Distinctive features of Korean in comparison with English

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DISTINCTIVE FEATURES OF KOREAN

IN COMPARISON WITH ENGLISH

by

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I. INTRODUCTION

The purpose of this dissertation is to identify and present the distinctive features of Korean within the framework of generative phonology More precisely, exploring how many features there are and how they function systematically to make Korean distinguished from other languages, in particular, from English, is the major concern of this dissertation To a large extent my discussion will be made according to the features introduced by Chomsky & Malle (1968) hereafter, referred to as SPE

There are two contrastive views of distinctive features, the view of features as part of defining phonemes and the view of features as an alternative notion to phonemes The former is a quite traditional view established by the Prague School phonologists The latter is the view of generative phonologists represented by Chomsky and Halle.

Chomsky and Halle, denying the existence of the phonemic level, argue that the minimal elements of phonological analysis are the features of the phoneme, not the phoneme itself, and that the conventional alphabetical symbols like/p/, /t/,/d/, etc, are only ad hoc abbreviations for the component feature. It is true that, by using features instead of phonemes, relationships between sounds in a language can be captured which would otherwise be impossible

When two sounds are different from each other, the difference is the result of the different combinations of distinctive features It is well known that the English /p/ and /b/ differ from one another by the feature [voice]. That is, two different sounds must be different in at least one of their component features

Since distinctive features have phonetic values, they may be valid for describing any language in the world If two languages had the same sound system, their feature systems would be the same as well However, no two languages have been known to have the same sound system. Accordingly, each language has a different feature system.

Though the feature system in this study is roughly the same as that of Chomsky and Halle's, the feature entities are not the same as theirs. Features that are distinctive in one language need not be so in another language. For example, the feature [voiced] has its counterpart [nonvoiced] in English

as in /bin/ and /pin/, but not in Korean where both are allophones of /p/

In order to understand the sound system of a language, it is a preliminary condition to know how many speech sounds there are in that language For this reason Korean phonemes will be shown in section II In the same section, the way how these phonemes combine into sequences will be shown

In section III,1,i, I classify all Korean phonemes on the basis of their component features As Chomsky and Halle state, all features are binary in their classificatory function, and they receive physical interrelations in their phonetic function Therefore if a sound has a feature (F) it will be specified as (+F), but if not, will be marked as (-F)

In section III,1,ii, the component features of each phoneme will be shown

In section III,1,iii, I will show what the distinctive or redundant features are for describing each phoneme

In section III,1,iv, comparisons will be made between similar sounds I call those sounds similar if they have many features in common For example /p/ and /p^h/ are similar sounds because they differ from each other only in the feature (aspirated)

In section III,2, the suprasegmental features of Korean will be described Many different features such as stress, pitch, intonation, vowel harmony, nasalizations, etc, can be included under this heading (Hyman, 1975,186). But I choose only stress, tone, and length as sufficient for describing Korean

In section IV, a feature-based comparison between Korean and English will be made It is senseless to compare the whole range of features. Therefore attention will be focused only on the features which make the two languages systematically different

Ⅱ. KOREAN PHONEMES

It is not easy to say exactly how many phonemes exist in Korean because the number varies considerably depending on the views of linguists. There is a general agreement about the number of consonants, but the number of vowels is quite controversial. It varies nine to eleven depending on different views. But I choose one view which recognizes 10 vowels, 2 semivowels, 19 consonants, and 12 diphthongs. They are as follows.

Vowels : i ɪ e ɛ u o ɯ ə a u o
Semi-Vowels : j w
Consonants : p p^h p' t t^h t' c c^h c' k k^h k' s s' l m n ŋ h
Diphthongs : rising, je, jæ, jə, ja, ju, jo, wi, we, wɛ, wə, wa
falling, ɯj

These vowels and consonants can be presented in general phonetic terms as in the following tables. The diphthongs do not have to be classified in the same way because a diphthong can be seen as a sequence of a vowel and a preceding or following glide.

Table 1 Vowels of Korean (taped)

	Front		Back	
	Nunrounded	Rounded	Nunrounded	Rounded
High	i (ㅣ)	u (ㅜ)	ɯ (ㅡ)	u (ㅜ)
Mid	e (ㅔ)	o (ㅗ)	ə (ㅓ)	o (ㅗ)
Low	æ (ㅐ)		a (ㅏ)	

Table 2 Consonants of Korean (taped)

	Bilabia	Labio-dental	Alveolar	Alveo-palatal	Palatal	Velar	Glottal
Stops	p (ㅂ) p^h (ㅍ) p' (ㅃ)	t_h (ㄷ) t^h (ㅌ) t' (ㄸ)				k (ㄱ) k^h (ㅋ) k' (ㄲ)	
Fricatives		s (ㅅ) s' (ㅆ)					h (ㅎ)
Affricates			č (ㅈ) $č^h$ (ㅊ) č' (ㅉ)				
Nasals	m (ㅁ)	n (ㄴ)				ŋ (ㅇ)	
Laterals		l (ㄹ)					

2 Phonemic Sequences of Korean

Four types of phonemic sequences (or syllabic structures) are found in Korean, V VC CV CVC Here C represents all non-vowel sounds So consonantal clusters are not allowed within a syllable The illustrations of each type are given below

(i) V

/ɪ/ 'tooth'

/æ/ 'child'

/o/ 'five'

(ii) VC

/ɯn/ 'silver'

/un/ 'luck'

/ak/ 'vice'

(iii) CV

/pɪ/ 'rain'

/pʰɪ/ 'blood'

/je/ 'yes'

(iv) CVC

/pul/ 'fire'

/kɪl/ 'road'

/san/ 'mountain'

III. DISTINCTIVE FEATURES OF KOREAN

1 Segmental Features

1 Feature-based classification of phonemes

(a) Major class featues

Depending on whether the vocal tract is open or closed in the production of a sound, three features- syllabic, sonorant, and consonantal- are defined These major class features make the distinctions between vowels, obstruants, liquids, and nasals, and glides Since all languages distinguish between these classes of sounds, the major class features define a much more basic opposition than the other features

〈Syllabic〉

The feature syllabic which substitutes the feature vocalic in SPE (302, 353-5) is of importance in describing Korean Unlike English, Korean has no such cases where a consonant becomes a syllabic peak As we have seen in the previous section, the syllabic structures of Korean are (C) V (C) Here C stands for any nonvowel sound A liquid can be specified as [+vocalic, +consonantal] and a glide as [-vocalic, -consonantal] So if we choose the feature [vocalic] , rather than [syllabic], the syllabic structures of Korean will have to be represented in a complicated way as in the following

$$\left(\left\{\begin{array}{l}[\,-\text{Vocalic}\\ \ +\text{Consonantal}\,]\\ [\,+\text{Vocalic}\\ \ +\text{Consonantal}\,]\\ [\,-\text{Vocalic}\\ \ -\text{Consonantal}\,]\end{array}\right\}\right)\quad [\,+\text{Vocalic}\\ -\text{Consonantal}\,]\quad \left(\left\{\begin{array}{l}[\,-\text{Vocalic}\\ \ +\text{Consonantal}\,]\\ [\,+\text{Vocalic}\\ \ +\text{Consonantal}\,]\\ [\,-\text{Vocalic}\\ \ -\text{Consonantal}\,]\end{array}\right\}\right)$$

