



An OT Analysis of Consonant-Tone Interaction in Korean

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INTRODUCTION

AIM : To propose a constraint-based analysis of consonant-tone interaction based on Kim and Duanmu's (2004) proposal on Korean stops.

| | | | | tone |
|----|------------------|--|----------------------|------|
| a. | <i>lax</i> | [tal] [pul] | 'moon' 'fire' | low |
| b. | <i>tense</i> | [t*al] [p*ul] | 'daughter' 'horn' | high |
| c. | <i>aspirated</i> | [t ^h al] [p ^h ul] | 'mask' 'grass' | high |

PREVIOUS RESEARCH

Kim (1965)

The underlying three-way contrast

- lax stops are voiceless
- tense stops have a tense feature
- aspirates have an aspirate feature

Kim & Duanmu (2004)

The underlying three-way contrast

- lax stops are voiced
- tense stops are voiceless unaspirated
- aspirates are voiceless aspirated

| | |
|-----------|-------------------------|
| lax | /-voice/ |
| tense | /-voice, +tense/ |
| aspirated | /-voice, +aspirated/ |

| | |
|-----------|-------------------------|
| lax | /+voice/ |
| tense | /-voice, -aspirated/ |
| aspirated | /-voice, +aspirated/ |

Kim & Duanmu's Analysis vs. Our Proposal

• K & D's theory posits that 1) tone is linked to a consonant underlyingly, 2) tone spreads onto the adjacent vowel, and 3) tone then delinks from the consonant.

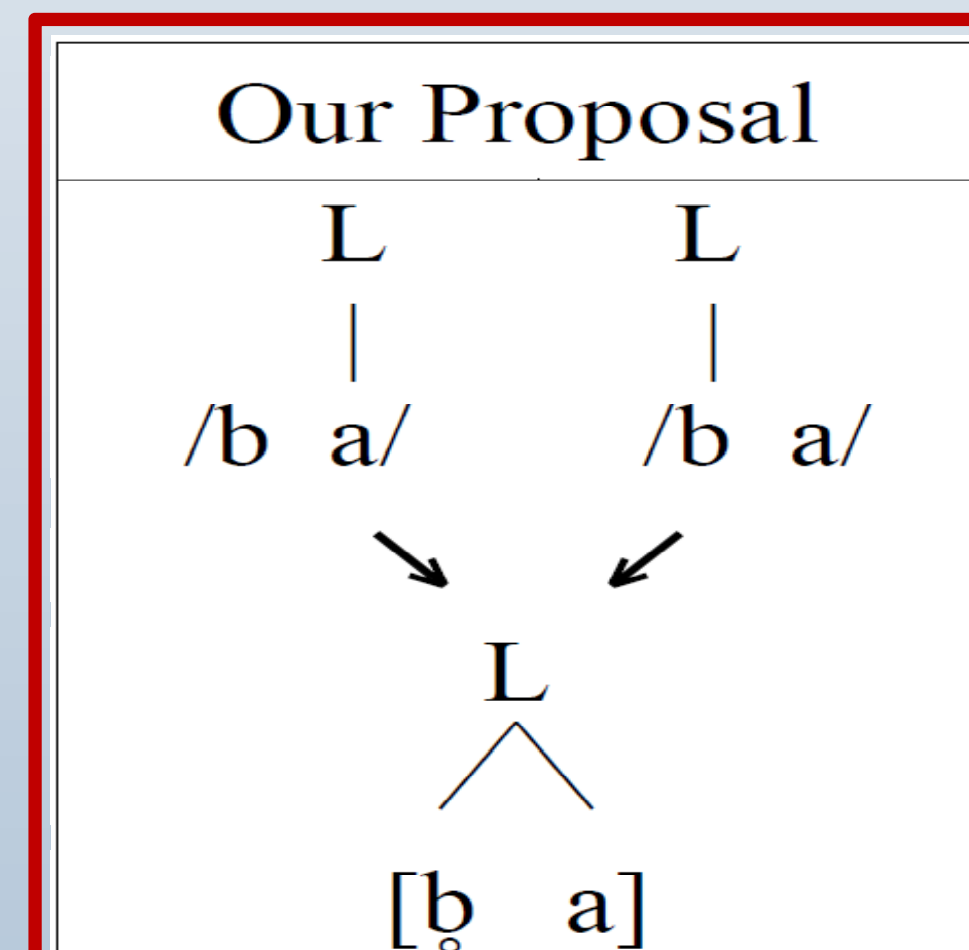
• In their analysis, phrase-initial tones must be introduced by consonants in the input contra to standard tonal theories where tone is associated to a vowel.

