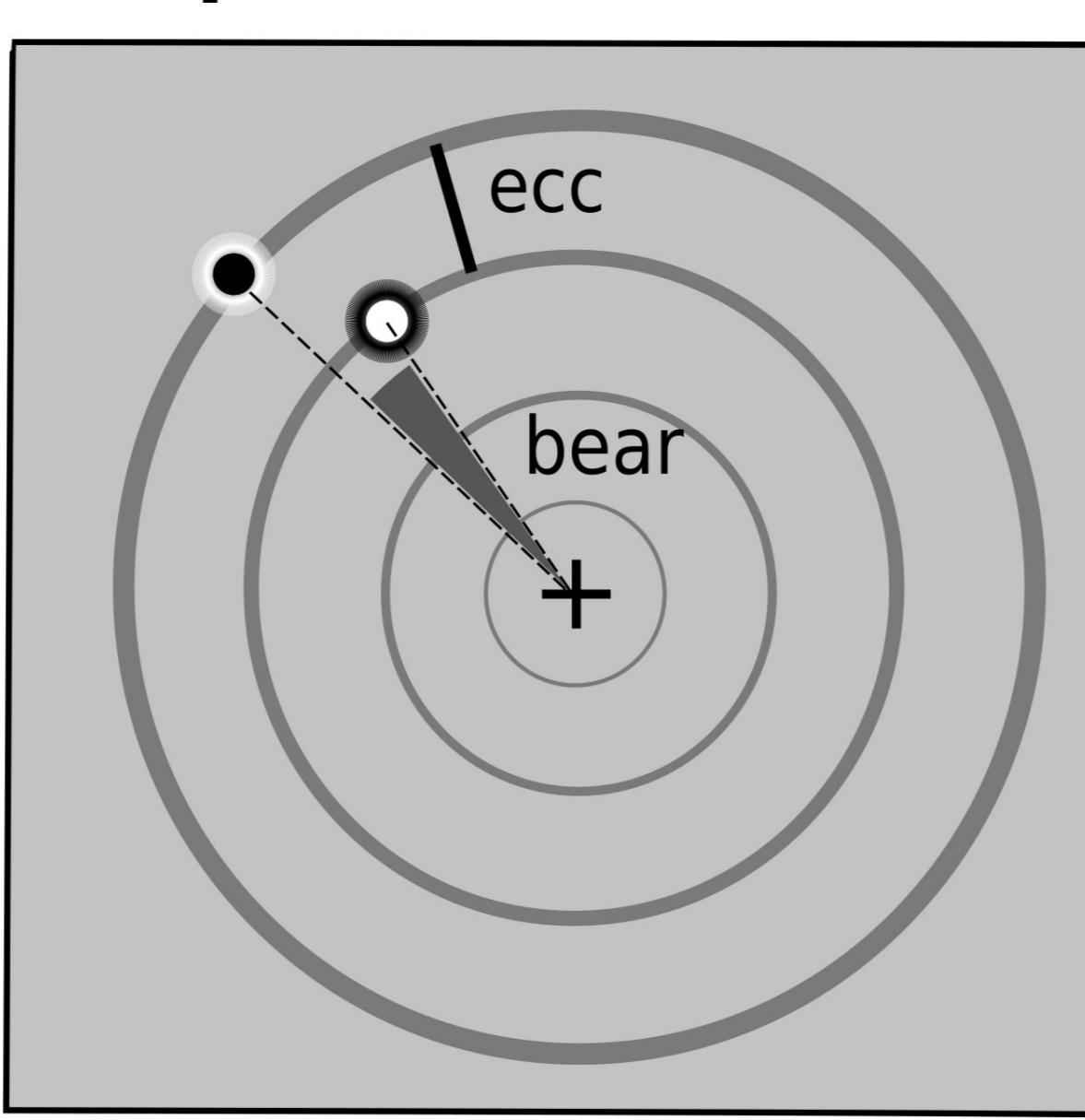
Syaheed Jabar <sup>1</sup> & Britt Anderson <sup>1,2</sup>

<sup>1</sup>Department of Psychology, University of Waterloo, <sup>2</sup>Centre for Theoretical Neuroscience, University of Waterloo

## Paradigm

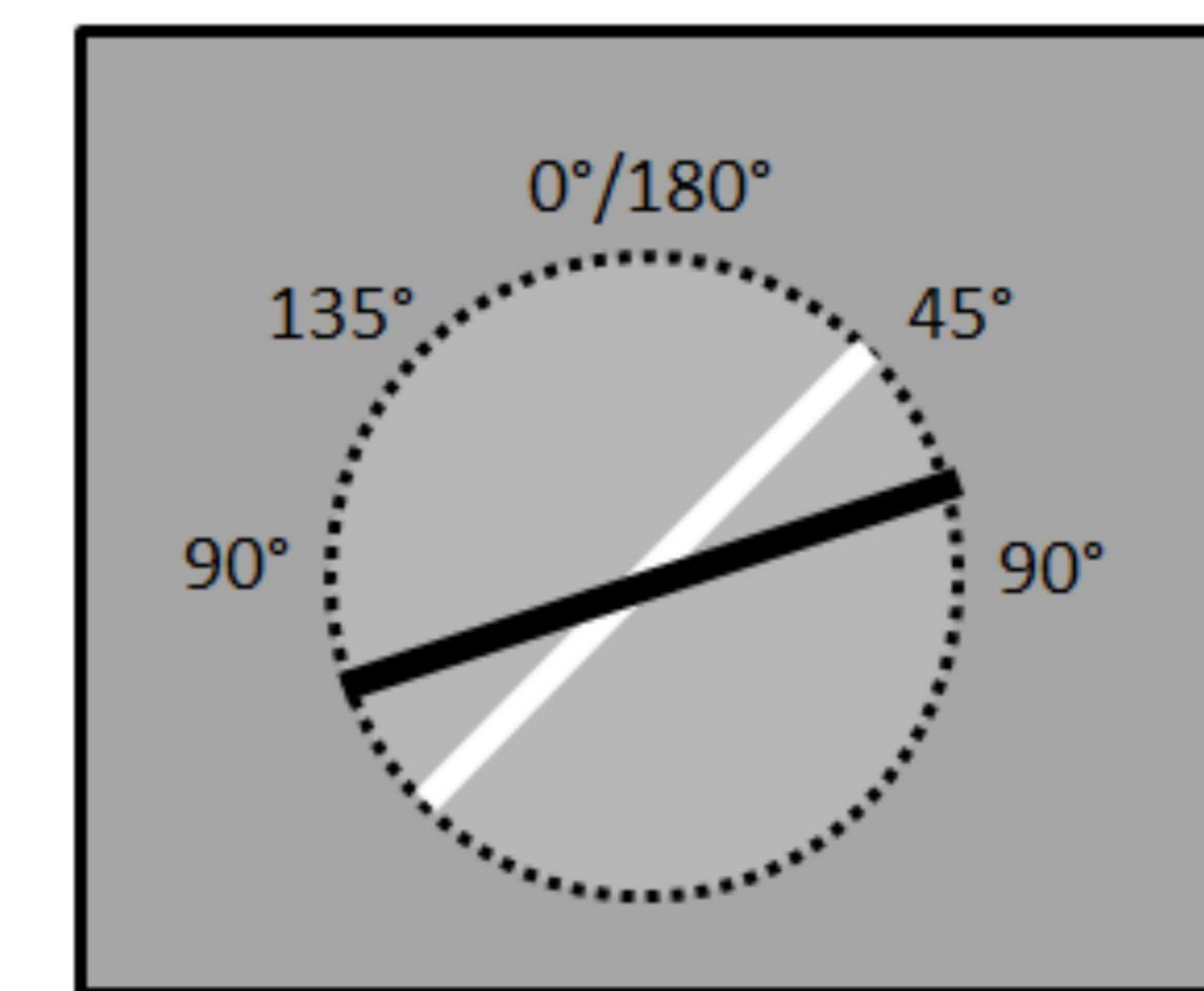
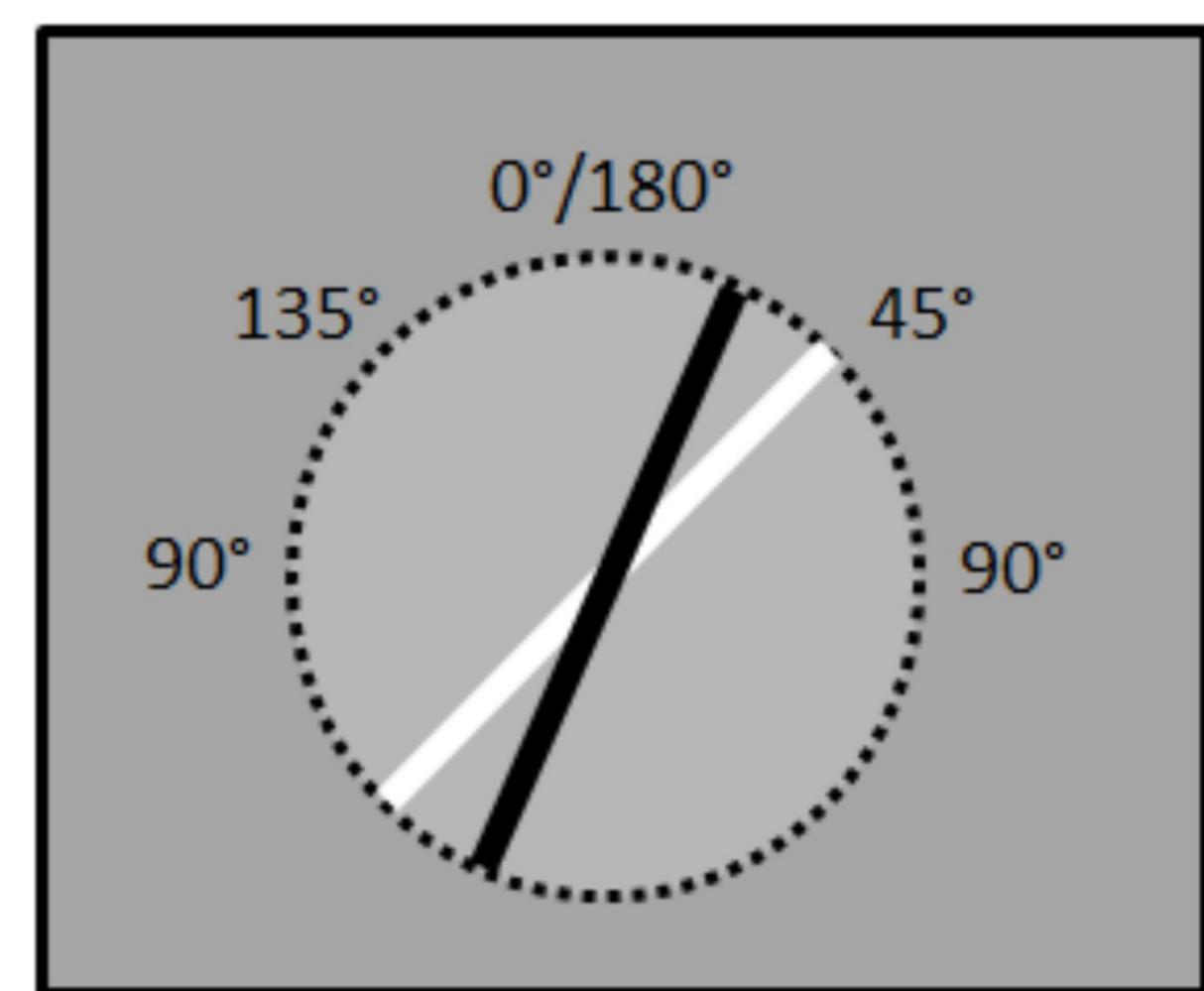


