

State-trace analysis of associative recognition

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Recent research into recognition memory has been driven by competition between single-process and dual-process theories. Single-process theories assume that Old/New judgments are based on continuous information ordered along a single strength-of-evidence axis. In contrast, dual-process theories assert that recognition memory is driven by two functionally distinct processes, familiarity and recollection. Familiarity is conceptualised as a fast process reflecting the level of global similarity between items previously studied and items shown at test. Recollection is thought to be a slower, discrete process in which specific details such as context are consciously recalled. The present study addressed this debate by applying state analysis to associative recognition - recognition memory for an association between two items. In contrast to item recognition, dual-process theories predict that associative recognition judgments should only engage recollection since item familiarity levels for both items are equal. The present study tested this prediction by manipulating two independent variables previously shown to differentially affect the contribution of recollection and familiarity to item recognition. If associative recognition depends only on recollection then the resulting state-trace plot should reveal a monotonically increasing relationship between high and low confidence hit rates. The results and their implications for single-process and dual-process theories are discussed.

An unbiased evaluation of modality preference using a "Morse Code" like recall task

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Advocates of modality preference posit that individuals have a dominant sense, visual, auditory, or kinesthetic, and that when new material is presented in this preferred modality, learning is enhanced. Despite the widespread belief in this position there is relatively little supporting evidence. The current study implemented a "Morse Code" like recall task to examine whether visual and auditory recall is mediated by modality preference. When the perceptual discriminability of visual and auditory stimuli was controlled, there was no significant relationship between modality preference and visual and auditory performance. However, when the task involved a temporal discrimination between items to be recalled, recall for auditory stimuli was superior to recall for visual stimuli. In contrast, when the task involved a spatial discrimination, the opposite effect was observed. Furthermore, in each recall task, sequences with a discernable pattern were recalled more accurately than sequences with the absence of distinguishable patterns. It was concluded that the ability to recall new material depends on the presence of patterns in the stimulus stream and whether the material is presented via the most appropriate modality for the task of interest.

Rapid recognition of manipulable and non-manipulable objects

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Neuropsychological and neuroimaging studies indicate that perception of manipulable objects recruits brain areas involved in the planning and execution of motor acts; these areas do not appear to be involved in the perception of non-manipulable objects. The present study used a Rapid Serial Visual Presentation (RSVP) paradigm to investigate perception of manipulable versus non-manipulable objects from brief displays. Participants viewed sequences of three objects (grayscale photographs or line drawings), preceded and followed by pattern masks. The first and third items of the sequence were the critical items and could be either manipulable or non-manipulable objects, while the intervening item was always a non-manipulable object. Across a number of experiments, accuracy for joint report of the critical items was significantly lower in the manipulable than in the non-manipulable object condition. Moreover, while non-manipulable objects showed significant repetition blindness when the same object was repeated, the manipulable objects did not, and sometimes they showed priming. These results suggest some degree of interference when two manipulable objects are presented in close succession, which prevents them from being consolidated for report. Possible causes of this interference will be discussed.