

Formant Tuning in Byzantine Chanting

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Adjusting the vocal tract during singing in order to align formants (i.e. the resonance frequencies of the vocal tract) with harmonics is known as formant tuning. This intuitive act, that is highly dependent upon the vertical laryngeal positions, has been used from trained singers in the past, in cases where the singing voice should be heard across large spaces along with other sound sources. Formant tuning is considered as another vocal strategy used by trained singers when trying to produce the ideal voice and economizing on vocal effort. While literature on formant tuning continues to grow for other types of vocal music genres [2, 3], Byzantine Ecclesiastic chant voices haven't been studied in the same context. Current work tries to fill this gap by providing an initial approach, along the path followed, and presents the first results of this analysis. We present an investigation of formant tuning in the context of the Byzantine Ecclesiastic chant voice. The recordings selected for the analysis are part of the DAMASKINOS prototype acoustic corpus of Byzantine Ecclesiastic voices. More specifically, we analyzed recordings from ten different professional chanters in ascending musical scales of the diatonic genre, for the /a/ vowel. The method of analysis included a semi-automatic segmentation of the audio material, extraction of the measurements in PRAAT and the final post-processing in MATLAB. Results show clear evidence of formant tuning in at least 60% of the chanters, proving that the technique is in use by the modern Byzantine chanting professional performers.

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