However if we choose the feature [syllabic] instead, since there are no such cases in which a nonvowel sound becomes a syllabic peak, the above syllabic types will be much more simplified as in the following:

$$\left([\,-\text{Syllabic}\,]\right)\quad [\,+\text{syllabic}\,]\quad \left([\,-\text{syllabic}\,]\right)$$

All Korean speech sounds are divided into two groups by this feature, syllabic and nonsyllabic:

+syllabic ; vowels

-syllabic ; obstruants, liquid, nasals, glides

〈Sonorant〉

"Sonorants are sounds produced with a vocal tract cavity configuration in which spontaneous voicing is possible, obstruents are produced with a cavity configuration that makes spontaneous voicing is impossible " (SPE, 302)

More simply we could say that a sound is a sonorant if it is produced with a vocal tract configuration sufficiently open that the air pressure inside and outside the mouth is approximately equal Then vowels, glides, liquid and nasals are sonorant because they can be produced without forming any air pressure inside the mouth Stops fricatives, and affricates, on the other hand, are produced with air pressure in the mouth Therefore they are nonsonorant, or obstruent This feature subdivides the syllabic and nonsyllabic sounds as in the following.

+syllabic	+sonorant, vowels
	-sonorant, none
-syllabic	+sonorant, nasals, liquid, glides
	-sonorant, stops, fricatives, affricates

〈Consonantal〉

"Consonantal sounds are produced with a radical obstruction in the mid-sagittal region of the vocal tract, nonconsonantal sounds are produced without such an obstruction" (SPE, 302)

All vowels, glides and glottal fricative /h/ are not obstructed in their productions Thus they are nonconsonantal All other sounds are consonantal Then the whole Korean phonemes can be classified in terms of major class feature as in the following.

+syllabic	+sonorant, vowels	
	-sonorant, none	
-syllabic	+sonorant	+consonantal, liquid, nasals
		-consonantal, glides
	-sonorant	+consonantal, stops, fricatives, affricates
		-consonantal; glottal fricative(h)

(b) Tongue-body features for vowels

〈High〉

"High sounds are produced by raising the body of the tongue above the level that it occupies in the neutral position, nonhigh sounds are produced without such a raising of the tongue body" (SPE, 304)

〈Low〉

"Low sounds are produced by lowering the body of the tongue below the level that it occupies in the neutral position, non-low sounds are produced without such a lowering of the body of the tongue" (SPE, 305)

What follows from these statements is the claim that there are three vowel heights, high, mid, and low. High vowels are specified as [+high], low vowels as [+low], and mid vowel as [-high, -low]. Since three vowel heights make phonological contrasts in Korean, all Korean vowels can be characterized by these two features.

+high, ɪ, u, ɯ, u
-high, -low, e, o, ə, o
+low, æ, a

〈Back〉

"Back sounds are produced by retracting the body of the tongue from the neutral position, nonback sounds are produced without such a retraction from the neutral position" (SPE, 305)

According as the body of the tongue is fronted from its neutral position or not, two degrees of phonological contrasts, front and back, are recognized. Front vowals are specified as [-back], while back vowels as [+back]. This feature subdivides each height of vowels (i.e., high, mid, low) as in the following:

	-back	+back
+ high	i u	ɯ u
- high - low	e o	ə o
+ low	æ	a

(c) Lip-shape feature

〈Round〉

"Rounded sounds are produced with a narrowing of the lip orifice, non-rounded sounds are produced without such a narrowing" (SPE, 309)

Along with the features[high], [low], and[back]the feature [rounded]classifies all Korean vowels as in the following

	-back		+back	
	-rounded	+rounded	-rounded	+rounded
+high	ɪ	u		u
-high -low	e	o	ə	o
+low	æ		a	

(d) Manner of articulation features for nonvowel sounds

The articulatory processes in producing speech sounds can constitute one of the main criteria in terms of which features of speech sounds are analyzed In any language vowels differ from consonants in the manner of articulation. Within consonants, various types of articulation differentiate one class of sounds from another. For example, if the closure made by vocal organs is complete the resultant sounds will be plosives, nasals or affricates If there is only narrowing without a complete closure the sounds will be fricatives The features contained under this heading are continuant, nasal, delayed release, strident, and liquid.

〈Continuant〉

"In the production of continuant sounds, the primary constriction in the vocal tract is not narrowed to the point where the air flow past the constriction is blocked, in stops the air flow through the mouth is effectively blocked" (SPE, 317)

It is obvious that vowels, glides, and glottal fricative /h/ are produced without the block of the air stream. Fricatives /s/ and /s'/ are produced with the narrowing of the vocal tract, but without a complete closure, thus they are continuant. The liquid /l/ is obstructed in its production, but the air flows out freely through both sides of the tongue. Therefore it is continuant In the production of nasals, the air flow through the mouth is blocked, and escapes through the nasal cavity, thus they are non-

continuant Stops and affricates have a stricture that blocks the air stream, and are, therefore, noncontinuant This feature[continuant]classifies all nonvowel sounds into two groups

+continuant,	fricatives, glides, liquid
-continuant,	stops, nasals, affricates

〈Nasal〉

"Nasal sounds are produced with a lowered velum which allows the air to escape through the nose, nonnasal sounds are produced with a raised velum so that the air from the lungs can escape only through the mouth" (SPE, 316)

Both consonants and vowels can be produced in this way. However, since there are no nasal vowels in Korean, the feature [nasal] is relavant only to consonants Like in English, there are three nasal stops /m/, /n/, and /ŋ/ In the production of these sounds, the closures are made in bilabial, alveolar, and velar respectively. This feature[nasal]subdivides the noncontinuant sounds into nasal stops and oral stops.

