

Prosodically induced acoustic variation in English and Korean; Adult-directed speech vs. Child-directed speech

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This study presents results from speech production experiments on English and Korean that examine factors governing acoustic variation in adult-directed speech (ADS) and child-directed speech (CDS). The patterns of variation in the acoustic expression of laryngeal phonological contrasts among stop consonants and supralaryngeal contrasts among vowels, and the role of systemic and prosodic factors in governing such variation are investigated with English and Korean CV sequences in two different speech styles, ADS and CDS. Target consonants and vowels are analyzed from utterance (U) or Intonational Phrase (IP) -initial, -medial, and -final position, with and without accent. VOT and F0 at the onset of the following vowel are measured as the main acoustic correlates of the laryngeal features in stops, from the speech of six male American English speakers and five male Seoul Korean speakers, in conjunction with vowel duration and the first and second formant frequencies for vowels.

Overall, ADS shows that the prosodic prominence of constituents under accent or in domain-boundary position is found to condition variation across languages in the acoustic correlates of the stop laryngeal contrasts and vowel contrasts in each language. Statistical results indicate that the effect of accent on acoustic measures is generally more distinctive and consistent than the effect of prosodic boundary in both languages. The distribution of acoustic measures shows a greater distinction between the contrastive stops and vowels when accented, where as there is no evidence that stop consonant or vowel contrasts are enhanced in domain-initial position. Domain-final vowels in English are lengthened but do not show featural enhancement or result in more distinctive vowel contrasts. Only Korean shows that vowels have a more peripheral distribution in final position. The manner in which prosodic prominence and prosodic phrase structure is marked at the level of segmental variation is therefore found to be language-specific to some extent. The correlation between the size of the phonological inventory and the corresponding acoustic variation is, still, not strongly supported with the findings in the present study. CDS shows similar patterns in two languages. However, the prosodic distinction between accent and boundary is found very trivial in CDS.