

Facilitators of the “speech-to-song illusion”

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Listeners usually have no difficulties telling the difference between speech and song. Yet when a spoken sentence is repeated several times, listeners often report a perceptual transformation from speech to song (S2S, Deutsch 1995, Deutsch et al. 2011). There are, however, large differences in the perception of S2S. They seem to arise primarily from the acoustic properties of the spoken phrases that are looped to create S2S (Falk et al. 2014). Moreover, much variability in S2S perception arises from the individual listener experience. Musicality of the listener has been extensively studied but is insufficient to explain the observed individual variability (Deutsch et al. 2011, Falk et al. 2014, Vanden Bosch et al. 2015). Our work addresses the question whether or not the general individual differences in cognitive processing styles and previous linguistic experience of the listener shape the perception of S2S. We hypothesize that the transformation is achieved by a mechanism of a functional re-evaluation of prosodic properties, and make predictions regarding individual listener traits that might facilitate or block S2S. We tested 160 listeners (English and French, native and non-native) in total. They evaluated their impressions of spoken sentences on a scale from 1 (clearly speech) to 8 (clearly song) before and after being exposed to their massed repetitions. Individual data (Zimmermann and Fimm 2002) along with the listeners' scores of stimulus song-likeness and S2S likelihood were obtained. The findings support our main hypothesis, and provide the first unique evidence that listener-specific cognitive traits can modulate S2S.

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