

## **From tone to complex: Generalization of the effects of spatial cues and attention on grouping and streaming**

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Previous experiments showed that the apparent perceptual organization of a scene containing two simultaneous streams depends on which stream is being attended. With appropriate manipulation of the spatial cues, a clearly detectable target (which could logically belong to either of the streams) was “orphaned,” in that it was never perceived as part of the foreground stream, regardless of which stream was attended.

The current experiment uses a similar paradigm to measure directly the contribution of an ambiguous target to each of two ongoing streams. Slowly repeating (SR) and fast repeating (FR) harmonic complexes were presented with different, but related fundamental frequencies. An ambiguous target complex was presented simultaneously with the SR complex, but consisted of the same harmonics as the FR complex. In different blocks, subjects attended either to the SR or the FR stream. In each block, they adjusted the target-complex intensity presented in a single-stream control stimulus (SR or FR) to match the perceived timbre / pitch of the SR or FR stream in the mixture.

Results are compared with those of the previous experiment to confirm that spatial cues play a subtle but important role in how listeners segregate ambiguous spectro-temporal elements over time scales of tens of milliseconds.

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