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Adapting the IPA Systems of Korean Diction
to Classical Vocal Method: A Critical Study

by

Clara Lee

A written project submitted in partial fulfillment of
the requirements for the degree of

Doctor of Musical Arts
(Historical Performance Practice)

at the

Claremont Graduate University

2020

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Approval of the Committee

This dissertation has been duly read, reviewed, and critiqued by the Committee listed below, which hereby approves the manuscript of Clara Lee as fulfilling the scope and quality requirements for meriting the degree of Doctor of Musical Art in Historical Practice Performance.

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Abstract

Adapting the IPA Systems of Korean Diction
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Clara Lee

Claremont Graduate University: 2020

While the IPA is helpful in learning Korean diction, it is not sufficient when applied to classical singing techniques, especially for non-native Korean speakers. To be able to clearly distinguish the ambiguity of sounds of the language, using proper and accurate phonetic symbols are necessary. The author compares speaking and singing in the Korean language by analyzing the contrast of its phonetics and articulating positions and then phonologically describes the IPA symbols. Both singing and speaking are forms of phonating and communicating, and the same IPA symbols are often used for both singing and speaking. However, the phonating circumstances and locations in the oral cavity are different. This study therefore focuses on finding an efficient and accurate way of representing Korean diction for classical singers.

For God

who never gives me up

Acknowledgements

I thank all who in one way or another contributed in the completion of this project. First, thanks to God for his grace and strength to work on this.

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Foreword

This project is written for non-Korean singers and teachers who have a certain level of knowledge of IPA but have no prior exposure or experience with the Korean language in classical singing. In 2017, two volumes of *Korean Art Songs: An Anthology and Guide for Performance and Study* were published in the United States that provided non-Korean singers with a means of Korean diction and a historical background for each Korean song. Singers still have, however, issues and difficulties with understanding and singing Korean lyrics.

The goal of this project is to provide classical singers, who sing diverse repertoires of foreign songs, a Korean diction chart that uses general and also practical IPA symbols. In order to master the Korean Diction and its adequate IPA symbols, there needs to be a consistent and accurate diction manual that is accessible, easy to acquire, and simple to apply to the pronunciation of Korean lyrics, especially for classical singers. For this reason, I would like to provide a diction chart that helps singers pronounce Korean in the song literature and broadens their diverse repertoires beyond Western and American songs.

In order to fully understand and apply this project, singers and teachers must at least partly know how to:

1. adapt and accept using their organs (articulators) to imitate and to phonate many identical foreign sounds that they have not previously used.
2. learn about IPA symbols and be able to sound and apply the symbols when they sing.

3. understand the culture and historical background of the Korean songs in order to effectively deliver the intention and emotions of the songs to their audiences.

I would also like to ask that singers and teachers use their imaginations and become fully acquainted with the phonetic symbols and foreign sounds in order to sing the Korean language fluently.

Chapter 1. Introduction : The IPA and Korean Language

Despite many existing studies and trials, the IPA (International Phonetic Alphabet) insufficiently provides non-native Korean speakers who sing with a classical technique proper Korean diction. I will address this issue in this study and will build on the scholarship of the Korean art-song genre, identifying diction requirements that classically-trained singers should meet when singing these songs and creating a guide for them.

This project therefore endeavors to provide the necessary tools so that every singer can easily read and sing Korean songs, which have their own history and cultural values. This will be done by addressing current IPA symbols suggested for Korean alphabetical characters and by transcribing proper symbols that are still inconsistent, especially in classical singing. I will start by briefly discussing the IPA and the purpose behind the creation of the Korean alphabet system.

1. The IPA

In phonetics and phonology, different patterns of vocal sounds in different languages in the world have been studied and represented as symbols with identical figures. ¹ The “commonly agreed” tool has been used to analyze and represent sounds of languages in the world. ²

The IPA (International Phonetic Alphabet) has been broadly used as a tool to help singers pronounce song texts in various foreign languages. It was first introduced in a publication of the

¹ “IPA Home,” International Phonetic Association, *International Phonetic Association*. Accessed on Feb. 15, 2019. <https://www.internationalphoneticassociation.org/>.

² “Introduction of IPA,” in *Handbook of the International Phonetic Association: A Guide to the Use of the International Phonetic Alphabet* (Cambridge, UK: Cambridge University Press, 1999), 37.

Handbook of the International Phonetic Association: A Guide to the Use of the International Phonetic Alphabet and on the IPA's website, both of which include the Korean Alphabet system and its diction.³

The International Phonetic Association had formulated an International Phonetic Alphabet (IPA) chart and published *Handbook of the International Phonetic Association* (1999), in order to provide a “notational standard for the phonetic representation” of different languages, and it has been used world-wide in many fields.⁴

³ Hyun Bok Lee, “Korean”, in *Handbook of the International Phonetic Association: A Guide to the Use of the International Phonetic Alphabet* (Cambridge, UK: Cambridge University Press, 1999), 120-3.

⁴ Ibid.

i. Official IPA Chart (revised to 2018)⁵

THE INTERNATIONAL PHONETIC ALPHABET (revised to 2018)

CONSONANTS (PULMONIC) © 2018 IPA

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k ɡ	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	ɴ		
Trill				ʀ					ʀ		
Tap or Flap		ⱱ		ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	ʟ			

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

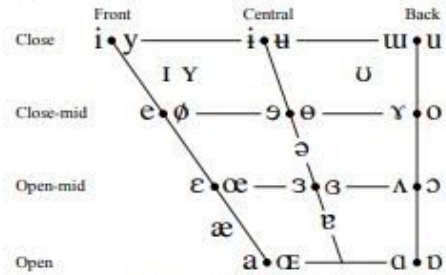
CONSONANTS (NON-PULMONIC)

Clicks	Voiced implosives	Ejectives
◌ ɸ Bilabial	ɓ Bilabial	ʼ Examples:
◌ ǀ Dental	ɗ Dental/alveolar	ɸ' Bilabial
◌ ǃ (Post)alveolar	ɟ Palatal	t' Dental/alveolar
◌ ǂ Palatoalveolar	ɡ Velar	k' Velar
◌ ǁ Alveolar lateral	ɠ Uvular	s' Alveolar fricative

OTHER SYMBOLS

ɱ Voiceless labial-velar fricative	ʑ ʒ Alveolo-palatal fricatives
ɰ Voiced labial-velar approximant	ɺ Voiced alveolar lateral flap
ɱ Voiced labial-palatal approximant	ɥ Simultaneous ʃ and x
ħ Voiceless epiglottal fricative	Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary.
ʕ Voiced epiglottal fricative	
ʔ Epiglottal plosive	

VOWELS



SUPRASEGMENTALS

- ˈ Primary stress
- ˌ Secondary stress
- ː Long
- ˑ Half-long
- ◌̥ Extra-short
- ◌̥ Minor (foot) group
- ◌̥ Major (intonation) group
- ◌̥ Syllable break
- ◌̥ Linking (absence of a break)

TONES AND WORD ACCENTS

- LEVEL
- CONTOUR
- ◌̥ or ◌̥ Extra-high
 - ◌̥ High
 - ◌̥ Mid
 - ◌̥ Low
 - ◌̥ Extra-low
 - ◌̥ Downstep
 - ◌̥ Upstep
 - ◌̥ or ◌̥ Rising
 - ◌̥ Falling
 - ◌̥ High rising
 - ◌̥ Low rising
 - ◌̥ Rising-falling
 - ↗ Global rise
 - ↘ Global fall

DIACRITICS Some diacritics may be placed above a symbol with a descender, e.g. ɲ̥̄

◌̥ Voiceless	◌̄ Breathy voiced	◌̇ Dental
◌̆ Voiced	◌̆ Creaky voiced	◌̆ Apical
◌̆ Aspirated	◌̆ Linguolabial	◌̆ Laminar
◌̆ More rounded	◌̆ Labialized	◌̆ Nasalized
◌̆ Less rounded	◌̆ Palatalized	◌̆ Nasal release
◌̆ Advanced	◌̆ Velarized	◌̆ Lateral release
◌̆ Retracted	◌̆ Pharyngealized	◌̆ No audible release
◌̆ Centralized	◌̆ Velarized or pharyngealized	
◌̆ Mid-centralized	◌̆ Raised	
◌̆ Syllabic	◌̆ Lowered	
◌̆ Non-syllabic	◌̆ Advanced Tongue Root	
◌̆ Rhoticity	◌̆ Retracted Tongue Root	

⁵ International Phonetic Alphabet (IPA, revised to 2018), *International Phonetic Association*. updated 2019. Accessed April 20, 2019. https://www.internationalphoneticassociation.org/IPAcharts/IPA_Kiel_2018_full.pdf.

ii. IPA Font (<https://ipa.typeit.org/full/>)

Clicking the formatted keyboard on this site will easily and conveniently transcribe the phonetics of an IPA and provide symbols that can be used. It provides fonts for every IPA symbol and also includes symbols that are not listed in the official IPA chart, such as ^ʔ, →, or ɾ, which are commonly used in Phonology.

iii. IPA Source (<https://www.ipasource.com/about-ipa>)

Based on the phonetic alphabets, especially for singers and teachers dealing with many different languages, the *IPA Source* has been developed and has provided a vast collection of sources of diction and translation of vocal literature in many languages, such as Latin, Spanish, French, German, Italian, and English, through the website.

2. The Korean Alphabet System, *Hangeul*

The unique Korean alphabet system, *Hangeul*, was invented in 1443 by King Sejong and his Scholars of Chosun Dynasty (1392 - 1897). The alphabet system was developed so that reading and writing the sounds would be easy and simple for the King's people.⁶ It was named *Hunminjeongum* by the King but later renamed *Hangeul*.

As in every language, the *Hangeul* has both consonants and vowels to form syllables. However, the Korean consonants and vowels cannot be regarded as one alphabet system due to

⁶ "The background of Hangeul Invention", Want to know about Hangeul?, *National Institute of Korean Language*. revised Jan. 2008. Accessed on February 6th, 2019. <https://www.korean.go.kr/hangeul/origin/001.html>.

different organizing principles applied when creating them. The different principles individually regulating Korean consonants and vowels will be discussed.

a. Consonant

The symbols for the Korean consonants were developed by studying the shapes and locations of articulators, such as tongue, lips, and alveolar when consonant sounds are produced.

⁷ For instance, the first consonant ‘ㄱ’ was created by imitating the shape of approaching the back of the tongue to the velum, and the ‘ㅁ’ was from the shape of the closed lips, etc.

The velar sound, ‘ㄱ’ is the shape of the tongue root closing the throat; the lingual (tongue-tip) sound, ‘ㄴ’ is the shape of the tongue attached to the upper jaw; the labial sound, ‘ㅁ’ is the shape of the mouth; the dental sound, ‘ㄷ’ is the shape of the teeth, and the glottal sound, ‘ㅇ’ is the shape of the throat.⁸

In an article written by the linguistic scholar Ramsey, “The Korean Alphabet,” the king and the scholars had tried to visualize the shape and articulators for the five basic consonants, ㄱ, ㄴ, ㅁ, ㄷ, ㅇ, as it was mentioned in the book of *Hunminjeongeum*.⁹

⁷ King Sejong, “*Hunminjeongeum*” National Treasure number 70, (1446, Jiphyunjeon), accessed on August 3rd, 2019.
http://english.cha.go.kr/chaen/search/selectGeneralSearchDetail.do?sCcebKdcd=11&ccebAsno=00700000&sCcebCtd=11&mn=EN_02_02.

⁸ The National Institute of the Korean Language, *Hunminjeongeum: Written plainly so as to be understood by everyone*. (Seoul, Korea: Treebook, 2008), 123.

⁹ S. Robert Ramsey, “The Korean Alphabet,” in *King Sejong the Great: The Light of Fifteenth Century Korea*, ed. Young-Key Kim-Renaud (Washington, D. C.: International Circle of Korean Linguistics, 1992), 43-50.

Figure 1.1: Letterforms of the Shapes of articulators for the Basic Five Consonants ¹⁰



According to the *Hunminjeongeum*, the remaining single consonants, apart from the five fundamental consonants, were built by adding a degree of harshness, except the alveolar lateral consonant ‘ㄴ.’ In the following chapter, the fourteen consonants and their sounds will be discussed and presented in detail with examples.

In 1897, the Chosun Dynasty formally christened its name as the *Daehan* (Great Korea) Empire and affirmed the writing system as the official script. Between 1910 and 1913, it had been named by the Korean Language Society as *Han-gul* (aka *Hangeul*), the “great script of the Korean Empire.” ¹¹

b. Vowel

Interestingly, the sounds of Korean vowels were created in conjunction with philosophical principles related to nature: sky, earth, and human. A circle ‘ㅇ’ embodies the sky, ‘ㅡ’ indicates the land, and ‘ㅣ’ illustrates humans, all becoming the three basic principles of the

¹⁰ Ramsey, 45.

¹¹ Kyungbong Choi, Jeong-Gon Si, and Youngjoon Park. *Everything You Should Know About Hangeul* (Seoul, Korea: 책과함께, 2008), 244.

vowels. The other vowels were derived from combinations of the three basic materials of nature.

12

When Han-geul was created, it clearly showed that each letter came from the combination of ' · ' and '—', or ' · ' and ' | '.

Each of 'ㅏ', 'ㅑ', 'ㅓ', 'ㅕ' has the same structure of each 'ㅏ', 'ㅑ', 'ㅓ', 'ㅕ' except that ' · ' is written twice....

Today, the letter ' · ' is not used anymore because the sound this letter used to represent disappeared now. ¹³

In modern Korean, both the basic vowels and the combined forms are used and are categorized as monophthongs and diphthongs. A vowel combined with a consonant form a syllable. When each syllable connects to another to form words, phonological variations may occur. These variations will be presented and discussed in more detail in the next few chapters.

¹² "Want to know about Hangeul?: Vowels", *National Institute of Korean Language*. Rev. January, 2008. Accessed on August, 21st, 2019. https://www.korean.go.kr/eng_hangeul/principle/003.html.

¹³ Ibid.

Chapter II. The Pronunciation of Korean Alphabets

Modern Standard Korean consists of fourteen primary consonants and ten primary vowels. Each of them is symbolized by one phoneme with its own sound values. When they are combined with other phoneme(s) to form a word, they retain their sound values. The one to one relationship between the phonemes and its sound must be defined and understood clearly in order to produce proper diction. Being able to sing Korean lyrics with the correct diction is essential because the audience must accept and understand it. It is also essential because expressing and conveying the meaning and intention of song texts are required.

I will first discuss the sound of the consonants with IPA symbols based on the instructional article that is introduced in the *Handbook of International Phonetic Association*.¹⁴

1. Consonants

a. The Primary Consonants

These are the fourteen primary consonants, which are derived from the five basic consonants, ㄱ, ㄴ, ㄷ, ㄹ, and ㅁ, and their pronunciation are shown in the IPA chart (Table 2.1). In order to also help understand the articulatory placement for these consonants, a sectional diagram of vocal organs for phonation is below. (Figure 2.1)

¹⁴ Hyun Bok Lee, 120-3.

Table 2.1: The Primary Consonants and Pronunciation

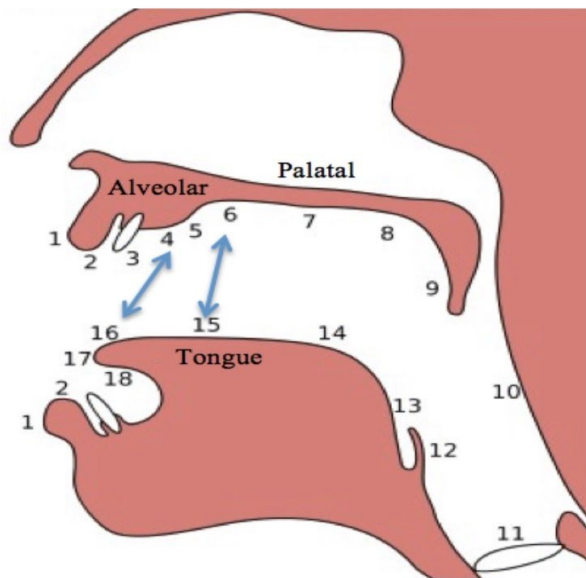
primary consonants	IPA	articulatory classification	sound
ㄱ	[g] final: [k̚] ¹⁵	velar plosive	Eng.) <u>g</u> ood
ㄴ	[n]	alveolar nasal	Eng.) <u>n</u> ose
ㄷ	[d]	alveolar plosive	Lat.) <u>d</u> onna
ㄹ	[l]	alveolar lateral approximant / alveolar flap consonant	Eng.) <u>l</u> esson Ita.) <u>c</u> aro
ㅁ	[m]	bilabial nasal	Eng.) <u>m</u> other
ㅂ	[b]	bilabial plosive	Eng.) <u>b</u> oy [bɔɪ]
ㅅ	[s], [ʃ], [z] ¹⁶	alveolar fricative	Eng.) <u>s</u> low
ㅇ	silent final: [ŋ]	no sound or velar nasal	Eng.) <u>y</u> oung
ㅈ	[tʃ], [dʒ] ¹⁷	postalveolar affricate	similar w/Eng.) <u>j</u> ob
ㅊ	[tʃʰ]	voiceless palatal affricate	Eng.) <u>ch</u> urch
ㅋ	[kʰ]	voiceless velar plosive	Eng.) <u>k</u> ite
ㅌ	[tʰ]	voiceless alveolar plosive	Eng.) <u>t</u> ea
ㅍ	[pʰ]	voiceless bilabial plosive	Eng.) <u>p</u> owder
ㅎ	[h], [ɦ] final: silent	voiceless glottal fricative	Eng.) <u>h</u> ouse

¹⁵ [k̚] - The air for the consonant ㄱ must not be released at the final position in a syllable.

¹⁶ Hyun Bok Lee presented the voiceless Alveolar ‘ㅅ’ as [z] because the ‘ㅅ’ is pronounced softer than English [s].

¹⁷ Hyun Bok Lee, 121.

