ABSTRACT

TEMPORAL RELATIONS BETWEEN CONSONANTS AND VOWELS IN THAI SYLLABLES

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This dissertation investigates the timing relations between consonants and vowels in Thai, a language with contrastive aspiration, contrastive vowel length, and non-contrastive effects of vowel length on coda duration. By investigating these timing relations in both production and perception, and comparing the Thai findings with those of previous studies on other languages, the interactions among production, perception, and phonological structure are explored.

The dissertation consists of two sets of experiments. The first set investigates temporal relations in CV structures between voice onset time (VOT) of initial stops and vowel duration. Acoustic analysis (Experiment 1) showed that phonemic vowel length did not influence duration of VOT, although contrastive aspiration influenced vowel duration in that the voiced portion of the vowel was shorter after aspirated than after
unaspirated stops. Perceptually, Thai listeners' responses showed influences of both durations on each other: longer VOTs were needed to elicit aspirated responses in long (as opposed to short) vowel contexts (Experiment 2), and longer vowel durations were needed to elicit phonemic long vowel responses in unaspirated (as opposed to aspirated) contexts (Experiment 3). However, these perceptual influences were small and, when compared to previous findings for VOT and vowel duration in English and Icelandic, the Thai data point toward relatively tight constraints on the phonetic factors that influence perception of contrastive aspiration and contrastive vowel length.

The second set of experiments investigates temporal relations in VC sequences among vowel duration, nasal coda duration, and coarticulatory vowel nasalization. Acoustically, nasal codas are longer after short than after long vowels and pre-nasal short vowels are proportionately more nasalized than pre-nasal long vowels (Experiment 4). Perceptually, listener judgments reflect the acoustic patterns in that longer nasal codas and proportionally longer vowel nasalization both elicit more short vowel responses (Experiment 5), although these influences are minimal in some cases. This outcome, combined with the findings from the first set of experiments, suggest that contrastive temporal properties in Thai are robust and are in many respects perceptually resistant to influences from covarying phonetic factors.