# How differing phonetic realizations influence perception of personal characteristics: Speech perception and vowel variations in Seoul Korean

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## 1 Introduction

There is a phenomenon called vowel raising in spoken Seoul Korean, where a lower vowel /o/ is raised and realized as [u] in suffixes including a clause connective *–ko* and a particle *–to*. For example, a clause connective *–ko* and a particle *–to* are frequently realized as *–ku* and *–tu*. (1) shows an example sentence that includes both *–ku* and *–tu* variation.

(1) *pakmwulkwan-i* *manh-kwu* *hoswu-twu* *yeyppe-yo*[1].
museum-SUBJ many-**and** lake-**also** pretty-POL.
'There are many museums and lakes are also pretty.'

[1] Because the transcriptions follow Yale Romanization, [u] in IPA is presented as [wu] in these sample sentences.

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Korean speakers tend to produce *–ku* instead of *–ko* for a clause connective meaning 'and', and *–tu* instead of *–to* for a particle meaning 'also'. This phenomenon was also mentioned by Yeon (2012), who pointed out that, in colloquial speech, the variant [u] is commonly observed in a suffix as in *kuliko* > *kulikwu* 'and', *mek-eto* > *mek-etwu* 'eat but', *na-to* > *na-twu* 'I also'. Moreover, Chae (1995) claimed that /o/ is pronounced as [o] or [u] or as a sound in between these two non-initial syllables. They also claimed that it is related to many social factors such as dialect, age and gender.

The present study aims to examine theses variations in Seoul Korean, especially concentrating on how people perceive this vowel raising. More specifically, the following questions will be addressed: (i) Do people relate different social meanings to the raised and unraised vowel variants? and (ii) in addition to the vowel variation, is there any other factor that affects the perception of personal characteristics?

## 2 Vowel variation in Korean

Several studies have examined phonetic variation in Korean vowels in some contexts. Most of the literature on Korean vowel variation deals with its dialectal distribution in Chungcheong province (Kim, 2014) and Kyeongsang province (Jeong, 2009), and in some regions in North Korean (Kwak, 2003). There is also some research on vowel variation in Standard Korean, also known as Seoul Korean, that looks into the circustances where raising occurs as well as its causes (Chae, 1997; Kang, 205). Nevertheless, these previous studies did not carry out empirical research based on spontaneous spoken data, and they focused only on speech production, and did not look into speech perception.

Chae's (1995) study is worthy of notice in that she investigated both speech proudction and speech perception of /o/ variation. This is the only study that scrutinizes social factors affecting this phenomenon. In her study, she found that, in 1994, younger females were leading the sound change of vowel raising. However, Chae also focused mainly on speech production and did not explore speech perception in depth, using limited groups of participants and stimulus voices. She carried out a matched-guise test in order to figure out how people uncounsciously perceive the two variations, [o] and [u]. However, ages of speakers who recorded the stimuli were not clearly specified, even though she emphasized the importance of speaker's age in /o/ variation. Moreover, the subjects of this test were only male high school students, which means that none of the social factors that she considered crucial in speech production were included in the analysis of speech perception. People with different social status, gender, and/or age might respond differently. In further study, the stimuli of a perception test

should be designed so that all influential factors, such as speakers' genders and ages, can be considered in the analysis, and they should be tested by diverse listeners. Addressing this limitation, the current study aims to investigate various social factors that affect the perception of vowel raising.

## 3 Method

The matched-guise technique was used for the perception test in order to examine how native Korean speakers perceive the raised vowels. This technique was first introduced by Lambert et al. (1969) where listeners' attitudes toward English and French were investigated in Montreal. They employed bilingual speakers of English and French, and asked them to read the same text in the two languages. The two resulting texts were called an English guise and a French guise. The findings showed that both English and French listeners had more positive attitudes toward the English guises than the French guises. Several studies have copied and modified this technique in speech perception, especially for looking into hearers' attitudes toward or evaluations of target linguistic forms (Giles, 1970, 1971; Hiraga, 2005).

I applied this technique in the perception test, which will be described in the following sections.

### 3.1 Stimuli

A perception test was designed using a matched-guise technique.

(1) *nayil-un* *nalssi-to/twu* *chwup-ko/kwu*
tomorrow-TOP weather-also cold-and
*palam-to/twu* *pwul-theynikka* *ttattushan* *os-ul*
wind-also blow-and so warm clothes-OBJ
*ip-ko/kwu* *naka-sey-yo*
wear-and go out-HON-POL
'It will be cold and windy tomorrow, so please wear warm clothes when you go out.'

In this test, the stimuli consist of both /*–ko*/ and /*–to*/, and there are two guises, [o] guise and [u] guise, as shown in (1).

