

**On the inseparability of boundary-driven and prominence-driven prosodic strengthening in Korean (Title: 12 point in bold)**

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Prosodic structuring generally involves dual functions, prosodic phrasing and prominence marking, and is often discussed under the rubric of ‘prosodic strengthening’ that refers to a spatial and/or a temporal expansion of articulation of gestures at a prosodic boundary or under prominence (accent/focus) [1,2,3]. The detailed phonetic implementation of prosodic strengthening, however, may vary depending on the source of strengthening (boundary vs. prominence), and on individual languages [4,5,6,7]. Our understanding of prosodic strengthening is still in embryonic stage, and research on prosodic strengthening has been skewed towards Indo-European languages. The present study therefore continues to explore articulatory reflexes of prosodic strengthening in Korean and compare the results with those of English in an effort to understand how languages may differ in the way prosodic strengthening is phonetically realized.

Two different articulatory data sets (obtained with an EMA, Electromagnetic Articulography) have been examined: (1) the tongue movement data in V#V (/a/-to-/i/, with 6 speakers of Seoul Korean) and (2) the lip closing and opening movement data in V#CV (/a/-C-/a/, ‘C’ = bilabial stops, with 5 speakers of Seoul Korean). The target sequences were embedded in a carrier sentence; the prosodic boundary (‘#’) was either an Intonational Phrase or a Word boundary; and for the tongue movement, the test word was either accented or unaccented.

Results are summarized as follows. First, the tongue movement at an IP boundary is larger, longer, and *faster*, which is largely comparable to the prominence effect. Second, as for the boundary (domain-initial) strengthening of bilabial stops, the (consonantal) lip closing movement is larger, longer and *slower*, but the (vocalic) lip opening movement is larger and *faster*. These boundary strengthening patterns in Korean are different from those in English: the trans-boundary tongue movement is *slower* in English, but *faster* in Korean; and the lip opening gesture is *slower* in English, but *faster/larger* in Korean [8,9,10].

The results therefore demonstrate some degree of inseparability of boundary- versus prominence-driven strengthening in Korean, which is remarkably different from prosodic strengthening patterns observed in English. The cross-linguistic difference is interpreted as stemming from different prosodic systems of the languages. With no functional demands that may come from the lexical stress system, Korean appears to have more freedom to strengthen articulation at prosodic junctures in a way that is comparable to prominence marking. This is consistent with the observation that focus marking in Korean is more likely accompanied by prosodic phrasing headed by the focused word in the domain-initial position [cf. 11,12]. We therefore propose that prominence marking is modulated by boundary marking in Korean, in such a way that domain-initial strengthening is accompanied by some degree of prominence. The results will be also discussed in terms of their implications regarding how dynamical theories [e.g.13,14,15] may account for the extent to which articulatory variation due to prosodic strengthening is cross-linguistically applicable versus language-specifically attuned.

**(See the introduction on the next page)**

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