

The effect of prosodic boundaries on syllable duration in Greek

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Segments at the edges of prosodic domains have been shown to differ in their phonetic properties from segments in the middle of prosodic domains. Segmental effects have been found at the left edge of prosodic domains (i.e. initial strengthening in Pierrehumbert and Talkin 1992; Jun 1993; Dilley et al. 1996) and also at the right edge (final lengthening, Oller 1973; Klatt 1975; Cooper and Paccia-Cooper 1980, Beckman and Edwards 1990; Wightman et al., 1992). Such effects have been shown to be cumulative, in the sense that the effect is stronger for higher levels of prosodic domains.

Such phenomena are very robust for English and a few more languages. In this paper, I present a series of four production experiments which explore the effect of prosodic boundaries on syllable duration in Greek. In all four experiments ten speakers (different for each experiment) read sentences containing a target word. (In all examples below, the syllable under examination is shown in bold.)

Experiments 1 through 3 explored the effect of word boundaries on syllable duration. Experiment 1 compared the duration of the same syllable word finally, (1a), and word medially, (1b). This experiment failed to detect any consistent difference in duration between word-final and word-medial syllables. Experiment 2 compared the duration of the same syllable word initially, (2a), and word medially, (2b). The results of experiment 2 showed that word-initial segments have consistently longer duration than medial ones. Experiment 3 compared the duration of the same syllable in word initial and word final positions, (3). The results did not show any consistent differences.

Experiment 4 compared the duration of the last syllable of a target word, phrase medially (*medial* condition) and at the right edge of an intermediate phrase (*edge* condition). There were 15 sentences for the *medial* position (4a) and 15 proverbs for the *edge* condition (4b). Proverbs were used for the *edge* condition to ensure the appropriate intonational structure for the utterances. The results revealed that phrase final syllables in Greek consistently last longer than phrase medial ones, with an average difference of 100 ms.

In summary, the experiments presented in this paper suggest that in Greek there is phrase final lengthening at the edge of intermediate phrases but no word final lengthening; instead, word initial lengthening was detected. Taken together, these experimental findings corroborate the hypothesis that prosodic position affects individual segments. Moreover, if the function of such segmental effects is to aid the detection of prosodic boundaries, the results presented here suggest that individual languages employ different strategies to mark prosodic boundaries and therefore more languages should be studied to arrive at a typology of the interaction between segments and prosody.

Examples:

- (1a) *roda* 'wheel'
- (1b) *rodanos* 'Rhone'

(2a) *danos* ‘danish’

(2b) *rodanos* ‘Rhone’

(3a) *zitite* *liomeno spiti*
ask-for-pass-3s prefab house
‘Prefab house sought’

(3b) *ziti* *teliotita* *ala den ti* *vriski*
ask-for-3s perfection but not it-acc find-3s
‘He seeks perfection but doesn’t find it’

(4a) *vlepode* *grigora giati* *viazode*
see-pass-3p fast because be in a hurry-3s
‘They meet fast because they’re in a hurry’

(4b) *matia pu de vlepode,* *grigora lismoniude*
eyes that not see-pass-3p fast forget-pass-3p
‘Out of sight, out of mind’