## Spatial Error



Eccentricity Bearing

## Orientation Error



## What does this suggest?

Orientation probability affects orientation errors, but not spatial errors

Spatial probability has no effect on spatial or orientation errors.

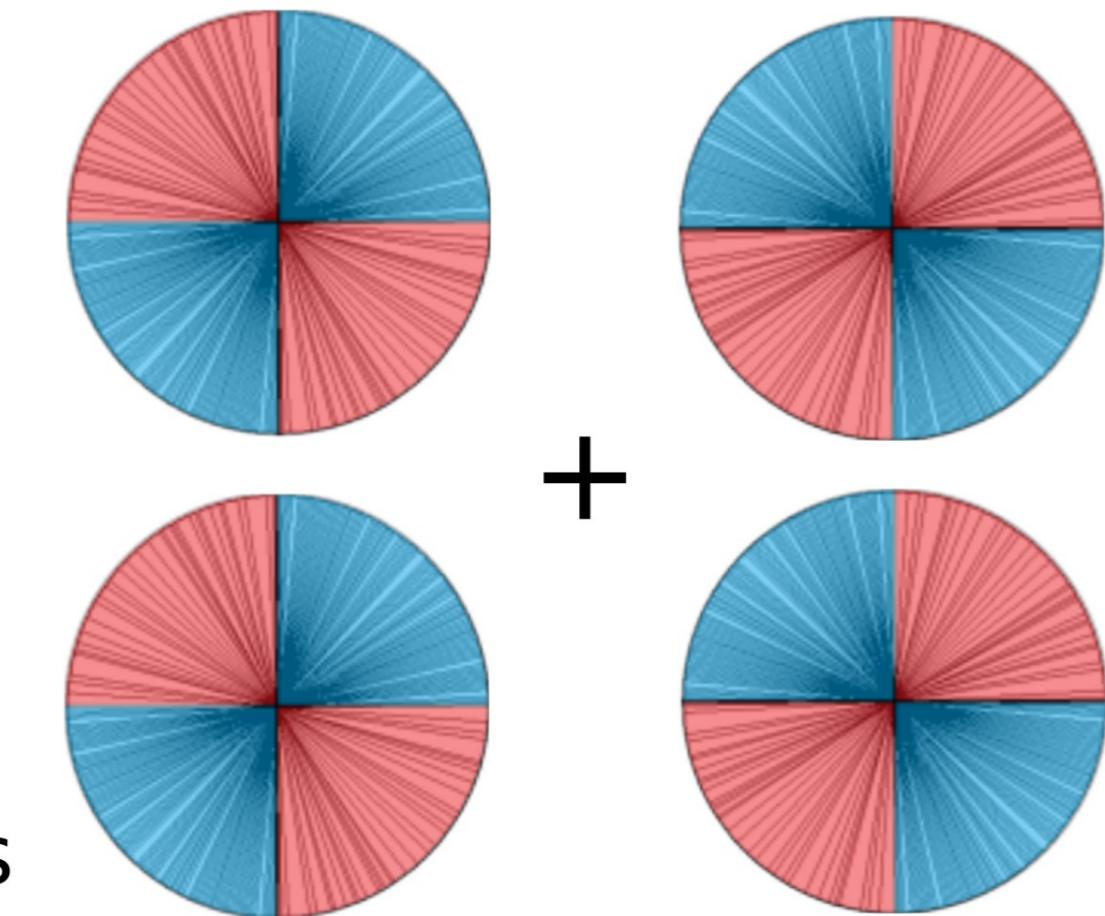
-- Previous exogenous spatial cueing shows effects on orientation errors