+continuant ,	fricatives, glides, liquid	
-continuant	+nasal, nasals	
	-nasal, stops, afflicates	

〈Delayed release〉

"During the delayed release, turbulance is generated in the vocal tract so that the release phase of affricates is acoustically quite similar to the cognate fricative. The instantaneous release is normally accompanied by much less or no turbulance" (SPE, 318)

This featare is defined both articulatorily and acoustically. Delayed release sounds are produced with a gradual release causing turbulance. Instantaneous release sounds, on the other hand, couse no turbulance since they are released without any delay This feature[delayed release]distinguishes oral stops from affricates like the following

+continuant ,	fricatives, glides, liquid	
-continuant	+nasal, nasals	
	-nasal	+del release, affricates
		-del release, stops

〈Strident〉

"Strident sounds are marked acoustically by greater noisiness than their non-strident counterparts .. Stridency is a feature restricted to obstruants, continuants, and affricates Plosives and sonorants are non-strident" (SPE, 329)

This feature[strident]is used to handle variations in the sibilance of a sound Thus, it distinguishes affricates and fricatives produced with greater air turbulence from their corresponding mellow sounds The subdivision of Korean sounds by this feature[strident]is like the following:

+continuant	+strident, fricatives(s,s')		
	-strident; glottal fricative(h), glides, liquid		
-continuant	+nasal, nasals		
	-nasal	+del. release	+strident, ㅊ, ㅊ", ㅊ'
			-strident, none
		-del release, stops	

〈Lateral〉

"Lateral sounds are produced by lowering the mid section of the tongue at both sides or at only one side, thereby allowing the air to flow out of the mouth in the vicinity of the molar teeth, in nonlateral sounds no such side passage is open" (SPE, 317)

If the air is released through only one side of the tongue, it produces a unilateral sound, if the air is released through both sides of the tongue, it produces a bilateral sound. In Korean, there is only one bilateral sound /l/ which becomes /r/ between voiced and voiced sounds Since there is only one liquid sound in Korean, it is distinguished from all other sounds by the feature [lateral] alone. We need this feature [lateral] to distinguish /l/ from other continuant, nonstrident sounds as in the following·

+continuant	+strident, fricatives (s, s')		
	-strident	+lateral, l	
		-lateral, h, glides	
-continuant	+nasal, nasals		
	-nasal	+del release	+strident; ㅊ, ㅊʰ, ㅊ"
			-strident, none
		-del.release, stops	

(e) Place of articulation features for nonvowel sounds

Vowels are usually classified with the help of the features [front-back] and [high-low], whereas consonants can be described by means of a single multivalued parameter that indicates the place of articulation (SPE, 304) Chomsky and Halle recognize two major features, [coronal] and [anterior], for consonantal classification according as where in the mouth a sound is produced and what part of the tongue is engaged in the production of the sound

〈Anterior〉

The palato-alveolar region is the place where /š/ is produced as in 'sheet' If the abstruction is made in front of this region, the resultant sound is anterior, while if the obstruction is made behing this region, it is nonanterior Thus, the classification of consonants by this feature would be like the following

+anterior, bilabial stops, alveolar stops, m,n,l
-anterior, all other consonants, glides

〈Coronal〉

"Coronal sounds are produced with the blade of the tongue raised from its neutral position, noncoronal sounds are produced with the blade of the tongue in the neutral position" (SPE, 304)

Chomsky and Halle define the neutral position of the tongue as that of the vowel /e/ as in 'bed' So the consonants produced with the help of the tongue tip or tongue blade would be coronal, while the other consonants would be noncoronal The anterior and non-anterior sounds are subdivided by this feature·

+anterior	+coronal, alveolar stops, n,l
	-coronal, bilabial stops, m
-anterior	+coronal, affricates, fricatives(s, s')
	-coronal, all other consonants

(f) Other features for consonants

〈Aspirated〉

Aspiration is commonly understood from an acoustic point of view as the voiceless interval occuring between the release burst of the stop and the onset of the voicing of the following sound (Gimson, 1983,153) This feature makes phonemic contrasts in stops and affricates of Korean This is one of the characteristic features that make Korean different from English in which aspiration makes only allophonic variations of a phoneme. (A detailed discussion about this feature will be found in section Ⅳ)

〈Glottalized〉

Glottalized sounds are produced with glottal constriction which can be formed by narrowing the glottal aperture beyond its neutral position (SPE, 315) /p'/ /t'/ /k'/ /s'/ of Korean are produced with glottal constriction, and are, therefore, glottalized Aspiration requires that there be no glottal constriction. If there is glottal constriction, aspiration can not occur (SPE, 326) So the feature [aspiration] is predictable from the glottal state If a sound is specified as [+glottalized], it means [-aspirated], if a sound is [+aspirated], it means [-glottalized]. However [-aspirated] does not necessaryly mean [+glottalized] because there are sounds that are specified as [-aspirated] and [-glottalized] like /p/, /t/, /k/, etc

〈Voice〉

According to Ladefoged(1982,252), voiced sounds are those in which the vocal cords are in a position that there will be a vibration if there is an appropriate air stream Voiceless sounds are produced when the glottal opening is so wide that there can be no vibration

The feature[voice]in Korean can be predicted by the phonetic environment, thus, has no distinctive power In English /p/ and /b/ are independent phonemes, and make phonemic contrast as in /pit/ and /bit/ In Korean, howerer, /b/ is only a phonetic variation of /p/ : /p/ is realized as /b/ between two voiced sounds. Though the feature [voice] has no distinctive function in Korean, we must not overlook this feature because it accommodate some principle allophones of Korean(Schane, 1973, 33). (This feature will be discussed again in section Ⅳ).

ii. Feature specification of phonemes

In order to know distinctive or redundant features of each phoneme, we

need to know what features compose a particular phoneme. Following a conventional way, the features of the phonemes are shown in a matrix organized into vertical columns and horizontal rows Each column stands for an underlying phoneme Each row is labelled with the name of a feature As mentioned in the introduction, plus or minus sign indicates the presence or absence of the feature in a particular phoneme

Table 3 Features of Vowels

	ɪ	ʊ	e	o	ɑ		ʊ	ə	o	a
back	⊖	⊖	⊖	⊖	⊖	⊕	⊕	⊕	⊕	⊕
anterior	+	+	+	+	+	−	−	−	−	−
high	⊕	⊕	⊖	⊖	−	⊕	⊕	⊖	⊖	−
low	−	−	⊖	⊖	⊕	−	−	⊖	⊖	⊕
rounded	⊖	⊕	⊖	⊕	−	⊖	⊕	⊖	⊕	−

Table 4 Features of Consonants

	p	pʰ	p'	t	tʰ	t'	k	kʰ	k'	č	čʰ	č'	s	s'	h	m	n	ŋ	l	w	j
syllabic	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	⊖	⊖
sonorant	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+	+	+	+	+	+
consonantal	+	+	+	+	+	+	+	+	+	+	+	+	+	+	⊕	+	+	+	+	⊖	⊖
continuant	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	−	−	−	+	+	+	−	−	−	+	+	+
del release	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊕	⊕	⊕	⊖	⊖	−	−	−	−	−	−	−
strident	−	−	−	−	−	−	−	−	−	+	+	+	⊕	⊕	−	−	−	−	−	−	−
nasal	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	−	−	−	−	−	−	⊕	⊕	⊕	−	−	−
lateral	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	⊕	−	−
anterior	⊕	⊕	⊕	⊕	⊕	⊕	⊖	⊖	⊖	−	−	−	−	−	−	⊕	⊕	⊖	+	−	−
coronal	⊖	⊖	⊖	⊕	⊕	⊕	⊖	⊖	⊖	+	+	+	+	+	−	⊖	⊕	−	+	−	−
high	−	−	−	−	−	−	+	+	+	+	+	+	+	+	−	−	−	−	−	+	+
low	−	−	−	−	−	−	−	−	−	−	−	−	−	−	⊕	−	−	−	−	−	−
back	−	−	−	−	−	−	+	+	+	−	−	−	−	−	−	−	−	+	−	+	−
rounded	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	⊕	⊖
aspirated	⊖	⊕	−	⊖	⊕	−	⊖	⊕	−	⊖	⊕	−	−	−	−	−	−	−	−	−	−
glottalized	⊖	−	⊕	⊖	−	⊕	⊖	−	⊕	⊖	−	⊕	⊖	⊕	−	−	−	−	−	−	−
voiced	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+	+	+	+	+	+

