

Accentual Phrase in Seoul Korean

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1. Introduction

The intonational pattern of Korean utterance is assumed to consist of Intonational Phrases demarcated by boundary tones (L%, H%) (Lee 1989, Jun 1993). Intonational Phrases can be further divided into a smaller unit, Accentual Phrase (AP) whose final syllable shows a high tone. In AP of Seoul Korean having more than 3 syllables, an additional high tone appears on the second syllable where the tonal pattern of AP exhibits LHLH. In this case the high tone of the second syllable is called Accentual Phrasal initial high tone which is distinguished from Accentual Phrasal final high tone. The initial high tone of AP may not appear in AP of less than 4 syllables.

Another significant factor affecting the tonal pattern of AP is the type of the consonants of the first syllable of AP. The tonal pattern of AP is different depending on what kind of consonants it begins with. If it begins with aspirated or tense consonants¹⁾, it is reported to be higher in the F0 of its syllable by 50 ~ 80 Hz (Jun 1998), which is caused by sharp perturbation of the onset consonant into the F0 of its following vowel. This results in the tonal pattern of HHLH.

In this study we examined the tonal pattern of AP with regard to the following questions.

· Is there any difference in the tonal pattern of AP between AP of four syllables and AP of five syllables ?

· Does the type of syllable (open syllable vs. closed syllable) in the first two syllables of AP affect the position of AP initial high tone?

1 Moon (1999) called them strong consonants and the other consonants weak consonants. 'h' and 's' is also referred to as strong consonants.

Does the type of the onset consonant of the second syllable have any effect on the tonal pattern of AP?

Does the onset consonant of the first syllable influence the other tones of AP, not to speak of the tone of its syllable?

2. Method

Four cases are differentiated according to the possible types of the first syllable and second syllable of AP as following. Case 1. OO: open syllable (first syllable), open syllable (second syllable); Case 2. OC: open syllable (first syllable), closed Syllable (second syllable); Case 3. CO: closed syllable (first syllable), open syllable (second syllable); Case 4. CO: closed syllable (first syllable), open syllable (second syllable).

As the type of the onset consonant of the initial syllable of AP affects the tone of the first syllable AP, two classes of weak and strong consonants are distinguished and 'ch-' and 'm-' are employed for its respective onset of the classes.

The type of the onset consonants of the second syllable is classified into 4 classes according to the extent of their perturbation into the following vowel : plain consonants, nasals, liquid, strong consonants. The vowel following nasals is shown to have lower F0 (Kwon 1998). Weak consonants are further divided into nasals, liquid, and plain consonants. We chose 't', 'ch', 'n', and 'l' as representing its respective class.

We used 'a' vowel in all the syllables to avoid the possible variable caused by different vowels. We also devised nonsense words to eliminate the implication of particular tones of the existing words or the effect of the morpheme structure supposed by informants.

35 three syllable words and 35 four syllable words are selected according to the above stated standards. They are repeated 5 times at random. They are recorded in the following carrier sentence : " _____ nun('subject marker') taum('next') yok-ibnida('station-is')." Two female speakers participated in the experiment.

They are analyzed by CSL(4300B) with a sampling rate of 16 KH. We measured

the F0 of the first syllable(tone 1), the second syllable(tone 2), the penultimate syllable(tone 3), the final syllable(tone 4) of AP respectively and performed statistical analysis on the measurements.

3. Result and Discussion

First, the result of t-test ($p < .05$) shows that there is no significant difference between 4 syllable AP and 5 syllable AP.

Second, to examine the effect of the syllable type of the first two syllable on AP initial high tone, one-way ANOVA was performed taking the syllable types as an independent variable and the value of tone 2 - tone 1 as the dependent variable. The result was different depending on what kind of consonants AP begins with. For AP beginning with the weak consonants, they were insignificant statistically for two speakers. However, for AP beginning with the strong consonants, they were significant (speaker 1: $F(2, 94) = 5.4828$, $p < .01$). Tukey post-hoc test showed that the value of tone 2 - tone 1 in the type of OC is significantly higher than in the other types. In particular, the value is positive only in the type of OC, while it is not in the other types. The positive value means that tone 2 is higher than tone 1, and the negative value implies that tone 1 is higher than tone 2. It is noticeable that the AP initial high tone of the second syllable is higher than the tone of the first syllable resulting from the perturbation of its strong consonants only in the OC type.

Third, in order to see whether the onset type of the second syllable has any effect on the tonal pattern of AP, one-way ANOVA was performed taking onset types as an independent variable and the value of tone 2-tone 1 as the dependent variable. They were significant for both the AP beginning with strong consonants and the AP beginning with weak consonants for two speakers. However Tukey post-hoc test indicated that there is a little difference depending on the type of AP (whether it begins with a strong consonant or not) and the speakers. For AP beginning with initial weak consonants, the value of tone 2 - tone 1 is significantly different in all the 4 types of onset of the second syllable. The strong consonant has the highest value ,

forming one group, while the other three types of onset form the other group. It is assumed that the factor of the existence of the strong consonant in the second syllable contributed to making the AP initial high tone a little higher. For AP beginning with the initial strong consonant, Tukey post-hoc test shows that the value of tone 2 - tone 1 in the onset type of the strong consonant in the second syllable is still highest and has the only positive value. However the 4 types of onset show different grouping from those of AP of initial weak consonant. The grouping also shows differently depending on speakers (speaker 1: {strong, lateral} vs {lateral, plain, nasal}. speaker 2 : {strong, lateral, plain}, {lateral, plain, nasal}).

Last, t-test was performed to examine the tonal effect of the initial onset type of AP. The effect of initial onset type were significant in almost all the tones of AP. Tone 1, tone 2, tone 3, and tone 4 (except speaker 2) of the initial strong onset of AP were significantly higher than those of the other type of onset. The initial strong onset of AP not only affects the tone of the first syllable, which is reported, but also serves to raise the whole level of tone in AP. The value of tone 4 - tone 3 of the strong onset was also significantly different from that of the other onset. For speaker 2, tone 4 of the strong onset was not significantly different from that of the weak onset. The reason is conjectured to be attributed by the fact that she raised the tone at AP final noticeably and the AP final high tone of the weak onset was very high.

4. Summary and conclusion

Considering the factors such as syllable number, syllable type, and onset type of the first two syllable of AP as variables affecting the tonal pattern of AP, we devised 35 three syllable nonsense words and 35 four syllable nonsense words and examined the tonal pattern of AP.

The experiment showed that 1) there was no difference between 4 syllable AP and 5 syllable AP in the position of AP initial high tone, 2) syllable type was not significant for AP of initial weak onset in the extent of AP initial high tone, but significant for AP of the strong onset, 3) the onset type of the second syllable was

significant for both AP of the weak onset and AP of the strong onset in the degree of AP initial high tone, 4) the onset type of the first syllable of AP was also significant in the degree of almost all the tones of AP for two speakers. It affects almost the whole pattern of AP significantly, not to speak of the tone of the first syllable the onset belongs to.

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