

Hearing Gestures, Seeing Music

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Musicians disagree whether it is possible to produce notes of varying durations on percussion instruments. According to some, a longer physical gesture produces a longer note; according to others, the length of the gesture has no effect on the physical duration of the sound. We studied the effect of auditory and visual information on the perception of marimba note duration. We videotaped the stroke preparation and release of single undamped short-stroke (S) and long-stroke (L) notes performed by a world-renowned percussionist; the sounds did not differ in duration. From these we separated out the visual and the auditory components. We also had the performer record (without video) damped notes to produce physically shorter stimuli (D). We created audio-visual stimuli by crossing the two visual conditions with the three auditory conditions. We asked subjects to rate the duration of a note presented in audio-alone (A), visual-alone (V), or audio-visual (AV) conditions. In the AV condition, we asked them to disregard the visual information. The study produced two results: (1) Since the L notes were not longer than S notes, in the A condition subjects did not rate them longer. Only in the V or the AV conditions did they rate the L to be longer than the S notes. (2) The presence of visual information depressed the discriminability (measured by d') of S and D or L and D notes. We will discuss approaches to reconciling these findings.