



Can Endogenous Spatial Cues be Processed During the Attentional Blink?

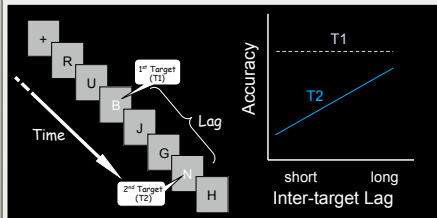
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Introduction

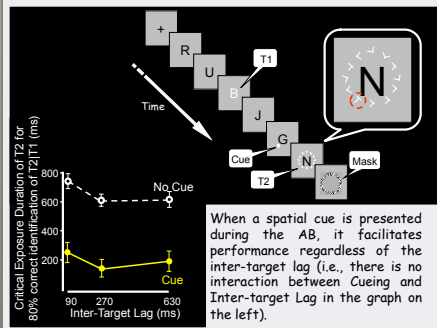
The Attentional Blink (AB)

An impairment in the identification accuracy for the second of two targets (T1 and T2) presented in a rapid sequence of distractors.

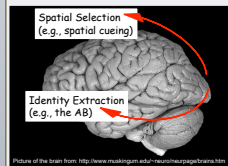


Previous Work

Processing of exogenous spatial cues is NOT impaired during the attentional blink (Ghorashi, Klein, & Di Lollo, 2007; Ghorashi et al., 2009).

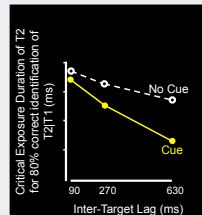
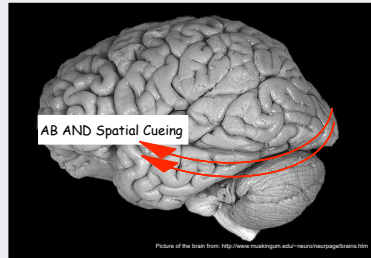


Theory



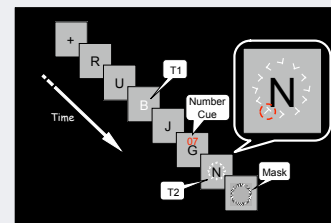
The results were explained with reference to the two separate visual pathways: exogenous spatial cues are processed along the dorsal pathway, while identification (and, therefore, the AB) is carried out along the ventral pathway.

Prediction Based on the Theory

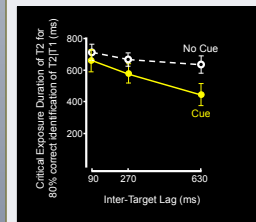


Based on the above explanation, it should follow that if a different kind of spatial cue is used which requires "ventral" processing, then cueing and the AB will compete for the same available resources, leading to an interaction (instead of an additive pattern).

Experiment 1



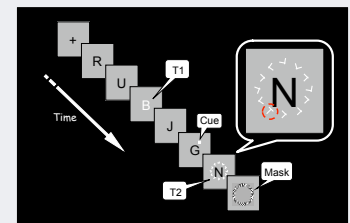
In Experiment 1 a red number-cue preceded the target display. This number indicated the clock position at which the target would appear in the following frame.



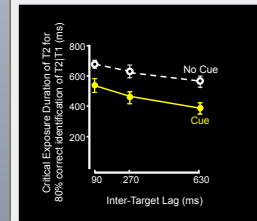
When both the spatial cue and the target need to be identified, processing of the spatial cue is impaired only at shorter inter-target lags when the system is busy processing the first target. Therefore, interaction is in evidence.

The number-cue requires two steps of processing: identification of the number, and then re-orienting of attention to the indicated location. To determine which step interferes with identification of the target (leading to the interaction), in Experiment 2 we eliminated the requirement for identification, while keeping the need for re-orientation.

Experiment 2



In Experiment 2 a little dot preceded the target display. This dot indicated the "opposite" clock position at which the target would appear in the following frame.



When the cue does not require identification, the requirement for re-orienting of attention does not interact with the processing of the target.

Conclusion

Processing of endogenous spatial cues may or may not be impaired during the AB, depending on whether or not they need "ventral" processing.

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