111 Redundant vs Distinctive Features

The above matrixes contain considerable redundant features Then what features are distinctive and what are redundant? Let's examine the component features of each phoneme

Vowels

For specifying vowels, all the features, related to the manner of articulation, and those related to the places of articulation, are redundant The features needed for vowel specification are back, anterior, high, low, and rounded Distinctive features of each phoneme are those encircled

/ɪ/. If we choose the feature [-back], the feature [+anterior] is predictable, a vowel sound which is [-back, -anterior] (i e , central vowel) does not exist For a logical reason, if we choose the feature [+high], the feature [-low] is predictable Since /ɪ/ is different from /u/ in only one feature [rounded], we need the feature [-rounded] to make it distinguished from /u/

/u/ The feature [-back] predicts the feature [+anterior] [-low] is also predicted from the feature [+high] In order to make it distinguished from /u/, we need the feature [+rounded]

/e/ The feature [+anterior] is predicted by the feature [-back] Since this phone is a mid-vowel, it must be specified as [-high, -low] We need the feature [-rounded] to make it different from its counterpart /o/

/o/. Since it is a mid-vowel, [-high, -low] must be specified To make it distinguished from /e/, we need the feature [+rounded]

/æ/. Since it is a low vowel, the feature [+low] predicts the feature [-high] The feature [-rounded] is also predicted from the feature [+low] because no low vowel is rounded

/ɯ/: Since it is a back vowel, the feature [-anterior] becomes redundant by the feature [+back]. The feature [+high] makes the feature [-low] redundant In order to distinguish it from its counterpart /u/, the feature [-rounded] is needed.

/u/: This sound is different from /ɯ/ in only one feature [rounded] Accordingly the feature [+rounded] must be specified

/ə/ The feature [+back] predicts the feature [-anterior] Since it is a mid-vowel, both [-high] and [-low] must be specified In order to make it different from /o/ which is specified as [+rounded], the feature [-rounded] is needed.

/o/ The feature [+back] predicts the feature [-anterior] Since it is a mid-vowel, both [-high] and [-low] must be specified To make it distinguished from /ə/, the feature [+rounded] must be marked

/a/ The feature [-anterior] is also predicted by the feature [+back] The feature [-high] is redundant because it is predicted by the feature [+low] Since no law vowel is rounded in Korean, [-rounded] is predicted by the feature [+low]

Consonants

/p/ The feature [-continuant] means nasal or oral stops Since only vowels become syllabic in Korean, the feature syllabic is redundant for all nonvowel sounds In order to make oral stops distinguished from nasal stops, we need to choose the feature [-nasal] If we choose the feature [-del release], affricates are dropped out from consideration Simultaneously the feature [-strident] becomes redundant. Since /p/ is a bilabial sound, the feature [-back] becomes redunclant by the feature [+anterior] In order to make /p/ distinguished from /t/, /t^h/, /t'/, we need to choose the feature [-coronal] To differentiate /p/ from /p^h/ and /p'/, the features [-aspirated] and [-glottalized] must be specified. The feature [Voice] is redundant for all Korean speech sounds because no two sounds are contrastive by the feature [Voice] alone

/p^h/:Here the redundant features are sorted out in the same way as in /p/ In ordar to make /p^h/ distinguished from unaspirated /p/, the feature [+aspirated] is needed. The feature [-glottalized] is predicted by the feature [+aspirated] because aspiration can not occar with glottal closure or glottal constriction (SPE, 315)

/p'/:The process of sorting out redoundant features of /p'/ is nearly the same as that of /p^h/. To make /p'/ different from /p/ and /p^h/, the feature [+glottalized] is necessary. Since it is produced with glottal constriction, the feature [+aspirated] is predictable

/t/: The features [sonorant], [consonantal], and [strident] are predicted by the features [-cantinuant], [-del release], and[-nasal]. Since /t/ is an alveolar stop, [+anterior] and [+coronal] are chosen To make it different from /t^h/ and /t'/, the features [+aspirated] and [-glottalized] must be chosen

/t^h/.In the same way as in /t/, the redundant features can be dropped out To make it distinguished from /t/ and /t'/, the features [+aspirated] and [-glottalized] are needed, but the feature [+aspirated] predicts the feature [-glottalized].

/t'/·Since this sound is produced with glottal constriction, it is specified as [+glottalized] Accordingly the feature [-aspirated] is predicted

/k/: Since /k/ is an oral stop, the features [-continuant] and [-nasal] must be chosen To make it distinguished from affricates which are also characterized as [-continuant], the feature [-del release] must be chosen. The feature [-anterior] is needed to distinguish /k/ from bilabial stops The feature [-coronal] is necessary to distinguish /k/ from alveolar stops It is different from /k^h/ in the feature [aspiration], and from /k'/ in the feature [glottalized]. Accordingly [-aspirated] and [-glottalized] must be specified for the description of /k/

/k^h/.This sound is different from /k/ in only one feature [aspiration] thus, the feature [+aspirated] must be specified.

/k'/:This sound is also different from /k/ in one feature [glottalized]. If it is specified as [+glottalized], the feature [-aspirated] is predictable.

/č/. If we choose the feature [+del. release], only affricates are relavent to the feature. In order to make /č/ distinguished from /č^h/ and /č'/, we need the features [-aspirated, -glottalized]. All other features are redundant.

/č^h/:This sound differs from /č/ only in aspiration.. All other features are the same as those of /č/.

/č'/:This sound differs from /č/ in the feature [glottalized], and from /č^h/ in the feature [aspiration]. However the feature [-aspirated] can be predicted from the feature [+glottalized].

/s/ If we choose the feature [+strident], only affricates and fricatives are relevant to the feature By the feature [-del release] fricatives become distinguished from affricates In order to distinguish /s/ from /s'/, we need the feature [-glottalized]

/s'/:This sound differs from /s/ only in the feature [glottalized]

/h/· Since /h/ is the only consonantal sound with the feature [+low], it is distinguished from all other sounds by the features [+consonantal, +low]

/m/. All nasal sounds are characterized by the feature [+nasal] /m/ is distinguished from /n/ by the feature [-coronal], and from /ŋ/ by the feature [+anterior]

/n/: /n/ is different from /m/ by the feature [+coronal], and from /ŋ/ by the feature [+anterior]

/ŋ/: /ŋ/ is different from /m/ and /n/ by the feature [-anterior]

/l/. Since /l/ is the only liquid sound of Korean, it can be distinguished from all other sounds by the feature [+lateral] alone

/w/: Glides can be distinguished from all other sounds by the features [-syllabic, -consonantal] To distinguish /w/ from the other glide /y/, we need the feature [+round] or [+back] Either choice would be satisfactory, but I choose the feature [+rounded].

