

# The role of prominence in phrase-final lengthening: a cross-linguistic comparison

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Phrase-final lengthening
<ul style="list-style-type: none"> <li>Segments before phrasal boundaries have longer durations (Cho 2006, Fletcher 2010)</li> <li>Scope of the effect is unclear</li> <li>Previous literature: focus on stress languages                             <ul style="list-style-type: none"> <li>How does lengthening behave in languages with different lexical prosodic systems?</li> </ul> </li> </ul>

Prominence
<ul style="list-style-type: none"> <li>Previous studies:                             <ul style="list-style-type: none"> <li>lexical stress</li> </ul> </li> <li>Current study:                             <ul style="list-style-type: none"> <li>Japanese: <b>lexical pitch accent</b></li> <li>Korean: <b>no lexical prominence</b></li> </ul> </li> </ul>

## Background

Languages with lexical prominence
<ul style="list-style-type: none"> <li><b>Stress</b> (Katsika 2016, Turk &amp; Shattuck-Hufnagel 2007):                             <ul style="list-style-type: none"> <li>Scope interacts with position of lexical stress</li> <li>Lengthening may extend away from rhyme towards stress</li> </ul> </li> <li><b>Pitch accent</b>:                             <ul style="list-style-type: none"> <li>Japanese lexical prominence is marked by a fall in F0</li> <li>Prominence may affect amount of lengthening (Seo et al 2019)</li> </ul> </li> </ul>

Languages without lexical prominence
<ul style="list-style-type: none"> <li>In Korean (Kim et al 2019), information structure affects amount of lengthening</li> <li>Korean phrasal prominence is marked by prosodic phrasing                             <ul style="list-style-type: none"> <li>focused word consistently starts Accentual Phrase (AP) or higher phrase (e.g., Jun 1993)</li> </ul> </li> </ul>

## Research Question

What is the **amount** and **scope** of **phrase-final lengthening** as a function of:

Japanese
presence and position of <b>lexical pitch accent</b> ?

Korean
position of <b>focus</b> and <b>Accentual Phrase (AP)</b> length?

## Methods

Experimental Procedures
<p><i>Articulograph AG501 (Carstens)</i></p> <p><b>Participants</b></p> <ul style="list-style-type: none"> <li>5 (1M, 4F) native Tokyo Japanese speakers</li> <li>7 (2M, 5F) native Seoul Korean speakers</li> </ul>
Statistical Analysis
<ul style="list-style-type: none"> <li>Linear mixed effects regression models using lme4 package in R (Bates et al. 2012)</li> </ul>

Data Analysis
<p><b>Labelling</b></p> <p>All consonant (C) constriction gestures composing the test words were labeled (Mark Tiede, Haskins Laboratories).</p> <ul style="list-style-type: none"> <li>Labial Cs: lip aperture</li> <li>Coronal Cs: tongue tip vertical displacement</li> <li>Velar Cs: tongue dorsum vertical displacement</li> </ul>

## Experimental Design

Sample frame sentences

Phrase-medial: *honto: ni na\*mi makasita?*  
 Phrase-final: *honto: ni na\*mi? makasita?*

Dependent Variable	Consonant formation duration
Independent Variables	<p><b>Phrasal position</b> [phrase-medial (PhM), phrase-final (PhF)]</p> <p><b>Length of word</b> [2 syllables, 3 syllables]</p> <p><b>Pitch accent position</b> [antepenult, penult, ultima, unaccented]</p> <p><b>Length of final-AP</b> [4 syllables, 7 syllables]</p> <p><b>Focus location</b> [AP1, AP2]</p>
Both:	
Japanese:	
Korean:	

## Results

Japanese
<p>Effect of Boundary and Pitch Accent on Constriction Duration in Japanese</p> <ul style="list-style-type: none"> <li>Lengthening of final syllable includes onset</li> <li>Evidence for progressive lengthening</li> <li>Greater amount in accented words</li> <li>Scope <b>extends</b> to onset of penultimate syllable when pitch accent is 2 syllables from boundary</li> </ul>

Korean
<p>Effect of Boundary on Constriction Duration in Korean</p> <ul style="list-style-type: none"> <li>Lengthening of final syllable includes onset</li> <li>Evidence for progressive lengthening                             <ul style="list-style-type: none"> <li>regardless of AP length or focus location</li> </ul> </li> <li>Greater amount in short final APs.</li> <li><b>No interaction</b> of AP length or focus location with the scope of lengthening</li> </ul>

## Discussion

- Regardless of prominence system, we find lengthening in the onset of the final syllable
- Evidence of progressive effect (e.g., Oller, 1973, Berkovits, 1994)
- Importantly, while interaction with prominence occurred in both languages, an effect on scope was only found in the language with a lexical prominence system
  - Adds to previous accounts connecting triggering of the lexical boundary effect to the lexical prominence system (e.g., Katsika 2016; Turk & Shattuck-Hufnagel 2007)
- Future work:** address boundary tones and how the tonal dimension of boundaries is affected by the type of prominence system
  - Need to cover more languages to include a wider range of prosodic typology categories

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