



Contingent Capture: Solved?

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Introduction

Attention capture by abrupt-onset conscious and unconscious cues was investigated across 2 experiments, to check if they capture attention in a way contingent to current task goals or not and to compare the nature of capture by unconscious cues with that of conscious cues

Results

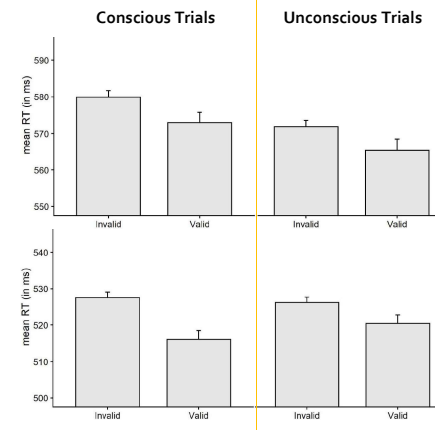
Experiment 1 (Colour Targets)

- Valid RT < Invalid RT ($p < 0.01$)
- Cue duration (T) – **Insignificant** ($p > 0.05$)
- Interaction between V and T – **Insignificant** ($p > 0.05$)

Experiment 2 (Abrupt-Onset Targets)

- Valid RT < Invalid RT ($p < 0.001$)
- Cue duration (T) – **Insignificant** ($p > 0.05$)
- Interaction b/w V and T – **Marginally significant** ($p = 0.07$)

Spatial cueing Task



Visibility Test

Experiment 1 (Colour Targets)

Conscious Trials	Unconscious Trials
$d' = 2.495$ ($p < 0.001$)	$d' = 0.070$ ($p < 0.01$)
PAS = 3.87	PAS = 1.20

Experiment 2 (Abrupt-Onset Targets)

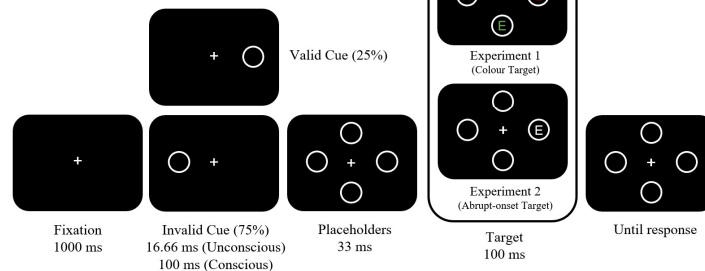
Conscious Trials	Unconscious Trials
$d' = 2.536$ ($p < 0.001$)	$d' = 0.066$ ($p < 0.05$)
PAS = 3.96	PAS = 1.30

Methods

- 2 Experiments - Colour Target (Experiment 1) and Abrupt-onset Target (Experiment 2)
- 512 trials – 256 with conscious cues (100 ms) and 256 with unconscious cues (16.66 ms)
- 10 Blocks of 64 trials each – 4 conscious + 4 unconscious + 2 visibility



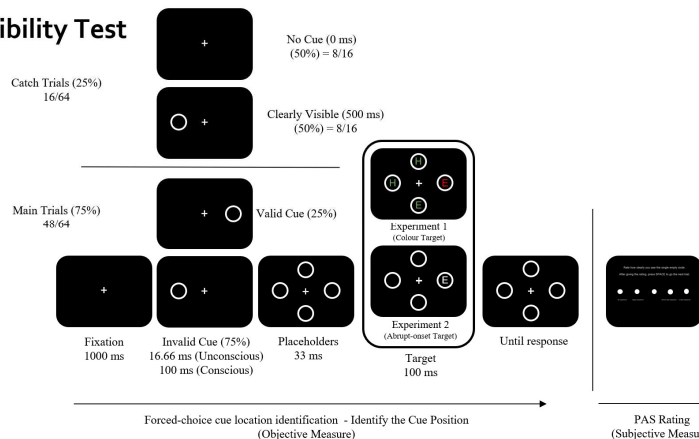
Spatial cueing task



Spatial cueing task – Participants had to search for and report the identity of the target letter (E or H), defined by its colour (Experiment 1) or by onset (Experiment 2). The location of the target letter was cued by conscious (100 ms) and unconscious (16.66 ms) abrupt-onset cues.

Visibility Test – Similar to the above task in design, here participants were told to ignore the target letter and instead try to guess the location of the abrupt-onset cues using arrow keys, after that the subjects gave a PAS rating of their subjective visibility of the cue.

Visibility Test



Discussion

Significant cue validity effects were observed in both experiments, hence no evidence for contingent capture by abrupt-onset cues was found. It is suggested that they capture attention in a stimulus driven manner.

Visibility tests data reveals that subjective report of the cue visibility may be influenced by the presence or absence of distractors.

References

- Folk, C. L., Remington, R. W., & Johnston, J. C. (1992). Involuntary covert orienting is contingent on attentional control settings. *Journal of Experimental Psychology: Human perception and performance*, 18(4), 1030.
- Prasad, S., & Mishra, R. K. (2019). The Nature of Unconscious Attention to Subliminal Cues. *Vision*, 3(3), 38. <https://doi.org/10.3390/vision303038>