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Session: Musical Acoustics: General Topics in Musical Acoustics I

Title: Effects of goodness-of-fit on auditory segregation in musical backgrounds.

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Abstract: This study examined the impact of "goodness-of-fit," a term by Krumhansl and Kessler that measures how well a tone fits within musical backgrounds on auditory segregation. The stimuli consisted of 40 consecutive sequences of 60 ms chords, totaling 2.4 sec. The figure tone was either C, D, E, F, G (high goodness-of-fit in C major), or their sharp equivalents (low goodness-of-fit in C major), and consistently repeated on each trial. The backgrounds were either consonant chords in C major or dissonant chords of random tones with each chord containing 8 tones ranging from 277 to 3729 Hz. Participants detected the figure from the background, using a staircase procedure to achieve over 70% accuracy, which set the figure volume for the main experiment. Results showed a significant accuracy decrease (up to 20%) only for the no-sharp figure in the consonant background. In contrast, the sharp figure's accuracy remained unaffected regardless of the background. These results indicate that figures with high goodness-of-fit were harder to distinguish in consonant backgrounds, whereas figures with low goodness-of-fit were easier to detect in consonant and dissonant backgrounds. This implies that listeners may utilize lawful relationships among musical chords for auditory segregation