III Feature-based comparison between similar sounds

A set of component features of a speech sound make the sound distinguished from another sound, the discriminatory function of a speech sound is due to those component features In this section attention will be paid to the the comparison of the features between similar sounds.

One phoneme differs from all others by reference to at least one distinctive feature. Thus, /p/ in English is different from /b/ by the feature [voice], from /t/ by the feature [coronal], and from /s/ by the features [coronal], [strident], [continuant], etc So /p/ is closer to /b/ than /p/ or /b/ is to /s/. The more features shared by two sounds, the greater their phonetic similarity.

〈Comparison between vowels〉

i / e

ɪ	e
-back	-back
+high	-high
-rounded	-low
	-rounded

In this pair of sounds, the feature [high] constitutes the difference one is [+high], while the other is [-high, -low]

Illustrations:

pɪ/pe 'rain/cloth'
ɪkɪ/ekɪ 'selfishness/child'
mɪum/meum 'hate/filling'
mɪkuk/mekuk 'America/selling one's country'

ɪ / u

ɪ	u
-back	-back
+high	+high
-rounded	+rounded

The only difference between these two sounds lies in the feature [rounded], one is rounded, while the other is unrounded

Illustrations:

ɪhe/uhe 'understanding/harm'
ɪsan/usan 'scattering/stomach acid'
ki/ku 'flag/ear'
ičaŋ/učaŋ 'head of a village/disguise'

e / æ

e	æ
-back	-back
-nigh	
-low	+low
-rounded	-rounded

In this pair, the feature [low] constitutes the difference

Illustrations

e/æ	'at/worry'
pe/pæ	'cloth/twice'
sem/sæm	'counting/jealousy'
tečaŋ/tæčaŋ	'register/general'

e / o

e

$$\begin{bmatrix} -\text{back} \\ -\text{high} \\ -\text{low} \\ -\text{rounded} \end{bmatrix} / \begin{bmatrix} -\text{back} \\ -\text{high} \\ -\text{low} \\ +\text{rounded} \end{bmatrix}$$

The feature [rounded] constitutes the difference between these two speech sounds: One is unrounded, while the other is rounded

Illustrations.

ne/no	'I/brain'
he/ho	'sun/lime'
česu/čosu	'fortune/prisener'
se/so	'new/iron'

u / o

u o

$$\begin{bmatrix} -\text{back} \\ +\text{high} \\ +\text{rounded} \end{bmatrix} / \begin{bmatrix} -\text{back} \\ -\text{high} \\ -\text{low} \\ +\text{rounded} \end{bmatrix}$$

These two sounds oppose to each other in the feature [high], one is [+high], while the other is [-high, -low]

Illustrations.

ču/čo	'rat/crime'
tu/to	'behind/a Korean measure of quantity.
čuta/čota	'hold/tighten'
kuhan/kohan	'valuable/suspicious guy'

ɯ / u

u

$$\begin{bmatrix} +\text{back} \\ +\text{high} \\ -\text{rounded} \end{bmatrix} / \begin{bmatrix} +\text{back} \\ +\text{high} \\ +\text{rounded} \end{bmatrix}$$

These two speech sounds differ from each other in the feature (rounded) One is unrounded, while the other is rounded

Illustrations

kɯl/kul	'letter/tunnel'
ɯn/un	'silver/fate'
tɯl/tul	'field/two'
kɯk/kuk	'play/soup'

/ ə

ɯ ə

$$\begin{bmatrix} +\text{back} \\ +\text{high} \\ -\text{rounded} \end{bmatrix} / \begin{bmatrix} +\text{back} \\ -\text{high} \\ -\text{low} \\ -\text{rounded} \end{bmatrix}$$

The difference between these two sounds lies in the feature (high) one is high, while the other is nonhigh

Illustrations:

kɯm/kəm	'gold/sword'
kɯɪ/kəɪ	'he/almost'
tɯlta/təlta	'pick up/reduce'
s'ɯlta/s'əlta	'sweep/chop up'

u / o

u o

$$\begin{bmatrix} +\text{back} \\ +\text{high} \\ +\text{rounded} \end{bmatrix} / \begin{bmatrix} +\text{back} \\ -\text{high} \\ -\text{low} \\ +\text{rounded} \end{bmatrix}$$

The feature [high] constitntes the difference between these two sounds one is high, whereas the other is nonhigh and nonlow

Illustrations

sul/sol	'liquor/brush'
nun/non	'eye/rice paddy'
usan/osan	'unbrella/miscalculation'
čulta/čolta	'decrease/doze'

ɔ / o

ɔ

$$\begin{bmatrix} +\text{back} \\ -\text{high} \\ -\text{low} \\ -\text{rounded} \end{bmatrix}$$

o

$$\begin{bmatrix} +\text{back} \\ -\text{high} \\ -\text{low} \\ +\text{rounded} \end{bmatrix}$$

The only difference between these two sounds consists in the feature [rounded] One is unrounded, while the other is rounded

Illustrations.

kəm/kom	'sword/bear'
səm/som	'island/cotton'
nəlta/nolta	'hang out/play'
sən/son	'line/hand'

ə / a

ə

$$\begin{bmatrix} +\text{back} \\ -\text{high} \\ -\text{low} \\ -\text{rounded} \end{bmatrix}$$

a

$$\begin{bmatrix} +\text{back} \\ +\text{low} \end{bmatrix}$$

In this pair, the feature [low] constitutes the difference: the former is nonhigh and nonlow, while the other is low

Illustrations

pəl/pal	'beer/foot'
kəlta/kalta	'hang up/grind'
čəm/čam	'det/sleeping'
kətuta/katuta	'harvest/confine'

ɪ / ɯ

$$\begin{matrix} \text{ɪ} \\ \begin{bmatrix} \text{-back} \\ \text{+high} \\ \text{-rounded} \end{bmatrix} \end{matrix} \Big/ \begin{matrix} \text{ɯ} \\ \begin{bmatrix} \text{+back} \\ \text{+high} \\ \text{-rounded} \end{bmatrix} \end{matrix}$$

The difference between these two sounds lies in the feature [back] the former is nonback while the latter is back

Illustrations

kɪl/kɯl	'road/letter'
kɪm/kɯm	'steam/gold'
k'ɪta/k'ɯ ta	'put on/extinguish'
kɪmul/kɯmul	'equipment/net'

e / ə

$$\begin{matrix} \text{e} \\ \begin{bmatrix} \text{-back} \\ \text{-high} \\ \text{-low} \\ \text{-rounded} \end{bmatrix} \end{matrix} \Big/ \begin{matrix} \text{ə} \\ \begin{bmatrix} \text{+back} \\ \text{-high} \\ \text{-low} \\ \text{-rounded} \end{bmatrix} \end{matrix}$$

The only difference between these two sounds lies in the feature [back]. the former is nonback, while the latter is back

Illustrations:

se/sə	'new/west'
jet/jət	'ancient/rice candy'
te/tə	rɪm/place'
čenɯŋ/čəŋɯŋ	'talent/low intelligence'

æ / a

$$\begin{matrix} \text{æ} \\ \begin{bmatrix} \text{-back} \\ \text{+low} \end{bmatrix} \end{matrix} \Big/ \begin{matrix} \text{a} \\ \begin{bmatrix} \text{+back} \\ \text{+low} \end{bmatrix} \end{matrix}$$

The feature back constitutes the difference between these two sounds. one is nonback, while the other is back.

