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# Cross-modal serial dependence between visual and auditory stimuli in numerical estimation task

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## Abstract

Serial dependence is a phenomenon in which perception of the current stimulus is influenced by that of past stimulus. Previous studies have shown that serial dependence does not occur between modalities, however, it has only been validated with limited types of tasks. We examined the cross-modal serial dependence in numerical estimation task. Participants were asked to estimate the number of flashes presented sequentially for visual stimuli and the number of white noises presented sequentially for auditory stimuli. We observed significant serial dependence from visual to auditory, but not in the reverse direction. The reason we observed serial dependence between modalities may be due to the high-order processing required to perform the numerical estimation task. We need to further investigate the nature of the visual stimuli (sequential or simultaneous) as well as their temporal properties to determine why only serial dependence from visual to auditory was observed in this experiment.