Figure 2.1: Articulators of Consonants ¹⁸



1. Exo-Labial (Outer part of lip)
2. Endo-labial (Inner part of lip)
3. Dental (Teeth)
4. Alveolar (Front part of alveolar ridge)
5. Post-alveolar (Rear part of alveolar ridge & slightly behind it)
6. Pre-palatal (Front part of hard palate that arches upward)
7. Palatal (Hard palate)
8. Velar (Soft palate)
9. Uvular (a.k.a. Past-velar; uvula)
10. Pharyngeal (Pharyngeal wall)
11. Glottal (a.k.a. Laryngeal; vocal fold)
12. Epiglottal (epiglottis)
13. Radical (Tongue root)
14. Postero-dorsal (Back of tongue body)
15. Antero-dorsal (Front of tongue body)
16. Laminal (Tongue blade)
17. Apical (Apex or tongue tip)
18. Sub-apical (a.k.a. Sub-apical; underside of tongue)

¹⁸ "Fun with Placement of Articulation," A Series of Meditation and Instruction for the Casual Creator *ConLang 101*. Accessed March 2, 2020, <http://conlang101.blogspot.com/>.

As previously mentioned, the Korean consonants were created based on the shapes and positions of tongue, lips, and velum when the sound was produced.

Upon the five fundamental consonants, the rest of the single consonants, the fourteen primary consonants, were built by adding strokes for the degree of harshness, except ‘ㄷ’.

The sound of ‘ㅋ’ as compared with ‘ㄱ’ is harsher, and so one stroke is added; ‘ㄴ’ is formed from ‘ㄹ’, ‘ㅌ’ from ‘ㄷ’, ‘ㅍ’ from ‘ㅁ’, ‘ㅍ’ from ‘ㅂ’, ‘ㅊ’ from ‘ㅈ’, ‘ㅊ’ from ‘ㅈ’, ‘ㅎ’ from ‘ㅇ’, and ‘ㅎ’ from ‘ㅇ’.¹⁹

To make this principle easier to understand and consonants simple to pronounce, these consonants could be arranged, as seen below, based on their harshness, as Sooyeon Lee did:²⁰

ㄱ < ㅋ	[g] < [k]
ㄴ < ㄷ < ㄹ	[n] < [d] < [t]
ㅁ < ㅂ < ㅍ	[m] < [b] < [p]
ㅅ < ㅈ < ㅊ	[s] < [ʃ] < [tʃ]
ㅇ < ㅎ < ㅎ	[ŋ] < [h] < [h]

In modern Korean, the ‘ㅇ’ is no longer used, and ‘ㄷ’ was added in. (The ‘ㄷ’ also had been formed by imitating the image of articulation; a tongue and the airflow path.) Only fourteen primary consonants are therefore represented by a single phoneme.

The primary consonants are pronounced differently depending on the region of Korea. However, in this project, only the standard Korean pronunciation will be discussed, which is

¹⁹ The National Institute of the Korean Language, 123.

²⁰ Sooyeon Lee, “A Study of Korean Diction for Choral Conductors using the Principles of the Korean Writing System.” DMA dissertation, University of Alabama. 2017. URI: <http://ir.ua.edu/handle/123456789/3265>. p 47.

used in Seoul, just as Hyun Bok Lee does in the *Handbook of the International Phonetics Association* for IPA.²¹

Remembering that the air will not be released when a Korean consonant is the final one in a syllable, unlike when it is in the initial position, is important. For instance, when ‘ㄱ’ is in the initial position, it would be sounded as [g] unless it is the final consonant. When it is used in the final position, it will, however, be unvoiced or implosive, and the ‘ㄱ’ will be sounded as a stop [k̚].

거기 [gʌgi]	(there)	한국 [hanguk̚]	(Korea)
마당 [madang]	(yard)	마음 [maum̚]	(heart)
바다 [bada]	(beach)	기업 [giʌp̚]	(company)
동생 [doŋsɛŋ]	(younger sibling)	디올 [diu̯l̚]	(name of ‘ㄷ’)
초가 [cʰoga]	(thatched roof)	돛대 [dot̚ dɛ]	(mast)
코등 [kotduŋ]	(bridge of nose)	부엌 [buʌk̚]	(kitchen)

Some consonants are pronounced differently depending on the phonemes that precede or follow the consonant.. For instance, when the ‘ㄱ’ is located at the initial position of a word and combined with these vowels, ㅏ, ㅑ, ㅓ, ㅕ, or ㅣ, it is pronounced in a breathy manner [gʰ], like a soft [k]. It is also often symbolized as a [k].

구름	[gʰurum] or [kurum]	(cloud)
귤	[gʰjul] or [kjul]	(tangerine)
그리움	[gʰurium] or [kurium]	(longing)
기다림	[gʰidarim] or [kidarim]	(waiting)

²¹ Hyun Bok Lee, 121.

As I just explained and provided examples with one of the Korean consonants, it can be seen that the Korean language does not distinguish between voiced and voiceless sounds, except in some exceptional situations that follow other phonological rules. This will be discussed in the next chapter in more detail.

There is a lateral consonant ㄹ that must be observed very closely. As shown in this consonant table (Table 2.1), the ‘ㄹ’ has two or more sound values based on its location in a syllable and by the effect of adjacent phoneme(s). ㄹ is generally pronounced as [r] or [l] without clear distinction of two different consonant values, except when it is located after a consonant or at the final position in a syllable. When it occurs, the ㄹ sounds as [l̥] without audible release, like every consonant does. When the ㄹ is positioned at the initial or between vowels, however, it is articulated as a voiced and flapped r [r] as in Italian.

하늘 [hanu^l] (sky) 거래 [gʌɾɛ] (dealings)

The ㅅ[s] is a voiceless alveolar fricative that came from the letter ㅅ, which evokes an image of teeth and the tongue behind the lower teeth and is no longer used in modern Korean. The sound of ㅅ is very similar but a little softer than the one in English [s]. When the ㅅ is located before [i] or [j], it is, however, pronounced as [ʃ], which also could be presented as [s^h].

사랑 [sarʌŋ] (love) 소리 [sori] (sound)
 시간 [ʃigan] (time) 실수 [ʃilsu] (mistake)

The sound of ‘ㄷ’ is presented with one simple symbol [ch], as Lee and Choen employed for the sound in their articles (1999). The consonant ㄷ also sounds simple, like [tˀ] without releasing the air and any audible sound when it is in the final position of a word or syllable.

초가집 [chogajipˀ] (thatched house) 달 [datˀ] (anchor)
 기차 [gichˀa] (train) 쫓기다 [tˀzotˀ gida] (be chased)

The sound of the voiceless plosive consonants ㅋ [k], ㅌ [t], and ㅍ [p] are produced with aspiration, which also could be presented with a diacritic as [kʰ], [tʰ], and [pʰ]. Like other Korean consonants, they are not audibly released when they are in the final position of syllables: [kˀ], [tˀ], and [pˀ].

크다 [kʰuda] (be big) 부엌 [buʌkˀ] (kitchen)
 태우다 [tʰɛwuda] (burn out) 붙다 [butˀ da] (stick)
 포도 [podo] (grape) 덮개 [dʌpˀ kʰɛ] (cover)

As mentioned above, the voiced glottal consonant ㅎ is no longer used in modern Korean anymore, and the sound [ɦ] has been absorbed by the ㅎ [h]. In other words, the ㅎ has several sound values, such as [h], [ɦ], or silent.

하얀 [hajˀan] (be white) 희망 [himˀan] (hope)
 속하고 [sokˀ hˀago] (belong) 낳았다 [na-atta] (produced)

b. Double Consonants

Other than the fourteen primary single consonants, there are many compound consonants in Korean that have been formed by combining primary consonants.

First, there are five double consonants, ㄱ, ㄷ, ㅂ, ㅅ, ㅈ that are obstruent and pronounced more tensed and harder than its corresponding singles: ㄱ, ㄷ, ㅂ, ㅅ, ㅈ. For instance, a double consonant ㄱ is tenser than a single consonant ㄱ.

<Density>

ㄱ [g] < ㄱ [k']
 ㄷ [d] < ㄷ [t']
 ㅂ [b] < ㅂ [p']
 ㅅ [s] < ㅅ [s']
 ㅈ [tʃ] < ㅈ [tʃ']

Table 2.2: The Double Consonants and Pronunciation

double consonants	IPA	articulatory classification	sound
ㄱ	[k']	non-pulmonic velar stop ²²	Ita.) <u>ca</u> ro
ㄷ	[t']	non-pulmonic alveolar stop	Dut.) <u>ta</u> al
ㅂ	[p']	unaspirated bilabial stop	Ita.) <u>pa</u> pà
ㅅ	[s']	non-pulmonic alveolar stop	Eng.) <u>so</u> rrow
ㅈ	[tʃ'] ²³ , [tʃ̌] ²⁴	non-pulmonic palatal stop	Ita.) <u>mezz</u> o

²² stops : stop the airflow → pressure (suspension) → release

²³ Hyun Bok Lee, 121.

²⁴ “Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary.” from The International Phonetic Alphabet (revised to 2018), *International Phonetic Association (IPA)*, chart.

Like many Western languages, all of these single and double Korean consonants could be categorized by the position of the obstructions of the articulators with which they are associated. They could be categorized by the resonators used for making the sound, such as lips, tongue, and palates. Also, degree of respiration and positions of phonation could be other factors. Additionally, they are divided into voiced and voiceless consonants based on whether the vocal cords vibrate or not.

Table 2.3: Consonants in Korean ²⁵

	manner of articulation ²⁶	Bilabial	Alveolar	Post-Alveolar	Velar	Glottal
Plosive / Stop	plain aspiration tense	ㅂ [b] ㅃ [p ^h] ㅅㅃ [p']	ㄷ [d] ㄸ [t ^h] ㅌ [t']		ㄱ [g] ㅋ [k ^h] ㆁ [k']	
Fricative	plain aspiration		ㅅ [s] ㅆ [s']			ㅎ [h]
Affricate ²⁷	plain aspiration tense			ㅈ [ʃ] ㅊ [c ^h] ㅉ [c']		
Nasal		ㅁ [m]	ㄴ [n]		ㅇ [ŋ]	
Lateral				ㄹ [l]		

²⁵ Korean consonant phonetic description by Hyun Bok Lee (1999) has been rearranged and organized in Sang Yee Cheon's dissertation (2005).

²⁶ Sang Yee Cheon, "Korean Phonology", *Journal of Korean-American Education* Vol. 29, special issue (July, 2000): 21.

²⁷ affricates: fricative + plosive

English is divided into two categories: plain and aspirated. Korean, however, is divided into three categories, as shown in table 2.3. The division into plain, aspirated, and tenseness is based on the manner of articulation, as well as the fact that Korean consonants have symbols that correspond to the sound they produce. In English, the [p] and [p^h] could share the same phonetic symbol [p]. However, in Korean, the labial consonants ㅂ [b], ㅃ [p], and ㅍ [p^h] are represented by distinct phonemes. An extra symbol or a diacritic on the IPA [p] is used to clearly indicate the difference.

ㅃ [p^ʰ], [p̥]²⁸, or [p[̄]]²⁹
 ㅍ [p^h]

In this chapter, I will use an extra symbol [ʰ] for the double consonants, the voiceless non-pulmonic unaspirated stops (plosives), which is frequently used by Linguists of Korean language.³⁰ Further discussion of the use of this symbol will be in chapter IV. These double consonants retain their unique sound values except when they are in the final position in a syllable. When they are at the final position, they sound like their corresponding single consonants.

아빠 [ap ^ʰ a] (dad)	싸움 [s ^ʰ aum] (fight)
까마귀 [k ^ʰ amagwi] (crow)	떨다 [d ^ʰ alda] (shiver)
닦아 [dak ^ʰ a] (wipe)	밖 [bak ^ʰ] (exterior)

²⁸ William A. Smalley. *Manual of Articulatory Phonics* (New York: Committee on Missionary Personnel Division of Foreign Missions, NCCC, 1961), 164.

²⁹ [t[̄]] - tenuis, unaspirated, voiceless stops, of [t]
 Beverley Collins and Inger Margrethe Mees. “Select Diacritics and Phonetic Symbols”, In *The Sound of English and Dutch* (Brill Archive, 1984), 281.

³⁰ In English, however, the *p*, *t*, and *k* are represented with the same symbols whether they are aspirated or unaspirated, voiced or unvoiced. (allophones which have positional variants)

As shown in table 2.3, ㄷ [d], ㄸ [tʰ], ㅌ [tʰ], ㄴ [n], ㅅ [s], ㅆ [sʰ], and ㄹ [l] are classified as pre-alveolar (dental) consonants, slightly more frontal than English, with “the blade of the tongue touching or approaching the back of the upper front teeth and the alveolar ridge are with the tongue tip touching the back of the lower teeth.”³¹ In English, the sounds would be regarded as alveolar consonants. Furthermore, according to Kim’s study, the affricatives, ㅈ [tʃ], ㅉ [tʃʰ], and ㅊ [tʃʰ], are also articulated more frontally than those in English.³²

The velar consonants of Korean are ㄱ [g], ㅋ [kʰ], ㆁ [ŋ], and they are articulated at a point that is a little lower than that in English. Lastly, the ㅎ [h], although less aspirated than English, is distinguished as a glottal consonant, except when it is in the final position in a syllable. When it is, it has no sound value.

c. Complex Consonants

In addition to single and double consonants, combining two different single consonants forms complex consonants. These combinations are not counted as fundamental consonants. However, in order to help pronounce them in any word or sentence, I will briefly discuss their sounds here.

Table 2.4: Sound of Complex Consonants

³¹ Ho-min Sohn. *The Korean Language*. (Cambridge: Cambridge University Press, 1999), 150.

³² Hyunsoon Kim. “The Place of Articulation of Korean Affricated Revisited,” *Journal of East Asian Linguistics* 8:313 - 347.

Table 2.4: Sound of Complex Consonants

combined consonants	IPA	articulatory classification	sound
ㄴㄷ, ㄴㄷ	[n]	voiced alveolar nasal	앉아 [andʌʒa] 만다 [manta]
ㄹㄱ	[k ʷ]	voiced lateral alveolar liquid or voiced velar plosive	닭 [dak ʷ] 묵다 [muk ʷ d'a]
ㄹㅁ	[m]	voiced bilabial nasal	닭다 [damd'a]
ㄹㄹ, ㄹㄹ ㄹㄷ, ㄹㄷ	[l]	voiced lateral alveolar liquid	여덟 [jʌdʌl] 할다 [hald'a] 달고 [dalk'o]
ㄱㅅ	[k ʷ]	voiced velar plosive w/o release	삿 [sak ʷ]
ㅂㅅ	[p ʷ]	voiceless bilabial consonant w/o release	없지 [ʌp ʷ dʌʒi]

As indicated in table 2.4, these complex consonants are used only in the final position of a syllable. The first consonant is commonly pronounced while the last consonants in the complex consonants are unsounded unless the complex consonant is followed by ‘ㅇ’, which has no sound values. If the next consonant is ‘ㅇ’, the last consonant of the complex consonants would be sounded as the first consonant of the next syllable, except if the complex consonant is ㄴㄷ [n].

음 [om] + 아 [a] → 올마 [olma]

앉 [an] + 아 [a] → 안자 [anʒa]

을 [ol] + 이 [i] → 을씨 [ols'i]

밖 [bak ʷ] + 은 [un] → 발근 [balgun]

없 [ʌb] + 어 [ʌ] → 업씨 [ʌbs'ʌ]

넋 [nʌk] + 을 [ʌ] → 넋쓸 [nʌks'ʌ]

- exception: 맵 + ㅅ [man + i] → 맵ㅅ[mani]³³

2. Vowels

Each Korean vowel is pronounced with different acoustic qualities based on the shapes and positions of the tongue, lips, and palate in the oral and pharyngeal cavities. In modern Korean, there are many theories and assertions on defining the number of primary vowels. Some scholars and educational institutes, including the National Institute of Korean Language, identify ten Korean vowels (ㅏ, ㅑ, ㅓ, ㅕ, ㅗ, ㅛ, ㅜ, ㅠ, ㅡ, ㅣ) as the primary vowels and its compounds as the rest.³⁴

However, in this project, I designate nine monophthongs as the basic and cardinal vowels and diphthongs as compound vowels, which could be very effective in understanding the structure and mechanism of pronouncing the Korean vowels, in the same manner as Hyun Bok Lee in the IPA handbook.³⁵

a. Monophthongs (basic and cardinal vowels)

i. ㅣ [i]

The highest and frontal vowel with spread (unrounded) lips that is similar to the one English [i]. Its sound value is unchanged whether the vowel is accompanied by one or more consonants.

미운 [miun] (hateful)

이마 [ima] (forehead)

³³ When the ‘ㅇ’ follows ㅅ, the ‘ㅎ’[h] sound value will be completely unpronounced.

³⁴ “Want to know about Hangeul?: Vowels”.

³⁵ Hyun Bok Lee, 121.

ii. ㅔ [e]

It is a frontal unrounded vowel produced in the mid height. With a flatted tongue, the lips are spread but more released and centralized than in English [e] toward [ɛ] phonating position. Its sound value is also unchanged in any situation. Unlike English or Italian, however, the closed [e] and opened [ɛ] are clearly indicated by using different vowel characters, ㅔ [e] and ㅕ [ɛ]. Additionally, the closed [e] in Korean is more open than it is in English or Italian, by releasing the edges of the lips.

게으른 [geurɯn] (lazy) 메다 [meda] (choke up)

iii. ㅕ [ɛ]

Another unrounded vowel with a flat tongue. The lips are a slightly more spread and centralized than they are for the English open [ɛ] toward [æ] position. The sound value always remains unchanged.

매미 [mɛmi] (cicada) 새 [sɛ] (bird)

iv. ㅚ [ʌ]

This vowel sounds [ʌ] is a mid-open back unrounded with lowered tongue. Although when it is pronounced longer, it is sounded as a central vowel [ə].³⁶

멀리 [mʌlli] (far away) 처음 [cʰʌɯm] (beginning)

³⁶ Ibid.

v. ㅏ [a]

An open - front - unrounded vowel with widely and horizontally opened lips and low tongue. The vowel ㅏ [a] in Korean is phonated slightly higher, with much lower palates, and sounds brighter but flatter than the English [a].

아름다운 [arudaun] (beautiful) 사랑 [saraj] (love)

vi. ㅓ [o]

Comparable to the English [o]. The sound value is always unchanged.

고요한 [gojohan] (calm) 보이다 [boida] (appear)

vii. ㅜ [u]

A rounded back vowel that sounds similar to the English [u]. The sound value is also always unchanged.

