

PROBLEM SOUNDS IN ENGLISH FOR  
ADVANCED KOREAN SPEAKERS: A  
CONTRASTIVE PERSPECTIVE

By

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## CHAPTER I

### INTRODUCTION

When a person learns a second language, he encounters unfamiliar sounds. Since second language learning involves the discrimination of the phonemes within a target language, a person has to distinguish all the significant speech sounds in the target language to acquire fluency, particularly in the aural-oral phase. A person who can discriminate all the significant speech sounds in a second language may have little difficulty in learning and may thus learn more quickly than a person who cannot hear or produce contrasting sounds (Finocchiaro, 1983).

For Korean speakers to acquire fluency in English, they must learn to discriminate among the phonemes of English and to differentiate between the distinctive phonetic features of Korean and those of English. Since it is important for ESL teachers to know sounds difficult for their students to discriminate accurately, this thesis is designed to provide English teachers of Korean students with useful information on the problems which Koreans may encounter in learning to discriminate English sounds aurally or orally.

People learning a foreign language may have difficulties because of the differences between the systems of the native language and those of the target language. Learning problems arising from the differences between the learner's native language and the target

language have led to the development of a technique called contrastive analysis, which has been advocated as a means of predicting the difficulties in learning a second language (Fries, 1945; Lado, 1957). Lado (1957) believes that a systematic comparison of the native language with the target language at all levels of structure--phonological, syntactic, and lexical--will predict areas of difficulty in the target language which the learners will have in learning a second language. He also believes that the structures of the target language that were similar to those of the learner's native language would be easy to learn while the structures of the target language that were different from those of the learner's native language would be difficult to learn.

In spite of its popularity during the late 1950's and the early 1960's, the predictive power of contrastive analysis has been seriously questioned. Briere et al. (1968) and Taylor (1975) found that contrastive analysis did not predict errors with one hundred percent accuracy and that students frequently had no great difficulty in learning some structures which contrastive analysis predicted would be difficult. Although advocates of contrastive analysis believed that the primary cause of errors in second language learning was interference from the learner's native language, Duskova (1969) found that interference from the learner's mother tongue did not account for a large number of errors.

Although contrastive analysis did not predict a large portion of errors, the predictions of contrastive analysis were by and large correct at the phonological level (Patnaik, 1978). Marianne Celce-Murica (1976) also states that the results of contrastive

analysis are more reliable on the phonological level than on the syntactic or lexical level. As Jacquelyn Schachter (1974) observes, at the syntactic level choices are available to the learner when he tries to perform in the target language whereas there are hardly any such choices available to him at the phonological level. Therefore, whereas a learner could successfully avoid using the syntactic patterns that he did not know well, he could not, in a very large number of situations, avoid using the sound-segments or sound-patterns while performing in the target language. Hughes (1980) believes that although the comparison of whole languages in order to identify particular points of difficulty is hardly a practical enterprise, a comparison of two complete phonological systems might be possible. As a result, it is my belief that when a learner of a second language is confronted with a phonological system that is quite different from the phonological system of his native language, errors in the target language are expected in the areas of differences. Since differences can consist of speech sounds in the target language that are absent from the learner's native language, or of similar sounds that are distributed differently in the learner's native language or do not have exactly the same distinctive features in common, we can predict the problem sounds that the second language learners will have by comparing the sound systems of the native language and those of the target language.

Based on the technique of contrastive analysis, I first analyzed the sound systems of Korean and English and then compared and contrasted the sound systems to discover points of difference which will be noted as possible sources of difficulty in aural or oral

discrimination. After listing phonemes which exist both in Korean and in English, I have also listed English phonemes which do not appear in Korean. As a last step in contrasting the two languages, I have predicted problem sounds and non-problem sounds in English for Korean speakers. To determine whether the predicted problem sounds actually pose a problem for Koreans in their aural and oral English language use, I conducted both an auditory discrimination test and a pronunciation test. After collecting and classifying the Korean speakers' actual aural and oral errors on the two tests, I conducted an error analysis because we can describe and explain systematically errors made by learners of a foreign language by error analysis. Both contrastive analysis and error analysis provide considerable insight into Korean speakers' sound discrimination problems.