Orientation and Spatial Errors are not strongly correlated

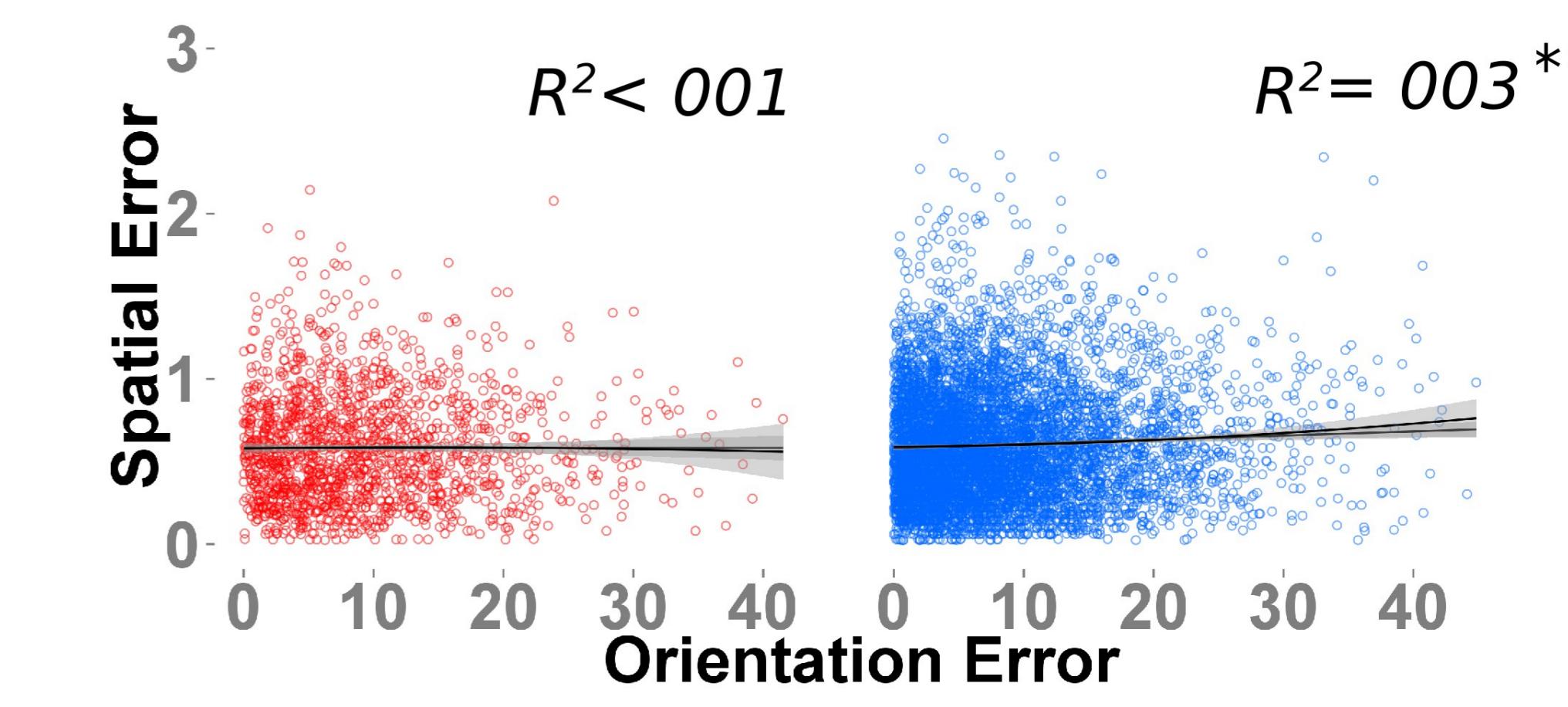
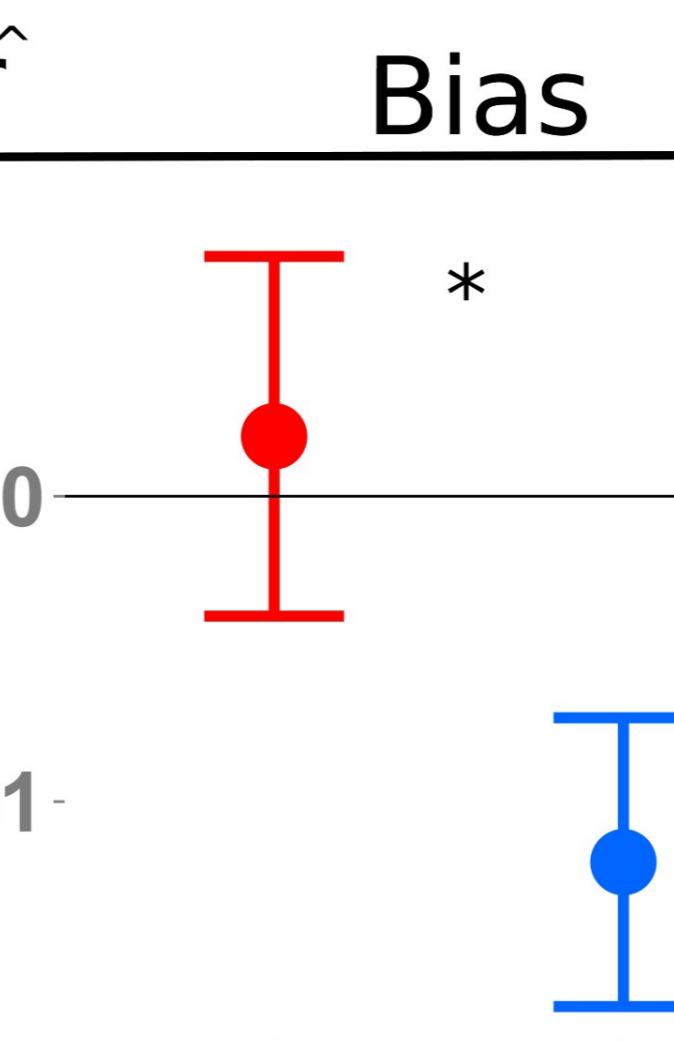
