

Rhythmic variability in South East Asian Languages: A novel method based on measurements of syllabic amplitude peak points.

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Rhythmic variability between and within languages is a well-supported auditory phenomenon but we lack an understanding of the phonetic correlates. In the present study we investigated the variability of speech rhythm in the South-East Asian languages Cantonese, Mandarin and Thai (L1 and L2 speech) with newly developed rhythm measures based on durational intervals between syllabic amplitude peak points (peak-to-peak measure). Previously rhythmic variability was widely measured in terms of durational characteristics of consonantal and vocalic intervals. This approach, however, is problematic as it is unclear to what degree such interval durations are perceptually salient in terms of speech rhythm. In the present study we demonstrate our newly developed peak-to-peak measure and show first results for between and within language rhythmic variability. The syllabic peak points are extracted by low-pass filtering a half-wave rectified version of the signal with a cut-off frequency at 10 Hz and identifying the peak points within each vocalic unit (as a correlate for syllabic nuclei). We argue that such points are more relevant in terms of perceptual salience compared to previous methods based on consonantal and vocalic intervals. We will show an acoustic comparison of peak-to-peak rhythmic results for within and between language variability for some South-East Asian languages (Cantonese, Mandarin, Thai). Additionally we will discuss experiments with which the perceptual salience of the acoustic variability can be tested.