A Study of the Speech-to-Song Illusion

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The speech-to-song illusion is the blurring of music and speech perception in which spoken phrases are heard as music after repetition. The illusion effects might be different for musicians vs nonmusicians and native tonal-language vs non-tonal-language speakers since they differ greatly in pitch sensitivity and habits of interpreting auditory information. The topics were studied in a cohort of 22 teenage high-school student volunteers whose native language was either tonal or non-tonal. The two tonality groups had comparable multilingual ability, gender distribution and years of musical training as well as negligible age differences. All participants were taken the 3-part experiments using a Google form designed to induce the speech-to-song illusion on speech excerpts in all of the 5 languages. Over the combined participant group, there was evidence of a speech-to-song illusion effect for all language stimuli and there 65 illusion response within the total number of 110. Significantly more native non-tonal-language speakers had the speech-to-song illusion and they also experienced stronger illusion effects compared to the native tonal-language speakers. However, although the years of musical training was just enough to be identified as a statistically significant predictor for the speech-to-song illusion, it was shown not to have a strong correlation with the illusion level in the multiple linear regression model. Non-tonal native language was proved to significantly predict the speech-to-song illusion in this study, suggesting that relative propensity to perceive prosodic structures as inherently linguistic can contribute to the speech-to-song illusion.

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