

## Prominence-lending boundaries: pauses and their magnifying power

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**Introduction.** Hungarian is a prosodically left-headed language with accentual phrases (AP), i.e. prominent words occur at the left-edge of APs [2]. Prominence on one edge may be accompanied by boundary signals such as pauses or lengthening at the other edge of the AP [4]. It was observed by [5] that Hungarian speakers often inserted pauses before emphasized words, thereby initiating a new AP. It could be a potential strategy to enhance the prominence of a word by inserting a boundary before it, since the initial word of an AP automatically receives prominence due to the language’s left-headed structure. The present study tests this hypothesis by comparing Hungarian with German which is right-headed and has no APs [3]. We thus expect stronger boundary signals in front of prominent words in Hungarian than in German.

**Experiment.** Ten Hungarian and eight German female participants were presented on a computer screen with five fruits divided into two baskets (see [7] for details). The present analysis focusses on the set in which the first basket contained three fruits of which the first and third fruit were always small, and the size of the second fruit (Hungarian /mɒngo:/, German /mandl/) varied (small vs. big). Participants were asked to name the fruits in the order of appearance (which was kept identical throughout the experiment) from left to right such that another person could tell the size of the second fruit by listening to the audio recording. The data set contained 432 realisations (4 sequences  $\times$  6 repetitions  $\times$  18 speakers). Linear mixed models were computed for each language separately with the size of the second fruit in the first basket as the fixed effect, participant, repetition and the size of the fourth and fifth fruit in the second basket as random effects and the following measures as dependent variables: (1) duration of pauses before and after the second fruit (presence and strength of the boundary), (2) duration of the final syllable before the second fruit (3) and within the second fruit, and (4) duration of the initial stressed syllable of the second fruit.

**Results.** As opposed to German speakers, Hungarians frequently produced pauses before the second fruit (Hungarian: 62%, German: 4%) and even more so when it was large (see Table 1). In addition, the duration of these pauses was significantly longer before big fruits in Hungarian ( $t = 9.2, p < 0.001$ ). Unexpectedly, Hungarians also frequently inserted pauses *after* the second fruit (77%), their durations being again significantly longer in the context of large objects ( $t = 10.7, p < 0.001$ ). Pre-boundary lengthening before big fruits occurred only in Hungarian ( $t = 4.16, p < 0.001$ ), but not in German ( $t = 1.4, p < 0.16$ ; see Fig. 1, left). The final syllable of big fruits was lengthened in both languages ( $t = 12.5$  for Hungarian,  $t = 6.0$  for German, both  $p < 0.001$ ; see Fig. 1, centre), which might be a domain-edge effect for large objects in both languages ( $t = 11.2$  for Hungarian,  $t = 12.5$  for German, both  $p < 0.001$ ), accompanied by a domain-head effect, i.e. the lengthening of the accented syllable in large fruits (see Fig. 1, right) [1].

**Discussion.** The frequent occurrence of pauses in Hungarian supports the assumption that in this language each accented word starts an AP on its own [6, 2]. In German, pauses are infrequent, and their presence is restricted to the right edge of a prominent word. We conclude that in Hungarian, boundaries at the left edge of a prominent word (here: the big fruit), both in terms of pauses and their durations and of pre-boundary lengthening are utilised for prominence strengthening. In German, lower-level boundaries do not seem to play an important role in prominence marking.

	before second fruit		after second fruit	
	small	big	small	big
<b>Hungarian</b>	59	92	83	103
<b>German</b>	0	7	5	34

Table 1: Occurrence of pauses before and after the 2nd fruit depending on the fruit size in German and Hungarian.

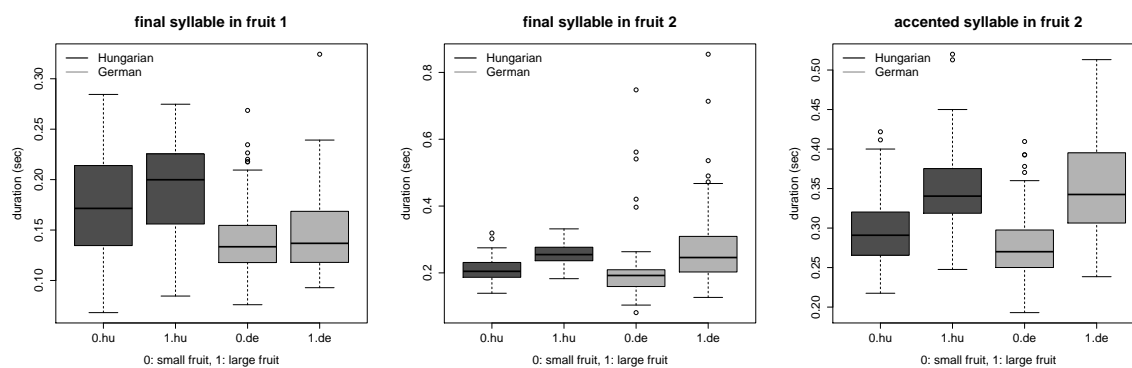


Figure 1: Left: final lengthening before the left edge of fruit 2. Centre: Final lengthening after the right edge of fruit 2. Right: Lengthening due to prominence in the stressed syllable of fruit 2.

## References

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