4pAB10. Relative saliency of envelope and fine structure cues in zebra finch song.

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Abstract:

Birdsong provides a useful model for communication and vocal development, and zebra finch song in particular is attractive for its acoustical complexity and repetitive nature. Males sing one song for the purpose of mating display and territory defens e, whereas females do not sing. In this study, we are particularly interested in which acoustic features of a male's song are most perceptually salient. Using a repeating background of a single song motif, zebra finches were trained to discriminate changes to two cues in song: increases in intersyllable interval duration (envelope cue) and reversals of single syllables within a song motif (fine structure cue). Results show that zebra finches are able to discriminate changes to fine structure of syllables much more easily than changes to the overall envelope of song, specifically intersyllable intervals. Further experiments have been done using a noise burst modeled song in which song syllables were replaced by frozen random noise bursts of the same duration. Results show that zebra finches are able to discriminate single noise burst reversals, suggesting that they are able to attend to and follow fine structure on a very small time scale. [Work supported by NIH/NIDCD 5R01DC000198 and 2P30DC004664.]