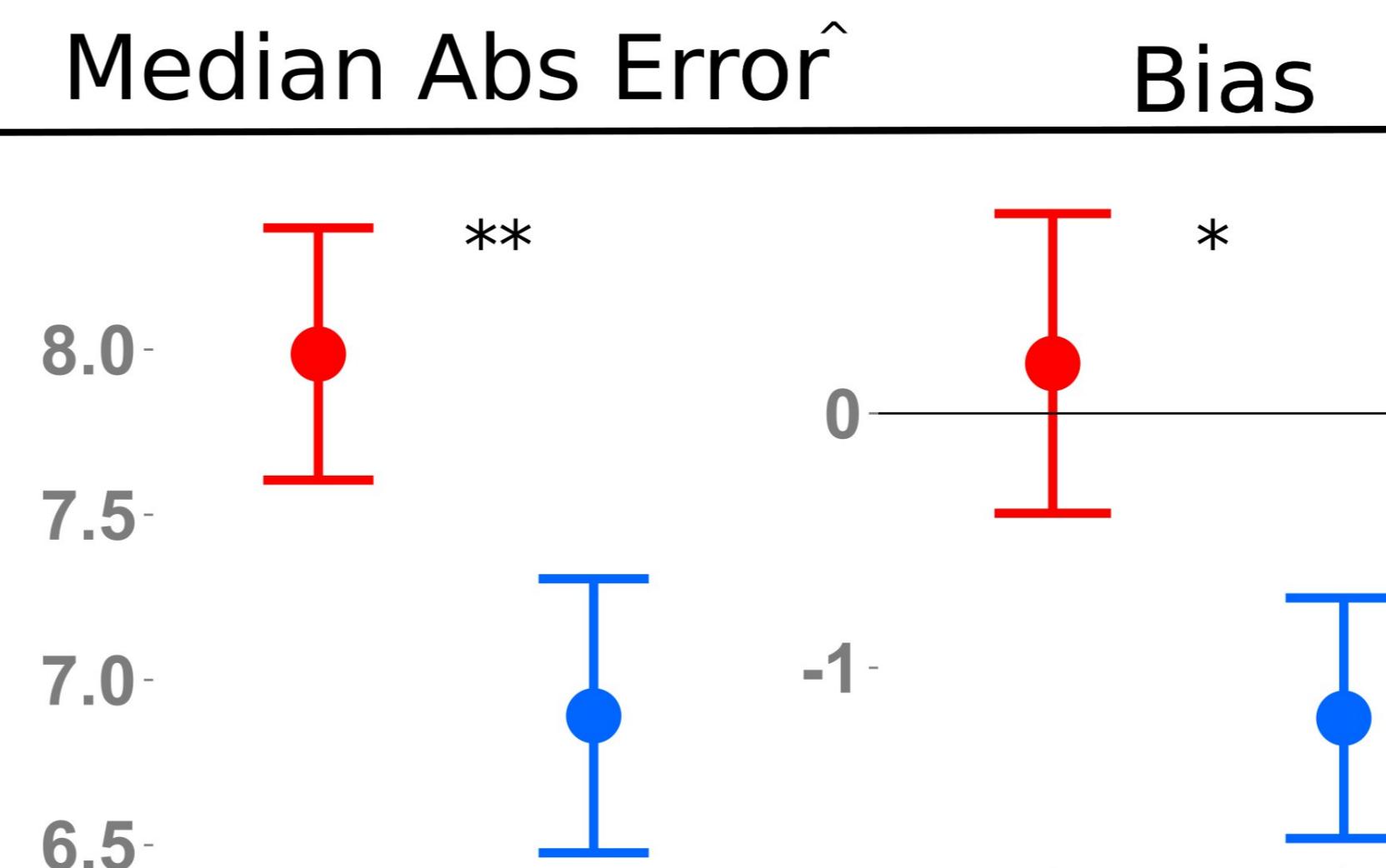
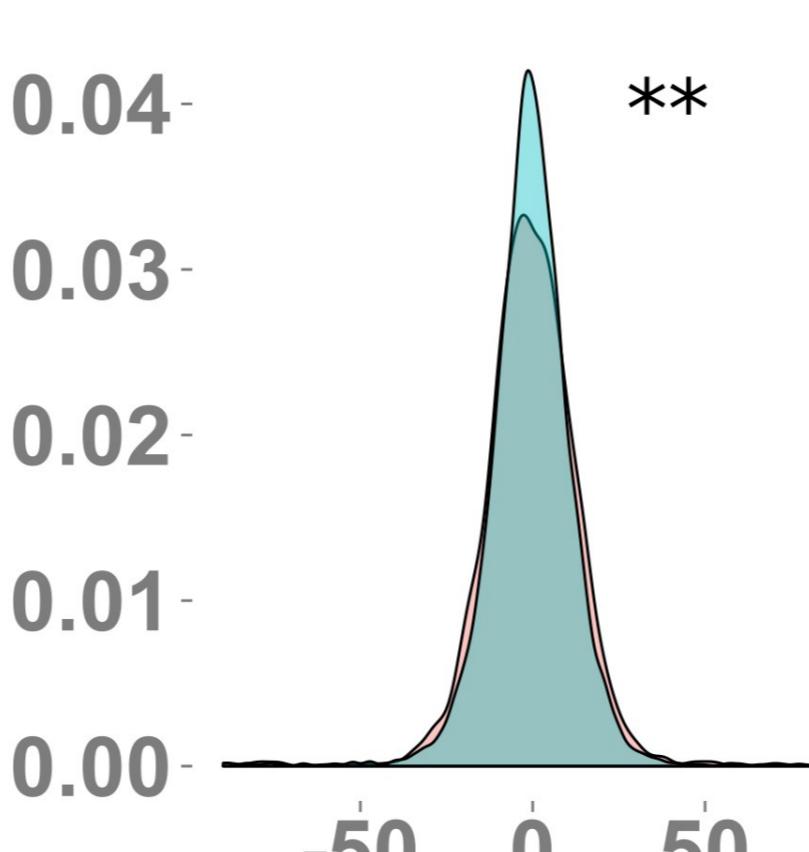
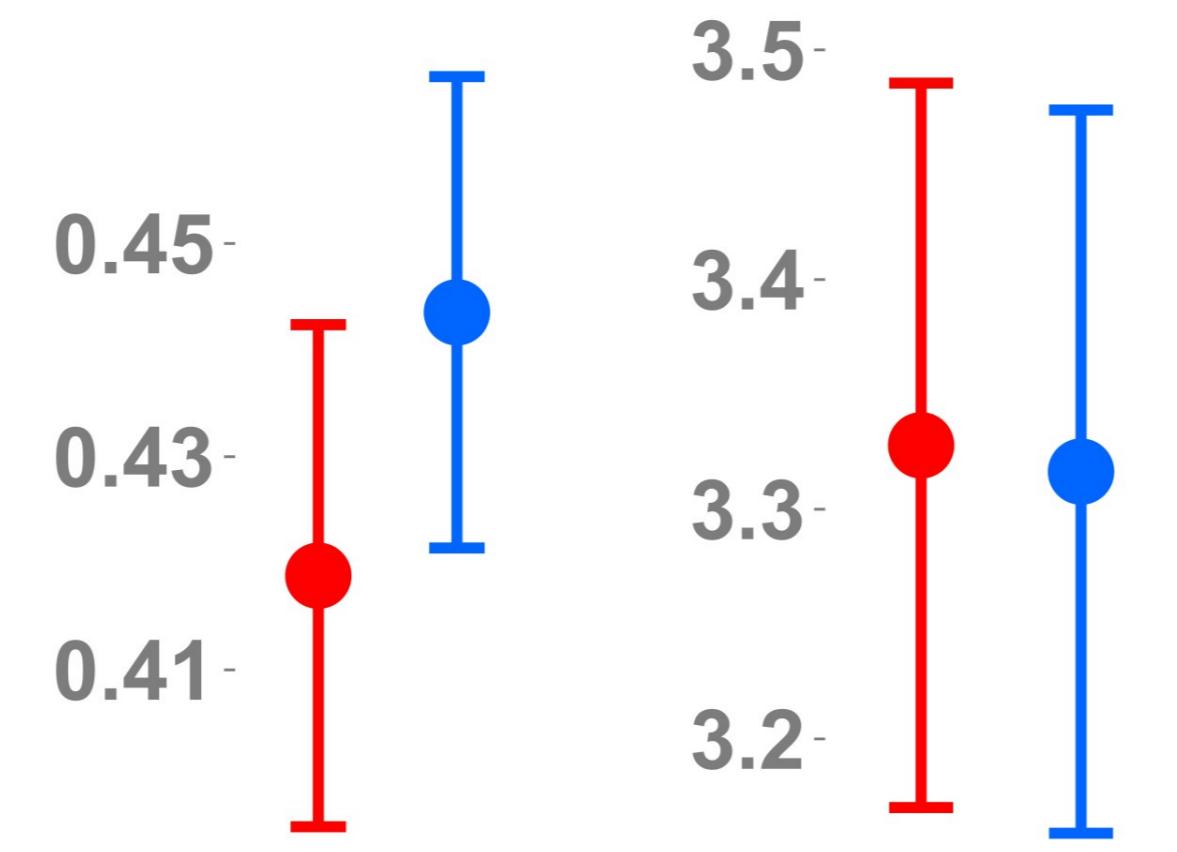
-- Are features and space processed separately?

