

### **Dissociating influences on prosodic prominence: Repetition shortens words but predictability lengthens words in Korean**

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In an object naming study, Lam & Watson (2010) found that predictability and repetition have independent effects on how prominently a word is produced in a discourse. Repeated words are produced with shorter duration whereas words with low predictability are produced with greater intensity. Lam & Watson (2010) argue that different cognitive processes underlie the two effects. Reduction is the result of lexical priming while increased intensity results from marking information status. These findings are consistent with Watson's (2010) multiple source theory: acoustic prominence is best understood as the product of multiple cognitive processes. This theory makes a strong prediction about the nature of prominence across languages: prominence linked to planning (e.g. repetition reduction) should be universal while prominence linked to marking information status may vary more freely.

In this study, we attempt to replicate Lam & Watson's (2010) finding in Korean. It has been argued that F0 is the most important acoustic correlate to prominence in Korean, whereas in English, intensity, F0, and duration are important (Jun, 1993). Despite these differences, repetition should still lead to shorter durations in Korean. In contrast, effects of predictability on the acoustic signal may vary across the two languages.

We used the same methodology as Lam & Watson (2010) with native Korean speakers. There were two factors: repetition and predictability. On each trial, participants were shown a 3x4 array of 12 images. Their task was to describe a shrinking and a flashing event that occurred in succession in each trial. The critical word for acoustic analysis was the noun in the second utterance. On repeated noun trials, the same object shrank and then flashed. On non-repeated trials, one object shrank and then another object flashed (See Example 1). To manipulate predictability, a circle cued the noun of the second event before it flashed. Exactly 11/12ths of the time, the cue correctly signaled the object involved in the second target. The rest of the time a different object flashed. This resulted in four conditions: repeated/expected, repeated/unexpected, non-repeated/expected, non-repeated/unexpected.

We analyzed duration, intensity, and F0. All analyses were conducted using multilevel linear regression. As in Lam & Watson (2010) repeated mention led to reduced duration ( $p < 0.001$ ). Additionally, repeated mention led to reduced maximum F0 ( $p < 0.05$ ). However, unlike Lam & Watson, predictability did not lead to reduced intensity. Instead predictable words were produced with longer duration than less predictable words ( $p < 0.01$ ).

As in English, repetition led to shorter durations in Korean, suggesting that repetition reduction is the result of priming. However, predictable words were produced with longer durations, perhaps revealing a cross-linguistic difference in how discourse status is realized within the two languages. Nonetheless, this data supports Lam & Watson's (2010) claim that reduction is the result of priming processes (not predictability), and that multiple factors independently contribute to acoustic prominence.

#### **Example 1:**

Non-repeated: 참새가 작아진다 ... 의자가 깜빡인다  
(bird is shrinking ... chair is flashing)

Repeated: 의자가 작아진다 ... 의자가 깜빡인다  
(chair is shrinking ... chair is flashing)

#### **Reference:**

- Jun, Sun-Ah (1993) The Phonetics and Phonology of Korean Prosody. Unpublished Ph.D. dissertation. The Ohio State University, Columbus, Ohio.
- Lam, T. Q. & Watson, D. G. (2010). Repetition is easy: Why repeated referents have reduced prominence. *Memory & Cognition*, 38(8), 1137-1146.