Unpacking cognitive processes in additive and non-additive multiple-cue tasks

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Abstract

In this project we show how the cognitive processes, and the learning patterns, of participants performing a typical multiple-cue learning (MCL) task is affected by the format (numeric or verbal) of the cues and the criterion. In two experiments we investigated the hypothesis that the reliance on linear additive integration in MCL-tasks is especially pronounced when cues are presented in a numeric rather than verbal format. The results support the hypothesis. With numeric cues, we replicate previous findings supporting a systematic shift from cue-abstraction and additive integration of cues when the task is additive, to reliance on exemplar memory when the task is non-additive. However, when cues are verbal, no systematic shift in cognitive process is evident, with participants in general relying on exemplar memory regardless of the task structure. Consequently, the numerical format is advantageous for learning in the additive task but at times disadvantageous in the non-additive task.