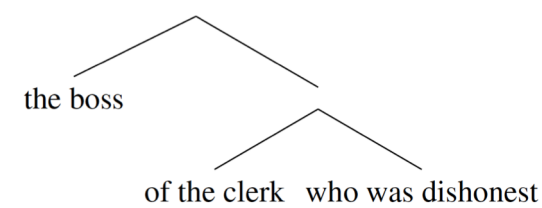


Research Questions

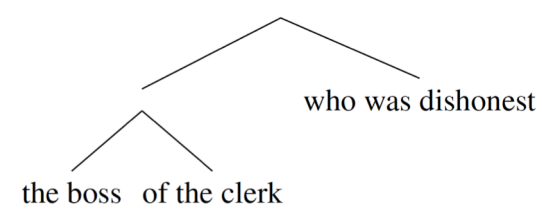
- How are prosodic cues relatively weighted by native and non-native speakers of English?
- Is L1 prosodic cue weighting transferred to L2 processing grammar?

Relative Clause (RC) Attachment Ambiguity

- (1) Jennifer blackmailed the boss_{N1} of the clerk_{N2} [who was dishonest]_{RC}
- a. Low attachment: 'the boss of the dishonest clerk'



- b. High attachment: 'the dishonest boss of the clerk'



Background

English prosodic disambiguation: English listeners' RC attachment ambiguity resolution is influenced by prosody such as:

- Strength of prosodic boundaries after N1 and N2 (Clifton et al. 2002) and
- Relative prominence of N1 and N2 (Jun & Bishop 2015, Schafer et al. 1996).

Korean prosodic disambiguation: Korean listeners' RC attachment ambiguity resolution is influenced by:

- boundary cues (Jun 2003), but
- no previous findings on the effects of word prominence.

Korean-English L2 speakers' prosodic disambiguation: When Korean speakers process L2 English sentences, studies have shown:

- the effects of boundary cues (Kim 2017), but
- no previous findings on the effects of word prominence.

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Materials

- 10 English sentences with N1+N2+RC structure as in (1),
- Recorded in two versions (Low and High attachment readings), differing:
 - in duration and pause: pre-boundary lengthening and pause at larger syntactic boundaries (after N1 in Low vs. N2 in High)
 - in pitch and intensity: increased prominence for the RC head (N2 in Low vs. N1 in High)
- Each recordings were manipulated (Table 1) in Praat (Boersma & Weenink 2019) to create five more conditions (Table 2).

Table 1. Manipulation of prosodic cues

Removed cue	Manipulation
Lengthening	As the analysis showed that the average ratio of noun duration when it is not lengthened to when it is lengthened was 0.7 for both N1 and N2, the lengthening cue was removed by reducing the noun duration to 70%.
Pause	Any audible pause after N1 or N2 was taken out.
Pitch	Pitch from the start of the target phrase to the sentence-final pitch point was flattened out, resulting in a constant pitch decrease throughout the phrase.
Intensity	Mean intensity of both N1 and N2 was manipulated to match the mean intensity of the sentence.

Table 2. Experimental conditions

conditions	Manipulation from the original file			
	Lengthening cue	Pause cue	Pitch cue	Intensity cue
Baseline	-	-	-	-
Lengthening	-	removed	removed	removed
Pause	removed	-	removed	removed
Pitch	removed	removed	-	removed
Intensity	removed	removed	removed	-
None	removed	removed	removed	removed

Procedure and participants

Procedure

- 120 target stimuli were divided into four lists of 30 items.
- Each participants heard one list of target stimuli, interspersed with unambiguous 30 filler stimuli.
- Forced-choice comprehension question (Q: *Who was dishonest?* Choices: *the boss or the clerk*)
- Confidence rating on a continuum from 0 (*least confident*) to 100 (*most confident*)

Participants

- 102 native speakers of English (59 F, 48 M) with mean age of 23
- 34 Korean speakers with English as L2 (15 F, 19 M) with mean age of 29

