

Title:

Combining musical patterns in pitch and time

Description:

The tonal and metric hierarchies are central organisational principles of virtually all Western music (popular and classical). They provide a way to organise the pitch and timing of the events in a musical sequence, which listeners use to encode, process, and remember subsequent events. The common assumption is that tonally stable pitches (high in the tonal hierarchy) occur disproportionately more often at metrically stable points in time than elsewhere (and tonally unstable pitches at metrically unstable positions). That is, the tonal and metric hierarchies should combine in an interactive fashion to form a joint tonal-metric hierarchy.

Prince and Schmuckler (2014) provided the first investigation of if the tonal-metric hierarchy exists in typical Western music. Although this relationship held in general over a large corpus, there are many deviations from the general shape, such that the tonal-metric hierarchy may not apply to individual pieces but only emerge from large summaries of music. More importantly, it is unknown as to whether listeners are actually sensitive to the tonal-metric hierarchy.

We tested if there are any real perceptual consequences of the tonal-metric hierarchy. Do listeners perceive melodies that follow the tonal-metric hierarchy as different from those that do not? We used several different methodologies, such as ratings of how good melodies were that obeyed or violated the tonal-metric hierarchy, ratings of how strong the beat was for these different melody types, and priming studies of if musically expected events were more effective if they had a correlated tonal-metric hierarchy or not. None of these experiments found any evidence that listeners were sensitive to the tonal-metric hierarchy. It appears that although the tonal-metric hierarchy emerges when aggregating large corpi, it has little perceptual consequence when examining listeners' responses to individual pieces.

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