Putting spatial and feature-based attention on a shared perceptual metric

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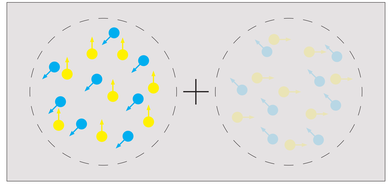
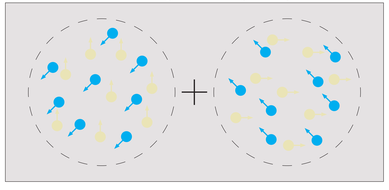
1. Introduction

Selection by location:



Selection by feature (color):

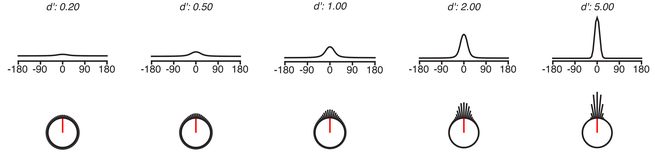


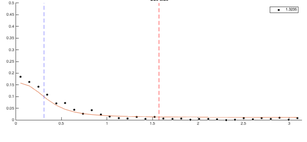
Are these forms of selection equivalent?

If not, what mechanisms might lead to differences in selection?

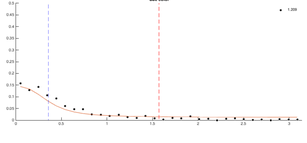
2. A shared perceptual metric

Observers (n=5) were asked to average the motion direction of two patches, selected by color or side. We fit their responses with a model with a single parameter (d').



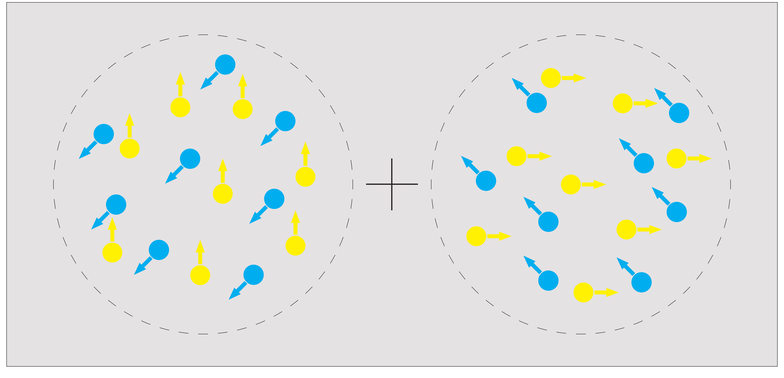


Placeholder: d' vs. duration



Placeholder: d' vs. distance between the two directions

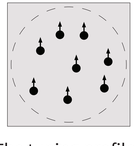
How can we compare different forms of sensory selection?



We built a simple task which shows that selection by location, color, and motion direction are all similar.

3. Model details

Our model of behavior assumes that a stimulus is encoded by many independent "channels" tuned to the stimulus properties (cite: TCC model).

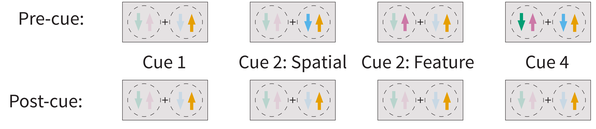


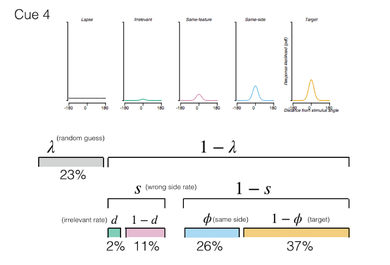
The tuning profile is empirically derived as the psychological distance of the feature.

At the time of readout, the channel with maximum activation is reported. Noise in the channels leads to response variability.

4. Selection extends into working memory

Observers (n=5) were asked to recall the color of a single patch. We varied what information was cued in advance to control sensory selection.





5. Similar selection hints at similar implementation

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