

*A Comparative Study of Prosodic Boundary Features with Encliticized and  
Procliticized Function Words*

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Abstract

**Keywords:** prosodic boundary features, analytical thinking, language education, computational methodology, Pratt analysis, encliticized and procliticized function words

## Introduction

### Background

- Prosodic phrasing in the speech stream is the key to the acquisition of native and EFL.
- Prosodic phrasing in spontaneous speech often does not match with syntactic structure in read-aloud speech.
  - Prosodic boundaries of 20% in a Swedish radio interview material occurred in syntactically unmotivated positions (Strangert, 2004 b).
  - Prosodic boundaries of 35% in the subset of the Boston Radio News Corpus were not consistent with syntactic structures (Fach, 1999)
- This phenomenon usually occurs at intermediate phrase boundaries when function words are encliticized (Cooper & Paccia-Cooper, 1980; Strangert, 2004 b).
- The prosodic features of boundaries change from strong to weak ones (Heldner & Megyesi, 2003; Strangert & Carlson, 2006).
- Function words in conjunction with prosody provide cues to prosodic phrasing (Gerken & McIntosh, 1993).

### Hypotheses

1. Position & prosodic features of pauses will be changed when the function words are encliticized at intermediate phrase boundaries in spontaneous speech.
2. The length of the pauses following the encliticized function words will be shortened compared with the ones when procliticized.
3. Duration of encliticized function words will be lengthened.
4. High-phasal accents will prevail when function words are encliticized.

### Methods

#### Data Selection

- Selected from the audio book □HOOT□ for spontaneous speech and from the Korean English text book of high school for read-aloud speech.
  - 11 pairs of utterance containing function words at the intermediate phrase boundaries

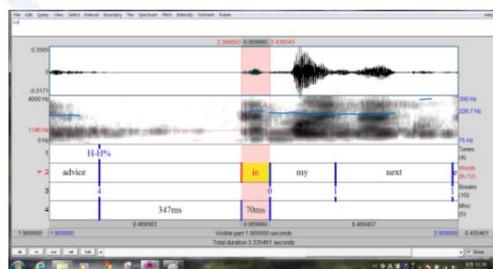
#### Procedures of Analysis

- Sound files are analyzed using Pratt program, mostly with spectrogram and waveform.
  - Measured acoustic duration of pauses and function words after normalization of ratio of syllables per second
  - Phrase accents are labeled by the author based on ToBI system.

### Results

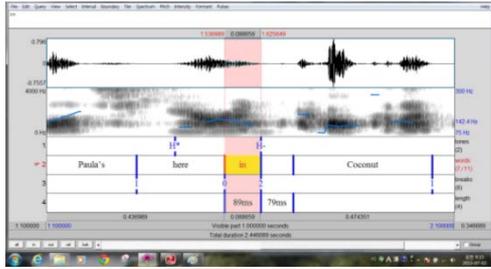
#### Examples of analysis:

##### procliticized 'in'



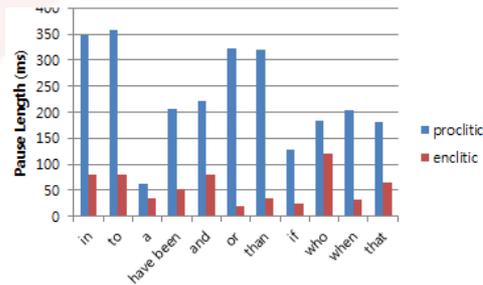
"I will start dispensing my personal advice / in my next e-mail."

##### encliticized 'in'

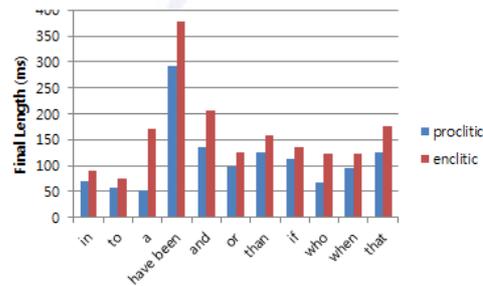


"We're getting a Mother Paula's here in / Coconut Cove?"

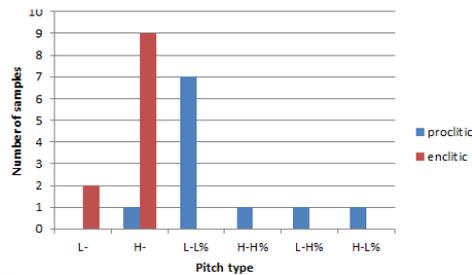
### Length of pauses when procliticized and encliticized



### Length of function words when procliticized and encliticized



### Patterns of phrasal tones when procliticized and encliticized



- Average length of the pause is shortened from 255ms to 63.3ms.
- Average duration of function words is lengthened 46% from 93.6ms to 138.3ms (function word 'have been' is excluded for averaging)
- H-phrase accents prevail over L-phrase accents and low boundary accents.

## Conclusion

- The encliticized function words at the intermediate boundaries and the accompanying prosodic features give the structural cues for comprehension and facilitate the acquisition of mother tongues and EFL
- The prosodic phrasing is produced implicitly even in silent reading.
- Practicing syntactic phrasing with the current text book for EFL is problematic.
- Practicing the correct prosodic phrasing with the prosody visualizer will be helpful for EFL learners.

## Discussion

- The results confirmed the predictions: statistically significant ( $p=2e-7$  for duration of pauses;  $p=0.02$  for duration of function words)
- Prosodic cue-weighting is changed when function words are encliticized; intermediate phrase boundaries are mostly cued by pitch change and pre-boundary lengthening in combination at the early phase, whereas the function of pauses at the late phase seems apparently not to be significant.
- Lengthening of the weak syllables of the encliticized function words makes them prominent by slightly breaking trochaic foot pattern.
- The span of phrase tones is stretched and H-phrase tones prevail. This mechanism can represent the relationship between the structural components of utterance in advance.
- Shortening of the pauses is strategically practiced in order to expose the overall structural frame.
- Altogether, encliticized function words and the accompanying prosodic features at the intermediate phrase boundaries facilitate the prediction and integration functions of language performance.

## Future studies:

- Developmental weight-shifting of prosodic features at the intermediate phrase boundaries can be explored with the components of Event-Related Potential, especially with 'Closure Positive Shift'.

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