INVESTIGATING THE INTERPLAY OF SPEECH INTONATION AND MUSIC IN SPEECH-AND-MUSIC WORKS

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The paper presents the overall results of the experimental phonetic research aimed at studying the relations between speech and music, with an emphasis on their intonation, and their integrated functioning within speech-and-music works. Based on Speech Energetic Theory, the study exploited the idea of emotional-and-pragmatic potential as a background for speech-and-music work generation and used a special formula for its evaluation within a speech-and-music work. Such an approach enabled the author to establish commonalities and discrepancies in speech and music intonation functioning within a speech-and-music work.

Key words: *emotional-and-pragmatic potential, intonation, music, speech, speech-and-music work, Speech Energetic Theory.*

Speech-music relations present a remarkably vast field for research involving a wide range of scholars: philosophers (Plato, Aristotle), linguists (R. Jacobson, A. Reformatsky), musicologists (T. Adorno), neurolinguists (N. D. Cook, A. D. Patel), neurologists (S. Koelsch, J. Sloboda) etc. Investigated from diverse perspectives, speech and music prove to differ in many ways, yet they definitely coincide in one point – intonation (D. Bolinger, R. Jackendoff). This idea and also the fact that speech-music alliance is most successfully manifested in speech-and-music works animated an experimental phonetic research during which we compared components of speech and music intonation and their integrated functioning within a speech-and-music work.

Our research was based on Speech Energetic Theory [1], the main idea of which is that all the utterances (verbal, musical or both verbal-and-musical) we produce are generated by the energy which in its turn is created by speaker's emotions and intentions. Emotions that arise in the sphere of individual's existential being generate chaos. At the initial stage of the chaos the energy of pragmatic intention together with the emotional energy create fairly precise **emotional-and-pragmatic potential** (hereinafter – *EPP*) of the utterance or text.

To evaluate the EPP level (low, medium, high) we used the following formula:

$$K = \frac{F_0 \times t \times I_0}{1000 \times I_3},$$

in which: K – criterion of the EPP level; F_0 – fundamental frequency (Hz); t – syllable duration (msc.); I_0 – amplitude of F_0 (dB); I_3 – amplitude of F_3 (dB); 1000 – milliseconds to seconds conversion factor [2, p. 480].

For the material of our research we used poems by T.S. Eliot, R. Burns, E. Dickinson, E.E. Cummings, which were set to music and were performed by more than one singer.

The experimental phonetic research comprised several stages: firstly, a group of informants listened to the poems and their musical interpretations and determined the EPP level (high, mid or low) for certain fragments and then the values of fundamental frequency F_0, syllable duration – t, amplitude of $F_0 – I_0$ (dB) and amplitude of $F_3 – I_0$ in the same fragments were registered with the help of computer programs such as PRAAT, SpectraLab, Cool Edit Pro and entered into the calculation chart. Afterwards the registered figures of prosodic characteristics were inserted into the formula above and thus we obtained the EPP value for each fragment. The final step supposed the comparison of EPP values of poetic segments with the corresponding speech-and-music work segments and the interpretation of the results.

The results indicated that EPP of the same fragment in a poem and a speech-and-music work might not always correlate. Thus our further task is to explain why it happens and identify the prosodic means, common for speech and music, which make both commonalities and discrepancies possible.

Overall, the results showed that speech and music profoundly correlate in prosody, possessing some common auditive and acoustic features, such as melody, rhythm, tempo, pauses, timbre, which together with appropriately chosen lexical means provide high EPP for both poetry and music. Among the prosodic features that provide the high level of EPP and coincide in both poems and speech-and-music works are falling-rising-falling melodic contour, the high pitch zone of fragment's beginning, wide pitch range, decelerated tempo, moderate loudness, light, sad and nostalgic timbre, lyrics with positive connotation (e.g. *kindness*, *auld lang syne*) correlates with major key while lyrics with negative connotation (e.g. *death*) correlates with minor key.

Whereas the differences in EPP were mostly caused by the increased loudness, prolonged singing of certain vowels and intensity enhanced by elaborate use of musical instruments in speech-and-music works, which makes their EPP even higher.

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