Cueing Effects for Simple Detection Are Best Accounted For by a Decision Model of Selective Attention
Miranda Petty, John Palmer, Cathleen M. Moore, Geoffrey M. Boynton
Department of Psychology, University of Washington

1. Partially-Valid Cueing

<table>
<thead>
<tr>
<th>Valid Cue</th>
<th>Invalid Cue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal: To distinguish the Selective Perception and Selective Decision hypotheses using spatial and temporal cueing.</td>
<td></td>
</tr>
</tbody>
</table>

3. Experimental Design

- **Spatial Cueing Trial Sequence**
  - First Interval Block
    - Fixation (1 s)
    - Case
    - Delay (1 s)
    - Fixation (1 s)
    - Simultaneous Stimulus Interval
  - Second Interval Block
    - Blank Interval (50 ms)
    - Prompt for response

- **Temporal Cueing Trial Sequence**
  - Left Stimulus Block
    - Left Stimulus (1 s)
    - Blank Interval (50 ms)
    - Prompt for response
  - Right Stimulus Block
    - Right Stimulus (1 s)
    - Blank Interval (50 ms)
    - Prompt for response

4. Predictions

- **Selective Perception**
  - No cueing effect in the temporal cueing condition because you only have to attend to cue location at a time
- **Selective Decision**
  - A cueing effect in the temporal cueing condition because you weight information after perception

5. Results

- **Spatial Cueing**
  - Mdiff T = 10 ± 2% **
  - Mdiff S = 12 ± 2% **

- **Temporal Cueing**
  - Mdiff T = 10 ± 2% **
  - Mdiff S = 12 ± 2% **

6. Discussion

- This result adds to other findings consistent with selective decision and not with this version of selective perception.
- Previous findings of cueing effects with sequential displays (Kinchla, Chen, & Evert, 1995)
- Findings of partially-valid cueing effects with post-cues (Kinchla, Chen, & Evert, 1995)
- Findings consistent with unlimited capacity (e.g., amnesic-sequential paradigms; Shiffrin & Gardner, 1972; Schur, Palmer, & Moore, 2011)

7. Conclusion

- There was a reliable cueing effect in the temporal cueing condition.
  - This result is inconsistent with this version of the Selective Perception hypothesis.
  - Instead, it is consistent with the Selective Decision hypothesis, suggesting that for simple stimuli, the cueing effect occurs in decision.
- Future work will investigate the roles of perception and decision in partially-valid cueing with word stimuli.