

Formant frequencies of the pitch- and stress-accented varieties of Standard Slovenian

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There are two varieties of Standard Slovenian (SS), tonal and non-tonal. The former covers the majority of the central dialects (Dolenjska and Gorenjska regions). The extensive research carried out by T. Srebot Rejec (1988) into SS pitch and vowel duration confirmed two contrasting pitch contours (i.e. acute and circumflex), while formant frequencies were left to the side. The aim of the present study is to assess the relevance of lexical tone to formant frequencies.

A 241 one-, two- and three-syllable word corpus was compiled according to suprasegmental criteria (stress, tone and duration). Ten subjects were chosen (representative by sex, dialect of origin etc.), five of them with a contrasting lexical tone. The first four formants of a total of 5,960 vowels were measured semi-automatically using *Praat* LPC analysis software. Data was averaged and analysed statistically (ANOVA).

The results prove the individual accent types to be much further apart in the pitch-accented variety of SS than in the stress-accented (see Figure 1). In the former, there are no statistically significant differences either in F_1 or F_2 between all three accents for /i/ and /a/ ($0.155 \leq p \leq 0.27$), or between acute vs. circumflex and short /a/. Elsewhere, contrasts are statistically significant at least in one of the formants, typically F_2 for front vowels and F_1 for back vowels ($0.000 \leq p \leq 0.04$). On the other hand, accent-type contrasts are statistically insignificant in both F_1 and F_2 ($0.362 \leq p \leq 0.708$) for all phonemes in the stress-accented variety of SS, with the exception of acute vs. circumflex and short /ɛ/ in F_2 ($p = 0.004$). These results cannot be attributed entirely to a difference in pitch realisation, as there is a considerable variance in pitch even within tonal dialects.

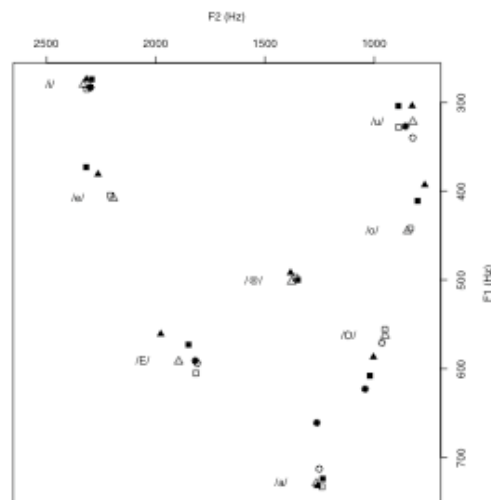


Figure 1: F_1 and F_2 of pitch-accented (\blacktriangle – acute, \blacksquare – circumflex, \bullet – short) and stress-accented (\triangle – acute, \square – circumflex, \circ – short) varieties of SS