

sodic memory retrieval, in mediating NP effects during probe identification.

A27

I SEE YOU MOVING - MOTION CLASS DEPENDENCY IN OBSERVERS' NON-PRIMARY MOTOR AREAS REVEALED BY FUNCTIONAL MAGNETIC RESONANCE IMAGING (fMRI)

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A29

PARIENTAL MECHANISMS OF CROSSMODAL SPATIAL ATTENTION REVEALED THROUGH TRANSCRANIAL MAGNETIC STIMULATION

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Although it has been well established that human parietal cortex is crucial for our ability to reflexively orient attention, the unique role of specific sub-regions is unclear. We examined the involvement of the inferior parietal lobule (IPL) in shifts of covert spatial attention by combining transcranial magnetic stimulation (TMS) and a stimulus-driven cueing task. Participants made a vertical localisation judgement to a visual or somatosensory target that was preceded by a spatially non-predictive visual or somatosensory cue. Repetitive TMS, time-locked to cue onset, was administered to individual sub-regions of the right IPL. TMS of the supramarginal gyrus significantly influenced reflexive orienting to visual and somatosensory targets, but the direction of the effect differed between modalities. In particular, TMS enhanced the salience of right visual cues to visual targets, while simultaneously reducing the salience of these same cues to somatosensory targets. This double dissociation between unimodal and crossmodal interference is inconsistent with recent suggestions that attention is controlled by a unitary 'supramodal' cortical network.

A31

INVESTIGATION OF ASYMMETRY OF THE ALERTING EFFECT

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Alertness is a state of general readiness for cognitive tasks. Maintenance of alertness is believed to be contributed by the noradrenergic system which has been found laterally distributed in the right hemisphere of human brains. Recent functional imaging data also show that sustaining alertness relies on the right-lateralized cortical network. However, little behavior knowledge on asymmetry of alertness has been founded. In the present study,

we address this issue by using the temporal order judgment paradigm. Subjects were asked to judge whether a box ($1^\circ \times 1^\circ$, 7° away from fixation) on the left preceded or followed a comparable box on the right. A strong phasic tone preceded visual stimuli by 400ms in 11% of trials. We plotted a psychometric function about proportion of 'right-first' response in each condition. In the alerted condition, the slope at the point of subjective simultaneity (PSS) was increased significantly in contrast to which in the unalerted condition ($p < 0.018$). Further more alerting tone made PSS move leftward along the abscissa by about 5ms ($p < 0.015$), that is, subjects tended to select the right box. Two main conclusions could be drawn from the obtained data: First, an uninformative phasic alerting tone can accelerate visual perception (eliminated the motoric factor), which is indicated by the steeper psychometric function in the alerted condition. Second, an alerting tone can accelerate perception of visual stimulus in the right hemifield to a larger degree indicated by the leftward shift of PSS.

A33

THE RELATIONSHIP BETWEEN NEURAL RESPONSES TO NOVEL EVENTS AND VOLUNTARY ATTENTIONAL RESOURCES

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This study investigated the claim that the novelty P3 component reflects an involuntary, automatic response to deviant stimuli that is not dependent on the pool of voluntary processing resources. In all conditions, young subjects were shown a series of letters (which included some that had been presented 1, 2, or 3 letters earlier), and were exposed to a series of sounds (frequent standards, rares, and infrequent novels). In the "Attend" condition, subjects responded to the rare tones. In the "Passive" condition, subjects simply listened to the sounds. In the three "n-back" conditions, subjects focused on a 1, 2, or 3-back task in the visual modality. Preliminary results suggest that under all conditions, the P3 component was larger to novel than rare or standard sounds. The novelty P3 was larger in the Attend than the Passive condition. Introduction of an n-back task was associated with a much smaller, more anteriorly distributed P3 component to novel sounds. There were no differences in the novelty P3 component across the different levels of the n-back task. The P2 and N2 component to novel stimuli did not vary across any of the five conditions. Our results suggest that unlike the P2 and N2 components, the novelty P3 is modulated by primary task demands, with a reduction in amplitude when subjects focus on an attention-demanding task in a different modality. However, this effect does not appear to be graded, as there were no clear differences in the novelty P3 component across levels of the n-back condition.

A35

COGNITIVE ETHOLOGY AND SOCIAL ATTENTION IN REAL WORLD SCENES

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To understand how attention operates in the real world, we have suggested that researchers need to study attention to not only real world stimuli, but also within real world situations, (e.g., Kingstone et al, in press; Smilek et al., in press). Several studies have demonstrated that people orient reflexively to others' gaze and head direction. However, these studies used artificial laboratory situations, devoid of contextual cues. We asked how observers direct attention within more natural scenes depicting not only gaze cues, but also complex social situations. We eye monitored observers while they viewed various scenes, e.g., an empty room, a room with objects, and rooms with one or more people who either were or were not interacting. We hypothesized that the context of the scenes, as well as the presence and type of social interactions within the scenes (e.g. mutual gaze) would influence where and how observers scanned the scenes, and the subjective reports they provided with regard to the scenes and their own behaviour. The data speak to existing theories of attentional selection, and provide insight into how attention responds to complex, social stimuli. Kingstone,