

## Audio-visual phenomenal causality.

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We report three experiments in which visual or audiovisual displays depicted a surface (target) set into motion shortly after one or more events occurred. A visual motion was used as an initial event, followed directly either by the target motion or by one of three marker events: a collision sound, a blink of the target stimulus, or the blink together with the sound. The delay between the initial event and the onset of the target motion was varied systematically. The subjects had to rate the degree of perceived causality between these events. The results of the first experiment showed a systematic decline of causality judgments with an increasing time delay. Causality judgments increased when additional auditory or visual information marked the onset of the target motion. Visual blinks of the target and auditory clacks produced similar causality judgments. The second experiment tested several models of audiovisual causal processing by varying the position of the sound within the visual delay period. No systematic effect of the sound position occurred. The third experiment showed a subjective shortening of delays filled by a clack sound, as compared with unfilled delays. However, this shortening cannot fully explain the increased tolerance for delays containing the clack sound. Taken together, the results are consistent with the interpretation that the main source of the causality judgments in our experiments is the impression of a plausible unitary event and that perfect synchrony is not necessary in this case.