Abstract:

It is well established that cognitive system overload is reflected in the attentional blink (AB), the failure to report a second target when it closely follows detection of a first target within a rapid series of stimuli. However, there is intense controversy concerning the effect of first-target detection in one modality on subsequent dynamics of attentional resources in other modalities. Mixed results were found using an audiovisual AB paradigm: depletion of resources in one modality either impaired performance in the other modality or had no effect. Here, we circumvent the need for task switching by measuring an event-related potential, the mismatch negativity, which reflects implicit auditory change detection without requiring task engagement and is present even for background sounds that participants ignore. Surprisingly, we find that during the visual AB, auditory processing is enhanced rather than inhibited, as would be expected by system overload. We suggest that multimodal attentional resources may be freed rather than engaged during the visual AB. Suppression of irrelevant input may require active control by a central executive, which is preoccupied during the visual AB, and/or there may be no reason to suppress other-modal input since the visual system will miss its second target anyway.

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