불다 [bulda] (blow) 우리 [uri] (we)

viii. ㅡ [ɯ]

A closed vowel that is phonated in high and back position like /u/ with spread but relaxed lips. As a closed - back - unrounded vowel, the tongue is located slightly forward than the /u/ sound. There is no similar phonetic symbol used in English. Russian, Chinese, Thai, and Irish, however, have comparable sounds.

그리움 [gurium] (longing) 나르다 [naruda] (carry)

ix. ㅚ [ø]

A close-mid rounded front vowel that is a slightly more centralized than German [ø] and closer to French [ø]. This vowel, however, often sounds like [we] and could also be categorized as a diphthong, a presently controversial classification.

괴로워 [gørowʌ] (in anguish) 되돌아 [dwedora] (revert)

The quality of these monophthongs could be deferred by their length, which sometimes affects the meaning of the word. However, in modern Korean phonology, distinction of the length has been weakened by younger generations who tend to shorten the long vowels. As a result, the contrast between long and short vowels are not as vivid as those in English.

As Jeong-woon Park mentioned in his study, representative Korean dictionaries even disagree on the lengths of certain vowels.³⁷ When the words have suffixes, the differences would become even vaguer. Therefore, although there are certain differences in the length of vowels, when the two words have the same spelling, such as 눈 [nun] (eye) and 눈 [nu:n] (snow), they would be phonated and be dealt with the same homophone ㅜ[u]. In singing, however, the length of vowels is determined by the length of corresponding musical notes. It is therefore not going to be discussed in detail in this project.

The articulation position of vowels could be mapped and visualized by using the “vowel quadrilateral,” which is the most general and applicable visual aid of where the sounds are produced in the mouth. The positions of Korean monophthongs could be marked as follows.

³⁷ Jeong-Woon Park, “Variation of Vowel Length in Korean,” In *Theoretical Issues in Korean Linguistics* (US: Center for the Study of Language and Information Publications, 1994), 176.

Figure 2.3: Quadrilateral of Korean Monophthongs ³⁸

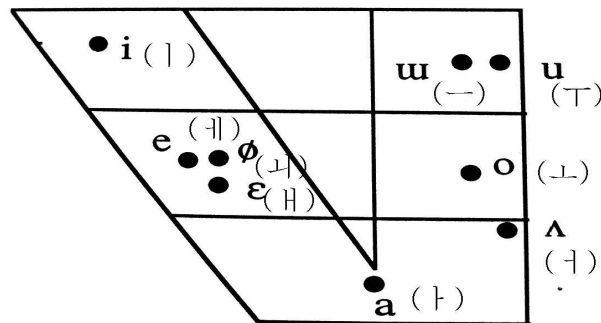


Table 2.5: Monophthongs and the Sounds

Monophthongs ³⁹	IPA ⁴⁰	Vowel Space (articulatory classification)	Sound
ㅣ	[i]	closed high front unrounded vowel with very spread lips and forward upward tongue near the palate	Fr.) si
ㅓ	[e]	close-mid front unrounded vowel with spread lips and flat tongue	Eng.) egg
ㅜ	[ε]	open-mid front unrounded vowel with spread but relaxed open lips and low flat tongue	Eng.) bed
ㅝ	[Λ]	back vowel with mid-open unrounded, slightly spread lips and flat tongue	Eng.) bird
ㅏ	[a]	open ‘front’ unrounded vowel with moderately opened lips and low tongue	Eng.) hot It.) padre
ㅛ	[o]	back vowel with mid-closed rounded vowel and slightly raised back of tongue	Ita.) rosa
ㅜ	[u]	closed back vowel with rounded and	Fr.) vous

³⁸ Hyun Bok Lee, 121.

³⁹ The order of these vowels has been adopted from Hyun Bok Lee’s Article “Korean” in *Handbook of the IPA*, 122.

⁴⁰ Ibid.

		protruded lips and raised back of tongue	
ㅡ	[ɯ] ⁴¹	closed back unrounded vowel	similar w/Rus.) ТЫКВА
ㅟ	[ø] ⁴²	close-mid front rounded vowel with slightly protruded lips and raised middle of tongue	Fr.) peu

As shown in table 2.5, some phonetic symbols are also used for English vowels. The phonation points of the vowels, however, are different even though the same phonetic symbols are used for English. Additionally, the sound of the vowels could be slightly different based on the shapes of the organs and the usage of the articulators.

b. Diphthongs (Compound Vowels)

There are many compound vowels in Korean that have gliding motions when transitioning between two different vowel qualities in a syllable, called diphthongs. Only three approximants are used in the compound vowels in Korean, which are [ɯ-](closed back unrounded vowel), [w-] (voiced labial-velar approximant), and [j-] (voiced palatal approximant) in the first position followed by another vowel.

Despite many studies on pronunciation of Korean by linguistics and scholars, categorizing these compound vowels is still a controversial issue. The two approximants, [j] and [w], are combined with one of monophthongs and are regarded as semi-vowels that are unable to

⁴¹ Hyun Bok Lee presented as [ɯ] (closed back - high unrounded vowel) for the vowel ‘ㅡ’, but from part 1 in the same book, “*Handbook of the IPA*”, the vowel was described as [ɨ] (closed central - high unrounded vowel). (p 22)

⁴² The vowel ‘ㅟ’ is often pronounced as a diphthong [we] as Hyun Bok Lee also mentioned in his article “Korean”, in *IPA Handbook*. (p 121)

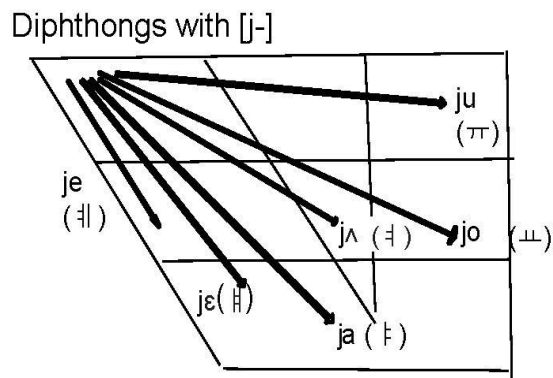
have an independent vowel value in the language. For this reason, the compound vowels with the approximants were also considered “glides” and not “diphthongs,” as Yongsung Lee claimed in his article, “Onset Analysis of Korean On-Glides”.⁴³ To avoid this issue, instead of the [j] approximate, [y-] could be used alternatively to represent the compound vowels.

In singing diction, compound vowels are more commonly categorized as “diphthongs” rather than “glides.” The linguist Hyun Bok Lee also described the compound vowels as diphthongs with the semi-vowel [j] or [w], and “considered [them] to be components of diphthongs” that glide into vowels, which is still contentious.⁴⁴ It is for this reason that in this diction project for singers, I will call compound vowels with two vowel qualities diphthongs.

i. [j-] glide Diphthongs

When two vowel sound qualities transition in a syllable from semi-vowel, [j] or [w], to vowel, they move in different directions and positions in phonation. The [j-] diphthongs are down-gliding and opening diphthongs and go front to back as indicated in the vowel quadrangle in figure 2.4.

Figure 2.4: Diagram of [j-] Diphthongs in Korean Vowels



⁴³ Yongsung Lee, 133.

⁴⁴ Hyun Bok Lee, 121.

Table 2.6 [j-] Diphthongs and the Sounds

[j] diphthongs	IPA	vowel space	sound
ㅑ	[ja] ⁴⁵	down-gliding diphthong with wide-opening lips combined form of ㅣ [i] + ㅏ [a]	Ger.) <u>ja</u>
ㅓ	[jɛ]	down-gliding diphthong with dropping jaw to open lips combined form of ㅣ [i] + ㅓ [ɛ]	Eng.) <u>yelling</u>
ㅕ	[jʌ]	down-gliding and centralized diphthong with opening lips combined form of ㅣ [i] + ㅑ [ʌ]	Eng.) <u>young</u>
ㅖ	[je]	down-gliding diphthong with dropping jaw combined form of ㅣ [i] + ㅓ [e]	Eng.) <u>yes</u>
ㅗ	[jo]	down-gliding diphthong with rounding lips combined form of ㅣ [i] + ㅜ [o]	Eng.) New <u>York</u>
ㅛ	[ju]	down-gliding diphthong with rounding lips combined form of ㅣ [i] + ㅠ [u]	Eng.) <u>used</u>

⁴⁵ Hyun Bok Lee described vowels, ㅑ, ㅕ, ㅗ, and ㅛ as diphthongs, but he used a semi-vowel [j-], as the approximant, for the first phonetic symbol instead of a vowel [y-], which distinguishes the compound vowels as a diphthong that consists of two vowels in one syllable.

The vowel **ㅣ** is frequently pronounced as [je]. However, when the vowel is combined with a preceding **ㅎ**, the value of [j] sound could be omitted; it is simply pronounced as [e].

예절 [jeɯʌl] (manners) 시계 [sigje] (clock)
 은혜 [unhe] (grace) 혜안 [hean] (insight)

ii. [w-] glide Diphthongs

The [w-] diphthongs are also down-gliding and open diphthongs but move from back to front.

Figure 2.5: Diagram of [w-] Diphthongs in Korean

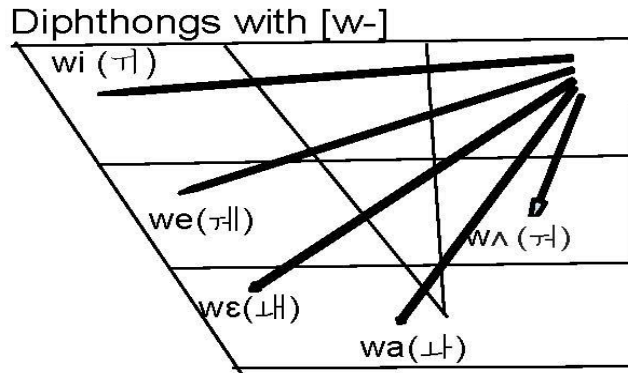


Table 2.7: [w-] Diphthongs and the Sounds

[w] diphthongs	IPA	vowel space	sound
ㅟㅣ	[wi], [yi]	down-gliding diphthong with spreading lips combined form of ㅟ[u] + ㅣ[i]	Eng.) <u>w</u> e

ㅜㅣ	[wʌ]	down-gliding and centralized diphthong with inrounding lips combined form of ㅜ[u] + ㅣ [ʌ]	Eng.) <u>w</u> alk
ㅜㅣ	[we]	down-gliding and frontal diphthong with dropping jaw combined form of ㅜ[u] + ㅣ [e]	Eng.) <u>W</u> est
ㅞㅣ	[wɛ]	down-gliding to mid and front with opening lips combined form of ㅞ[o] + ㅣ [ɛ]	Eng.) <u>w</u> agon
ㅟ	[wa]	down-gliding diphthongs with opening lips wide combined form of ㅞ[o] + ㅣ [a]	Fr.) <u>r</u> oi

The diphthong ㅜㅣ sounds [wi]. When it is followed by one or more consonants, except ㅇ that has no sound values, the semi-vowel [w] sound becomes weaker. The diphthong could also be sounded as [yi].

귀 [gw^hi] or [gyi] (ear) 쉬어 [ʃw^hiʌ] (get rest)

Additionally, all of these Korean diphthongs are classified as “rising diphthongs,” which means that the first vowel is only briefly pronounced while the second vowel of the compound vowels is prolonged to the end in the syllable. ⁴⁶

⁴⁶ Sooyeon Lee. 54.

iii. [w-] glide Diphthong

The last compound vowel ‘-ㅣ’ has been transcribed with various phonetic symbols depending on various ideas and theories: [wj] by Jiyoung Shin, [ɔi] by Kang Mi Kim, [ɨi] by Sooyeon Lee, and more.⁴⁷ Although it is definitely a combined form of two basic vowels — and ㅣ, the linguist Hyun Bok Lee classifies this compound vowel as a “glide” rather than a diphthong.⁴⁸ Yongsung Lee supports the hypothesis in his article, *Onset Analysis of Korean On-Glides*, that the glide is formed when another vowel comes after a vowel in the same syllable.⁴⁹ On the contrary, many scholars like Hun-Tae Kim and Sooyeon Lee, however, insist that -ㅣ is the only perfect diphthong that is a “unique” and a “characteristic” one in the Korean language.

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The diphthong -ㅣ [wi] is one that has multiple pronunciations depending on the surrounding phonemes. As a suffix following nouns or pronouns, the -ㅣ is pronounced as [e], and it sounds like an like an [i] when combined with a consonant ㅎ [h].

의자 [wiɟa] (chair) 나의 [nae] (my) 희망 [himaŋ] (hope)

⁴⁷ Shin, 109; Lee, 43. There are more symbols, such as [wi], [

⁴⁸ Hyun Bok Lee, 41.

⁴⁹ Yongsung Lee, “Onset Analysis of Korean On-Glides”, In *Theoretical Issues in Korean Linguistics* (US: Center for the Study of Language and Information Publications, 1994), 139.

⁵⁰ Hun-Tae Kim, “A Teaching Method of Korean Pronunciation for Italian Native Speakers,” *Studies in Linguistics* 21 (December 2011): 87-88.

Table 2.8: Sound of [ɹ-] Diphthong

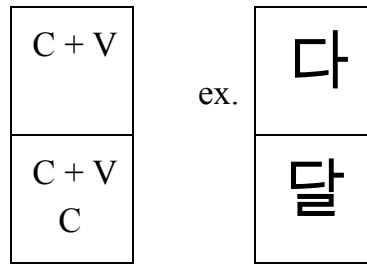
[ɹ-] diphthong	IPA	vowel space	sound
—	[ɹi] ⁵¹ (pro)noun + [e] ̄ + [i]	down-gliding diphthong to the front with spreading lips combined form of —+ [ɹ+i]	Scottish) druim (back)

⁵¹ Other than [ɹi], the ‘—|’ is often pronounced as [e] or [je] when used as a possessive suffix after a noun or pronoun.

Chapter III. Korean Phonology

Although Korean may seem straightforward because it follows a “consonant + vowel” system to form syllables and words, it is still important to understand the phonological processes, as it will aid in the diction for singers.

In a syllable, whether a consonant(s) in the final position, the vowel(s) will be the center of it. The syllabification of Korean is however somewhat slightly different from most Western languages. It follows a “block system” that forms syllables. The last consonant(s) of a syllable, if there is any, should be located below the initial consonant with a vowel. For instance, phonemes in a syllable are C + V (+ C) and should be structured as seen in the next diagram.



The order of pronunciation of the syllable is, as in most languages, from left to right and upper to lower, C + V (+ C). The positions of the phonemes are labelled as initial(I), middle(M), and final(F). The initial(I) must be a single or double consonant, followed by a vowel at the middle position in order to develop the fundamental structure of a single syllable. There could be an optional consonant in the final position.

$$\begin{array}{ccccccc}
 \underline{\text{initial (I)}} & + & \underline{\text{middle (M)}} & + & \underline{\text{final (F)}} & & \\
 \text{ㄷ} & + & \text{ㅏ} & (+ & \text{ㄹ}) & = & \text{다 (or 달)}
 \end{array}$$

Korean is an agglutinative language with polysyllabic roots and grammatical suffixes⁵² or postposition in a single word to form a sentence. In other words, a root has affixes, such as a prefix and/or suffix, which are particles that decide the function(s) of the word. In a sentence, each of the roots with an affix is separated by spacing, and,, in the same way, a sentence should be read with pauses whenever spaces are present. The full sentence always starts with a subject and ends with a verb. The tense of the sentence is indicated by changing the suffix of the verb.

When the syllables are combined with other syllables to form phrases or sentences, several phonological changes occur to connect the syllables smoothly.

1. Syllabification

As I have discussed previously, some consonants are sounded in different manners depending on the surrounding consonants.

For the fluent connection of two or more syllables, when the next syllable starts with a consonant ㅇ, which has no sound value, the final consonant would be pronounced as the first sound of the next syllable. There is, however, no substantial difference when hearing the language.

<u>written</u>		<u>pronounced</u>	
만일 [man + il]	→	마닐 [manil]	(if)
각오 [gag ʷ + o]	→	가고 [gago]	(determination)

⁵² Sooyeon Lee, 55.

2. Consonantal Assimilation

a. Nasalization

When the final ㄱ[k], ㄷ[t], ㅂ[p], or ㅎ[h] are followed by nasal consonants ㄴ[n] or ㅁ[m], their manners of articulation are assimilated to the following nasal consonants. They are therefore nasalized and pronounced as ㄴ[n], or ㅁ[m], ㅇ[ŋ].

<u>written</u>		<u>pronounced</u>	
국물 [guk + mul]	→	궁물 [ɡuŋmul]	(soup)
받는다 [bad + nunda]	→	반는다 [banunda]	(receive)
밥맛 [bap + mat]	→	밤맛 [bammat]	(appetite)
낳는다 [nad + nunda]	→	난는다 [nannunda]	(give birth)

This also applies to the other consonants, such as voiced ㄱ[k'], ㄷ[d'], ㅂ[p'], and voiceless ㅋ[k], ㅌ[t], ㅍ[p], which are tensed or aspirated consonants of ㄱ[g], ㄷ[d], ㅂ[b].

The nasal consonants, ㄴ[n], ㅁ[m], ㅇ[ŋ], also affect the following initial ㄹ[l] of the next syllable. ㄹ[l] will assimilate and be pronounced as ㄴ[n] when preceded by the nasal consonants.

<u>written</u>		<u>pronounced</u>	
안락 [an + lak]	→	안낙 [annak]	(comfort)
음력 [um + ljak]	→	음녁 [umnjak]	(lunar calendar)
종로 [dʒon + lo]	→	종노 [[dʒonno]	(name of an area)

If the final ㄱ [g̚], ㄷ [d̚], or ㅂ [b̚] is followed by ㄹ [l], the consonant ㄹ [l] would be pronounced ㄴ [n], and the final consonants will be assimilated and become ㅇ [ŋ], ㄴ [n], ㅁ [m].