CHAPTER II  
ANALYSIS OF THE PHONEMES IN KOREAN  
AND ENGLISH

Since contrastive analysis involves description, comparison, and prediction, in this chapter I have analyzed the sound systems of Korean and English to compare the two languages. In analyzing the sound systems of the languages, I have limited my work to the segmental features. Suprasegmental features such as intonation, stress, and tone have not been considered. Since there have been many studies about the sound systems of English, I have mainly analyzed the sound systems of Korean in this chapter. Although most of my analysis of the phonemes in Korean is based on the work of Heo (1983), I have developed rules for Korean allophones, assimilation in Korean, and /n/ insertion in Korean based on his work. Since many errors come from the influence of the phonological systems of the learner's native language, when he or she is confronted with the phonological systems of the target language, I have developed those rules in detail.

Korean Phonemic System

There are 19 consonants, 10 vowels, 2 semivowels, and 12 diphthongs in the Korean phonemic system. An outline of the Korean phonemic system would appear as follows:

- a. Consonants: /p t tʃ k/  
 /p\* t\* tʃ\* k\*/  
 /ph th tʃh kh/  
 /s h/  
 /m n ŋ/  
 /l/

Consonants marked by an \* are strong sounds which require tension of the glottis.

- b. Vowels: /ɪ ʏ ÷ u/  
 /e ø ə o/  
 /ɛ ɔ/  
 c. Semivowels: /j w/  
 d. Diphthongs: /je jə ju/  
 /jɛ ja jo/  
 /wɪ/  
 /we wə/  
 /wɛ wa/  
 /ɨj/

For detail, see the phonemic chart of the Korean Consonants (Figure 1) and Vowels (Figure 2) at the end of this chapter.

#### Rules for Korean Allophones

1. /p/ --> [p]/# \_\_\_\_\_  
 --> [b]/[+voice] \_\_\_\_\_ [+voice]  
 --> [p=]/ $\left. \begin{array}{l} V \quad C \\ \quad \quad \# \end{array} \right\}$

For example:

[p] [pʰɪ] fire; [pɪ] rain; [pɔl] cheek

[b] [ko:mbo] a pockmarked person; [tʰ:ɫbo] crybaby

[pʰɔbɔ] a married couple

[p=] [pɑp=] boiled rice; [ɪp=k\*ʌ] entrance

[mɑlgʌp=] a horse's hoof

2. /t/ --> [t]/#\_\_\_\_\_
- > [d]/[+voice]/\_\_\_\_\_ [+voice]
- > [t=]/ { V \_\_\_\_\_ C }  
                   { \_\_\_\_\_ # }

For example:

[t] [tɔl] stone; [tɑl] moon; [tʰ:ɪ] field

[d] [kwɑdo] a fruit knife; [sɛɲdo] cadet

[po:dɑp=] reward

[t=] [nɑt=] scythe; [ɔt=k\*ɑm] cloth

[pɑt=] yard

3. /tʃ/ --> [tʃ]/#\_\_\_\_\_
- > [dʒ]/[+voice]/\_\_\_\_\_ [+voice]

For example:

[tʃ] [tʃɑdʒɔ] frequently; [tʃɑjɪ] freedom

[tʃɛsɑn] property

[dʒ] [pɑdʒɪ] trousers; [kɑmdʒɑ] potato

[kɑdʒɪ] branch

4. /k/ --> [k]/#\_\_\_\_\_
- > [g]/[+voice]/\_\_\_\_\_ [+voice]
- > [k=]/ { V \_\_\_\_\_ C }  
                   { \_\_\_\_\_ # }

For example:

[k] [kɪl] road; [kɑm] persimmon; [kʊl] oyster

[g] [ɑgɪ] baby; [kɔgɪ] meat; [kɑmgɪ] influenza

[k=] [kɑk=t\*o] angle; [mɑk=] curtain

[pɑk=] gourd

5. /n/ --> [ŋ] / {  
                                 \_\_\_\_\_ [ɪ]  
                                 {  
                                 \_\_\_\_\_ [j]  
                                 }  
                                 --> [n] / \_\_\_\_\_ {vowels except [ɪ], [j]}

For example:

[ŋ] [t\*ɑŋɪm] daughter; [mɑ:ŋɪm] madam

[mo:ŋjə] mother and daughter

[n] [nɑ] I; [nə] you; [no] oar; [nɜ:gɜ:] who

[nɪ] always; [nɪk=t\*ɛ] wolf

[tʃɪ:ndʒɪ] quarters

6. /s/ --> [ʃ] / {  
                                 \_\_\_\_\_ [ɪ]  
                                 {  
                                 \_\_\_\_\_ [j]  
                                 }  
                                 --> [s] / {  
                                 \_\_\_\_\_ [w]  
                                 {  
                                 \_\_\_\_\_ vowels except [ɪ], [j], [ɪ], and [j]  
                                 }

