Title: Investigating ERP Correlates of Semantic Processing During Inattentional Blindness

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Abstract: 1.8

Findings on the neural activity during inattentional blindness suggest several perceptual processes that can occur despite an observer's inability to report on their percept, ranging from basic feature processing to advanced inference-like processes. One may wonder what perceptual processes remain that require attention. A current point of debate is whether semantic information can be processed during states of inattention or otherwise outside of awareness. The current study sought to establish whether the N400, a well-established ERP marker of semantic processing, could be elicited under conditions of inattentional blindness. The experiment utilized a three-phase design in which pairs of semantically related or unrelated word stimuli were presented hundreds of times at the fovea while participants performed an attentionally demanding distractor task. Word stimuli were either task-irrelevant and not consciously perceived (inattention phase), task-irrelevant but consciously perceived (divided attention phase), or task-relevant and consciously perceived (full attention phase). Results show a widespread N400 during the full attention phase, and an N400 like deflection during the divided attention phase. This same ERP component did not reach significance during the inattention phase, when participants were unaware of the word stimuli. Findings are taken as evidence that semantic processing, as indexed by the N400, does not occur during states of inattentional blindness.