Illustrations

ækuk/akuk	'patriatism/my country'
sæsaŋ/sasaŋ	'world/thought'
čæho/čaho	'reunion/glossary'
tæčak/tačak	'monumental work/abundant production'

u / u

$$\begin{bmatrix} u \\ -back \\ +high \\ +rounded \end{bmatrix} / \begin{bmatrix} u \\ +back \\ +high \\ +rounded \end{bmatrix}$$

The difference between these two sounds lies in the feature (back) the former is nonback, while the latter is back

Illustrations.

usən/usən	'hypocrisy/priority'
čuta/čuta	'grasp/give'
kusəŋ/kusəŋ	'returning to one's hometown/organizing'
ute/ute	'greatness/respecting'

o / o

$$\begin{bmatrix} o \\ -back \\ -high \\ -low \\ +rounded \end{bmatrix} / \begin{bmatrix} o \\ +back \\ -high \\ -low \\ +rounded \end{bmatrix}$$

The feature (back)constitutes the difference between these two sounds: the former is nonback, while the latter is back

Illustrations:

kosəŋ/kosəŋ	'strange sound/loud voice'
sosin/sosin	'innovation/one's belief'
hoi/hoi	'conference/good-will'
čosu/čosu	'prisoner/assistant'

p / p^h

p	ph
-continuant	-continuant
-del release	-del release
-nasal	-nasal
+anterior	+anterior
-coronal	-coronal
-aspirated	+aspirated
-glottalized	-glottalized

In this pair of sounds the only difference lies in the feature (aspiration) the former is unaspirated, while the latter is aspirated

Illustrations

pul/p^{h}ul	'fire/grass'
pal/p^{h}al	'foot/arm'
pi/p^{h}i	'rain/blood'
pulta/p^{h}ulta	'blow/untie'

p / p'

p	p'
-continuant	-continuant
-del. release	-del. release
-nasal	-nasal
+anterior	+anterior
-coronal	-coronal
-aspirated	-aspirated
-glottalized	+glottalized

The difference between these two sounds lies in the glottal state the former is produced with glottal constriction, while the latter, without glottal constriction.

Illustrations:

pul/p'ul	'fire/horn'
pi/p'i	'rain/bone'
kopi/kop'i	'climax/bridle'
puri/p'uri	'bill/root'

p^h / p'

p^h	p'
-continuant	-continuant
-del release	-del. release
-nasal	-nasal
+anterior	+anterior
-coronal	-coronal
+aspirated	-aspirated
-glottalized	+glottalized

In this pair of sounds, the feature [aspiration] and [glottalized] constitute the difference the former is produced with aspiration and without glottal constriction, while the latter, without aspiration and with glottal constriction

Illustrations:

p^hul/p'ul	'grass/horn'
p^halta/p'alta	'sell/suck'
kɪp^hɯn/kɪp'ɯn	'deep/joyful'
p^hɪta/p'ɪta	'bloom/sprain'

t / t^h

t	t^h
-continuant	-continuant
-del. release	-del release
-nasal	-nasal
+anterior	+anterior
+coronal	+cornal
-aspirated	+aspirated
-glottalized	-glottalized

The feature [aspiration] constitutes the difference between these two sounds:.the former is produced without aspiration, while the latter, with aspiration.

Illustrations:

tal/t^hal	'moon/mask'
tan/t^han	'sweet/burned down'
tɯl/t^hɯl	'field/frame'
tæto/t^hæto	'great thief/attitude'

t / t'

t	t'
-continuant	-continuant
-del release	-del release
-nasal	-nasal
+anterior	+anterior
+coronal	+coronal
-aspirated	-aspirated
-glottalized	+glottalized

The glottal state constitutes the difference between these two sounds the former is produced without glottal constriction, while the latter is produced with glottal constriction

Illustrations

tɯl/t'ɯl	'field/yard'
tal/t'al	'moon/daughter'
tæ/t'	'bamboo/crowd'
teta/t'eta	'touch/detach'

t^h / t'

t^h	t'
-continuant	-continuant
-del release	-del release
-nasal	-nasal
+anterior	+anterior
+coronal	+coronal
+aspirated	-aspirated
-glottalized	+glottalized

The glottal state constitutes the difference between these two sounds the former is aspirated, while the latter is unaspirated because it is produced with glottal constriction

Illustrations

t^hal/ t'al	'mask/daughter'
t^hɯm/ t'ɯm	'gap/stesming'
t^hata/ t'ata	'burn/pick'
t^ham/ t'am	'envy/sweat'

k / k^h

k	k^h
-continuant	-continuant
-del. release	-del. release
-nasal	-nasal
-anterior	-anterior
-coronal	-coronal
-aspirated	+aspirated
-glottalized	-glottalized

The feature [aspiration] constitutes the difference between these two sounds the former is produced without aspiration, while the latter, with aspiration

Illustrations:

kɪ/k^{h}ɪ	'flag/height'
koŋ/k^{h}oŋ	'ball/bean'
kɯn/k^{h}ɯn	'unit of weight/ large'
keta/k^{h}eta	'fold/dig out'

k / k'

k	k'
-continuant	-continuant
-del release	-del release
-nasal	-nasal
-anterior	-anterior
-coronal	-coronal
-aspirated	-aspirated
-glottalized	+glottalized

These two sounds oppose to each other in the feature [glottalized], the former is produced without glottal constriction, while the latter, with glottal constriction

Illustrations:

kata/k'ata	'go/peel'
kot/k'ot	'place/flower'
mɪkɪ/mɪk'ɪ	'good skill/bait'
korɪ/k'orɪ	'ring/tail'

k^h / k'

k^h	k'
-continuant	-continuant
-del release	-del. release
-nasal	-nasal
-anterior	-anterior
-coronal	-coronal
+aspirated	-aspirated
-glottalized	+glottalized

The features [aspiration] and [glottalized] constitute the difference between these two sounds: the former is aspirated, and so non-glottalized, while the latter is glottalized, and so unaspirated