For example:

[ʃ] [ʃɪp=t\*ɑ] (be)easy

[ʃɪi:] readily

[s] [sɪ:l] thread

[sɔp\*ɑŋ] a kind of bread



[s] [sq:rɑm] human; [sə:nsɛŋ] teacher  
 [so] cow; [sʊp=] forest; [seg+m] tax  
 [sɛ] bird; [s+hɔʒɪn] promotion  
 [sʌgɔɪ] beef; [swɛdo] rush

7. /l/ --> [r]/V\_\_\_\_\_V

--> [ɾ] / { [ɾ] \_\_\_\_\_ [ɪ] }  
                   { [ɾ] \_\_\_\_\_ [j] }

[ɾ] is always geminate in this environment.

--> [l] / { \_\_\_\_\_ # }  
                   { V \_\_\_\_\_ C }  
                   { [l] \_\_\_\_\_ vowels except [ɪ], [j] }

[l] is always geminate in the last environment.

For example:

[r] [ʊrɑ] we; [tʌrɪ] bridge; [kɑrʊ] powder  
 [ɾ] [tɑɾɾɪda] run; [tɑɾɾjək=] calendar  
 [l] [tɑl] moon; [kɑlt\*ɛ] reed; [nɑlgɛ] wing  
 [tɑlgjɑn] foresight; [tɑllɛ] wild garlic  
 [mɑllo] the final fate; [kʊllɛ] bridle

8. /w/ --> [ɥ]/\_\_\_\_\_ [ɪ]

--> [w]/\_\_\_\_\_ {monophthongs except [ɪ]}

For example:

[ɥ] [ɥɪ] the above part; [ɥɪsɛŋ] sanitation  
 [ɥɪmɔn] consolation; [ɥɪg+p=] emergency  
 [w] [wɑŋgo] obstinacy; [wɛgɑrɪ] heron  
 [wʌgɑ] one's mother's maiden name

9. /ə/ --> [ə]/\_\_\_\_\_ [+length]

--> [ʌ]/\_\_\_\_\_ [-length]

For example:

[ə] [kə:rɪ] street; [ə:mɪ] suffix

[jə:ngɪ] smoke; [kwə:n] recommendation

[ʌ] [kʌrɪ] distance; [ʌmɪ] mother

[jʌngɪ] acting; [kʌʌn] authority

#### Rules for Assimilation in Korean

1. [n] --> [ɺ]/\_\_\_\_\_ [ɺ]

For example:

/tʃhə:n#lɪ/ a long distance --> [tʃhə:lɪ]

2. [ɺ] --> [n]/ { [m] \_\_\_\_\_ }  
 { [ŋ] \_\_\_\_\_ }

For example:

/kʌm#lo/ nectar --> [kʌmno]

/tʃɪŋ#ljək/ gravity --- [tʃɪŋjək]

3. [ɺ] --> [n]/ { [p] \_\_\_\_\_ }  
 { [t] \_\_\_\_\_ }  
 { [k] \_\_\_\_\_ }

For example:

/pɛk#lo/ white dew --> [pɛkno] --> [pɛŋno]

/pɪt#ljʌŋ/ loan --> [pɪtnjʌŋ] --> [pɪnnjʌŋ]

/ʌp#ljək/ pressure --> [ʌpnjək] --> [ʌmnjək]

4. [p] --> [m]/ { \_\_\_\_\_ [n] }  
 { \_\_\_\_\_ [m] }

[t] --> [n]/ { \_\_\_\_\_ [n] }  
 { \_\_\_\_\_ [m] }

$$[k] \rightarrow [ŋ] / \left\{ \begin{array}{l} \text{---} [n] \\ \text{---} [m] \end{array} \right\}$$

For example:

/tʃɑp#n+nda/ slaughter --> [tʃɑmn+nda]

/pɑp#mʌkt\*ɑ/ to eat boiled rice --> [pɑmmʌkt\*ɑ]

/pɑt#n+nda/ receive --> [pɑnn+nda]

/mɑt#mjən+rɛ/ the eldest daughter-in-law --> [mɑnmjɔn+rɛ]

