

# Prior information on audiovisual correspondence affects visual perception outside of awareness

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Previous studies have suggested that a visual stimulus gains its enhanced access to visual awareness under interocular suppression when accompanied by congruent auditory inputs (Alsius & Munhall, 2013; Cox & Hong, 2015). The current study explored influence of prior information about temporal correspondence of audiovisual stimuli on the subsequent processing of those outside of visual awareness. On each trial, observers viewed a ball-shape object bouncing within a rectangular window for a few seconds before it was rendered invisible by continuous flash suppression (CFS; Tsuchiya & Koch, 2005). Observers were instructed to press a button when they detected the ball breaking through suppression. The ball was presented with clicking sounds, which were temporally matched (congruent, C) or unmatched (incongruent, I) to bounces of the ball. The temporal synchrony was independently manipulated preceding (prior congruency) and following (trial congruency) the onset of CFS, comprising four different conditions. Repeated measures ANOVA showed that only the main effect of trial congruency was significant, indicating that the bouncing ball accompanied by temporally matched sounds (C-C and I-C trials) was detected faster than that accompanied by temporally unmatched sounds (C-I and I-I trials) regardless of prior audiovisual congruency. However, further correlation analysis unveiled individual differences according to prior congruency: individual detection advantages by trial congruency associated with congruent prior information (difference in mean detection time: C-I minus C-C trials) were negatively correlated with those associated with incongruent prior information (I-I minus I-C trials). These results imply the audiovisual congruency effects characterized by temporal synchrony may be modulated by individual characteristics related to the influence of prior information.

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