Illustrations:

kʰɯta/ k'ɯta	'grow/extinguish'
kʰan/ k'an	'compartment/peeled'
kʰɯn/ k'ɯn	'large/string'
kʰeta/ k'eta	'dig out/wake up'

č / čʰ

č	čʰ
[+del release -aspirated -glottalized]	/ [+del release +aspirated -glottalized]

These two sounds differ from each other in the feature [aspirated]: the former is unespirated, while the other is aspirated

Illustrations:

čata/čʰata	'sleep/kick'
čɪta/čʰita	'lose/hit'
čənkuk/čʰənkuk	'whole nation/paradise'
čɪm/čʰɪm	'load/saliva'

č / č'

č	č'
[+del. release -aspirated -glottalized]	/ [+del release -aspirated +glottalized]

The only difference between these two sounds lies in the feature [glottalized] : the former is produced without glottal constriction, while the latter is produced with glottal constriction

Illustrations:

čam/č'am	'sleeping/short time'
čan/č'an	'glass/salty'
čim/č'im	'load/steaming'
koŋča/koŋč'a	'confucious/free of charge'

č^h / č'

č^h	č'
+del release	+del release
+aspirated	-aspirated
-glottalized	+glottalized

These two sounds differ from each other in two features. the former is aspirated without glottal constriction, while the latter is unaspirated with glottal constriction

Illustrations

č^{h}am/ č'am	'truth/short time'
č^{h}ata/ č'ata	'kick/squeeze'
č^{h}ita/ č'ita	'hit/steam'
č^{h}an/ č'an	'cold/salty'

s / s'

s	s'
-del release	-del release
+strident	+strident
-glottalized	+glottalized

The difference between these two sounds lies in the feature [glottalized]: the former is produced without glottal constriction, while the latter, with glottal constriction

Illustrations:

sal/s'al	'flesh/rice'
sata/s'ata	'buy/wrap'
sačən/s'ačən	'dictionary/rice store'
san/s'an	'alive/cheap'

m / n

m	n
+nasal	+nasal
+anterior	+anterior
-coronal	+coronal

The feature [coronal] constitutes the difference between these two sounds. the former is noncoronal, while the latter is coronal.

Illustrations:

mun/nun	'door/eye'
mal/nal	'horse/day'
malta/nalta	'roll/fly'
molta/nolta	'drive/play'

m / ŋ

$$\begin{bmatrix} \text{m} \\ +\text{nasal} \\ +\text{anterior} \\ -\text{coronal} \end{bmatrix} \quad / \quad \begin{bmatrix} \text{ŋ} \\ +\text{nasal} \\ -\text{anterior} \\ -\text{coronal} \end{bmatrix}$$

These two sounds differ from each other in the feature [anterior]: the former is anterior, while the other is nonanterior

Illustrations.

kam/k^haŋ	'persimmon/river'
čam/čaŋ	'sleeping/market'
sam/saŋ	'three/table'
hɯm/hɯŋ	'defect/excitement'

n / ŋ

$$\begin{bmatrix} \text{n} \\ +\text{nasal} \\ +\text{anterior} \\ +\text{coronal} \end{bmatrix} \quad / \quad \begin{bmatrix} \text{ŋ} \\ +\text{nasal} \\ -\text{anterior} \\ -\text{coronal} \end{bmatrix}$$

These two sounds differ from each other in two features: the former is anterior and coronal, while the latter is nonanterior and noncoronal

Illustrations:

san/saŋ	'mountain/table'
kan/kaŋ	'liver/river'
man/maŋ	'ten thousand/net'
čan/čaŋ	'glass/market'

w / j

$$\begin{bmatrix} \text{w} \\ -\text{syllabic} \\ -\text{consonantal} \\ +\text{rounded} \end{bmatrix} / \begin{bmatrix} \text{j} \\ -\text{syllabic} \\ -\text{consonantal} \\ -\text{rounded} \end{bmatrix}$$

These two glides differ from each other in the lip shape the former is rounded, while the latter is nonrounded

Illustrations

waŋ/jaŋ	'king/sheep'
we/je	'why/yes'
wəl/jəl	'month/heat'
wənhan/jənhan	'grudge/period'

2 Suprasegmental features

In this section, I will discuss the suprasegmental features which extend over a sequence of segments. However, there is a considerable disagreement over the entities that should be included under this heading. Vowel harmony, and even nasalization, as well as stress, length, and tone,can be included (Hyman,1975), but I choose only principle suprasegmontal features of stress, tone, and length for the description of Korean

a. Stress

Stress is a feature applied, not to segmental sounds, but to the whole syllables. Accordingly, it is suprasegmental A stressed syllable is pronounced with a greater energy than an unstressed one In Korean, the first syllable of a word is usually stressed as in the following example.

sálam	'mankind'
sónnim	'guest'
gánta	'go'
nónta	'play'

However, there are cases where the second syllables of words are stressed as in the following:

sinjúŋ	'mimicry'

hənpə́p	'constitution'
koŋpú	'study'
čaŋkún	'general'

In case of tri-syllabic words, the second syllables are usually stressed as in the following example

apə́či	'father'
čumə́ni	'pocket'
akə́s'i	'lady'
sonə́ki	'shower'

In spite of the existence of these stress patterns, stress in Korean has no discriminatory power as in English.

b Tone

English varies the pitch pattern to convey syntactic information, whereas Korean uses the pitch pattern to produce different lexical meanings pitch patterns have their distinctive functions at word levels Therefore Korean may be called a tone language

There are only register tones of three tone levels; high, mid, and low H, M, and L represent high, mid, and low tone respectively.

Illustrations

son	(H)	'guest'
	(M)	'hand'
	(L)	'offspring'
mal	(H)	'horse'
	(M)	'unit of quantity'
	(L)	'language'

However, the three level contrasts of tone are limited to a few mono-syllabic words. The majority of words show only two level contrasts, high and low

Illustrations.

kim	(H)	'steam'
	(L)	'a family name'
saŋ	(H)	'prize'
	(L)	'table'
pam	(H)	'chestnut'
	(L)	'night'

nun [H] 'snow'
[L] 'eye'

In the above examples, we have seen how the tone levels function distinctively at the same sequence of sounds However, most words with more than two syllables have fixed tone levels as in the following

Type 1 [L H]
salaŋ 'love'
palam 'wind'
hɯŋčəŋ 'haggling'
talɪ 'leg'

Type 2. [H L]
saŋčəm 'store'
məli 'head'
cʰinčəl 'kindness'
jəlɯm 'summer'

Type 3. [H H]
kači 'branch'
kulɯm 'cloud'
səul 'Seoul'
kjəŋču 'racing'

Type 4 [L H L]
apəči 'father'
makəli 'Korean rice wine'
pəŋəli 'dumb'
holebi 'bachelor'

Type 5. [H L L]
jətɯle 'eight days'
jətɯlɯm 'pimple'
kaŋsɯpso 'training school'
ačime 'aunt'

Type 6. [H H L]
mučike 'rainbow'
kʰok'ɪli 'elephant'
simpulɯm 'errand'
halməni 'grandmother'