For target stimuli, recordings were made of 12 speakers of Seoul Korean who said the sentence in (1) twice, reading it first with the [o] variant and then with the [u] variant. In Pratt, the [u] vowels in the second reading were copied and pasted into the first reading, replacing [o] with the raised variant [u]; the only difference between the two guises is whether the vowel is [o] or [u]. The 12 speakers' ages and genders were evenly divided: 2 older females, 2 older males, 2 middle-aged females, 2 middle-aged males,

2 younger females, and 2 younger males. Thus, a total of 24 items (12 speakers x 2 guises) were used as target stimuli.

In addition, the test included the same number of fillers, which were recorded by six male and six female speaekrs of Korean as a second language and six male and six female Korean speakers from a city other than Seoul. They read the sentence in (1) with the two guises, and the recording that sounded more natural was chosen.

Altogether, therefore, there were 48 stimuli, which were played to the participants in a random order.

### 3.2 Procedures

Before the test began, they were informed that they would listen to 48 voices and answer 12 questions regarding the age and characteristics of each item's speaker. The questions used for the test are given below.

I. How old do you think the talker is?
a. 10-19 b. 20-29 c. 30-39 d. 40-49 e. 50-59 f. 60-69 g. 70-79

II. Rate the talker's characteristics from 1-7.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Less feminine/ | | | | | | | | More feminine/ |
| Less masculine | 1 | 2 | 3 | 4 | 5 | 6 | 7 | More masculine |
| Less cute | 1 | 2 | 3 | 4 | 5 | 6 | 7 | More cute |
| Less educated | 1 | 2 | 3 | 4 | 5 | 6 | 7 | More educated |
| Lower economic class | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Higher economic class |
| Less sincere | 1 | 2 | 3 | 4 | 5 | 6 | 7 | More sincere |
| Lower social class | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Higher social class |
| Less friendly | 1 | 2 | 3 | 4 | 5 | 6 | 7 | More friendly |
| Formal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Casual |
| Conservative | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Liberal |
| Outgoing | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Shy |

When they listened to the male speaker's stimuli, they were instructed to rate it as less or more masculine, while when they listened to the female speaker's stimuli, they were instructed to rate it as less or more feminine. Participants were allowed to listen to the stimuli as many times as they wanted.

### 3.3 Participants

30 native speakers of Seoul Korean participated in this perception test. The participants were categorized according to age, gender, and social class as follows: (i) Two age categories: 20–29 and 40–49; (ii) Two gender categories: female and male; and (iii) four social class categories: lower

working class, upper working class, lower middle class, and upper middle class.

### 3.4 Statistics

The perception test data on female and male voices were separately fit into mixed effects models using the statistical tool, R, by hand. This model simultaneously deals with multiple factors and their interactions, and, unlike other models, it can take information about the sample population into consideration as random effects including subjects of the experiment.

For both female and male voices, the dependent variable is, for each characteristic, is the degree to which the speaker has the characteristic in the participants' perceptions, based on the 7-point Likert scores, and the random effects are the participants of the test. For fixed effects (or independent variables), I included all factors that were expected to affect the dependent variables and their interactions: vowel variation (voice guise), speaker's age, listener's age, listener's gender, and listener's social class.

## 4 Results

As stated in 2.4, since participants used two different questionnaires depending on gender of the stimuli speaker, the current study shows results for female and male voices in separate sections.

### 4.1 Female voices

When the participants listened to the female voices, they judged that some social factors and the vowel variation influenced several characteristics of a speaker at a significant level. Table 1 presents factors that affect each characteristic.

| Characteristics | Factors that correlate with higher Likert scores for this characteristic |
|---|---|
| Educational level | Middle-aged voice ($p < 0.0001$) |
| Friendliness | Younger voice ($p < 0.0001$) |
| Formality | Middle-aged voice (($p < 0.04$) |
| Economic class | **Younger voice with [o] variant ($p < 0.02$)**<br>**For male listeners: all voices with [o] variant ($p < 0.006$)** |
| Sincerity | **Older voice with [o] variant ($p < 0.06$)** |
| Conservativeness | **For younger listeners: all voices with [o] variant ($p < 0.06$)** |
| Outgoingness | **[u] variant ($p < 0.006$)**<br>For female listeners: all older voices ($p < 0.02$) |
| Femininity | For female listeners: all older voices ($p < 0.04$) |

