

The influence of structural features on perceived musical tension

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ABSTRACT

Keywords

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Background

When listening to a piece of Western tonal music, a dynamic flow of tension and resolution is usually perceived. This musical tension is related to various structural features of the music. At the same time it is reflected in the subjective experience of the listener making it a well-suited tool to empirically investigate the complex relationship of these structural features and the more subjective, emotional aspects of music listening. Different features (e.g., dynamics, note density, melodic contour, harmony or phrasing structure) have been related to musical tension, however, the relative contribution of these features to perceived tension remains unclear.

Aims

The study aims to explore how different musical features contribute to the tension experience of the listener by investigating how the modification or isolation of different features affects subjectively perceived musical tension.

Method

We acquired continuous ratings of musical tension for original and modified versions of two classical piano pieces (Mendelssohn Bartholdy's Venetian Boat Song, Op. 30, No. 6, and the second movement of Mozart's Piano Sonata K. 280). Modifications included versions without dynamics, without expressive timing and versions in which harmony, melody and outer voices were played in isolation. The influence of these features on perceived tension was investigated by comparing average tension ratings of the different versions using correlation analysis. In addition, we investigated the relation of perceived tension and loudness of the music by comparing tension ratings to predictions of a standard loudness model.

Results

Despite a general tendency towards flatter tension profiles, tension ratings for versions without dynamics and without expressive timing correlated highly with ratings for the original versions for both pieces. Correlations between tension ratings of the original versions and ratings of harmony and melody versions as well as predictions of the loudness model differed between pieces.

Conclusions

Our findings indicate that discarding expressive features generally preserves the overall tension-resolution patterns of the music to a large extent. The relative contribution of single features like loudness, harmony and melody to musical tension appears to depend on idiosyncrasies of the individual piece..