• The restrictions on the distribution of tone are stated twice: once in the input via morpheme structure conditions, and once in the output via phonological rules (on this duplication issue, see Kisseberth 1970).

• Our proposal does not restrict tone-linking to consonants in the input. Instead, markedness constraints regulate only the surface distribution of the tone so that it is linked to both the vowel and the consonant.

• No faithfulness constraints preserve tone directly associated to (non-moraic) consonants (Lee 2008). As a result, tone cannot be contrastive in consonants. However, tone on vowels is affected by a preceding consonant.

| Kim & Duanmu's Analysis | | |
|-------------------------|----------------|-----------------------|
| Input | Tone Spreading | Delinking & Devoicing |
| L /b a/ | L b a | L [b̥ a] |



ANALYSIS

| | L /b a/ | ROOTNODE→T | *[+VOICE] _{-wd} | IDENT-T | *VOICELESS/L | IDENT-LAR |
|----|-----------------|------------|--------------------------|---------|--------------|-----------|
| a. | L [b a] | | | | * | * |
| b. | L [b a] | W * | | | L | * |
| c. | L [b a] | | W * | | L | L |
| d. | H [b a] | | | W * | L | * |

• When low tone is associated with a vowel, tone spreads onto the consonant as in (a).

• Candidate (b) violates the constraint ROOTNODE→T, which forces all root nodes to be associated with tone in the output.

• Candidate (c) violates *[+VOICE]_{-wd}, which forces phrase-initial devoicing.

• Candidate (d) violates IDENT-T because the input tone changes from L to H.

• The optimal candidate in (a) devoices the phrase-initial lax stop ([b]) and it surfaces faithfully with a low tone, even though it violates *VOICELESS/L.

• Note: Phrase-internally, lax stops are voiced because *[+VOICE]_{-wd} only applies phrase-initially, and phrase-internal lax stops remain voiced while linked to low tone.

| | L /b a/ | ROOTNODE→T | *[+VOICE] _{-wd} | DEP-T | *VOICELESS/L | IDENT-LAR |
|----|-----------------|------------|--------------------------|-------|--------------|-----------|
| a. | L [b a] | | | | * | * |
| b. | L [b a] | W * | | | L | * |
| c. | L [b a] | W * | W * | | L | L |
| d. | L [b a] | | W * | | L | L |
| e. | H [b a] | | | W * | L | * |

• When low tone is associated with a consonant, tone spreads onto the vowel as in (a).

• Candidates (b) and (c) violate the constraint ROOTNODE→T, which forces all root nodes to be associated with tone in the output.

• Candidate (d) violates *[+VOICE]_{-wd}, which forces phrase-initial devoicing.

• Candidate (e) violates DEP-T because an H tone is inserted.

• The optimal candidate in (a) devoices the phrase-initial lax stop ([b]) and it surfaces faithfully with a low tone, even though it violates *VOICELESS/L.

CONCLUSIONS

• Following Lee (2008), we proposed a constraint-based analysis of consonant-tone interaction in Korean.

• Our proposal avoids making the assumption that only consonants are underlyingly associated to tone.

• Our proposal states the restrictions on tonal distribution once and only once in the output.

• Faithfulness constraints do not refer to non-moraic segments and so tone can surface faithfully only on vowels.

• Markedness constraints force tone to spread onto onset consonants (ROOTNODE → T) and force devoicing when low tone spreads onto onsets (*[+VOICE]_{-wd}).

ABSTRACT

We propose an analysis of consonant-tone interaction in Korean that addresses some issues with Kim & Duanmu's (2004) previous account. K & D represent an underlying voicing contrast on consonants that is then shifted onto vowels in the output, where it surfaces as a contrast in tone. This shifting of a [voice] feature constitutes a duplication problem (Kisseberth 1970). In their analysis, [voice] is excluded from vowels underlyingly even though this feature occurs contrastively in vowels on the surface. Our account seeks to eliminate this duplication problem by allowing tone to link underlyingly to vowels and by using separate features for voicing in consonants and for tone in vowels. Markedness constraints governing tone association in tautosyllabic CV sequences then derive the observed consonant-tone interaction. This is accomplished by positing two constraints that ban segments that are not linked to tone and that ban [-voice] consonants linked to L tone respectively. Crucially, faithfulness constraints only preserve tone underlyingly associated to vowels and not to consonants. Our account preserves the underlying tone on the vowel, while the underlying voicing feature on the onset changes to meet the demands of the markedness constraints governing consonant-tone interaction. As a result, Korean exhibits a tonal contrast in vowels in utterance-initial syllables.

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