## Space vs. Orientation Correlations<sup>a</sup>

Expt 1  
 (Orientation Prob)  
 High Prob : 80%  
 Low Prob : 20%



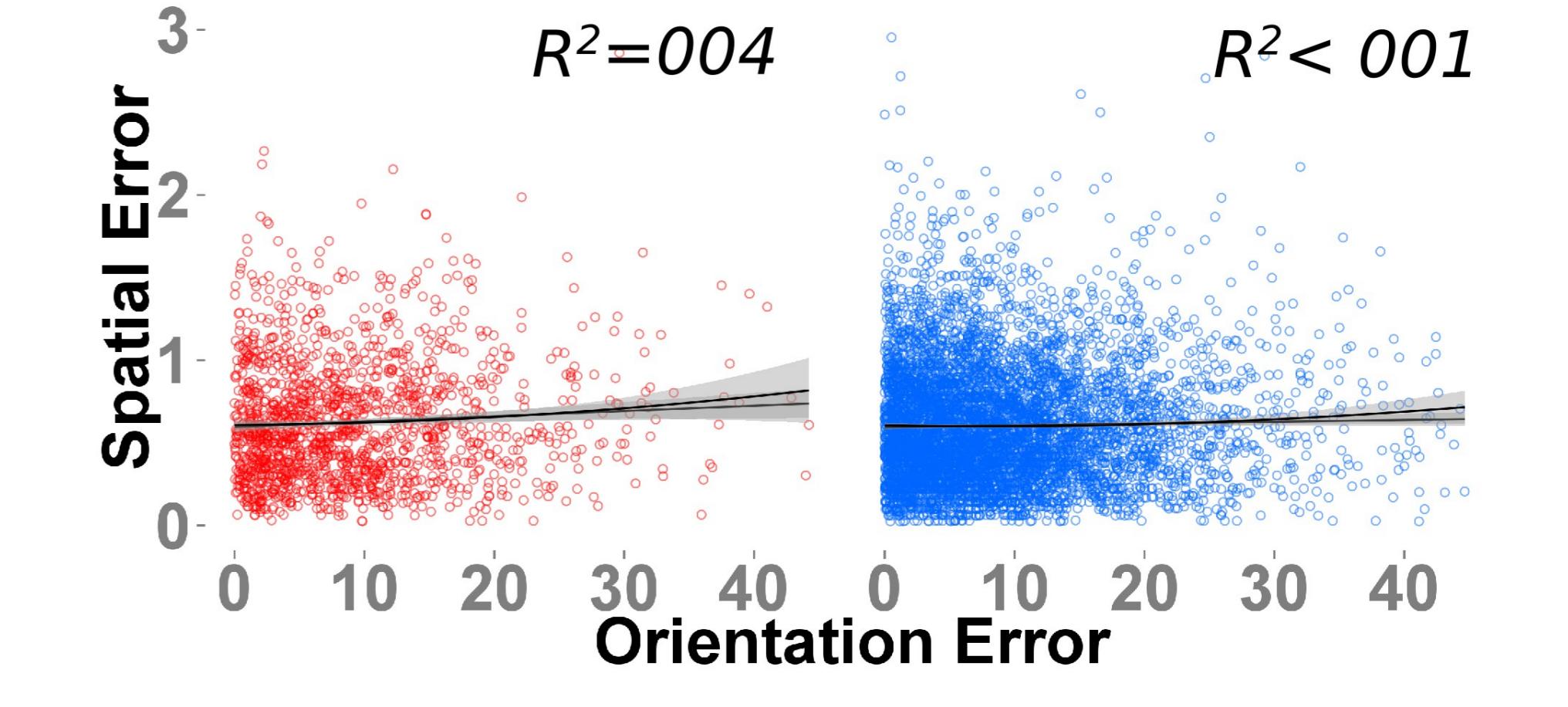
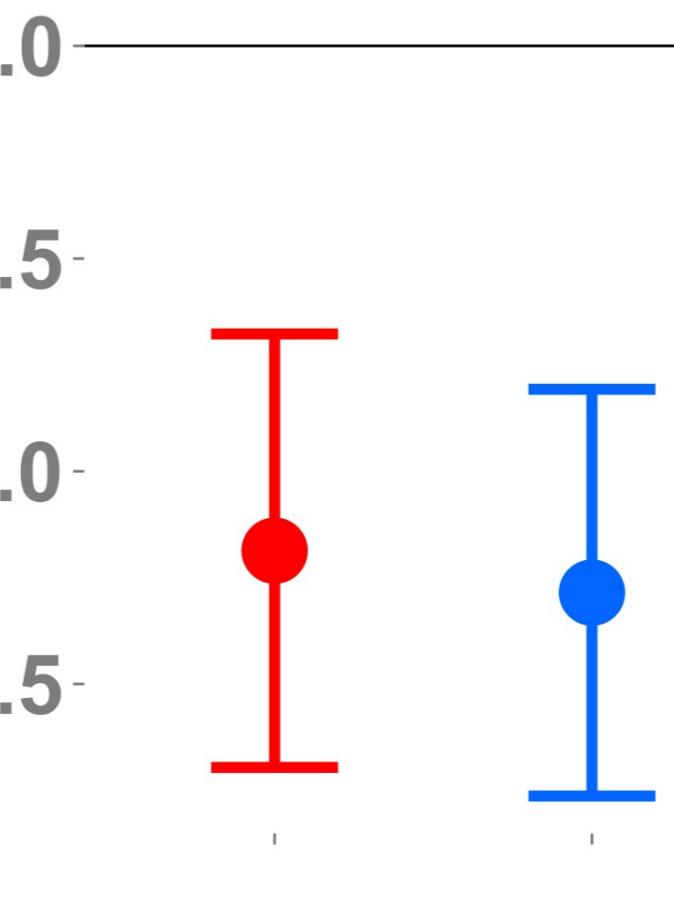
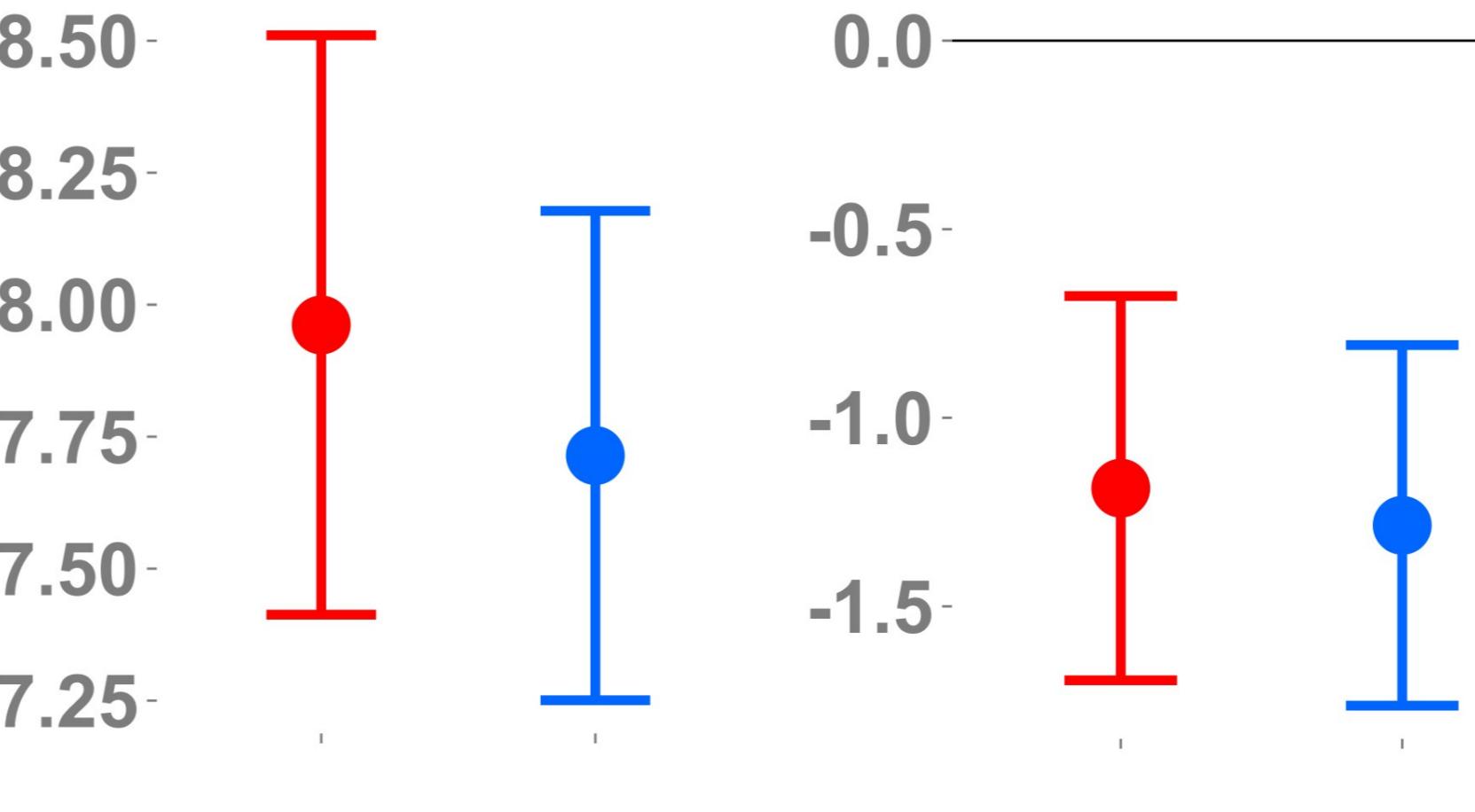