<u>written</u>	→	<u>pronounced</u>	
국력 [guk̚ + ljʌk̚]	→	궁녁 [gʊŋnʌk̚]	(national power)
섭리 [sʌp̚ + ɭi]	→	섬니 [sʌmni]	(providence)

b. Palatalization

When the alveolar consonants ㄷ [d] or ㅌ [t] come as finals in a syllable and combine with following vowel sound of [i] or [j-], they become palatalized and pronounced as ㅈ [tʃ] or ㅊ [ch] by the effect of the palatal sound of [i] or [j].⁵³

<u>written</u>	→	<u>pronounced</u>	
해돋이 [hɛdot̚ + i]	→	해도지 [hɛdoɕi]	(sunrise)
같이 [gat̚ + i]	→	가치 [gacɰi]	(together)

c. Lateralization

When a lateral consonant ㄹ [l] combines with a nasal consonant ㄴ [n], The nasal sound is assimilated by the lateral one. This is also called liquidization or l-assimilation.

<u>written</u>	→	<u>pronounced</u>	
달나라 [dal + nara]	→	달라라 [dalla]	(lunar world)
난로 [nan + lo]	→	날로 [nallo]	(heater)
설날 [sʌl + nal]	→	설랄 [sʌlla]	(new year's day)

⁵³ Sang Yee Cheon, ㄹ.

d. Tensification

When the initial lax stops ㄱ[g], ㄷ[d], ㅂ[b], ㅈ[ʧ], or a fricative ㅅ[s] is preceded by final stop consonants, such as ㄱ[k̚], ㄷ[t̚], or ㅂ[p̚], they will be tensified and pronounced as ㄱ[kʰ], ㄷ[dʰ], ㅂ[bʰ], ㅈ[ʧʰ], or ㅅ[sʰ].

<u>written</u>	→	<u>pronounced</u>	
학교 [hak̚ + gjo]	→	학 <u>교</u> [hak̚kʰjo]	(school)
있다 [it̚ + ta]	→	있 <u>따</u> [itt̚a]	(to have, to exist)
학비 [hak̚ + pi]	→	학 <u>뻬</u> [hak̚pʰi]	(tuition)
숙제 [suk̚ + ʧe]	→	숙 <u>제</u> [suk̚ʧʰe]	(homework)
박사 [bak̚ + sa]	→	박 <u>사</u> [baks̚a]	(doctor)

Moreover, when the ㄱ, ㄷ, ㅂ, ㅈ, or ㅅ is preceded by the nasal consonants, ㄴ[n̚], ㅁ[m̚], ㅇ[ŋ], or a lateral approximant ㄹ[l̚], they will also be tensified.

<u>written</u>	→	<u>pronounced</u>	
문고리[mun̚ + gori]	→	문 <u>꼬</u> 리[munk̚ori]	(doorknob)
넘다 [nʌm̚ + da]	→	넘 <u>따</u> [nʌmd̚a]	(go over)
봄비 [bom̚ + bi]	→	봄 <u>뻬</u> [bomb̚i]	(spring rain)
성격 [sʌŋ + kjʌk̚]	→	성 <u>격</u> [sʌŋk̚jʌk̚]	(personality)
열성 [jʌl̚ + sʌŋ]	→	열 <u>성</u> [jʌls̚ʌŋ]	(enthusiasm)

3. Aspiration

The aspirated consonants are often compared with corresponding “unaspirated” consonants to hear the contrast clearly between the two. In English, for example, an aspirated p in *pie* is compared with *spy*, which is unaspirated. However, in Korean, the aspiration occurs

when the stops, ㄱ, ㄷ, ㅂ, ㅅ, ㅈ, ㅊ, ㅋ, ㅌ, or ㅍ come in the initial position and combine with a vowel [i] or semi-vowel [j]: they are affected by the following high and frontal vowel quality. As a result, the stops would sound more aspirated than the ones with other vowels, whether or not presented in IPA with [h]. This phenomenon becomes more obvious when the stop is in the initial position and sung in vocal art.

ㄱ [g] + [i] or [j-] → [g ^h] or [k]	기억 [k ^h iʌk ˊ]	(memory)
ㄷ [d] + [i] or [j-] → [d ^h] or [t]	어디에[ʌd ^h ie]	(where at)
ㅂ [b] + [i] or [j-] → [b ^h] or [p]	비록 [b ^h iɾok ˊ]	(although)
ㅅ [s] + [i] or [j-] → [s ^h]	시작 [s ^h iʝak ˊ]	(start)
ㅈ [ʝ] + [i] or [j-] → [ʝ ^h] or [ç ^h]	지구 [ç ^h iɡu]	(Earth)
ㅋ [k] + [i] or [j-] → [k ^h]	키우다[k ^h uda]	(raise)
ㅌ [t] + [i] or [j-] → [t ^h]	테이블[t ^h eibʌl]	(table)
ㅍ [p] + [i] or [j-] → [p ^h]	피곤한[p ^h igonhan]	(tired)
ㅊ [ç] + [i] or [j-] → [ç ^h]	치마 [ç ^h ima]	(skirt)

The representative aspiration, whose explanation is unneeded, is a glottal fricative consonant ㅎ. As mentioned above, the ㅎ has several sound values, [h], [ɦ], or silent. Except when unsounded, the two sound qualities have aspiration due to the position of its articulation. When the ㅎ combines with [i] or [j-], however, the air flow increases, just like the stops, although the aspiration symbol [h] will not be added to the IPA.

하늘 [ɦanʌ ˊ]	(sky)	희망 [ɦimanŋ]	(hope)
효도 [ɦjodo]	(filial duty)	노랗다 [noɾata]	(yellow)

Correspondingly, there is another aspirate phenomenon that occurs when the stops, ㄱ, ㄷ, ㅂ, ㅈ, precede the ㅎ, and the stops become aspirated and are pronounced like their corresponding aspirated stops, ㅋ, ㅌ, ㅍ, and ㅊ.

ㄱ + ㅎ → ㅋ
(or ㅎ+ㄱ)

독학 [dokak^h]
(self-education)

ㅎ + ㄷ → ㅌ

낳다 [naɳa]
(lay, give birth)

ㅂ + ㅎ → ㅍ

답하다 [dapada]
(answer)

ㅈ + ㅎ → ㅊ
(or ㅎ+ㅈ)

많지 [manɕi]
(be many)

Chapter IV. Diction for Singing

The definition of the term “diction” in classical singing is difficult to define for non-musical people or instrumentalists. Diction does not simply mean how to read the language. Diction for singing is an area of study that should be carefully discussed. The reason why diction is important is because musical texts are one of the main components that convey the meaning and purpose of the music to the audience. Proper diction therefore allows the singer to effectively deliver the art to the audience, and it is also for this reason that the difference between reading and singing is understood. An example is the French “r.” When sung, the pronunciation is more general and easier to pronounce, unlike the spoken “r,” which is difficult to replicate for non-native speakers. Due to the differences in diction between speaking and singing in any language, a number of instructions and diction books are provided to help singers deal with different languages.

Pronouncing the unique and identical sounds of certain vowels and consonants in the Korean language, which are rare or absent in other languages and could be problematic in classical singing, therefore raises many issues. Another problem of Korean diction in classical singing is that positions of phonation for several Korean vowels are inadequate for making good resonance. Those locations of articulation should therefore be modified for the best sound quality while singing.

The locations of phonation of certain sounds in reading Korean could be adjusted and relocated carefully and effectively in order to make the singing voice resonate more when sung without changing the meaning of the words. In other words, the range of a certain diction,

despite the changing or adjusting the locations and methods for phonation, should not lose its own sound value. Unlike English, if the sound value changes in the Korean vowels, the meaning of the word could be totally different than the original one.

[gɑgi] 가기 (going) ↔ [gʌgi] 거기 (there) ↔ [gogi] 고기 (meat)

Accordingly, some of the IPA symbols for the Korean alphabet could be replaced or adjusted reasonably and adequately. Using proper IPA symbols for the Korean song texts would be very helpful and much easier for classical singers, who are used to studying diction in many different languages with IPA, to learn it accurately, and to applying it precisely in their singing. Nevertheless, in choosing the IPA, I tried to select common and well-known IPA symbols that were closest to the sound value.

1. Consonants

In Chapter II, I introduced the pronunciation of Korean consonants with IPA that has been used for reading. Singers, however, should adjust the articulations of Korean consonants when singing. It is also necessary to accommodate and minimize the numbers of IPA symbols for each consonant to be more accessible to foreign singers. If more common and specific IPA symbols are coherently provided to singers and teachers, instead of the many different symbols that have been inconsistently recommended by many scholars, it would be easier and more efficient in guiding them on singing with Korean lyrics.

a. primary consonants

i. ㄱ [g]

As mentioned above, the consonants are pronounced differently depending on the adjacent phonemes. When the ‘ㄱ’ is located at the initial position of a word or in intervocalic position, it sounds [g]. When it combines with certain vowels such as | [i] or with one of [j-] diphthongs, it is pronounced with aspiration that could be symbolized as a [g^h] or soft [k].

For singing, however, aspiration is always added in order to sound the initial consonant clearly to the audience. Additionally, since there is no clear distinction between [g], [g^h], and soft [k] in Korean characters, it could be presented simply as [g]. As all Korean consonants are, the ㄱ will be pronounced as [k^h] without an audible release, when it is in the final position of a syllable or word.

구름 [gurum ^h] (cloud)	촉촉한 [t ^h ʃok ^h t ^h ʃokan ^h] (moist)
한글 [hangul ^h] (Korean Alphabets)	기억 [giʌk ^h] (memory)

ii. ㄴ [n]

When the nasal consonant ㄴ [n] is followed by [i] or a [j-] diphthong, the sound of the consonant will be more nasalized. It does not have to be presented, however, using the IPA [ɲ] because the nasalization happens naturally, especially when sung. Again, when it is in the final position in a syllable, the sound will not be released and will be pronounced as [n^h], which could also be symbolized simply with the [n], if the singer or teacher has basic knowledge of reading in the Korean language.

노래 [norɛ] (song)	언젠가 [ʌndʒɛŋga] (sometime later)
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미운 [miun] (hateful)

구름은 [gurumun] (clouds are)

iii. ㄷ [d]

When the ㄷ is in the initial position, it is simply pronounced as [d]. Just like the ㄱ [g], when preceded by [i] or a [j-] diphthong, ㄷ would be more aspirated as [d^h] or soft [t], which can only be indicated with a [d]. Singers are used to exaggerating or over-sounding the first consonant, whether or not indicated by extra symbols, because they aim for clear diction. Again, when the ㄷ is located at the end of a syllable, it sounds as [t̚] without releasing air.

드디어 [dud̚i̯] (finally)

동그라미 [dɔŋgura̯mi] (circle)

곧 [got̚] (soon)

미닫이 [midat̚i] (sliding door)

iv. ㄹ [r], [l]

When it is in the initial position, ㄹ is better be pronounced as tap or flap r [r] in classical singing, except preceded by another ㄹ in the final position of the previous syllable. If there are two ㄹ arranged together, however, the sounds do not get tensed like double consonants. Moreover, when it is in the final position, it sounds as an [l̚] without an audible release.

가랑비 [garaŋbi] (drizzle)

살림 [salim] (housekeeping)

(ㄹ + ㄹ is pronounced as one [l] or double [ll]:
no clear distinction between these two sounds,
especially in classical singing)

리듬 [ridum] (rhythm)

가을 [gaul̚] (Autumn)

v. ㅁ [m]

A nasal consonant that is pronounced [m] does not change the sound value when sung. The only change in phonation in classical singing is that singers would lift the arch of the palate higher than when speaking.

마음 [maum ˆ] (heart)	얼음 [ʌrum ˆ] (ice)
머물다 [mʌmulda] (stay)	미움 [mium ˆ] (hatred)

vi. ㅂ [b]

Like other plosives, the ㅂ is pronounced as a [b] in the initial position and pronounced as a [bʰ] or soft [p] with the succeeding [i] or a [j-] diphthong. When it is in the final position, it is pronounced as a [p ˆ].

바람 [baram] (wind)	겹겹이 [gjʌp ˆ gjʌbi] (in layers) (the second ㅂ sounds [b] due to the next consonant ㅇ, which has no sound value)
불어온다 [burʌonda] (blowing)	낙엽 [nagjʌp ˆ] (fallen leaves)

vii. ㅅ [s], [ʃ]

The pronunciation of the consonant may vary in the manner of articulation and depends on its position and surrounding phonemes. Accordingly, various phonetic symbols are used to describe different sounds, such as [s], [z], [sʰ] or [ɕ]. The [ɕ] for an aspirated ㅅ has not been introduced widely. Additionally, it was seldom used in singing because the symbol is difficult to recognize and sound. Therefore, instead of [ɕ], when [i] or an approximant [j-] diphthong comes

after the consonant, [ʃ] is more appropriate to phonate the aspirated ㅅ.⁵⁴ When it is a final consonant, it sounds as a [t̚].

사모함 [samoham̚] (adoration)

시기 [ʃigi] (envy)

빗 [bit̚] (comb)

잇다 [it̚ t̚ a] or [it̚ a] (connect)
(the [t] sound affects the next consonant ㄷ [d] to be tensificated and voiced without aspiration [t̚]sound.)

viii. ㅉ [d̠ʒ]⁵⁵

In his article “Korean”, Hyun Bok Lee classifies the ㅉ as a post-alveolar affricate but describes the sound quality with a voiced palatal plosive phonetic symbol [ɟ].⁵⁶ However, since the phonation occurs more in front and is more centralized in singing, which is neither described accurately nor popularly known by many singers, a postalveolar symbol [d̠ʒ] could be more suitable. The symbol [d̠ʒ] is also more recognized for the sound of the consonant ㅉ than other phonetic symbols, such as [ɟ], [tʃ] or [ʒ]. When it is located in the final position, the sound is not released like a [t̚] would.

저녁 [d̠ʒʌnjʌk̚] (evening)

잊으리 [id̠ʒuri] (will forget)
(ㅉ + ㄹ results the former consonant ㅉ pronounced as the initial sound of the next syllable)

갓다 [gat̚ d̠ a] or [gat̚ a] (take, bear)
(ㅉ + ㄷ results the initial ㄷ [d] being tensed as [d̠])

⁵⁴ Sang Yee Cheon. “Production and Perception of Phonological Contrast in Second Language Acquisition: Korean and English Fricatives” PhD Dissertation, 66 (4), University of Hawaii. May 2005. UMI Number: 31710 38.

⁵⁵ Affricates and double articulations are represented with a tie above the joined two symbols, when they sound as one phoneme. (from the IPA Chart, revised to 2019, published by International Phonetics Association)

⁵⁶ Hyun Bok Lee, 120.

ix. ㄷ [tʰ]

In the IPA handbook, the sound of this consonant is represented as [cʰ], except when in the final position. However, instead of [cʰ], which is used for a palatal plosive, [tʰ] or [tʰʃ] is appropriate for the postalveolar affricate ㄷ, as Yohan Kim presented in his DMA dissertation.⁵⁷ The [tʰʃ] is more accurate and more resonant, especially when used in the lyrics of classical songs. As a final in a syllable, again, it sounds like a [tʰ] without an audible release.

초롱초롱하다 [tʰʃoɾoŋtʰʃoɾoŋhada] (limpid)	치마 [tʰʃima] (skirt)
별빛 [bjʌlbitʰ] (starlight)	빛나는 [bɪnnaɳn] (shining) (In ㄷ + ㄴ, ㄷ is nasalized by the following nasal consonant [n])

x. ㅋ [k]

An unvoiced velar stop ㅋ is pronounced like a [k] when it is an initial in a syllable. If it is in the final position, it is pronounced like a [kʰ] without releasing air, like other Korean consonants.

커다란 [kʌdaɾan] (big)	키가 큰 [kiga kʌn] (tall)
부엌 [buʌkʰ] (kitchen)	동녘으로 [doŋnjʌkʌro] (eastward) (In ㅋ + ㅇ, the ㅋ sounds as an initial of the next syllable. But, sometimes, it often sounds softened like [doŋnjʌkʰʌro] or [doŋnjʌgʌro])

xi. ㅌ [t]

As an unvoiced aspirated stop, ㅌ sounds like [t] at any time. When in the final position, no sound is released, resulting in [tʰ].

튀어나오다 [twiʌnaoda] (stick out)	도토리 [dotori] (acorn)
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⁵⁷ Yohan Kim, "A Korean Art Song Anthology." (DMA diss., University of Wisconsin-Madison, 2014), 7.

가마솥 [gamasot̚] (iron pot)

팥죽 [pat̚ d̚ʒ̚=uk̚] (red bean porridge)
(In ㅍ + ㅈ, the latter consonant ㅈ gets more tension from the stop ㅍ)

xii. ㅍ [p]

The aspirated bilabial stop ㅍ sounds [p] except as a final, which is pronounced as [p̚].

포도 [podo] (grape)

나뭇잎 [namunip̚] (leaf)
(In ㅍ + ㅇ, the final ㅍ become an initial of the next syllable. It is also softened like a [n] by the next [i]vowel.)

파아란 [paaran] (blue)

짚 [d̚ʒ̚ip̚] (hay)

xiii. ㅎ [h]

The only glottal consonant ㅎ sounds [h] and is more aspirated with [i] or [j-] vowels, like an [h̟]. Although there are different degrees of aspiration involved in the manner of articulation, the [h] symbol could be used for those sounds without much conflict. When it is positioned as a final, it is unpronounced but may influence the pronunciation of the consonants that follow.

희망 [himang] (hope)

할머니 [halmʌni] (grandmother)

날으시고 [nawʃigo] (bear, lay)

하얗게 [hayake] (whiten)
(In ㅎ + ㄱ, the ㅎ makes ㄱ aspirated like a [k])

Overall, compared to the IPA for reading, the diction of the prime Korean consonants in classical singing can be organized into one table, as seen in table 4.1.

