

Temporal marking of prominence in a typical and an atypical quantity language: a comparative study of Czech and Hungarian

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Introduction. The vowel systems of Czech and Hungarian include quantity as a distinctive feature. Short and long vowels can occur in stressed or unstressed syllables with simple or complex codas. For some vowel pairs, there is additional quality distinction: e.g., compared to their long counterparts, Czech /i/ is centralised and /u/ is partly centralised, while Hungarian /e/ is lower and /a/ is rounded and backed [2]. Recent investigations on Hungarian show that vowels which differ in quality are also clearly distinguished by duration, whereas high vowels with a weak functional load of the quantity distinction tend to be neutralised both for duration and quality [5]. In many languages, segmental lengthening is one of the markers of prominence, both lexical stress and phrasal accent [4, 7]. Stress is consistently word-initial in both Czech and Hungarian and thus not distinctive. Indeed, given the phonological length contrasts, temporal marking of prominence is potentially problematic. Accordingly, lengthening does not mark lexical stress in Czech [6], although previous findings for Hungarian are more ambiguous [1, 3]. It is furthermore unclear whether stress and accent are actually discriminated in terms of acoustic cues for Czech and Hungarian, or whether stress simply indicates the potential of the syllable to bear an accent in a focused word. Here we investigate the temporal correlates of stress in focused and non-focused words, considering also the influence of quality.

Experiment. Five Czech speakers read a 661 word passage which included all monophthongs in stressed and unstressed nuclear and nonnuclear positions (nuclear position being utterance-final in Czech). Ten Hungarian speakers read 12 sentences five times each. Short and long /u/, /o/, /a/ occurred in the first (stressed) and last (unstressed) syllable of trisyllabic targets in non-utterance-final words. The sentences also included stressed /e/ in focused and non-focused words.

Results. In Czech, phonological quantity distinction was marked by durational differences for vowel pairs without an additional quality distinction (/e/, /a/, /o/), while overlapping durations were observed for the qualitatively distinct /i/, and also for /u/ to a lesser extent (Fig. 1). A repeated measures ANOVA for Czech showed that stress had no significant effect on vowel duration, while both nuclear position and the interaction of stress and nuclear position did: unstressed vowels in nuclear position were significantly longer than stressed ones (due to utterance-final lengthening), and both were longer than non-nuclear vowels. In Hungarian, the durational distinction was strong for low vowels with an additional quality distinction and weak for high vowels with minimal or no quality distinction (Fig. 2). Stressed /a/, /a:/, /o/, and /o:/ were significantly longer than unstressed ones. There was also a non-significant tendency for stressed vowels to be longer in focused than in non-focused words. (We will investigate this issue in the close future.)

Conclusions. According to our findings, Czech reserves temporal cues for quantity distinction and does not use them for prominence marking: syllables in nuclear-accented phrase-final words are longer, but this progressive nature of this lengthening indicates is association with the following phrase boundary rather than being nuclear accentual lengthening *per se*. except when prominence cooccurs with phrase-final lengthening. In Hungarian, quantity opposition seems to be weakened: durational distinction is only maintained when supported by additional quality cues as in /a/ and less obviously for /u/ in unstressed syllables.

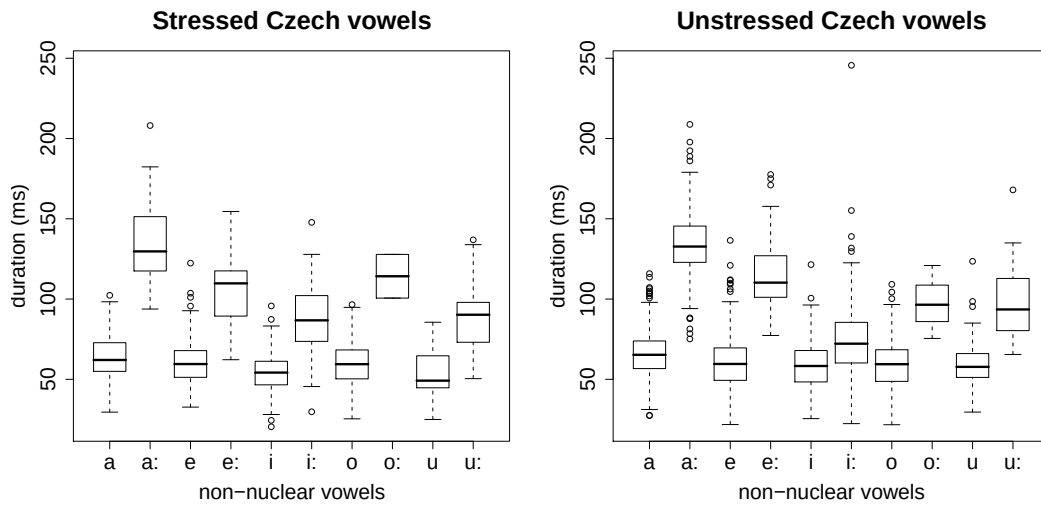


Figure 1: *Duration of Czech vowels.*

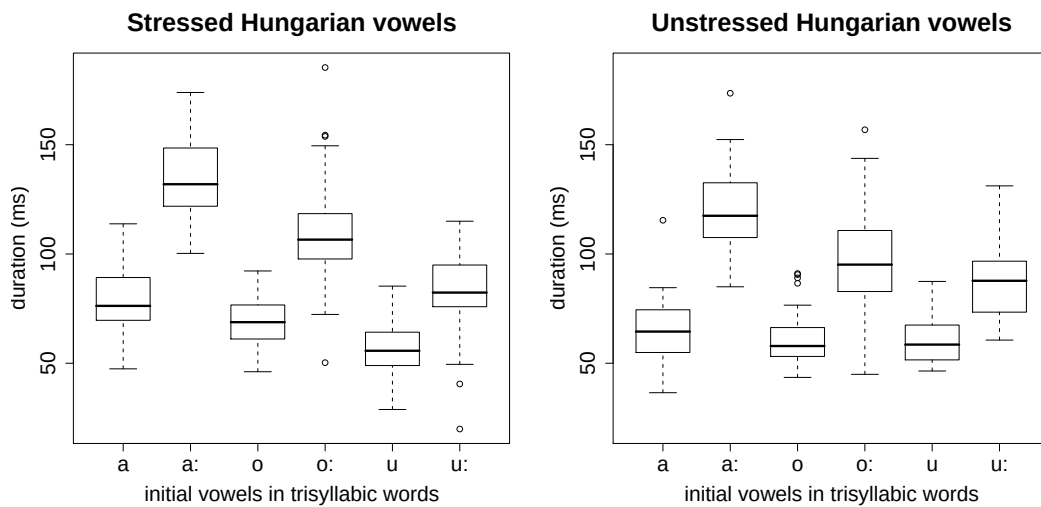


Figure 2: *Duration of Hungarian vowels /a/, /o/, /u/.*

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