Type 7. [L H H]
satali 'ladder'
kasine 'girl'

məsume 'boy'

s'akuljə 'cheapie'

Type 8 [L L H L]

hočumənɪ 'pocket'

ačumənɪ 'woman'

ačuk'alɪ 'castor oil plant'

c Length

Vowel length is significant for describing Korean, since it has distinctive power As in English, if a vowel is followed by a voiceless sound, the vowel is shorter than when it is followed by a voiced sound For example, /a/ in /pat/ 'field' is shorter than the same vowel in /pal/ 'foot' However, these variations of vowel length, caused by phonetic environments do not function distinctively. They may be called 'chrones of the same chroneme (Jones, 1950, 127) Therefore I focus only on the significant length with distinctive power Two types of vowel length, long and short, phonologically oppose to each other as in the following example.

kaŋ/ka ŋ 'a family name/river'

ɪl/ɪ:l 'day/work'

tol/to l 'first birthday/stone'

kukuk/ku kuk 'returning to one's country/your country'

Vowel length is usually associated with tone: a long vowel is produced with a higher tone than a shorter vowel However, the tonal feature in this case is subordinate to vowel length (Huh, 1981,230-3).

V. FEATURE COMPARISON BETWEEN KOREAN AND ENGLISH

The features function systematically to distinguish one utterence from another in any language However, features which are distinctive in phonemic contrast in one language need not be distinctive in the same way in another language Therefore, in this section, I will compare the segmental features which serve differently in Korean and English

1 Syllabic

(+syllabic) designates those sounds that constitute a syllabic peak In Korean vowels always form the nucleus of the syllable, and therefore (+syllabic), while all other nonvowel sounds such as glides, liquid, nasals and obstruents are always (-syllabic). However, In English liquids and nasals can form the nucleus of the syllable The syllabic consonants in such cases are predictable variants of underlying nonsyllabic consonants For example /l/, /m/, /n/, and /ŋ/ may become syllabic consononts in word-final positions as in 'bottle', 'bottom', 'button', and 'bacon' All these syllabic consonants are specified as (-syllabic) underlyingly However, in Korean there are no such cases where a nonvowel forms a syllabic peak

2 Aspirated

It is well known that the degree of aspiration of the voiceless stops in English varies with the phonetic environment in which they occur, but that the degree of aspiration is always predictable by the context. In word-initial positions, they are aspirated. Accordingly, aspiration in English never serves to discriminate one word from another However, it is not true in Korean. Aspiration in Korean is not predictable in this way, and thus behaves distinctively.

For example, /p,t,k,č/ and /p^h, t^h, k^h, c^h/ may occur in the same phonetic environment to differentiate the lexical meaning as in the following example.

pi/p^hi	'rain/blood'
tal/t^hal	'moon/mask'
ki/h^hi	'flag/height'
čim/$č^h$im	'load/acupuncture'

3 Glottal constriction

In English a glottalized sound may occur as in /biʔn/, but it makes only an allophonic variation of /t/ In Korean, however, a glottalized sound, produced with glottal constriction, is distinguished from its nonglottalized counterpart, and hence is distinctive as in the following example.

p'ul/pul	'horn/fire'
t'al/tal	'daughter/moon'
k'ot/kot	'flower/place'
č'ata/čata	'squeeze/sleep'
s'ata/sata	'wrap/buy'

4 Voice

In English the feature [voice] behaves contrastively to its nonvoice counterpart as in bat/pat However in Korean the feature [voice] is always predictable from the phonetic context in which a given sound occurs [-voiced] becomes [+voiced] between two voiced sounds as in the following.

a p→b

/pupu/	→	[pubu]	'couple'
/upɪ/	→	[ubɪ]	'umbrella

b t→d

/kata/	→	[kada]	'go'
/kito/	→	[kɪdo]	'prayer'

c č→dʒ

kjəŋču/	→	[kjəŋdʒu]	'race'
čʰɪnčəl/	→	[cʰindʒəl]	'kindness'

d k→g

/ɪkɪta/	→	[ɪgɪda]	'win'
/kokɪ/	→	[kogɪ]	'meat'

5 Rounded

In English the feature [rounded] is in accordance with the feature [back]: If a sound is [+rounded], it is [+back] as well However, in Korean the feature [rounded] is in free variation: it may combine either with [+back] or [-back] as in the following example

usən/usən 'priority/hypocrisy'

ukɪ/ukɪ	'rainy season/crisis'
osan/osan	'miscalculation/foreign product'
osɪn/osɪn	'misbelief/foreign news'

6 Tense

In English tense vowels oppose to their corresponding lax vowels Three pairs of this type of opposition can be found in English /i , ɪ/ as in 'beat/bit', /eɪ, ɛ / as in 'bait/bet', and /u, ʊ/ as in 'fool/full' In each of these pairs the lax vowel is shorter, lower, and slightly more centralized than the corresponding tense vowel (Ladefoged, 1982;80) However, there are no tense and lax vowel oppositions in Korean. Thus, the word /ihe/ 'understanding' may be pronounced either /ɪhe/ or /Ihe/, but it does not make any difference in its meaning

V. SUMMARY

A set of distinctive features of each speech sound differentiates one speech sound from another. The discriminatory power of a speech sound is due to these component features. However, features which serve distinctively in one language need not behave in the same way in another language. Therefore the criteria for choosing appropriate features for the discription of a language should be language specific. The features here have been chosen on the following principles.

1. Features must accommodate the principal allophones of a language
2. Features must accommodate all the necessary phonemic contrasts within a language

The features which constitute the main difference between Korean and English are [syllabic], [aspirated], [voice], [glottalized], [rounded], [tense], [stress], [tone], and [length]

a. In English there are cases in which a nonvowel sound forms a syllabic peak, whereas in Korean only vowels can be syllabic peaks
b. The degree of aspiration in English is always predictable, thus it is nondistinctive. However, aspiration in Korean is not predictable in this way, and can serve to distinguish one utterance from another
c. The feature [voice] which is distinctive in English is always predictable in Korean: voiceless sounds become voiced between two voiced sounds.
d. The feature [glottalized] in English does not serve to distinguish one utterance from another. However, in Korean this feature forms a major class of sounds such as p', t', k' c', and s'
e. In English the feature [back] is predictable from the feature [rounded] if a sound is [+rounded], it is [+back] as well. However, in Korean the feature [rounded] does not predict the feature [back] in this way: the feature [rounded] is in free variation
f. In English tense vowels contrast with lax vowels as in beat/bit, while there is no such contrast in Korean.
g. Stress in English serves to differentiate syntactic categories. In Korean, however, stress does not behave in the same way

h Tone levels of English do not function distinctively However, tones of Korean can behave to distinguish lexical meanings

ı Length in English does not have discriminatory power variations of length of a sound are regarded as the allochrones of the same chroneme However, in Korean vowel length can serve to distinguish one word from another

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