

ACOUSTIC CORRELATES OF IRONIC INTONATION.

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Purpose: It is assumed that a speaker tend to modulate their voice in a specific manner while communicating irony or sarcasm. In this study we investigate acoustic cues that accompany such expression of irony in voice in Polish and compare it to evidence for other languages.

Method: We investigated the ironic intonation using two utterances of 27 speakers (actors), each one spoken with neutral and ironic attitude. We tried to find a pattern to describe it using a set of parameters describing speech prosody, voice quality, voice timbre and harmonic structure of voice. The parameters were extracted separately for the whole utterance, the stressed phrase or acoustic syllables. Then we used statistical analysis (hypothesis testing and Principal Components Analysis - PCA) and machine learning algorithms (Classification and Regression Trees - CART and Linear Discriminant Analysis - LDA) in order to define acoustic cues correlated to irony.

Results: The study shows that ironic tone of voice is characterized by the significant utterance lengthening, increase of fundamental frequency and its range, decrease of formants values as well as increase of signal energy. The tendency describes the overall hyperarticulation and heightened accentuation of the ironic phrase. In the evaluation of automatic recognition of ironic tone of voice, the LDA classifier' performance was 68%. There was a lack of this kind of investigation for Polish as far, but our results remain consistent with the results obtained for other languages, especially for French and Italian. The rise of pitch is opposite to the findings for English and German.

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