Table 1. Summary for results for female voices

The results show that speaker's age appears to most broadly influence the perception, in that age itself or its interaction with another factor play a role in listeners' judgment of 8 out of the 12 characteristics. More specifically, middle-aged voices sound more educated and formal than younger and older voices, and younger voices are perceived as being friendly. In addition, female listeners perceive that all older speakers are outgoing and femnine. Moreover, when it comes to the vowel variation (in bold in the table), which is a main focus of this study, the raised variant [u] leads a listener to perceive that a spaekr is outgoing, while the unraised variant is indexed to being less outgoing. The different vowel variations also interact with speaker's age or listener's age to affect the way participants perceive some of the speaker's characteristics. When participants evaluated the economic class, sincerity, and conservativeness of female voices, the raised variant [u] had the following effects: younger females were perceived as having lower economic class; male listeners perceived speakers as having lower economic class; older females were perceived as having lower sincerity; and younger lilsteners perceived speakers as having lower conservativeness.

### 4.2 Male voices

For male voices, 6 out of 12 characteristics were inlfuenced by the vowel variation, speaker's age, listener's age, or their interactions as shown in Table 2.

| Characteristics | Factors that correlate with higher Likert scores for this characteristic |
|---|---|
| Friendliness | Younger voice ($p < 0.0001$) |
| Economic class | Middle-aged voice ($p < 0.0001$) |
| Conservativeness | For younger listeners: all older voices ($p < 0.04$) |
| Masculinity | **Younger voice with [u] variant ($p < 0.04$)** |
| Cuteness | **Younger voice with [u] variant ($p < 0.005$)** |
| Social class | Middle-aged voice ($p < 0.0001$) |

Table 2. Summary of results for male voices

As in the results for female voices, speaker's age largely affect how participants judge the personal traits of a male speaker. Younger voices sound more friendly than voices of other age groups, and middle-aged voices are evaluated as having higher economic and social class. Moreover, for younger listeners, all older voices are perceived as being conservative than younger and middle-aged voices. Finally, the raised variant [u] also plays a significant role in leading to different perceptions when it interacts with voice age (in bold in the table): participants evaluated [u] guise voices of younger males as having higher masculinity and higher cuteness.

## 5 Conclusion

The matched-guise perception test produced interesting results. First, the participants' perception of personal characteristics differs depending on whether a speaker uses the raised variant or the unraised variant. Second, the speaker's age and the personal characteristics of the listeners also interact with the vowel variation to influence perceptions of the speakers. Third, in addition to the vowel raising, speaker's age appears to be another crucial factor that affects listener's judgment. Finally, listener's social class does not seem to cause any difference in perception of the speaker's characteristics.

The current study sheds light on Korean sociophonetic research in two aspects. Most of all, unlike several previous studies, the relationship between social factors and speech perception was examined in depth. This sociophonetic approach will show how the variants are practically and pragmatically used in spoken Korean. Moreover, I believe that further studies will be able to apply the results of this research on the patterns of speech perception of vowel variation to the development of pedagogical approaches. Because social factors are rarely mentioned and rarely included in instruction in the second language classroom, learners have difficulty in producing natural and spontaneous speech. Teaching the way native

speakers perceive each varaint will help learners achieve native-like speaking and listening skills.

## References

Chae, S. 1995. External Constraints on Sound Change: The Raising of /o/ in Seoul Korean. Doctoral dissertation, University of Pennsylvania.

Chae, S. 1997. The new form of the second person pronoun *Ni* in Seoul Korean. *The Sociolinguistic Journal of Korea* 5(2):621-44.

Gile, H. 1970. Evaluative reactions to accents. *Educational Review* 22:211-27.

Gile, H. 1971. Patterns of evaluation in reactions to RP, South Welsh and Somerset accented speech. *British Journal of Social and Clinical Psychology* 10:280-21.

Hiraga, Y. 2005. British attitudes towards six varieties of English in the USA and Britain. *World Englishes* 24:289-308.

Jeong, Y. 2009. Vowel raising and vowel-rounding of modern Korean language. *Emwunhak (Language and Literature)* 105:49-78.

Kang, S. 2005. Aspects of the realization of vowel raising and the dialectal differentiation of Korean. *The Korean Language and Literature* 33:1-32.

Kim, J. 2004. The vowel raising 'ə→ɨ' in the Chennam Dialect. *Hanku*/255:49-75

Kwak, C. 2003. *A study on phonology of 18th Century.* MA Theses. Seoul National University, Seoul. Korea.

Lambert, W., Hodgson, R., Gardner, R., & Fillenbaum, S. 1969. Evaluational reactions to spoken languages. *Journal of Abnormal and Social Psychology* 60:44-51.

Yeon, J. 2012. Korean dialects: a general survey. *The Languages of Japan and Korea,* ed. N. Tranter, 168-85. New York: Routledge.