Detection of wrong notes in familiar Persian melodies.
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Background

Listeners use both schematic and veridical knowledge in detecting wrong notes in culturally familiar melodies. Dowling (1978) proposed that veridical knowledge (melodic contour) is combined with schematic knowledge (tonal scale) in forming memory representations. Previous studies found that nondiatonic notes are recognized quickly and accurately. Western participants' wrong-note detection in familiar Western melodies depended on key membership (diatonic/nondiatonic) and distance (1 or 2 semitones from the original note), with stronger effects of key (APCAM, 2008). South Indian classical (Carnātic) music teachers', students', and aficionados' detection of wrong notes in familiar Carnātic and Western music indicated that detection speed decreased with increasing expertise (SMPC, 2015), and all groups were faster with Western melodies. Again, key membership and distance influenced wrong-note detection: Participants were slowest when wrong notes were diatonic and 1 ST away, and fastest when nondiatonic at 2 ST. These results reflected the complexity of the Carnātic music system, with over 350 modes. Also, participants probably heard diatonic pitches 1 ST away as "choices" rather than as wrong notes. Only interval size was important in perception of wrong notes in Western music: Participants were slower when wrong notes were 1 ST away, and faster when they were 2 ST away.

Aims

Our aim was to explore detection of wrong notes in familiar melodies in a musical culture that uses quarter steps as anchor tones in tonal scales.

Methods

In this study, we presented listeners with 32 Persian familiar melodies. Native Persian listeners were musically untrained, minimally trained (1-5 years), or moderately trained (>5 years). Each session had 64 trials, in which each melody appeared twice, with different wrong notes. There were 8 types of wrong note based on key membership, interval size, and direction (up or down from the original note). Participants identified the wrong note in each melody by pressing a key as quickly as possible. We measured the proportion of correct detections and response times.

Results & Conclusions

The results showed that overall nondiatonic notes were detected more accurately. With response time, participants were much faster at identifying wrong notes 2 ST away from the original note. Also, the Key x Distance x Experience interaction was significant indicating that more experienced listeners were faster at detecting wrong notes that were nondiatonic and 2 ST away. Currently we are collecting and analyzing data from native Japanese and Western participants with both Persian and Japanese melodies. Initial results from the Japanese participants with the Japanese melodies were similar to that of the Persian participants.

References

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