Table 4.1 Diction of Primary Consonants for Classical Singers

Table 4.1 Diction of Primary Consonants for Classical Singers

primary consonants	IPA for reading	IPA for singing	examples
ㄱ	initial: [g], [k] final: [k̚] ⁵⁸	initial: [g] final: [k̚]	구름 [gurum̚] (cloud) 기억 [giʌk̚] (memory)
ㄴ	initial: [n] final: [n̚]	initial: [n] final: [n̚]	노래 [norɛ] (song) 소원 [sowʌn] (wish)
ㄷ	initial: [d], [t] final: [t̚]	initial: [d] final: [t̚]	드디어 [dudɪʌ] (finally) 곧 [got̚] (soon)
ㄹ	[l], [r], [ɾ]	initial: [ɾ] final: [l]	가랑비 [garʌŋbi] (drizzle) 가을 [gaw̚l̚] (Autumn)
ㅁ	initial: [m] final: [m̚]	initial: [m] final: [m̚]	마음 [maum̚] (heart) 얼음 [ʌrum̚] (ice)
ㅂ	initial: [b], [p] final: [p̚]	initial: [b] final: [b̚]	바람 [baram] (wind) 낙엽 [nagjʌp̚] (fallen leaves)
ㅅ	initial: [s], [z] ⁵⁹ w/ [i] vowel: [ɕ] final: [t̚]	initial: [s] w/ [i], [j-]: [ʃ] final: [t̚]	사모함 [samoham̚] (adoration) 시기 [ʃigi] (envy) 빗 [bit̚] (comb)
ㅇ	initial: silent final: [ŋ]	initial: silent final: [ŋ]	어두운 [ʌduwun] (dark) 환영 [hwanjʌŋ] (welcome)
ㅈ	[tʃ] ⁶⁰ , [tɕ], [ʒ], [c]	initial: [d̪ʒ] final: [t̚]	저녁 [d̪ʒʌnjʌk̚] (evening) 갖다 [gatt̪=a] (take, have)
ㅊ	[c ^h], [tɕ ^h]	initial: [t̪ʃ]	치마 [t̪ʃima] (skirt)

⁵⁸ [k̚] - The air for the consonant ㄱ doesn't be released at the final position in a syllable.

⁵⁹ Hyun Bok Lee presented the voiceless Alveolar 'ㅅ' as [z] because the 'ㅅ' is pronounced softer than English [s].

⁶⁰ Hyun Bok Lee, 121.

		final: [t̚]	별빛 [bjʌlbit̚] (starlight)
ㅋ	[k], [kʰ]	[k]	커다란 [kʌdaʀan] (big) 부엌 [buʌk̚] (kitchen)
ㅌ	[t], [tʰ]	[t]	도토리 [dotori] (acorn) 가마솥 [gamasot̚] (iron pot)
ㅍ	[p], [pʰ]	[p]	파아란 [paʀan] (blue) 짚 [d̘ʒip̚] (hay)
ㅎ	[h], [h̥] final: silent	[h] final: silent	희망 [himan] (hope) 날으시고 [naʌfigo] (bear, lay)

b. Double consonants (ㄲ, ㄸ, ㅃ, ㅆ, ㅉ)

In chapter II, I discussed the controversial topic on choosing the appropriate IPA symbols for the double consonants. For example, if they are presented with a superscript [̚] without additional instruction, as a scholar Choen does, these consonants may be distinguished as non-pulmonic ejectives.⁶¹ Then the voiceless unaspirated sound would be produced just prior to the following vowel, which results in a time gap (long VOT: long voice-onset time) between the plosive sound of the consonant and the next vowel in a single syllable.

For this reason, the double consonants should be dealt as stops or plosives, as those in English. In English, similar sounds exist when the consonants *p*, *t*, *c* are preceded by *s*-, such as *spar*, *star*, and *scar*. There are, however, no specific diacritic symbols to clearly distinguish them. For the tense sound of the Korean consonants, Sooyeon Lee⁶² and Sang Yee Cheon added an asterisk(*) next to a phonetic symbol in order to differentiate it with ejectives or implosives.⁶³

⁶¹ Cheon. "Korean Phonology." 21.

⁶² Sooyeon Lee, 55.

⁶³ Cheon, "Production and Perception of Phonological Contrast in Second Language Acquisition: Korean and English Fricatives."

In *The Sound of English and Dutch*, Beverley Collins and Inger M. Mees, two famous phoneticians, selected and matched phonetic symbols with Diacritics. They chose for the sounds of the voiced-unaspirated consonants the marking [[̣]], which is still used by phoneticians and linguistics to designate the tense sound qualities; although it is not listed in the most recent IPA chart. For the Korean double consonants, except ㄲ, using the [[̣]] symbol, which many people have known and used for years, is therefore more adequate than ['] or [*].⁶⁴

All double consonants can be found as the first consonant in a syllable. However, only ㄷ and ㄲ are found in the final positions in a syllable and are unreleased stops: [k [̣]] and [t [̣]], respectively. .

Table 4.2 The IPA of the Double Consonants for Classical Singers

double consonants	IPA for reading	IPA for singing	examples
ㄱ	[k [̣]], [k*]	[k [̣]]	ini.: 까마귀 [k [̣] amagwi] (crow) fin.: 꺾다 [k [̣] ʌk [̣] d [̣] a] (break) - (ㄱ+ㄷ, tensification on ㄷ as [d [̣]])
ㄷ	[t [̣]], [t*]	[t [̣]]	ini.: 뜨거운 [d [̣] ʉgʌun] (hot) fin.: N/A
ㅍ	[p [̣]], [p*]	[p [̣]]	ini.: 빠르다 [b [̣] aruda] fin.: N/A
ㅅ	[s [̣]], [s*]	[s [̣]]	ini.: 싸리 [s [̣] ari] (bushclover wood) fin.: 있다 [itt [̣] a] (be, have) (ㅅ+ㄷ, tensification of initial ㄷ [d] to [t [̣]] by final ㅅ)

⁶⁴ [[̣]] - tenuis, unaspirated, voiceless stops

Beverley Collins and Inger Margrethe Mees. "Select Diacritics and Phonetic Symbols", In *The Sound of English and Dutch* (Brill Archive, 1984), 281.

ㅈ	[cʰ] ⁶⁵ , [tʰz] ⁶⁶ [tʃ], or [tʒ]	[tʰz]	ini.: 찢기위 [tʰzʰitʰkʰiwʌ] fin.: N/A
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c. Complex consonants

For the complex consonants, I already explained in Chapter II that only the first consonants are pronounced. The second consonant will not be phonated unless the following initial consonant is ‘ㅇ’, which is a placeholder. Since only one of the complex consonants is uttered, although it consists of two, the diction of a single basic consonant is suitable to apply for singing .

2. Vowels

My focus in this study has been on accuracy, suitability, and accessibility of IPA symbols for singing Korean lyrics in classical vocal art. In order to accomplish this goal, the singer must adjust or modify the sounds and symbols of Korean vowels and must approach them carefully.

In order to produce an acoustic and resonance voice while singing with lyrics, some singers naturally alter the vowels by modifying phonation posture or accommodating the shape of articulators. Most singers need some guidance on how to adjust their phonating techniques for classical singing. I would therefore discuss phonating vowels for singing, with simple but adequate IPA characters.

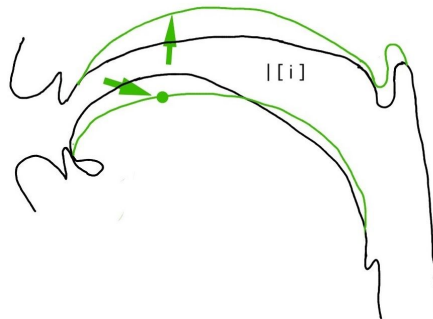
⁶⁵ Cheon. “Korean Phonology.” 21.

⁶⁶ “Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary.” from The International Phonetic Alphabet (revised to 2018), *International Phonetic Association (IPA)*, chart.

a. Monophthongs

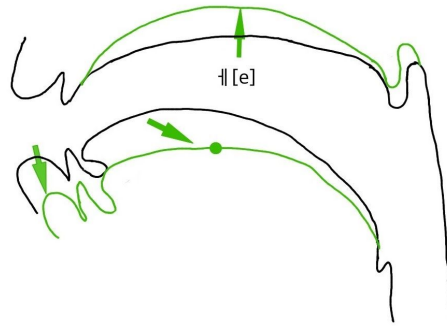
i. | [i]

In singing diction, ‘ | ’ is one of the most difficult vowels the singers should be concerned. In order to pronounce the pure [i], the tongue becomes very high and frontal with a very small space in the mouth. It makes the voice too bright and squeaky, which means that there needs to be some degree of adjustment, especially for classical singing. In other words, instead of a frontal and high positioned tongue and in order to have more space of the oral cavity, the tongue should be lower and slightly backward to phonate a centralized | [ĩ], with higher palate to expand the oral cavity into an arch or a cave shape.



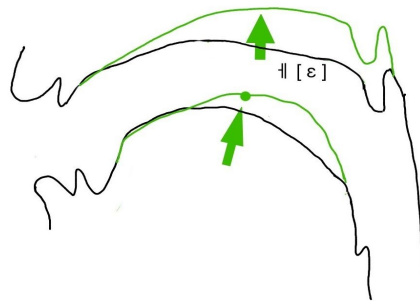
ii. †| [e]

The [e] has a similar issue as [i]. The sound should be rounder and centralized to resonate well. Instead of the pure [e] position, the utterance of the vowel should be more centralized. Additionally, the lips should be less tense and more rounded, which means the phonation should occur somewhat backward and downward. It also could be symbolized as a [ë] for centralization.



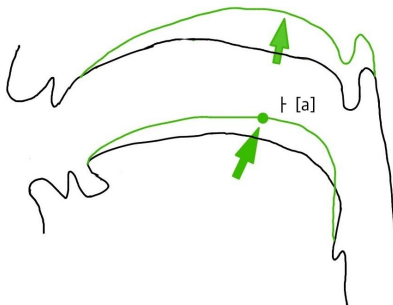
iii. ㅏ [ε]

Just as the ㅏ [e] sounds somewhat farther back in the mouth (oral cavity) than the pure [e], this vowel also sounds different than the pure, opened [ε]. For uttering the Korean vowel ㅓ [ε], the phonation occurs slightly further back in the mouth (oral cavity) and higher, with more spread lips. While singing, the phonation must occur farther back in the mouth, and, most importantly, singers must lift their palates higher in order to produce a more ringing sound quality for good resonance. Since there are, however, no designated IPA symbols for the vowel that I describe, it could still be transcribed with the [ε], which is highly conventional. It could otherwise be indicated with an extra symbol, such as [ε_], in order to indicate the raised [ε] sound.



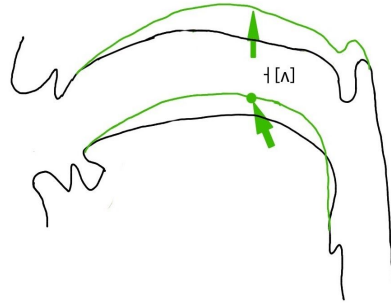
iv. ㅓ [a] (toward [a_])

I already mentioned in the previous chapter that the Korean ㅏ [a] sounds much brighter and flatter than the English [a]. In order to produce the more resonant voice required in classical singing, the space of the oral cavity should be bigger and higher, which means the phonation device has to be moved somewhat upward, the lips should be opened more vertically, and the palates must be lifted higher than the speaking position. Although the ‘ㅏ’ still suggests the IPA [a] in order to best help the reader understand how its sound is, the sound should be produced higher and closer to the [ɐ] position in order to produce a better singing tone with this vowel, like an [a_].



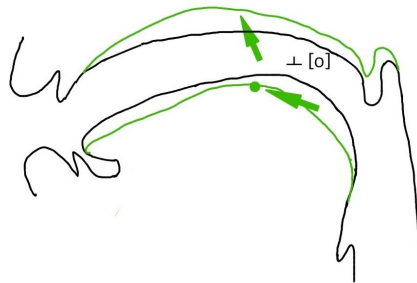
v. ㅓ [ʌ]

This vowel could be sounded as either [ʌ] or [ə] in different circumstances based on where it is located and what relation it has with its adjacent consonants. There are, however, no other audibly comparable vowels in Korean. Singers could therefore choose either one of these symbols for their best resonance. An exception could occur if the singer performs in a dialect. In the project on classical singing, dialects will not be discussed. In order to simplify the two symbols, I suggest that the symbol [ʌ] be used for the vowel ㅓ because it is more broadly used for this sound than the symbol [ə], which has to be used for a schwa.



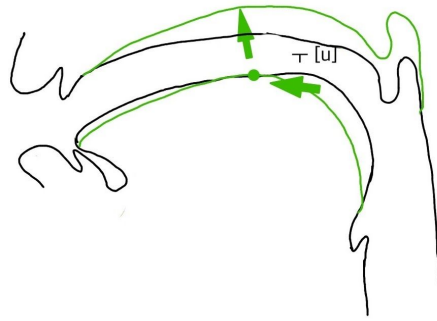
vi. ɔ [ɔ]

The vowel ɔ is always pronounced as pure [ɔ], as in Latin or Italian. No gliding or diphthong activity occurs, even in singing. However, while phonating this back vowel, lifting the palate and widening the glottal area in the oral cavity is required for better resonance.



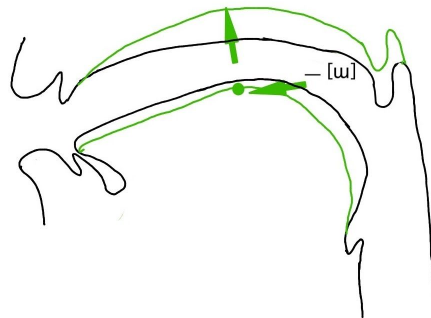
vii. u [u]

This closed back vowel u is also pronounced as a pure [u], without exception. For better resonance, the arch of the palate should be lifted and the vowel should be phonated slightly forward from where it is done in speaking.



viii. — [ɯ]

This unrounded vowel is pronounced in the back of the oral cavity with spread lips and a high tongue position, which could make the sounds shallow and flat while sung. In order to avoid this from happening in classical singing, the back of the palate should be lifted, consequently opening the throat to have more space in the back of the oral cavity for better resonance.



ix. ㅟ [œ] or [w^e]

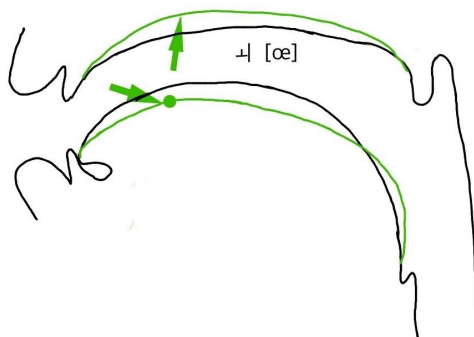
The pronunciation of a compound vowel ㅟ could be presented either [œ] as a monophthong or [we] as a diphthong.

뵤다 [bœp t̃a] (humbly see)

외로이 [w^eroi] (lonely)

When pronounced as [we] as a diphthong, in speaking, the approximant [w] sounds very short as a glide. However, in classical singing, singers have to sound the [w] somewhat longer or shorter, depending on the length of the corresponding music note and the tempo of the song. When the music note for the vowel ㅟ [we] is long or slow, determining the syllables may be difficult. In order to support the pronunciation as a diphthong [we], the two phonetic symbols would better be presented with a tie, like [w[^]e], to confirm that the two sound qualities are belong to one syllable. From the back position of the phonating [w], the following [e] easily becomes rounder and back toward the center of the oral cavity, which is necessary for more resonance in singing.

An additional issue with this vowel that should be discussed is that, in the IPA handbook (1995), the vowel ㅟ is transcribed as [ø] when pronounced as a monophthong. For singing that requires a certain degree of space in the oral cavity for better resonance, it should, however, be pronounced as the open [œ] rather than [ø], which is used for the closed sound.



In conclusion, some Korean monophthongs need adjustment or modification in when phonating and shaping the oral cavity for classical singing. If these vowels were to be visualized in a chart, it would become much easier to understand and apply the diction in singing as I

introduced in the quadrangle IPA chart by Hyun Bok Lee (Figure 2.3) in Chapter II of Korean vowels.

xii. Vowel Chart for Singers

In July of 2019, a diction professor, Cheri Montgomery introduced a new vowel chart that she made for singers at the NATS Diction Workshop, held by National Association Of Teachers in Singing in Minnesota. She intended that the new chart address the limitation and the ambiguity of locating the vowel phonetic symbols for singing and show the differences between speaking and singing. Instead of pointing to the exact phonating locations in a vowel diagram, she added a section, “the slopes of palatal arch,” which implies a degree of space in the oral cavity upon the location, helping singers understand and more accurately pronounce the vowels. The new vowel chart for singing is simpler than the one used in IPA, which is mainly used for speaking. It could also cover the divergence of different individuals by not only locating the positioning of the vowel sound but also by introducing the concept of phonating vowels to singers. I therefore made a Korean vowel chart based on her chart for English.

Figure 4.1 Vowel Chart of English
for Singing ⁶⁷

Figure 4.2 Vowel Chart of Korean
for Singing

⁶⁷ Cheri Montgomery, “New Method of Charting Vowel: Vowel Chart: Singers,” (Lecture, 2019 NATS Summer Diction Workshop, St. Olaf College, Minnesota, June 25-27, 2019)

Peak of Arch	Front	Back
Slope		
Steep		
Closed	[i]/[y]	[u]
Open	[ɪ]/[ʏ]	[ʊ]
Moderate		
Closed	[e]/[ø]	[o]
Open	[ɛ]/[œ]	[ɔ]
Mild	Central	
Open	[æ]	[ɒ]
Open	[a]	[ɑ]
Flat Open	[ʌ]	

Peak of Arch	Front	Back
Slope		
Steep		
Closed	ㅣ [i] / [y-]	ㅡ [ɯ] / ㅓ [u]
Open		
Moderate		
Closed	ㅓ [e]	ㅓ [o]
Open	ㅓ [ɛ] / ㅓ [œ]	
Mild	Central	
Closed		
Open	ㅓ [a]	ㅓ [ʌ]
Flat Open		

As I described in the chart (Figure 4.2), each Korean monophthong has one sound value, and Korean has far fewer phonetic symbols than English. I have placed the vowel ㅣ [ʌ] at the central position with a mild slope of arch instead of the flat position of English [ʌ]. This is because the phonation for speaking ㅣ [ʌ] usually occurs at the very back of the oral cavity with a lowered palate, which is unsuitable for producing the resonating voice.

Table 4.3 Monophthongs and its Pronunciation in Classical Singing

monophthongs	IPA ⁶⁸ for Speaking	IPA for Singing	examples
ㅣ	[i]	centralized [i]	기다림 [gidarim] (waiting)
ㅓ	[e]	centralized [e]	세월 [sewɐl] (time)
ㅓ	[ɛ]	raised [ɛ]	매서운 [mɛsʌwun] (bitter)
ㅓ	[ʌ]	raised [ʌ]	어머니 [ʌmʌni] (mother)

⁶⁸ Hyun Bok Lee, 121-122.