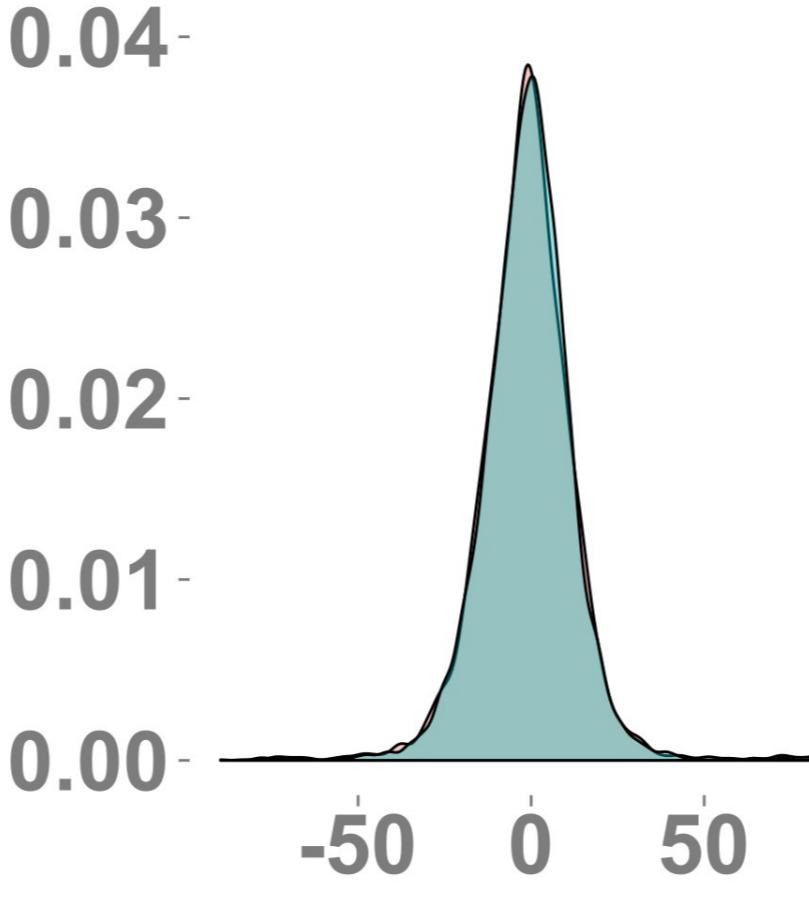
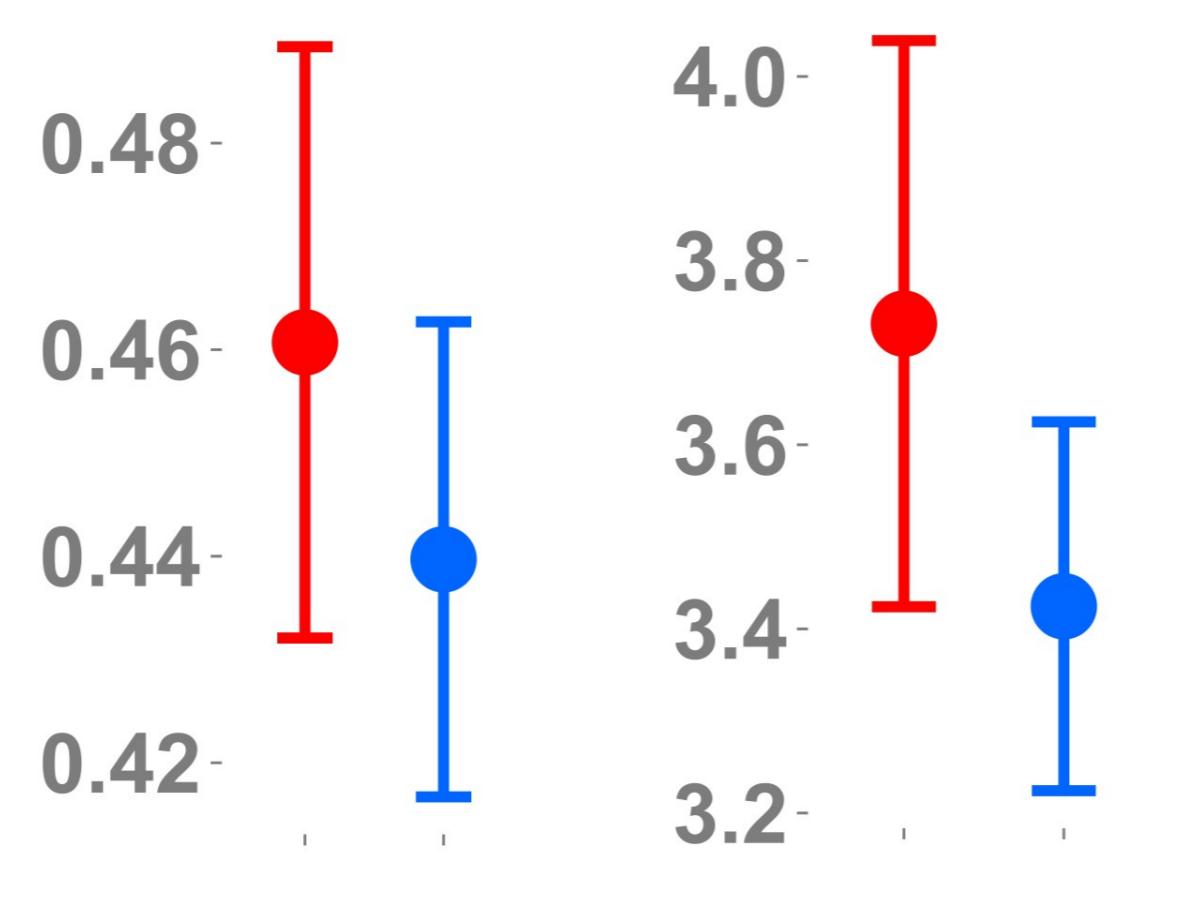
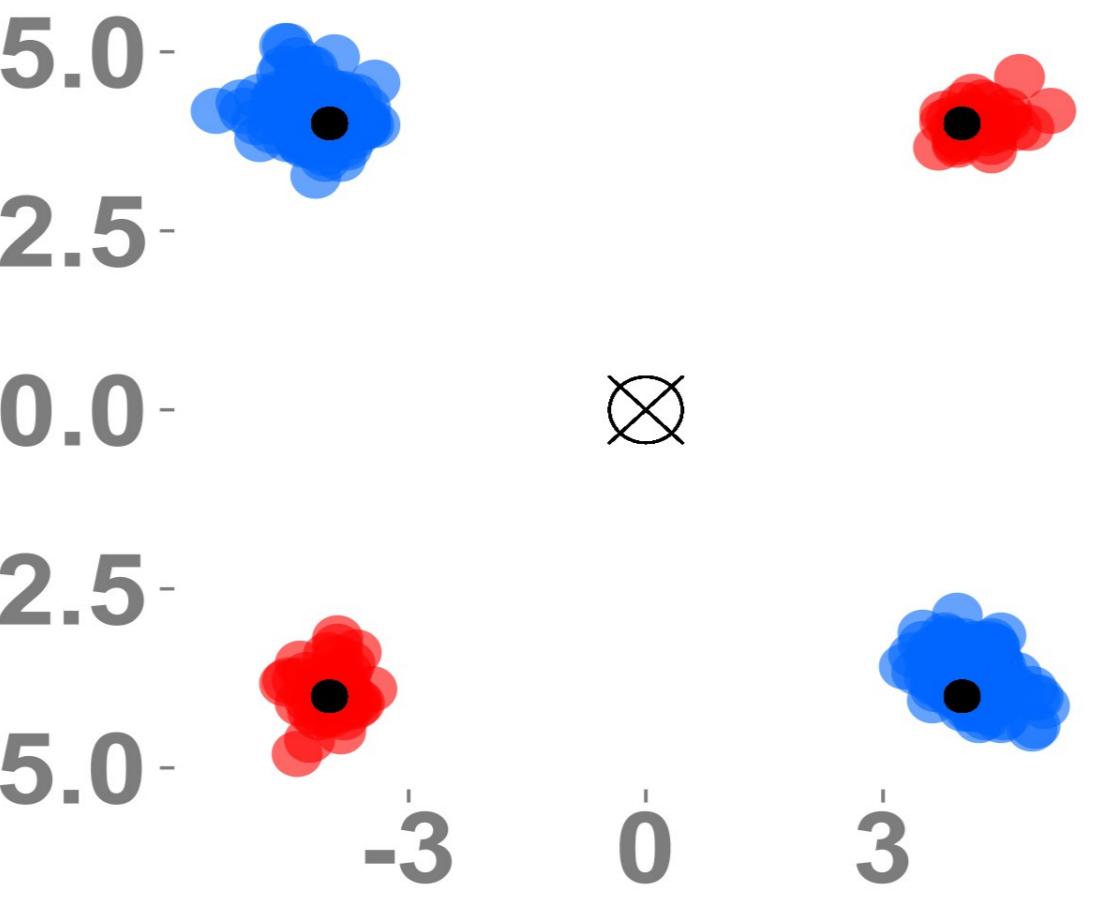
From previous experiments:  
 Affects orientation error  
 Can be conditional on fix cross



