

The Sound of Sight

A perceptual anomaly may help explain how the brain integrates sight and sound

In the baffling neurological condition known as synesthesia, a person's senses meld together, so that a synesthete might "hear" colors or "taste" shapes. Now scientists have stumbled on a previously unknown form of synesthesia in which visual flashes or movements trigger perceptions of sound.

California Institute of Technology neuroscientists Melissa Saenz and Christof Koch confirmed the existence of hearing-motion synesthesia, as they dubbed it, by creating a task at which the synesthetes would have an advantage. The researchers presented four self-professed synesthetes and 10 non-synesthetes with 100 pairs of Morse code–like rhythmic sequences, each composed of either auditory beeps or flashes of white on a black background. The participants judged whether the two sequences in each pair were the same or different.

Both groups judged auditory patterns accurately about 85 percent of the time, the researchers found. On the visual trials, nonsynesthetes' judgments fell to nearly chance levels, a result that corroborates other research showing that most people are better at judging auditory patterns than assessing visual patterns. In contrast, synesthetes—who reported hearing sounds such as beeps or taps in time with the visual signals—distinguished matching from nonmatching rhythms 75 percent of the time.



"I think of these people as having an enhanced soundtrack in life," Saenz says. Her team is conducting brain-imaging studies to try to tease out the roots of that soundtrack as well as how a typical brain combines visual and auditory signals to improve perception. —Siri Carpenter