Results

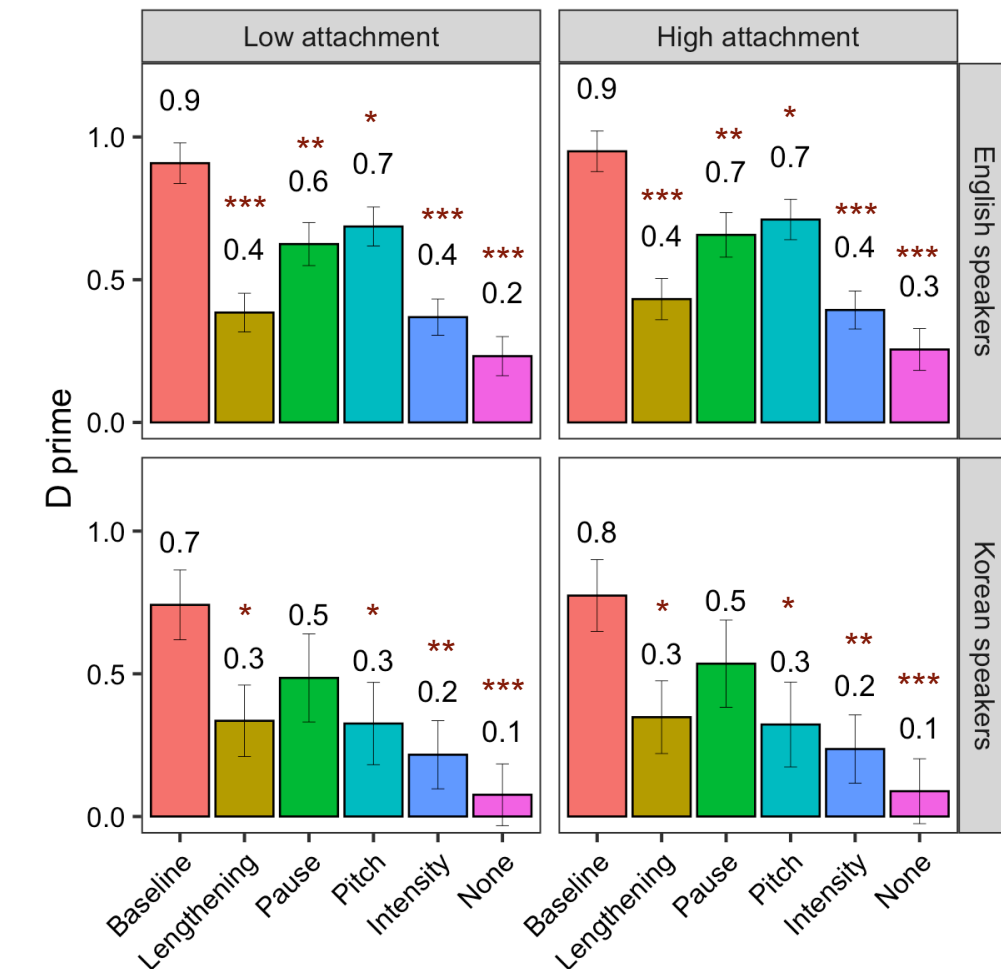


Figure 1. Accuracy of responses in d-primes

D-primes were calculated as the distance between hit rate (H) and false alarm rate (F): $D' = z(H) - z(F)$ (Macmillan & Creelman 2004).

Asterisks indicate the significance of the difference between each condition and Baseline condition, based on mixed-effects linear regression analyses.

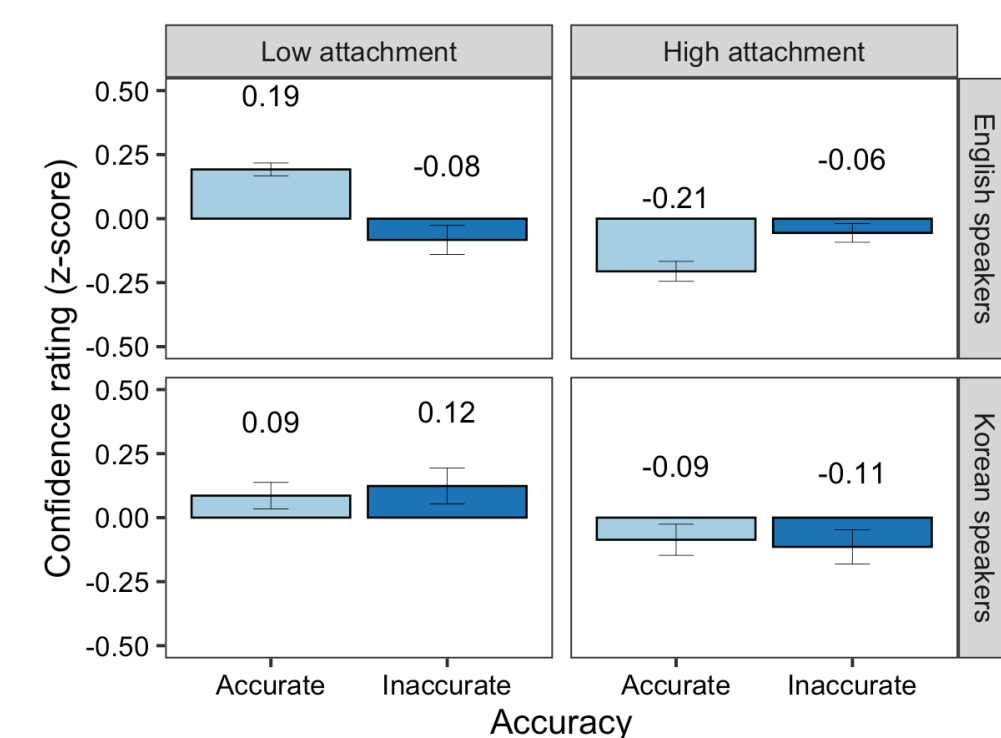


Figure 2. Confidence ratings in z-scores (normalized within participants)

English speakers were more confident (a) when the stimuli were inducing Low, and (b) when they responded to Low (*the clerk*). Korean speakers were more confident when the stimuli were inducing Low, regardless of their judgments.

Discussion & Conclusion

- Both groups had a bias toward low attachment readings (cf. Fodor 2002).
- **English speakers** weight pause (boundary cue) and pitch (word prominence cue) more heavily than lengthening and intensity. This is similar to their production, in which they use pause for boundary marking and pitch and intensity for word prominence (Baek 2020).
- **For Korean-English L2 speakers**, pause was the most heavily weighted cue. In their English L2 production, they use word prominence but not boundary cues (Baek 2020). Given that Korean does not use pitch and intensity for head prominence like English does (Jun 2014), their processing is more influenced by their L1 than their production.
- Similarly to segmental cue weighting and its L1-to-L2 transfer (e.g., Escudero & Boersma 2004), **prosodic cue weighting in L1 is also transferred in the L2 processing grammar**.