Expt 2a  
 (Simple Spatial Prob)

Only 4 possible locations

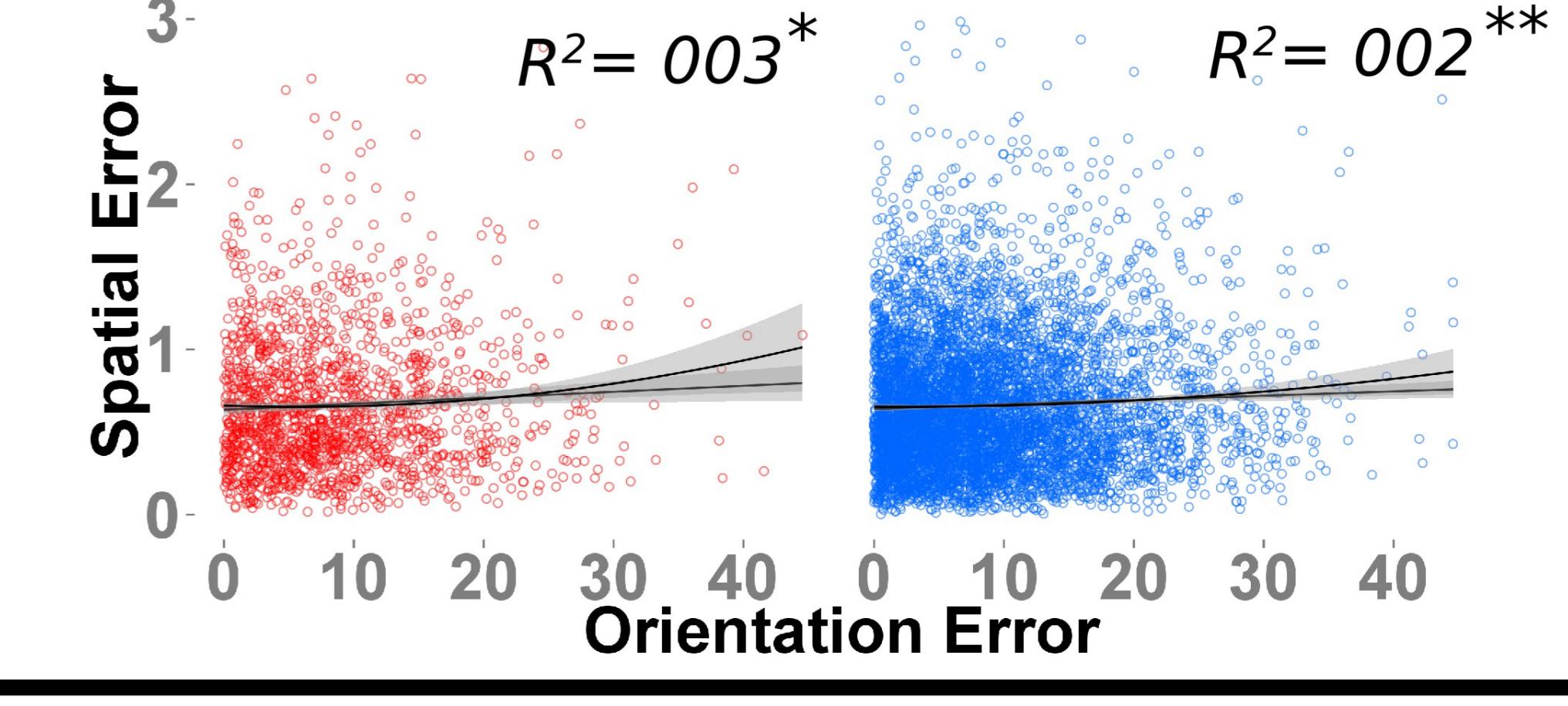
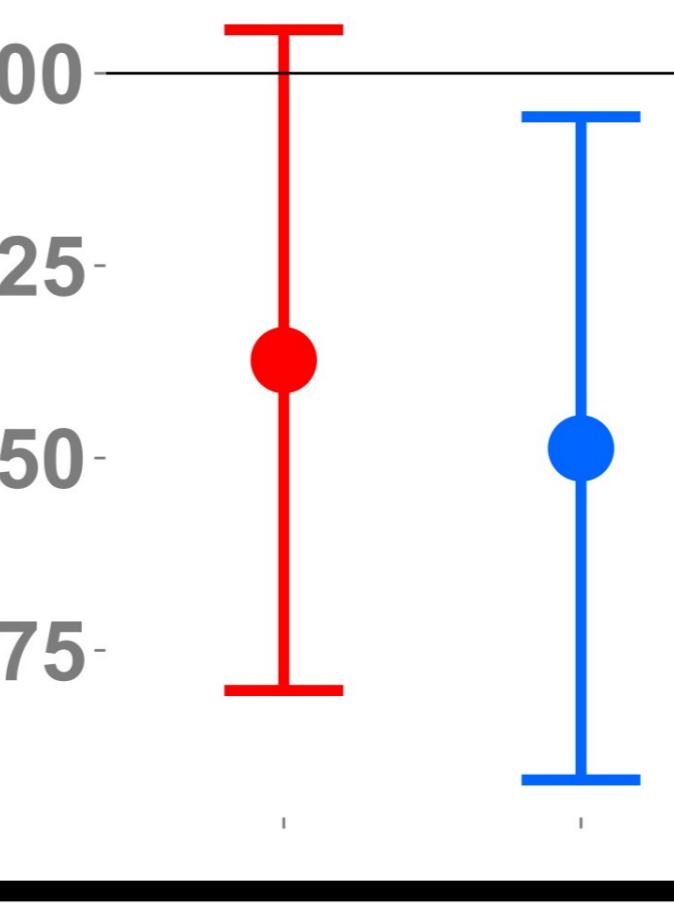
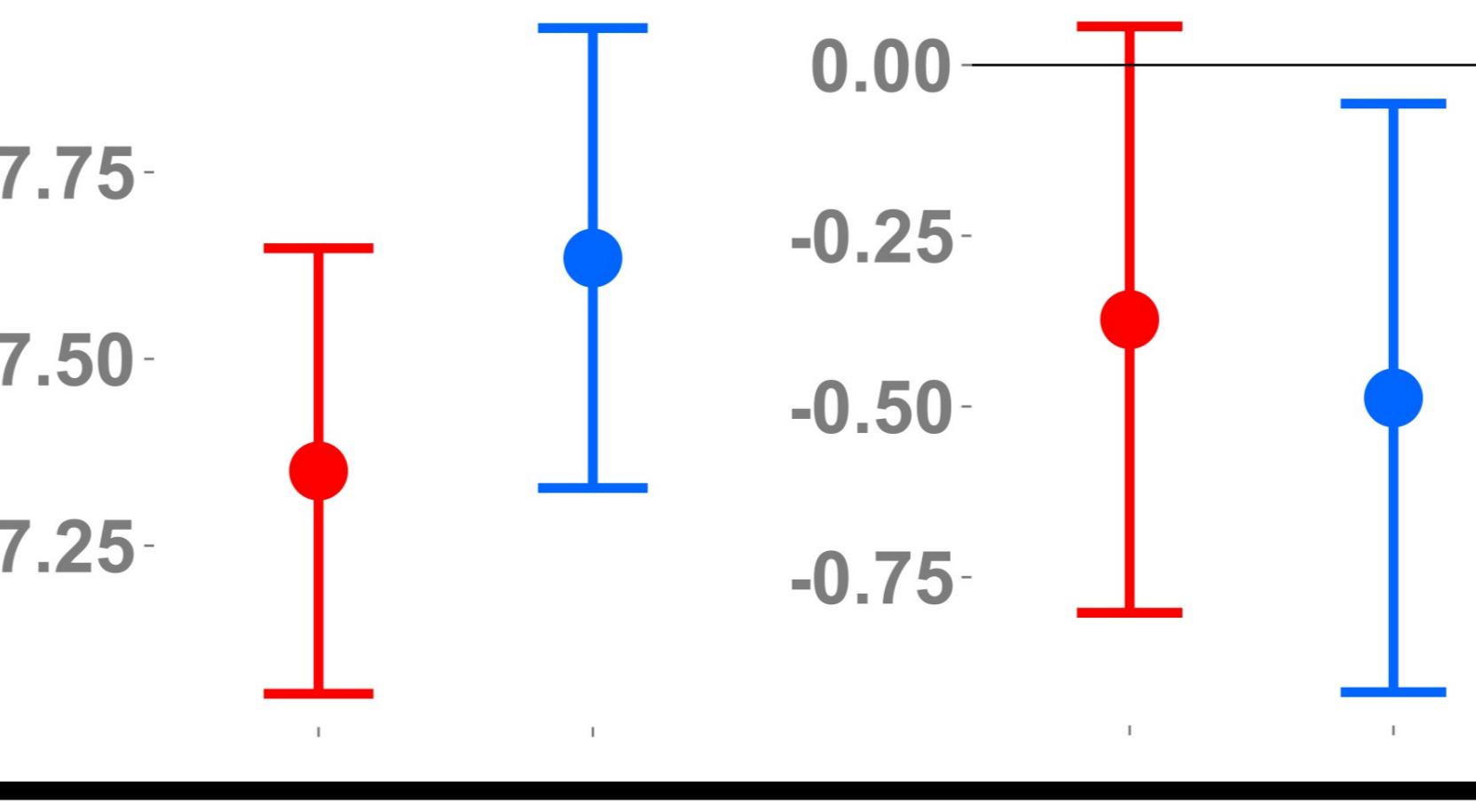
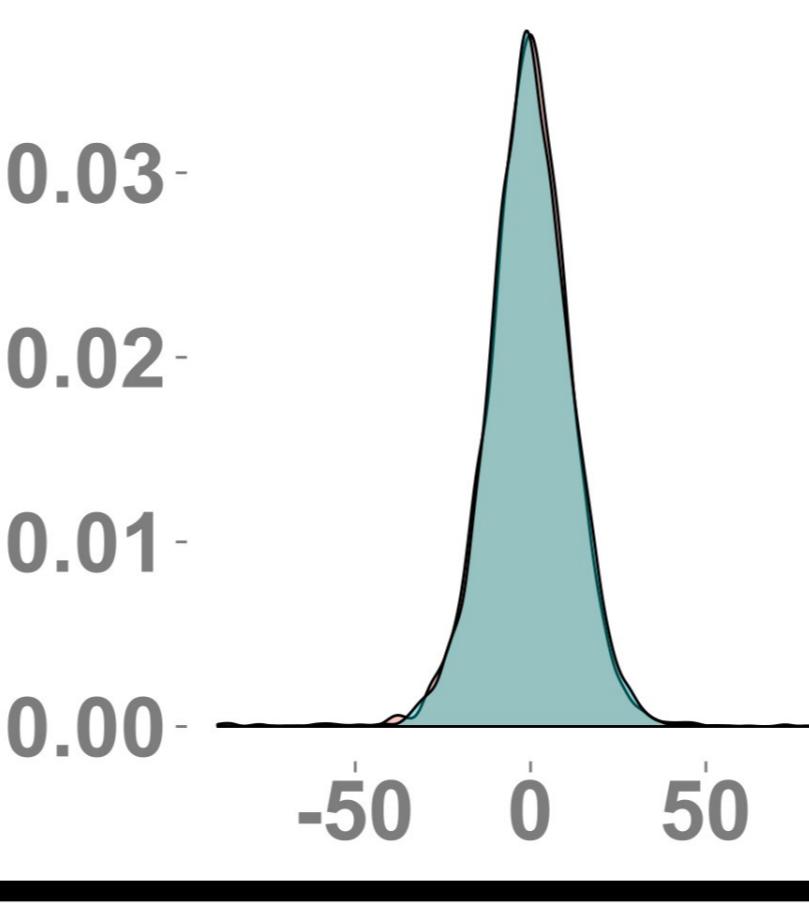
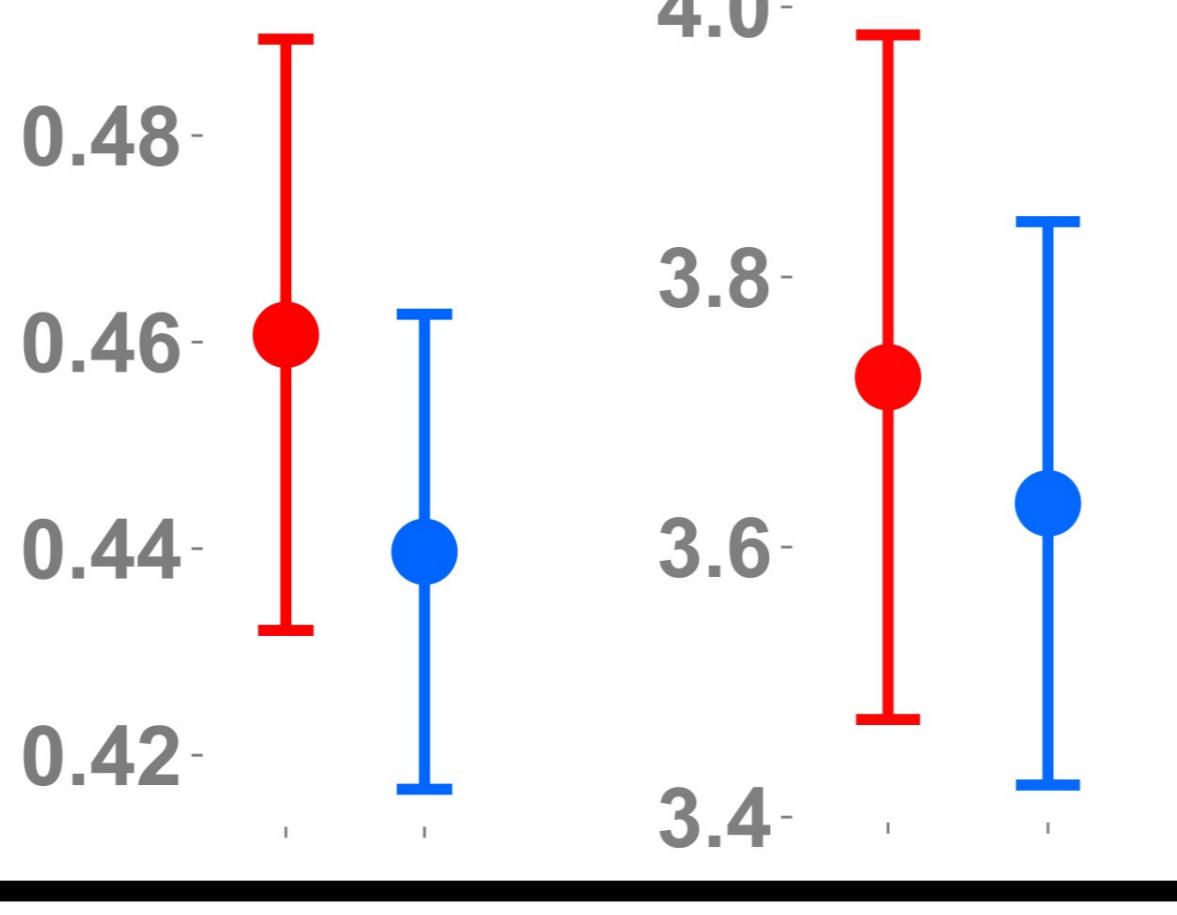
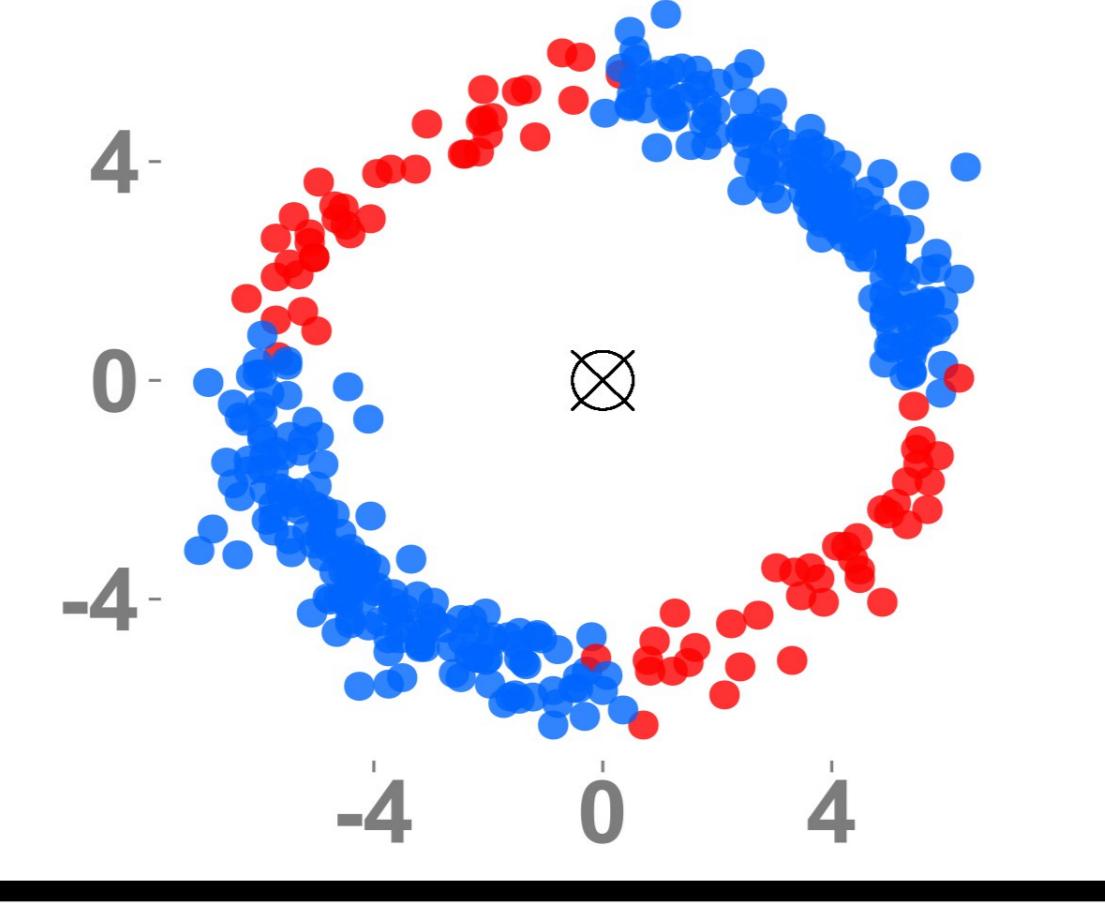
High Prob : 80%  
 Low Prob : 20%



Expt 2b  
 (Complex Spatial Prob)

Constant eccentricity  
 Pseudo-random bearing

High Prob : 80%  
 Low Prob : 20%



\*  $p < .05$ , \*\*  $p < .01$

<sup>a</sup>Median of the absolute value of signed angular errors. Mean absolute errors show the same trends.

# all orientations biases are significantly vertical except for low-probability orientations.

<sup>a</sup>Adjusted  $R^2$  for a linear model. No improvement for a quadratic model.



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