ㅏ	[a]	centralized [a]	사랑하는 [saranhənʌn] (beloved)
ㅜ	[o]	[o]	고요히 [gojˆohi] (silently)
ㅜ	[u]	[u]	구슬 [gusʌl] (bead)
ㅡ	[ɯ] ⁶⁹ [ɪ], [ɨ]	[ɯ]	부드러운 [budurʌun] (soft)
ㅚ	[ø]	relaxed [œ] or [we]	뵈다 [bœp ˘ t̃a] (humbly see) 외로이 [wˆeroi] (lonely)

b. Diphthongs

As previously mentioned, linguistic scholars disagree with each other when classifying vowels that have more than one vowel quality. In singing, the combination of a semi-vowel and a vowel is regarded as a Diphthong because of the plural vowel qualities in one syllable.

In speaking, the former components /j, w, ɯ/ of diphthongs are sounded very short as passing sounds right before the next vowel. In singing, however, the diphthong might be uttered with varying speed depending on the musical requirements, and the same applies to the first semivowel, which could also be produced at a different speed and time than when spoken. It is for this reason that studying the Korean diphthongs is as important as monophthongs.

Each vowel of a diphthong cannot function independently, as in monophthongs. When a diphthong is, however, followed by any vowel(s), as I exemplify below, it could distract the

⁶⁹ Hyun Bok Lee presented as [ɯ] (closed back - high unrounded vowel) for the vowel ‘ㅡ’, but from part 1 in the same book, “*Handbook of the IPA*”, the vowel was described as [ɨ] (closed central - high unrounded vowel). (p 22)

singer from distinguishing the syllables in a word. It is for this reason that using a tie above the diphthong is advantageous and practical in singing with Korean lyrics.

수요일 [sujoil] → [suj^ˆoil] (Wednesday) 이야기 [ijagi] → [ij^ˆagi] (story)

예의 [jewi] → [j^ˆew^ˆi] (courtesy) 묘안 [mjoan] → [mj^ˆoan] (bright idea)

Table 4.4: Diphthongs and its Pronunciation in Classical Singing

diphthongs	IPA for Speaking	IPA for Singing	examples
ㅏ	[ja] ⁷⁰	[j ^ˆ a]	이야기 [ij ^ˆ agi] (story)
ㅓ	[jɛ]	[j ^ˆ ɛ]	얘기 [j ^ˆ ɛgi] (story)
ㅗ	[jʌ]	[j ^ˆ ʌ]	안면 [anmj ^ˆ ʌn] (visage)
ㅛ	[je], [e]	ㅇ, ㄹ + [j ^ˆ e] [e]	예의 [j ^ˆ ew ^ˆ i] (courtesy) 은혜 [unhe] (grace)
ㅜ	[yo]? [jo]	[j ^ˆ o]	오묘한 [omj ^ˆ ohan] (mysterious)
ㅠ	[ju]	[j ^ˆ u]	규제 [gj ^ˆ ud ^ˆ ʒe] (restriction)
ㅟ	[wi]	[w ^ˆ i]	쉬어 [ʃw ^ˆ iʌ] (get rest) 귀 [gw ^ˆ i] (ear)
ㅝ	[wʌ]	[w ^ˆ ʌ]	권하다 [gw ^ˆ ʌhada] (suggest)
ㅞ	[we]	[w ^ˆ e]	궤도 [gw ^ˆ edo] (orbit)
ㅟ	[wɛ]	[w ^ˆ ɛ]	왜 [w ^ˆ ɛ] (why)
ㅠ	[wa]	[w ^ˆ a]	나와 [naw ^ˆ a] (with me)

⁷⁰ Hyun Bok Lee described vowels, ㅏ, ㅓ, ㅜ, and ㅠ as diphthongs, but he used a semi-vowel [j-], as the approximant, for the first phonetic symbol instead of a vowel [y-], which makes the compound vowels to be distinguished as diphthong that consists of two vowels in one syllable.

ㅡ	○+[wi] ⁷¹ (pro)noun + [e] ㅜ+[i]	[w ^h i] [e] [i]	의지 [w ^h i d ^h ʒi] (volition) 너의 [n ^h ʌe] (your) 희망 [h ^h i maŋ] (hope)
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Even though singing and speaking mostly use the same IPA symbols, the phonating circumstances and locations in the oral cavity are different from each other. The reason for this is because singing and speaking serve different purposes for the utterances.

3. Other issues

a. Stress and Intonation

Accenting words has no phonological function in Korean, although it is often used to emphasize the speaker's or reader's intention. In other words, accenting words doesn't affect the sound of vowels when consonants are uttered tenser or harsher to impact the listener. Accordingly, in classical singing, accenting words could be expressed through the rhythm, pitch, of musical dynamics. Moreover, no accents or stress be located on any affixes (prefix, suffix, or postposition) at any situation.

Unlike Chinese, the Korean language has no fixed rule for intonation. The only difference between plain sentences and questions is that the questions often employ rising endings. However, in singing, there is no difference between the two types of expression.

b. Schwa

⁷¹ Other than [wi], the 'ㅡ' is often pronounced as [e] or [je] when it is used as a possessive suffix after a noun or pronoun.

Since there is no function of accentuation in Korean words, no schwa is used on any vowels, in any situation. In other words, every vowel is pronounced as it is written without weakening its unique sound value.

c. Liaison / Elision

There are rules for certain consonants when they are in the final position of a syllable because they will affect the pronunciation of the initial consonant in the succeeding syllable. The liaison or elision between words is, however, not developed in Korean language.

d. Spacing

Spacing between words is an essential rule in Korean grammar. One must pause at every space between words when reading or speaking a sentence in order to deliver the meaning of each word. For singing, however, spacing and pausing are ruled by marking, length of music notes, or phrasing in the music.

e. Korean Dialects

Songs based on Korean folk music, *Minyo*, especially from Southern regions, could be sung with their unique intonations and pronunciation, which have characteristics inherent to the region where the songs originated.⁷²

It would not affect classical songs because it is composed to be sung using the standard, modern Korean, which has no folk characteristics.

⁷² Donna Lee Kwon. "The Singing Voice", in *Music in Korea: Experiencing Music, Expressing Culture* (New York: Oxford University Press, 2012), 95.

Chapter V. A Critique of the Recent Songbook, *Korean Art Songs*:

*An Anthology and Guide for Performance and Study*⁷³

When I found out that two volumes of Korean songbooks were published in 2017, I was personally excited that the beauty of Korean music was finally introduced to foreign singers. A few months after hearing about these songbooks from my colleagues, who are not Koreans, it was brought to my attention that the instructions provided by the books caused them confusion when attempting to sing the songs from the songbooks. As a Korean-American singer, I wanted to understand and figure out the challenges that non-Korean musicians would face in learning these songs in order to help them improve their ability to sing Korean art songs. Based on discussions that I had for this project, I therefore address and criticize several points that need to be improved in these two volumes of songbook.

1. About the IPA used in the songbook

a. A diction chart⁷⁴

The diction chart of Korean alphabets in the beginning section of the first volume, which is based on Hyun Bok Lee's "*An IPA Illustration of Korean*" and the official Korean language Romanization system, is a summarized version of Korean diction that is very simple and easy to utilize at a glance. I was impressed with how organized it was as well as how it explained and

⁷³ Moon-Sook Park and You-Seong Kim, *Korean Art Songs: An Anthology and Guide for Performance and Study* (Fayetteville, AR: Classical Vocal Reprints, 2017)

⁷⁴ *Ibid*, 11.

addressed the difficulties that non-Korean musicians would encounter. The valuable and instructive information in the historical background on Korean art songs, titled “*The Birth and History of Korean Art Songs*” is particularly impressive and my personal favorite.

Several symbols in the diction chart, however, are absent from the official IPA chart without any detailed explanation and instructions. For example, using [k] for the final ㄱ is difficult to interpret because Park’s explanation is not thorough. Moreover, for the double consonant that should be sounded with tension and harshness, a new form of diacritics [. .] was used that needs additional instructions in order to learn the symbol formed using the diacritics, which is also not listed in the official IPA chart.

In order to help musicians with no prior knowledge of the Korean language better understand its sound, learning how to pronounce the sound through examples with comparable English sounds would prove beneficial because English and Korean greatly differ in linguistic principles and articulation.

For the vowel ㅏ, for example, the transcription of the IPA symbol [ɑ], an opened back-vowel sound, is not accurate enough, especially for singing. The [ɑ] is phonated too low and backward in the oral cavity, which should be avoided in order to produce good quality of resonance and a ringing sound. If the articulation of the phonation occurs at the back, like [ɑ], it would be difficult to project the voice toward an audience. As Hyun Bok Lee has transcribed in the IPA Handbook and with the adjustment I discussed in the prior chapter, the [a] is a more appropriate phonetic symbol for the vowel ㅏ.

Among others, as I have pursued through this project, the differences between speaking and singing have not been considered enough in the suggested diction chart of the books. For instance, applying alveo-palatal symbols [dʒ] and [tʃ] for the sound of a postalveolar consonant ㄷ͡ㅈ may be possible in speaking. In order to produce the best resonance for the phonating of a consonant, however, [dʒ̠] is more appropriate phonetic symbol for classical singing.

2. About using the Romanization

When Romanized symbols were paired with IPA symbols, I was worried that it would result in confusion. Specifically, applying the Romanization characters right below the Korean texts in the music requires singers to learn two different diction systems in order to sing in Korean, as Sooyeon Lee mentioned in her dissertation for musicians.⁷⁵

In the middle of the 1970's the Korean language was Romanized for foreigners who did not know how to read the language. Romanization could be easily found on almost every sign post and milestone in Korea. However, due to the differences of the articulations of the language, there are many complications and hardships from using Romanization. Horace G. Underwood, former director of the Yonsei University Library in Seoul, Korea mentioned the problems.

The scale of vowel sounds does not really fit any Roman systems, and the basic structure of the consonants, with aspirate-non aspirate, and without voiced-unvoiced phonemes, cannot readily be represented in an alphabet that recognizes voiced-unvoiced but not aspirate-nonaspirate

⁷⁵ Sooyeon Lee.

distinctions.⁷⁶

Since *Hangeul*, the Korean language, accommodated a different alphabet system than Western and American languages, and there have been several Romanization rules used to alphabetize the *Hangeul*, for foreign visitors in Korea. One of them is the McCune-Reischauer Romanization (MR) system, which has been used most commonly for any names, including personal names and designations.⁷⁷ Since the year 2000, the Revised Romanization (RR) by South Korea's Ministry of Culture and Tourism (MCT) started to be used more widely than MR because it is clearer and more accurate than that of MR in the actual pronunciation of Korean. It is also simpler and does not use extra symbols. (e.g. the apostrophe)⁷⁸

Besides the several revised versions, using alphabets on Korean still has many limitations in generalizing the pronunciation of Korean accurately. There are many unique sounds of *Hangeul* that cannot be replicated with the English alphabet. The limited efficiency proves that the Romanization of the *Hangeul* into the alphabet is incapable of representing the pronunciation of Korean. That is the main reason why the Romanized alphabet should not be located on the music in order to present the diction of the Korean lyric.

Using any Romanization systems for reading Korean is still very problematic. Furthermore, if Romanized alphabets are used over IPA symbols, for non-Korean speakers, it seems to be very similar to learning two languages at the same time. Presenting IPA descriptions in music with Korean lyrics is therefore more practical and efficient. For this reason, the song

⁷⁶ Chris Doll, "Korean Rōmaniz'atiōn: Is It Finally Time for The Library Of Congress to Stop Promoting McCuneReischauer and Adopt the Revised Romanization Scheme?," *Journal of East Asian Libraries*, no. 165, Article 8. (Oct. 2017): 1, <https://scholarsarchive.byu.edu/jéal/vol2017/iss165/8>.

⁷⁷ The National Institute of Korean Language. "Romanization of Korean language." In *바른 국어 생활*. (Seoul, The National Institute of Korean Language: 2009), 67-68.

⁷⁸ *Ibid*.

books that use the Romanization alphabets instead of IPA under the Korean lyrics in the music are greatly deficient as instructional foreign music material for non-Korean musicians.

Although there are several issues to be discussed and to be accommodated, I am still very proud and would like to praise the publications for helping many musicians learn the Korean language and its great art songs.

Chapter VI. Application to Korean art songs, *Gagok*

In this chapter, I chronologically introduce three Korean art songs that were composed in different periods, 1946, 1961, and 2014, which have been popularly sung by numerous singers throughout the time. In order to help singers understand, I transcribed Korean lyrics of each song first with its diction by using the IPA symbols I have suggested in this project. Accordingly, I indicated the IPA under the Korean lyrics on the music without the Romanization that confuses singers.

1. *MOONLIT NIGHT* 달 밤 (1946, revised 1976)

(Lyric by Tae-Oh Kim and music by Un Young Na)

1. 등 불 을 끄 고 자-려 하 니 휘 영 청 창 문 이 밝-으-오
dʊŋburʌl ˆ k̄ʌgo d̄ʒa-rʌhani hwijʌŋt̄ʃʌŋ t̄ʃʌŋmuni bal-gʌ-o
문 을 열 고 내 어 다 보 니- 달 은 어 여 뽀 선-녀 같 이
munʌl jʌlgo nɛʌda boni- darʌn ʌjʌp̄n sʌn-njʌ gat̄ʃi
내 뜰 위-에 찾-아 오 다
nɛ t̄ʌl wi-e t̄ʃa-d̄ʒa oda

달 아 내 사 랑-아 내 그 대 와 함 - 께
dara nɛ sarʌŋ-a nɛ gʌdɛwa ham-k̄e
이- 한 밤 을 이- 한 밤 을 애 기-하 고 싶-구 나
i: han bamʌl i: han bamʌl jɛgi - hago ʃip ˆ -guna

2. 어데서 흐르는 단-소 소리 처량타 달 밝은 밤-이-오
 ʌdesʌ hʷrʷnʷn dan-so sori tʰʃʌrʌŋta dal balgʷn ba-mi-o
 솔 바-람이 신선한 이 밤-에 달은 외로운 길-손 같이-
 sol ba-rʌmi ʃinsʌnhan i ba-me darʷn weroun gil-sʷon gatʰʃi-
 또 어디로 가려는 고
 tʰo ʌdiro- garʃʌnʷn go

달아 내 사랑-아 내 그대와 함께
 dara nɛ sarʌŋ-a nɛ gʷdɛwa ham-kʰe
 이 한 밤을 이 한 밤-을 동행하고 싶-구나
 i: han bamʷl i: han ba-mʷl doŋhɛŋhago ʃipʷ -gʷna

달 밤

dal p'am
(Moonlit Night)

lyric by Tae-Oh Kim
music by Unyoung Na

김 태 오 작사
나 운 영 작곡

$\text{♩} = 88$

mp

1. 등 불 을 끄 - 고
duŋbu-rul⁷ k⁷w -- go

2. 어 데 서 흐 르 는
Λ - de - sa hu-rui-nun

mf *mp*

자 - 러 하 니 휘 영 칭 창 문 이 밤 - 으 - 오 문 을 - 열 고
dza- ra-ha-ni hwijŋŋtʃŋ tʃŋ- mu-ni bal-- gu-- o mun-ul jal - go

단 - 소 소 리 처 럼 타 달 밝 은 밤 - 이 - 오 솔 바 - 람 이
dan - so so-ri tʃʌraŋ-ta dal balgun bam- i - o sol ba - ram - i

내 어 다 보 니 - 달 은 어 여 뻔 선 - 녀 같 이 - 내 틀 위 에 -
ne-Λ- da bo-ni -- da-run Λ - ja-pⁿ san-- njʌ gatʃi -- ne t⁷ul wi - e --

신 선 한 이 밤 에 달 은 외 로 운 길 - 손 같 이 - 또 어 디 로 -
jinsanhan i ba - me darun we-ro-un gil -- s⁷on ga-tʃi -- t⁷o Λ - di - ro --

rit. *a tempo* *rit.* *a tempo*

찾 - 아 오 다 달 아 - 내 사 랑 - 아
 t̃ja -- d̃ʒa o-da da - ra -- ne sa - ran-- a

가 - 려 는 고 달 아 - 내 사 랑 - 아
 ga -- t̃ʃanun go da - ra -- ne sa - ran-- a

rit. *a tempo* *f* *rit.* *a tempo*

mf *poco rit.* *ff*

내 그대 와 합 - 께 이 한 밤 을 이 - 한 - 밤 을
 ne gude - wa ham -- k=e i han ba - mul i -- han ba - mul

내 그대 와 합 - 께 이 한 밤 을 이 - 한 - 밤 을
 ne gude - wa ham -- k=e i han ba - mul i -- han ba - mul

poco rit. *ff*

애 - 기 하 고 싶 - 구 나
 je -- gi - ha - go ʃip̃ -- gu-na

동 - 행 하 고 싶 - 구 나
 doŋ -- heŋ - ha - go ʃip̃ -- gu-na

mp *mf* *pp*

2. *LONGING FOR MOUNT GEUMGANG* 그리운 금강산 (1961)

(poem by Sang Eok Choi and music by Young-Sharp Choi)