/mæk#n+nda/ to eat --> [mæŋn+nda]

/kʊk#mʊl/ soup --- [kʊŋmʊl]

Note: Rule 3 precedes Rule 4

#### Rules for [n] Insertion in Korean

$$\emptyset \rightarrow [n] / \left\{ \begin{array}{l} [p] \\ [t] \\ [k] \\ [m] \\ [n] \\ [ŋ] \end{array} \right\} \# \left\{ \begin{array}{l} [ɪ] \\ [j] \end{array} \right\}$$

For example:

- /tʃɪp/ house + /ɪ:l/ work --> /tʃɪpɪ:l/ house work  
 /tʃɪpɪ:l/ housework a.[tʃɪpnɪ:l] b.[tʃɪmnɪ:l]  
 a. application of rule for [n] insertion  
 b. application of Rule 4 for assimilation
- /pɑt/ field + /ɪ:l/ work --> /pɑtɪ:l/ field work  
 /pɑtɪ:l/ fieldwork a.[pɑtnɪ:l] b.[pɑnnɪ:l]  
 a. application for rule for [n] insertion  
 b. application of Rule 4 for assimilation

3. /mɑ:k/ rough + /ɪ:l/ work --> /mɑ:kɪ:l/ rough work  
 /mɑ:kɪ:l/ rough work a.[mɑ:kɪ:l] b.[mɑ:hɪ:l]  
 a. application of rule for [n] insertion  
 b. application of Rule 4 for assimilation
4. /nɑ:m/ man + /jə/ woman --> /nɑ:mjə/ man and woman  
 /nɑ:mjə/ man and woman --> [nɑ:mjə]
5. /tʃɑ:n/ small + /ɪ:l/ work --> /tʃɑ:nɪ:l/ small work  
 /tʃɑ:nɪ:l/ small work --> [tʃɑ:nɪ:l]
6. /sɛŋ/ raw + /jʊk/ meat --> /sɛŋjʊk/ raw meat  
 /sɛŋjʊk/ raw meat --> [sɛŋjʊk]

### English Phonemic System

There are 22 consonants, 12 vowels, 2 semivowels, and 6 diphthongs in the English phonemic system. An outline of the English phonemic system would appear as follows:

- a. Consonants: /p t k/  
 /b d g/  
 /tʃ/  
 /dʒ/  
 /f θ s ʃ h/  
 /v ð z ʒ/  
 /m n ŋ/  
 /l/  
 /r/
- b. Vowels: /i ɪ u ʊ/  
 /e ɛ ə ʌ o/  
 /æ ɑ ɔ/

- c. Semivowels: /j w/
- d. Diphthongs: /eɪ aɪ ɔɪ/  
/jɔ- aʊ oʊ/

For detail, see the phonemic chart of the English Consonants (Figure 3) and Vowels (Figure 4) at the end of this chapter.

Manner of Articulation		Place of Articulation				
		Bilabial	Alveolar	Palato-Alveolar	Velar	Glottal
Stops	Voiceless slightly aspirated lax	p	t		k	
	Voiceless strongly aspirated tense	ph	th		kh	
	Voiceless unaspirated tense	p*	t*		k*	
Affricates	Voiceless slightly aspirated lax			tʃ		
	Voiceless strongly aspirated tense			tʃh		
	Voiceless unaspirated tense			tʃ*		
Fricatives	Voiceless		s			h
	Voiceless tense		s*			
Resonants	Nasal	m	n		ŋ	
	Lateral		l			

