

Accentual phrase in languages with fixed word stress: a study on Hungarian and Slovak

Katalin Mády¹, Uwe Reichel², and Stefan Beňuš³

¹Hungarian Academy of Sciences, Budapest, Hungary, ²University of Munich, Germany, ³Constantine the Philosopher University, Nitra, Slovakia

Introduction. In languages with fixed stress towards the left or right edge of the word, stress is often used for delimiting one edge of a prosodic phrase, while the other edge is marked by a boundary tone. In languages in which sequences between two accents form an accentual phrase (AP), the edge tones often show a regular pattern [2].

Both Hungarian and Slovak have stress on the left-most syllable of a prosodic word. While initial efforts in building a ToBI system for Slovak prosody does not propose units below intermediate phrases [4], previous work on Hungarian suggests that pitch accents indeed initiate APs within larger intonational phrases [1, 5].

Given that APs have a consistent (rising, falling, or rising-falling) pattern of their own [2], they are supposed to deviate from the overall declination pattern of an IP. This assumption was used to investigate whether Hungarian and Slovak make use of APs.

Material and methods. 50 Slovak and Hungarian spontaneous utterances with at least two pitch accents forming a single IP with a L boundary-final tone were selected from a larger corpus of collaborative dialogues; 5 utterances from 10 speakers per language. Pitch accents were labelled manually. Units of analysis were the declination line throughout the IP and the declination line within an accent group (AG), ranging from one accented syllable till the last unaccented syllable before the next pitch accent or the IP boundary.

F0 was extracted by autocorrelation and preprocessed as described in [3]. As shown in Fig. 1, a declination midline was fitted to the median filtered f0 contour by means of linear regression and interpolation within each IP and AG. The AG declination pattern was represented by the slope of the fitted midline. AG deviation was measured (1) with respect to shape in terms of the absolute slope difference of the AG and the IP declination midlines, and (2) with respect to the overall distance given by the RMS deviation of the AG line from the corresponding section of the IP line. Comparison was based on *t*-tests between one language and a normal distribution with mean 0 and between the two languages.

Results. AG contours were typically falling, resulting in negative slopes both in absolute terms and related to the corresponding IP section. This tendency was significantly stronger in Hungarian than in Slovak along with significantly larger RMS values for AG–IP differences. Less negative slopes and small RMS values in Slovak show that the tendency towards falling contours is less strong and that a potential explanation for the flatness of Slovak AG contours being due to rising-falling contours can be excluded.

Conclusions. AGs show a regular falling pattern in Hungarian which supports the assumption that AP is a relevant unit for this language. In Slovak, slopes are rather flat without a clear orientation.

The work of the first author was supported by the Hungarian Scientific Research Council (PD101050).

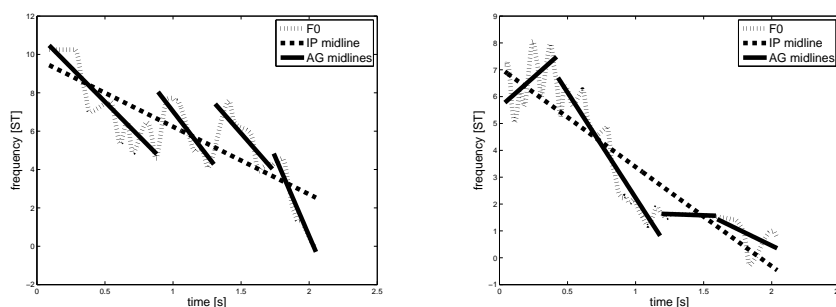


Figure 1: Typical IP and AG declination patterns for Hungarian (left) and Slovak (right).

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