1. 누구의 주제런가 맑고 고운 산
nugue d̂ʒud̂ʒeɾʌŋga malk̄o goun san

그리운 만 이천봉 말은 없어도
guriun man it̂ʃʌnbong marun ʌp̄ s̄ʌdo

이제야 자유 만민 옷깃 여미며
i-d̂ʒeja d̂ʒaju manmin ot̄ k̄it̄ jʌmimjʌ

그 이름 다시 부를 우리 금강-산
gw irum dafi burul uri gumgangsʌn

수수 만년 아름다운 산 찾아본 지 몇 해
susu mannjʌn arumdaun san t̂ʃad̂ʒabon d̂ʒi mjʌt̄ t̄

오늘에야 찾을 날 왔다 금강산은 부른다
onwreja t̂ʃad̂ʒullal wat̄a gumgangsʌn burunda

2. 비로봉 그 봉우리 짓밟힌 자리
biroboŋ gw boŋuri d̂ʒit̄ balpin d̂ʒari

흰구--름 솔바람도 무심히 가나
hingu-rum sol barando mujimhi gana

발-아래 산해만리 보-이-지 마-라
ba - rarɛ sanɛmalli bo-i-d̂ʒi ma-ra

우리다 멧힌 원한 풀릴 때까지
uri da mɛt̄ t̂ʃin wʌnhan pullil t̄ɛ k̄ad̂ʒi

수수 만년 아름다운 산 더럽힌 지 몇 해
susu mannjʌn arumdaun san dʌrʌpin d̂ʒi mjʌ-tɛ

오늘에야 찾을 날 왔나 금강산은 부른다
onwreja t̂ʃad̂ʒullal wanna gumgangsʌn burunda

LONGING FOR MOUNT GEUMGANG

그리운 금강산

[gu - ri - un gumgangsān]

poem by Sang Eok Choi
music by Young-Sharp Choi

한 상익 작사
최 영섭 작곡

Moderato cantabile 그리움에 사무쳐서

1. 누 구
nu - gu-

2. 비 로
bi - ro-

의 주 제 런-- 가 맑 고 고 운--
e ḍzu - ḍzeran- - ga mal - k'o go - un - -

봉 그 봉 우-- 리 짓 밟 힌 자--
boŋ gu boŋu - - ri ḍzit - bal - pin ḍza - -

산 그 리 -- 운 만 이 -- 천 -- 봉
 san gu - ri --- un man i - [ʃʌn-boŋ]
 리 원 구 -- 름 솔 바 -- 람 -- 도
 ri hin gu -- rum sol ba - ram-do

말 은 없 -- 어 도 이 -- 세 야 - 자 유 만
 ma - rum ʌp⁷ - s⁷ʌ - do i - dʒe-ja - dʒa - ju man-
 무 심 히 -- 가 -- 나 발 -- 아 래 - 산 해 만
 mu - ʃim-hi - - ga - na ba - ra - rɛ san - ne mal-

민 옷 - 깃 - 여 미 - 며 그 이
 min ot⁷ - k⁷it⁷ jʌ-mi - mjʌ gu i-
 리 보 - 이 - 지 마 - 라 우 리
 li bo - i - dʒi ma - ra u - ri

름 다 시 부 -- 름 - 우 리 - 금 - 강 -
 rum daʃi bu - rul u - ri - gum - gaŋ -
 다 맺 힌 윈 -- 한 - 풀 름 -- 때 - 까 -
 da metʃinwʌn - han - pullil t⁷e - k⁷a -

a tempo *mp*

산 수 수 만 년 - - 아 립 다 운 산
 san su-su manjan a-rumda-un san

지
 dʒi

a tempo *mp*

poco rit. *f*

- 더 립 힌 지 몇 - 해 오 늘 예 야 찾 음 날 왔 -
 da-ra-pin-dʒi mja-- te o-nure- ja tʃadʒuallal wan -

f *3 poco rit. 3*

mp a tempo *rit.*

나 금 강 산 은 부 큰
 na gumgangsanim bu - rum

ff *mp a tempo* *rit.*

1. 2. *pp*

다 다
 da da

1. 2. *mf* *pp*

3. *LOVE IN THE GATHERED HANDS* 두 손에 담겨진 사랑 (2014)

(poem by Gahin Lee and music by Hyeyoung Koh)

하-얇 게 피어나는 구름 사이로
ha-jake piʌnanʌn gurʌm sairo

향-긋한 미소 띄며 다가온 그대
hjaŋ-gʌtan misoʔimjʌ dagaon gwɔɕ

파-아란 그리움-으로 걸-어 가 다
pa-aʀan gwɔriu-mʌro ga-rʌgada

뜨 락 에 얹 아 새-소-리 담 고 있 네
tʌrage andʒa sɛ-so-ri damkʰoinne

사-랑 담 아 실-어 나 르 던 햇살 은
sa-raŋdama ʃi-rʌ narʌdʌn hɛsʰarʌn

내 곁 에 다 가 와 어깨 를 쓰 다 듨 다 잠 들 고
nɛ gjʌte dagawa ʌkʰɛrʌl sʰɔdadʌmtʰa dʒamduŋgo

새 잎 들 속 삭 임 아 려 히 들 어 보 니
sɛ ip ʔtʰʌl sok ʔsʰagim arʌŋhi duʀʌboni

그 대 의 노 래 는 바-람 이 되 어- 피 어 오-르 네
gwɔɕje noʀɛnʌn ba-rami dœʌ-piʌ o-rʌne

그 대 가 부 르 는 것 - 같 아
gwɔɕga burʌnʌn gat ʔ gata

연 두 빛 사 랑 을 꿈 꾸 던 지 난 날
jʌndu bit ʔ saraŋʌl kʰumkʰudʌn dʒinan nal

온 밤 을 지 새 워 도 터 질 듯 한 그 리 움
on ʔ bamʌl dʒisɛwʌdo tʌdʒil duʌttan gwɔrium

두 손 에 담 아 두-었 지
du sone dama du-ʌt ʔ tʰzi

하-얇게 피어나는 구름 사이로
ha-jake piʌnanun gurum sairo

향-긋한 미소 띄며 다가온 그대
hjaŋ-gwtan misot̄imjʌ dagaon gwɔɛ

파-아란 그리움-으로 걸-어가다
pa-aran gwɾiumwɾo ga-rʌgada

뜨락에 앉아 새-소-리 담고 있네
t̄wɾage and̄ʒa sɛ-so-ri damk̄oinne

사-랑 답아 실-어 나르던 햇살은
sa-raŋdama ʃi-rʌ narwdʌn hɛs̄arun

내 곁에 다가와 어깨를 쓰다듬다 잠들고
nɛ gjʌte dagawa ʌk̄ɛrwl s̄wdadumt̄a d̄ʒamdwlgo

새 잎들 속삭임 아련히 들어보니
sɛ ip̄ t̄wl sok̄ s̄agim arjʌnhi dwɾʌboni

그대의 노래는 바-람이 되어- 피어오-르네
gwɔɛje noɾɛnun ba-rami dœʌ- piʌ o-rune

그대가 부르는 것- 같아
gwɔɛga burunun gat̄ gata

아련한 사-랑 지난 날 이야기
arjʌnhan sa-raŋ d̄ʒinan nal ijagi

하늘에 가슴 가득 올리는 당신 음성
hanwɾe gasum gaduk̄ ullinun daŋʃin umsʌŋ

곶-게 답아 두-었지
gop̄ ḡe dama du-ʌt̄ t̄zi

두 손에 담겨진 사-랑
du sone damgjʌd̄ʒin sa-raŋ

두 손에 담겨진 사랑

du so - ne dam-gja-dzin sa - ran

작사 이가인

작곡 고혜영

♩ = 102

(Love in the Gathered Hands)

poem by Gahin Lee
music by Hye-young Goh

그리운 마음으로
with a longing heart

The musical score is arranged in three systems. The first system is for the piano accompaniment, starting with a *mf* dynamic. The second system continues the piano accompaniment with a *mp* dynamic. The third system includes vocal lines with Korean lyrics and piano accompaniment. The lyrics are:
9 하 양 게 피 어 나 는 구 름 사 이 로
ha- ja - ke pi - a - na - nun gu - rum sa - i - ro
13 향 굿 한 미 소 띄 며 다 가 온 그 대
hjaŋ - gut - han mi - so - t'i - mja da - ga - on gu - de

두 손에 담겨진 사랑

27

파 아 란 그 리 움 으 로 결 - 어 가 다
 pa - a - ran gu - ri - u - mu - ro ga - - ra - ga - da

17 Pno.

21

뜨 락 에 앞 아 새 소 리 담 고 있 네
 t̄u - ra - ge an - d̄za se - so - ri dam - k̄o - in - ne

21 Pno.

25 *mf*

사 랑 담 아 실 어 나 르 던 햇 살 은
 sa - raj da - ma ji - ra na - ru - dan he - s̄a - rum

25 Pno. *mf*

29

내 결 에 다 가 와 어 께 를 쓰 다 듨 다 잠 들 고
 ne gja - te da - ga - wa a - k̄erul s̄udadum - t̄a d̄zam - dul - go

29 Pno.

두 손에 담겨진 사랑

3

33

세 잎 들 속 삭 입 아 려 히 들 어 보 니
 se ip^ㄷ t^ㄷul sok^ㄷ s^ㄷa - gim a - rj^ㄷan - hi duu- r^ㄷΛ - bo - ni

Pno.

37 *f*

그 대 의 노 래 는 바 람 이 되 어
 gu - de - je no - rε - nun ba - ra - mi dε - Λ

Pno.

41

피 어 오 르 네
 pi - Λ o - ru - ne

Pno.

45 *mf*

그 대 가 부 르 는 것 같 아
 gu - de - ga bu - ru - nun g^ㄷΛ^ㄷ ga -- ta

Pno.

두 손에 담겨진 사랑

49 연 두 빛 사 랑 을 꿈 꾸 던 지 난 날
 jaŋ - du - bit^ㄷ sa-raŋ-tul k^ㄷumk^ㄷud^ㄷan d̄zi-nan nal

아 려 한 사 - 랑 지 난 날 이 야 기
 a - rjaŋ - han sa - raŋ d̄zi - nan nal i - ja - gi

49 Pno.

53 *f* 은 밤 을 지 새 워 도 터 질 듯 한 그 리 움
 on^ㄷ ba - muul d̄zi - se-wa-do ta-d̄zil dut-tan gu-ri - um

ff 하 늘 에 가 숨 가 득 울 리 는 당 신 음 성
 ha - nu - re ga - suum gaduik^ㄷ ul - li-nuun daŋ-jin tum - saŋ

53 Pno.

57 *mp* 두 손 에 담 아 두 었 지
 du so - ne da - ma du - at^ㄷ - tzi

꼭 - 게 담 아 두 었 지
 gop^ㄷ - ge da - ma du - at^ㄷ - tzi

57 Pno.

61 *mp*

두 손 에 담 겨 진 사 랑
 du so - ne dam-gjΛ - dʒin sa - ran

Pno. *mp*

3

Chapter VII. Conclusion

There have been many studies and theories of Korean diction in singing. Many of them are somewhat helpful and useful in achieving the goal of singing Korean lyrics. The abundance of studies with its own analytical method using different phonetic symbols has only led to more confusion about which is best.

Through this project, I therefore tried to transcribe Korean Diction using appropriate IPA symbols and articulations in the Chart(s), making singing Korean songs clearer and easier than they have been. Additionally, for the three Korean art songs, I exemplified transcribing the unique and diversified pronunciations of the Korean lyrics with the IPA symbols that I have devised for in this project. I truly hope that this project will be useful to acquire and perform Korean art songs accurately and will widen the experience and knowledge of classical singers.

< Appendix >

A. Chart of International Phonetic Alphabet (IPA, revised to 2018) ⁷⁹

THE INTERNATIONAL PHONETIC ALPHABET (revised to 2018)

CONSONANTS (PULMONIC) © 2018 IPA

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k ɡ	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	ɴ		
Trill	ʙ			ʀ					ʀ		
Tap or Flap		ⱱ		ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	ʟ			

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

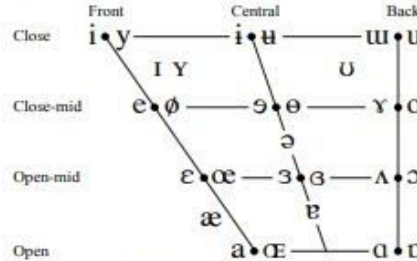
CONSONANTS (NON-PULMONIC)

Clicks	Voiced implosives	Ejectives
◌ ʘ Bilabial	◌ ɓ Bilabial	◌ ʼ Examples:
◌ ǀ Dental	◌ ɗ Dental/alveolar	◌ ɸ' Bilabial
◌ ǃ (Postalveolar)	◌ ɟ Palatal	◌ t' Dental/alveolar
◌ ǂ Palatoalveolar	◌ ɡ Velar	◌ k' Velar
◌ ǁ Alveolar lateral	◌ ɠ Uvular	◌ s' Alveolar fricative

OTHER SYMBOLS

- ◌ ʍ Voiceless labial-velar fricative
 - ◌ ʎ Voiced labial-velar approximant
 - ◌ ɥ Voiced labial-palatal approximant
 - ◌ ɦ Voiceless epiglottal fricative
 - ◌ ʕ Voiced epiglottal fricative
 - ◌ ʡ Epiglottal plosive
 - ◌ ɀ Alveolo-palatal fricatives
 - ◌ ɱ Voiced alveolar lateral flap
 - ◌ ɥ Simultaneous ʃ and x
- Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary.

VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.

SUPRASEGMENTALS

- ◌ ˈ Primary stress
- ◌ ˌ Secondary stress
- ◌ ː Long
- ◌ ˑ Half-long
- ◌ ˚ Extra-short
- ◌ ˘ Minor (foot) group
- ◌ ˙ Major (intonation) group
- ◌ ˑ Syllable break
- ◌ ˑ Linking (absence of a break)

TONES AND WORD ACCENTS

- | LEVEL | CONTOUR |
|---------------------|--------------------|
| ◌ ˥ or ˦ Extra high | ◌ ˥ or ˦ Rising |
| ◌ ˨ High | ◌ ˨ Falling |
| ◌ ˩ Mid | ◌ ˩ High rising |
| ◌ ˪ Low | ◌ ˪ Low rising |
| ◌ ˫ Extra-low | ◌ ˫ Rising-falling |
| ◌ ˧ Downstep | ◌ ˧ Global rise |
| ◌ ˦ Upstep | ◌ ˦ Global fall |

DIACRITICS Some diacritics may be placed above a symbol with a descender, e.g. ɨ̯

◌ ̥ Voiceless	◌ ̇ Breathy voiced	◌ ̠ Dental	◌ ̡ Apical
◌ ̆ Voiced	◌ ̣ Creaky voiced	◌ ̢ Laminal	◌ ̣ Nasalized
◌ ̈ Aspirated	◌ ̤ Linguolabial	◌ ̥ Nasal release	◌ ̦ Lateral release
◌ ̊ More rounded	◌ ̧ Labialized	◌ ̨ No audible release	
◌ ̋ Less rounded	◌ ̩ Palatalized		
◌ ̌ Advanced	◌ ̪ Velarized		
◌ ̍ Retracted	◌ ̫ Pharyngealized		
◌ ̎ Centralized	◌ ̬ Velarized or pharyngealized		
◌ ̏ Mid-centralized	◌ ̭ Raised		
◌ ̐ Syllabic	◌ ̮ Lowered		
◌ ̑ Non-syllabic	◌ ̯ Advanced Tongue Root		
◌ ̒ Rhoticity	◌ ̰ Retracted Tongue Root		

⁷⁹ International Phonetic Alphabet (IPA, revised to 2018), *International Phonetic Association*. updated 2019. Accessed April 20, 2019. https://www.internationalphoneticassociation.org/IPAcharts/IPA_Kiel_2018_full.pdf.

C. IPA Chart with Sound ⁸¹

VOWELS

	FRONT			NEAR-FRONT			CENTRAL			NEAR-BACK			BACK		
Close	i	•	y				i	•	ɨ				ɯ	•	u
Near-Close				ɪ	ʏ							ʊ			
Close-mid			e	•	ø			ɘ	•	ɵ			ɤ	•	o
Mid								ə							
Open-mid					ɛ	•	œ		ɜ	•	ɞ		ʌ	•	ɔ
Near-Open						æ				ɐ					
Open							a	•		ä			ɑ	•	ɒ

Where symbols appear in pairs, the one to the right represents a rounded vowel.

⁸¹ IPA Chart with Sound, International Phonetic Alphabet, *InternationalPhoneticAlphabet.Org*. 2018. Accessed on September 1, 2019. <http://www.internationalphoneticalphabet.org/ipa-sounds/ipa-chart-with-sounds/>.

PULMONIC CONSONANTS

	BI-LABIAL		LABIO-DENTAL		DENTAL		ALVEOLAR		POST ALVEOLAR		RETROFLEX	
PLOSIVE	p	b					t	d			ʈ	ɖ
NASAL		m		ɱ				n				ɳ
TRILL		ʙ						r				
TAP OR FLAP								ɾ				ɽ
FRICATIVE	ɸ	β	f	v	θ	ð	s	z	ʃ	ʒ	ʂ	ʐ
LATERAL FRICATIVE							ɬ	ɮ				
APPROXIMANT				ʋ				ɹ				ɻ
LATERAL APPROXIMANT								l				ɭ

Where symbols appear in pairs, the one to the right represents a voiced consonant.

Areas shaded grey indicate articulations judged impossible.

NON-PULMONIC CONSONANTS

CLICKS	VOICED IMPLOSIVES	EJECTIVES
ɔ Bilabial	ɓ Bilabial	p' Bilabial
ɿ Dental	ɗ Dental/alveolar	t' Dental/alveolar
ɮ (Post)alveolar	ɟ Palatal	k' Velar
ɥ Palatoalveolar	ɡ Velar	s' Alveolar fricative
ɬ Alveolar lateral	ʄ Uvular	'etc...