\*Refers to strong sound which requires tension of the glottis

Figure 1. A Phonemic Chart of the Korean Consonants

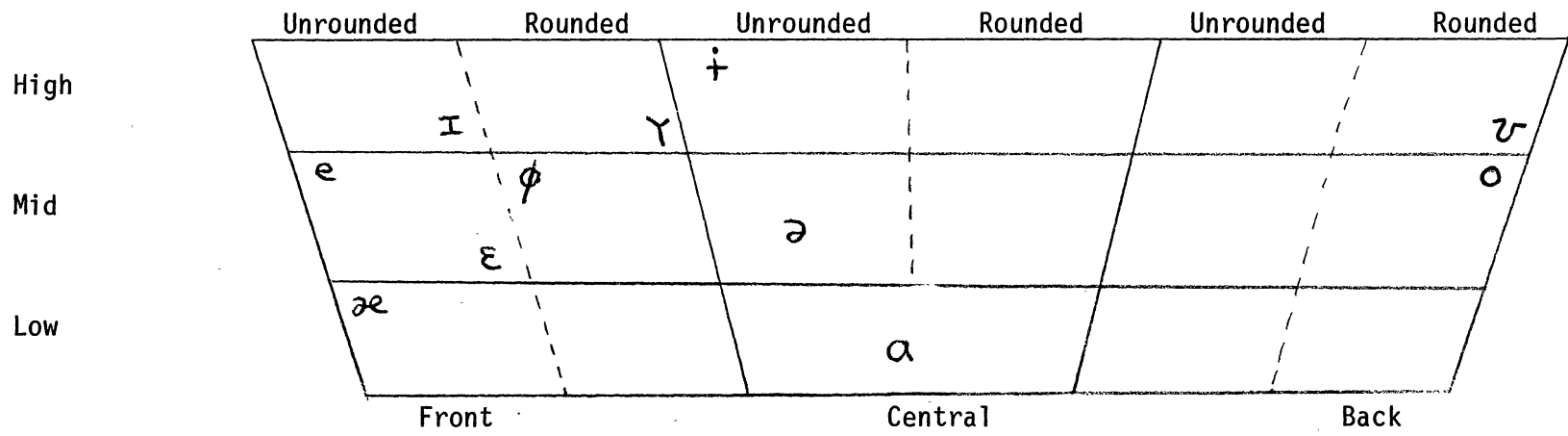


Figure 2. A Phonemic Chart of the Korean Vowels

Manner of Articulation		Place of Articulation								
		Bilabial	Labio-Dental	Dental	Alveolar	Plato-Alveolar	Alveo-Palatal	Palatal	Velar	Glottal
Stops	Voiceless	p			t				k	
	Voiced	b			d				g	
Affricates	Voiceless						tʃ			
	Voiced						dʒ			
Fricatives	Voiceless		f	θ	s	ʃ				h
	Voiced		v	ð	z	ʒ				
Lateral	Voiced				l					
Nasals	Voiced	m			n				ŋ	
Medians	Voiced				r					

Figure 3. A Phonemic Chart of the English Consonants



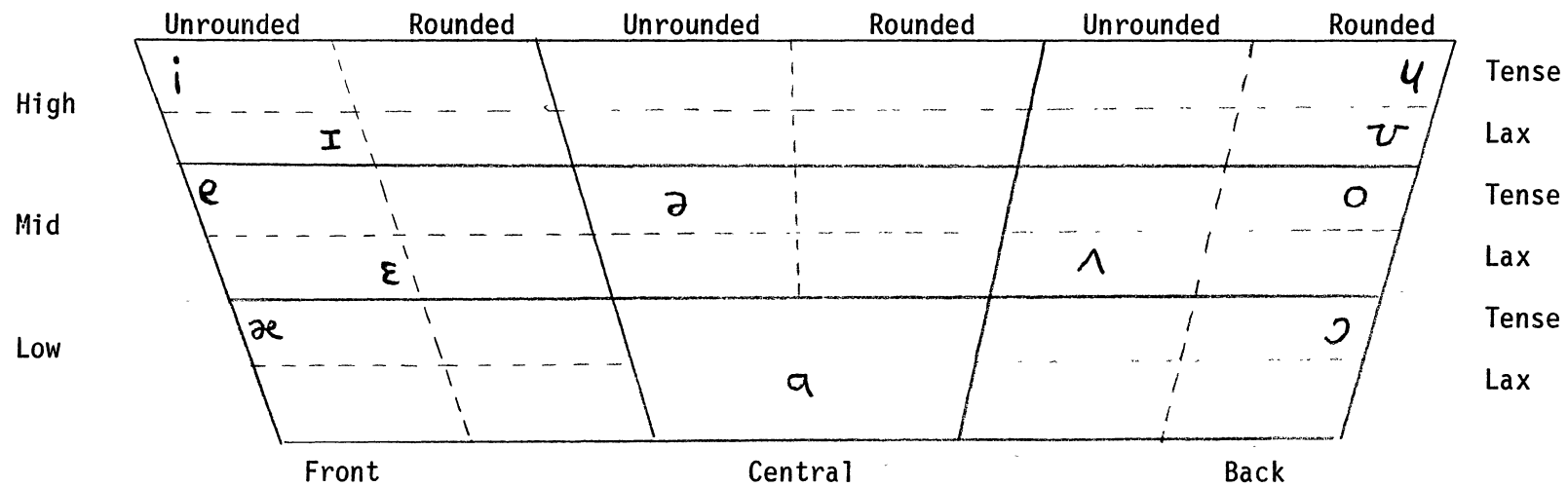


Figure 4. A Phonemic Chart of the English Vowels

## CHAPTER III

### COMPARISON OF PHONEMES BETWEEN KOREAN AND ENGLISH

Consonants and Vowels, Including Some Allophones  
in Korean Which are Similar to or the Same as  
Those of English Counterparts

