2aSC35. Lexical stress without postlexical head-marking: Evidence from Tagalog
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Introduction & Background

• Jun (2005) compares prosodic prominence in 21 languages
  • Families represented: Australian, Basque, Chinese, Persian, Germanic, Greek, Japanese, Kinh, Khmer, Korean, Malay, Marathi.
  • Among families not represented: Austronesian (the world’s largest, numerically and geographically).
  • Jun finds an implicational relationship between prominence types at lexical and post-lexical levels.

• UH Tagalog corpus
  • 6 female, 6 male native speakers of Manila Tagalog, age range 16-75.
  • 5 speech tasks ranging from careful speech to casual speech.
  • Conversation: Loaded question
  • Map task
  • Story reading: 11k words
  • Story retelling from memory: ‘Blind at Tampakan’
  • Phonetically-controlled sentences largely composed of voiced segments: E.g.: 
    • Maganda ang tunay niya. ‘Her/his mom is pretty.’
    • Declaratives, wh-questions, y/n-questions, etc.

Labeling & Measurements

• Praat 4.5:
  • Waveform, spectrogram, pitch track and intensity track displayed for each utterance.
  • Utterance annotated for:
    • Word boundaries
    • Syllable boundaries
    • Lexical stress
    • Prominence types (as judged by native speaker)
      • For each syllable, its position in the phrase:
        • i.e.: final (position ‘zero’), penultimate (position ‘one’), antepenult (position ‘two’), etc.

Speech Materials

A syllable’s position in a phrase strongly determines its duration, pitch range, and mean intensity.

• Duration:
  • 1-way ANOVA, effect of pitch position on duration:
    F(5, 349)=4.071, p=.0006.
  • Posthoc analysis**:
    • Phrase-final syllables (position ‘zero’): significantly longer in duration than syllables in positions 1, 2, 3, 4, 5 away from end of phrase.
    • Syllables in positions 1, 2, 3, 4, 5 do not differ significantly in their durations.

• Pitch range:
  • 1-way ANOVA, effect of pitch position on pitch range:
    F(5, 349)=4.071, p=.0006.
  • Posthoc analysis**:
    • Phrase-final syllables: significantly wider pitch range than syllables in positions 5, 4, 2

Results: position in phrase

Discussion & Conclusion

• Robust prosodic effects of phrase-final position:
  • Phrase-final lengthening
  • Lower mean intensity
  • Wider pitch range, suggesting presence of a phrasal tone associated with this position.

• Substantially weaker/more variable effects of ‘prominence’:
  • For phrase-final syllables:
    • Presence of ‘phrasal prominence’ does not reliably affect duration or pitch range.
    • Probable reason: phrase-final lengthening and phrasal tones on these syllables override prominence effects.
  • Mean intensity is significantly increased by prominence.
  • For syllables in non-final positions in the phrase:
    • Presence of ‘phrasal prominence’ significantly increases a syllable’s duration, but does not reliably affect intensity or pitch range.

• Unlike ‘typical’ stress languages, Tagalog may not robustly mark phrasal heads.

Questions & Hypotheses

• Does Tagalog show typical acoustic hallmarks of post-lexical head-marking? If not, is it typologically novel?

• Null hypothesis: Like other lexical stress languages, Tagalog robustly employs all of the following to mark phrasal heads:
  • Increased duration
  • Increased amplitude
  • Increased pitch prominence (greater pitch range or deviation from mean)

• Does this hold for Tagalog (Austronesian, Central Philippine)?
  • Lexical prominence type: stress
    • liyan ‘leave’
    • babal ‘package’
    • bukas ‘tomorrow’
    • galíng ‘going’
    • ‘prominent’
  • Post-lexical prominence type: Pilot data suggest absence of head-marking.
  • Low pitch appears on the first syllable in a phrase, while high pitch appears on the last, suggesting post-lexical edge-marking.

• Prere analyses with lexical stress: no significant difference.

• For phrase-final syllables:
  • Duration: No significant difference
    • 1-way ANOVA, effect of prominence on duration:
      F(1, 77)=0.154, p=.6955.
  • Pitch range: Only marginal difference
    • 1-way ANOVA, effect of prominence on pitch range:
      F(1, 77)=4.109, p=.0461.
  • Mean intensity: Significant difference
    • 1-way ANOVA, effect of prominence on intensity:
      F(1, 77)=11.372, p=.0012.

• For penultimate syllables:
  • Duration: Significant difference
    • 1-way ANOVA, effect of prominence on duration:
      F(1, 72)=17.131, p=.0001.
  • Pitch range: Only marginal difference
    • 1-way ANOVA, effect of prominence on pitch range:
      F(1, 72)=3.399, p=.064.
  • Mean intensity: No significant difference
    • 1-way ANOVA, effect of prominence on intensity:
      F(1, 72)=0.716, p=.406.

• For ante- and preante最后 syllables:
  • Duration: Significant difference
    • 1-way ANOVA, effect of prominence on duration:
      F(1, 71)=5.726, p=.0193.
  • Pitch range: Only marginal difference
    • 1-way ANOVA, effect of prominence on pitch range:
      F(1, 71)=3.199, p=.074.
  • Mean intensity: No significant difference
    • 1-way ANOVA, effect of prominence on intensity:
      F(1, 71)=0.740, p=.3913.

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