OTHER SYMBOLS

ɱ	Voiceless labial-velar fricative
w	Voiced labial-velar approximant
ɥ	Voiced labial-palatal approximant
ħ	Voiceless epiglottal fricative
ʕ	Voiced epiglottal fricative
ʡ	Epiglottal plosive
ç	Voiceless alveolo-palatal fricative
ʒ	Voiced alveolo-palatal fricative
ɺ	Alveolar lateral flap
ɧ	Simultaneous ʃ and x

AFFRICATES

ʈʂ	Voiceless alveolar affricate
ʈʃ	Voiceless palato-alveolar affricate
ʈʃ̟	Voiceless alveolo-palatal affricate
ʈʂ̡	Voiceless retroflex affricate
ɖʒ	Voiced alveolar affricate
ɖʒ̟	Voiced post-alveolar affricate
ɖʒ̟̞	Voiced alveolo-palatal affricate
ɖʂ̡	Voiceless retroflex affricate

D. Selected List of Diacritics and Phonetic Symbols (by Beverley Collins and Inger Margrethe Mees) ⁸²

β	voiced bilabial fricative, Spanish <i>Habana</i>
ç	voiceless palatal fricative, German <i>ich</i>
ɱ	labio-dental nasal, E <i>comfort</i>
ɲ	palatal nasal, D <i>anjer</i> , Spanish <i>mañana</i>
ɸ	voiceless bilabial fricative, Ewe <i>fū</i> 'bone'; second element in German /pʰ/ [pɸ], <i>Pferd</i>
ɹ	post-alveolar approximant, E <i>red</i>
ɻ	retroflex approximant, American E <i>rare</i>
ʀ	uvular trill. Types of D /r/ <i>raar</i>
ʁ	voiced uvular fricative, French <i>rouge</i> , German <i>rot</i> .
ʷ	voiceless labial-velar fricative, Scottish English <i>which</i>
ʔ	glottal stop, E <i>hot tea</i> [hɒʔ ti:]
ɾ	alveolar flap, Spanish <i>pero</i> ; types of E and D /r/.
ʂ	voiced lateral fricative, Zulu <i>dhla</i> 'to eat'
ɖ	voiced retroflex plosive, Gujarati <i>djaḍi</i> /ʂaḍi/ 'fat'.
ɗ	voiceless retroflex plosive, Gujarati <i>chaḍi</i> /caḍi/ 'licked'.
ɳ	retroflex nasal, Gujarati <i>djaṇi</i> /ʂaṇi/ 'knew'.
ɺ	retroflex lateral, Gujarati <i>djaḷi</i> /ʂaḷi/ 'net'.
χ	voiceless uvular fricative, French <i>train</i>
ç	voiceless alveolo-palatal fricative, D <i>sjaal</i>
ʒ	voiced alveolo-palatal fricative, D loanword <i>genre</i>
ʧ	voiceless alveolo-palatal affricate, D <i>beetje</i>
ʤ	voiced alveolo-palatal affricate, D loanword <i>jockey</i> .
ɦ	voiced glottal fricative, D <i>geheim</i>
//	enclosing phonemic transcription
[]	enclosing phonetic transcription
<>	enclosing orthographic representations
*	hypothetical or unattested form
	intonation group boundary
	intonation group boundary without close grammatical connexion.
a:	full length
aː	half length
ā, aī	brief. Also to show less prominent element of diphthong
ɔ, ɔ̟	more open
ɔ̟, ɔ̟̟	closer
ɔ̟, k̟	more front
ɔ̟, k̠	more back
ā	more central
ẽ	mid and centralised
ɸ, ɸ̟	voiceless (or partially devoiced)
ɸ, ɸ̟	voiced
ɸ̟	dental (applied to alveolars)
ɸ̟, n̟	palatalised
ɸ̟	velarised
ɸ̟	labialised
ā, ī	nasalised
˚p	pre-glottalised
p̚	lack of audible release
ɸ, ɸ̟	creaky voice
ɸ, ɸ̟	breathy voice
pʰ	aspirated
p̚	unaspirated
ɸ̟	syllabic consonant
k̟p̟	simultaneous articulation
á	high tone
à	low tone
ˈa	primary stress
ˌa	secondary stress

⁸² Collins and Mees, 281 - 282.

E. Chart of standard Korean pronunciation with IPA (by Pusan National University, South Korea)⁸³

부산대학교 표준발음 변환기의 IPA기호

자음

			양순음	치음 및 치조음	경구개음	연구개음	성문음
파열음	평음	기본형	p(ㅍ)	t(ㄷ)		k(ㄱ)	
		변이형	b p p̃	d t t̃		g k k̃	
	유기음	기본형	p ^h (ㅍ)	t ^h (ㄷ)		k ^h (ㄱ)	
		변이형	p ^h p̃	t ^h t̃		k ^h k̃	
	경음	기본형	p'(ㅍ')	t'(ㄷ')		k'(ㄱ')	
		변이형	p'	t'		k' k̃	
마찰음	유기음	기본형	s ^h (ㅅ)				h(ㅎ)
		변이형	s ^h ɬ t̃ ʃ				h
	경음	기본형	s'(ㅅ')				
		변이형	s' ɬ' t̃				
파찰음	평음	기본형				ts(ㅈ)	
		변이형				dz ts t̃	
	유기음	기본형				ts ^h (ㅈ)	
		변이형				ts ^h t̃	
	경음	기본형				ts'(ㅈ')	
		변이형				ts'	
비음	기본형	m(ㅁ)	n(ㄴ)		ŋ(ㅇ)		
	변이형	m	n	ɲ	ŋ		
유음	기본형	l(ㄹ)					
	변이형	ɾ l ɻ					

단순모음

	전설모음	중설모음	후설모음
고모음	i (ㅣ)	ɯ (ㅡ)	u (ㅜ)
중모음	e (ㅔ)	ʌ (ㅓ)	o (ㅛ)
저모음	ɛ (ㅚ)	a (ㅑ)	

이중모음

* 모음의 장·단음 및 강세를 구분 안 함

	y+ 단모음		단모음 + y	w + 단모음	
기본형		yu(ㅠ)	my (ㅡ)	wi(ㅜ)	
변이형			my i e		
기본형	ye(ㅙ)	yo(ㅠ)		we(ㅛ/ㅜ)	
변이형	ye (y)e				
기본형	yɛ(ㅚ)	yʌ(ㅓ)		wɛ(ㅜ)	wa(ㅜ)
변이형					
기본형		ya(ㅑ)			wa(ㅑ)
변이형					

(): 한글 자모로 표기한 발음기호열

⁸³ Pusan National University. "표준발음 변환기의 IPA기호." *AI Lab & Narainfotech.*, 2001. Accessed on September 4, 2019. http://pronunciation.cs.pusan.ac.kr/IPA_Table.html.

F. Links for reading Korean

i. Standard Pronunciation Converter (Korean)

<http://pronunciation.cs.pusan.ac.kr/>

G. Charts of Korean Diction for Classical Singing (Created by Author)

< Primary Consonant Diction for Classical Singers >

primary consonants	IPA for singing	examples
ㄱ	initial: [g] final: [k ˀ]	구름 [gurɯm ˀ] (cloud) 기억 [giʌk ˀ] (memory)
ㄴ	initial: [n] final: [n ˀ]	노래 [norɛ] (song) 소원 [sowʌn] (wish)
ㄷ	initial: [d] final: [t ˀ]	드디어 [dɯdiʌ] (finally) 곧 [got ˀ] (soon)
ㄹ	initial: [r] final: [l]	가랑비 [garʌŋbi] (drizzle) 가을 [gawɥ ˀ] (Autumn)
ㅁ	initial: [m] final: [m ˀ]	마음 [maum] (heart) 얼음 [ʌrɯm ˀ] (ice)
ㅂ	initial: [b] final: [b ˀ]	바람 [baram] (wind) 낙엽 [nagjʌp ˀ] (fallen leaves)
ㅅ	initial: [s] w/ [i], [j-]: [ʃ] final: [t ˀ]	사모함 [samoham ˀ] (adoration) 시기 [ʃigi] (envy) 빗 [bit ˀ] (comb)
ㅇ	initial: silent final: [ŋ]	어두운 [ʌduwun] (dark) 환영 [hwanjʌŋ] (welcome)
ㅈ	initial: [dʒ] final: [t ˀ]	저녁 [dʒʌnjʌk ˀ] (evening) 갖다 [gattʰa] (take, have)

ㅈ	initial: [tʃ] final: [t̚]	치마 [tʃima] (skirt) 별빛 [bjʌlbit̚] (starlight)
ㅋ	[k]	커다란 [kʌdaɾan] (big) 부엌 [buʌk̚] (kitchen)
ㅌ	[t]	도토리 [dotori] (acorn) 가마솥 [gamasot̚] (iron pot)
ㅍ	[p]	파아란 [paaran] (blue) 짚 [dʒip̚] (hay)
ㅎ	[h] final: silent	희망 [himan] (hope) 날으시고 [nawʃigo] (bear, lay)

< The IPA of the Double Consonants for Classical Singers >

double consonants	IPA for singing	examples
ㄱ	[k̚]	ini.: 까마귀 [k̚amagwi] (crow) fin.: 꺾다 [k̚ʌk̚d̚a] (break) - (ㄱ+ㄷ, tensification on ㄷ as [d̚])
ㄷ	[t̚]	ini.: 뜨거운 [d̚uɡʌun] (hot) fin.: N/A
ㅂ	[p̚]	ini.: 빠르다 [b̚aruda] fin.: N/A
ㅅ	[s̚]	ini.: 싸리 [s̚ari] (bushclover wood) fin.: 있다 [itt̚a] (be, have) (ㅅ+ㄷ, tensification of initial ㄷ [d] to [t̚] by final ㅅ)
ㅈ	[t̚ʃ]	ini.: 찢기워 [t̚ʃit̚k̚iwʌ] fin.: N/A

< Monophthongs and its Pronunciation for Classical Singing >

monophthongs	IPA for Singing	examples
ㅣ	[i] (centralized)	기다림 [gidarim] (waiting)
ㅐ	[e] (centralized)	세월 [sewɐl] (time)
ㅙ	[ɛ] (raised)	매서운 [mɛsɐwun] (bitter)
ㅓ	[ʌ] (raised)	어머니 [ʌmʌni] (mother)
ㅏ	[a] (centralized)	사랑하는 [sarʌŋhanun] (beloved)
ㅜ	[o]	고요히 [gojˆohi] (silently)
ㅛ	[u]	구슬 [gusul] (bead)
ㅡ	[ɯ]	부드러운 [budurɯn] (soft)
ㅝ	[œ] [we]	웁다 [bœp ˘ t̄a] (humbly see) 외로이 [wˆeroi] (lonely)

<Korean Vowel Chart for Singing> (based on Cheri Montgomery's)

Peak of Arch	Front	Back
Slope		
Steep		
Closed	ㅣ [i] / [y-]	ㅡ [ɯ] / ㅛ [u]
Open		
Moderate		
Closed	ㅐ [e]	ㅜ [o]
Open	ㅙ [ɛ] / ㅝ [œ]	
Mild	Central	
Closed		
Open	ㅏ [a]	ㅓ [ʌ]
Flat Open		

<Table 4.4 Diphthongs and its Pronunciation for Classical Singing

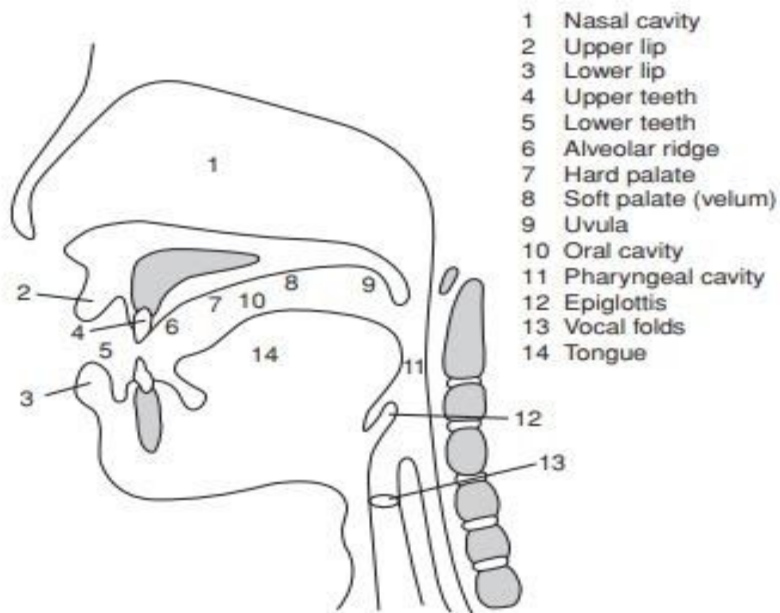
diphthongs	IPA for Singing	examples
ㅏ	[j [^] a]	이야기 [ij [^] agi] (story)
ㅓ	[j [^] ε]	얘기 [j [^] εgi] (story)
ㅗ	[j [^] ʌ]	안면 [anmj [^] ʌn] (visage)
ㅛ	ㅜ, ㅠ + [j [^] e] [e]	예의 [j [^] ew [^] i] (courtesy) 은혜 [unhe] (grace)
ㅜ	[j [^] o]	오묘한 [omj [^] ohan] (mysterious)
ㅠ	[j [^] u]	규제 [gj [^] ud [^] ʒe] (restriction)
ㅜ어	[w [^] i]	쉬어 [ʃw [^] iʌ] (get rest) 귀 [gw [^] i] (ear)
ㅜ어	[w [^] ʌ]	권하다 [gw [^] ʌhada] (suggest)
ㅜ에	[w [^] e]	궤도 [gw [^] edo] (orbit)
왜	[w [^] ε]	왜 [w [^] ε] (why)
나와	[w [^] a]	나와 [naw [^] a] (with me)
의지	[w [^] i] [e] [i]	의지 [w [^] id [^] ʒi] (volition) 너의 [nʌe] (your) 희망 [himan] (hope)

H. McCune-Reischauer system (MR) & Revised Romanization (RR) for Korean

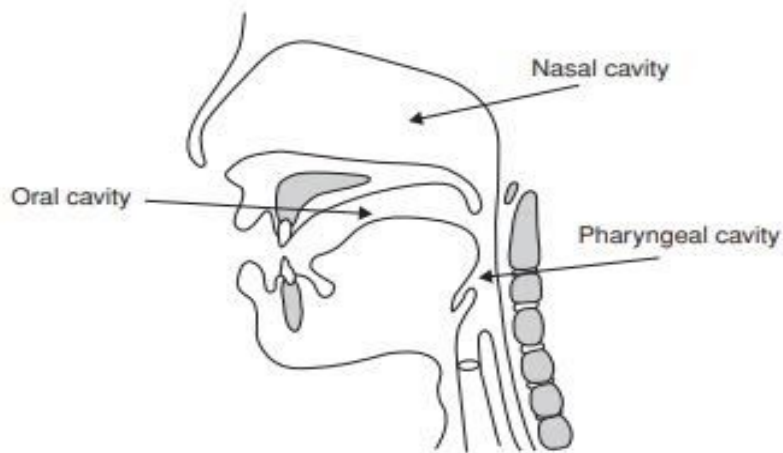
Vowels	McCune-Reischauer	Revised Romanization	Consonants	McCune-Reischauer		Revised Romanization	
				Initial	Final	Initial	Final
-	-	-	-	Initial	Final	Initial	Final
ㅏ	a	a	ㄱ	k	k	g	k
ㅑ	ae	ae	ㅋ	kk	k	kk	k
ㅓ	ya	ya	ㄴ	n	n	n	n
ㅕ	yae	yae	ㄷ	t	t	d	t
ㅗ	ō	eo	ㄸ	tt	-	tt	-
ㅛ	e ē after ㅏ and ㅑ	e	ㄹ	r	l	r	l
ㅜ	yō	yeo	ㅁ	m	m	m	m
ㅠ	ye	ye	ㅂ	p	p	b	p
ㅡ	o	o	ㅃ	pp	-	pp	-
ㅜ	wa	wa	ㅅ	s	t	s	t
ㅟ	wae	wae	ㅆ	ss	t	ss	t
ㅝ	oe	oe	ㅇ	-	ng	-	ng
ㅠ	yo	yo	ㅈ	ch	t	j	t
ㅢ	u	u	ㅉ	tch	-	jj	-
ㅞ	wō	wo	ㅊ	ch'	t	ch	t
ㅙ	we	we	ㅋ	k'	k	k	k
ㅜ	wi	wi	ㅌ	t'	t	t	t
ㅠ	yu	yu	ㅍ	p'	p	p	p
ㅡ	ū	eu	ㅎ	h		h	
ㅢ	ūi	ui					
ㅣ	i	i					

I. Organs of Phonation ⁸⁴

a. Vocal Organs

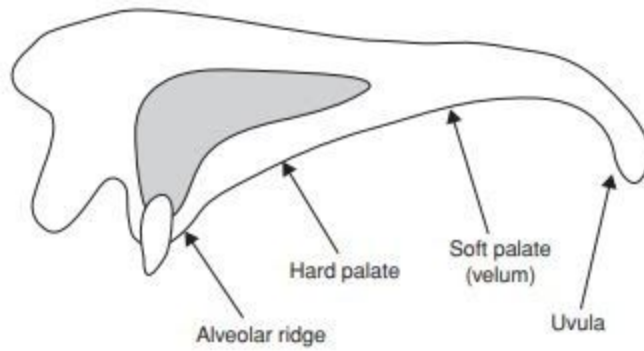


b. Major cavities

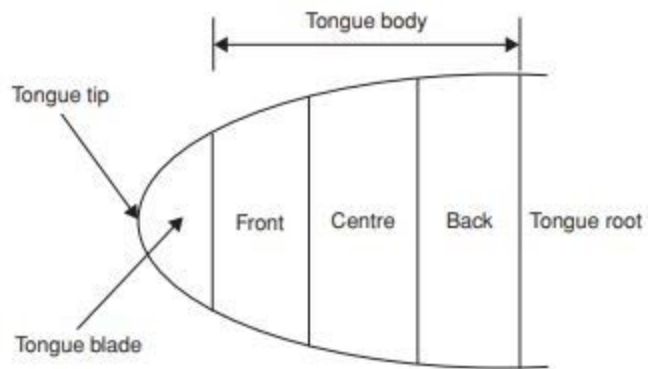


⁸⁴ Jiyoung Shin, *The Sound of Korean*. (Cambridge: Cambridge University Press, 2012), 17-19.

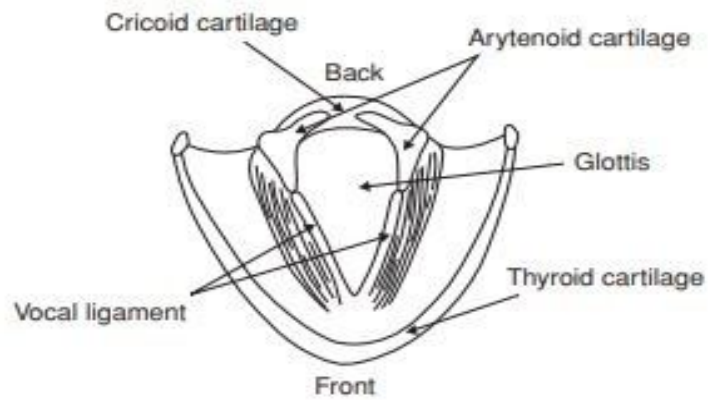
c. Upper parts of oral cavity



d. Tongue



e. Larynx



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