1. The phoneme /p/, as in /pʰɪ/ fire in Korean, has a phonetic value similar to /p/ in "people" in English.

2. [b], an allophone of Korean /p/, as in [pabo] idiot, has a phonetic value similar to /b/ as in "buy" in English, but the degree of voicing is considered to be weak compared with that of English /b/.

3. [p=], an allophone of Korean /p/, as in [pap=] boiled rice, has the same phonetic value as /p/ as in "pop" or "apt" in English.

4. The phoneme /ph/, as in /phɪ/ grass in Korean, has a phonetic value similar to /p/ as in "pie" in English, but the degree of aspiration for /ph/ in Korean is said to be heavier than that of /p/ in English.

5. The phoneme /t/, as in /tɰ/ moon in Korean, has a phonetic value similar to /t/ as in "bottle" in English.

6. [d], an allophone of Korean /t/, as in [phɰdo] wave, has a phonetic value similar to /d/ as in "down" in English, but the degree of voicing is considered to be weak compared with that of English /d/.

7. [t=], an allophone of Korean /t/, as in [nat=] scythe, has the same phonetic value as /t/ as in "not" in English.

8. The phoneme /th/, as in /thɑl/ mask in Korean, has a phonetic value similar to /t/ as in "task" in English, but the degree of aspiration for /th/ in Korean is considered to be heavier than that of /th/ in English.

9. The phoneme /k/, as in /kʌj/ river in Korean, has a phonetic value similar to /k/ as in "sacrifice" in English.

10. [g], an allophone of Korean /k/, as in [ɑgɪ] baby has a phonetic value similar to /g/ as in "good" in English, but the degree of voicing is weak compared with that of English /g/.

11. [k=], an allophone of Korean /k/, as in [pʌk=] gourd, has the same phonetic value as /k/ as in "book" or "act" in English.

12. The phoneme /kh/, as in /kho/ nose in Korean, has a phonetic value similar to /k/ as in "king" in English, but the degree of aspiration for /kh/ in Korean is considered to be heavier than that of /kh/ in English.

13. The phoneme /s/, as in /sarʌj/ love in Korean, has a phonetic value similar to /s/ as in "speak" in English.

14. [ʃ], an allophone of Korean /s/, as in [ʃɪp=tʰɑ] (be) easy has a phonetic value similar to /ʃ/ as in "she" in English.

15. The phoneme /tʃ/, as in /tʃʌjɯ/ freedom in Korean, has a phonetic value similar to /tʃ/ as in "charge" in English.

16. [dʒ], an allophone of Korean /tʃ/, as in [kamdʒɑ] potato in Korean, has a phonetic value similar to /dʒ/ as in "judge" in English.

17. The phoneme /m/, as in /mɑ̃l/ horse in Korean, has exactly the same phonetic value as /m/ as in "mother" in English.

18. The phoneme /n/, as in /nɑ̃l/ day in Korean, has exactly the same phonetic value as /n/ as in "now" in English.

19. The phoneme /ɲ/, as in /pʲə:ɲ/ sickness in Korean, has exactly the same phonetic value as /ɲ/ as in "sing" in English.

20. The phoneme /l/, as in /nɑ̃lgɛ/ wing in Korean, has the same phonetic value as /l/ as in "lick" in English.

21. [r], an allophone of Korean /l/, as in [ɹrɪ] we, has the same phonetic value as /r/ as in "rye" in English.

22. The phoneme /h/, as in /hɑ̃nʰl/ sky in Korean, has exactly the same phonetic value as /h/ as in "hill" in English.

23. The phoneme /ɪ/, as in /kɪl/ road in Korean, has a phonetic value similar to /ɪ/ as in "hit" in English.

24. The phoneme /e/, as in /ne/ yes in Korean, has a phonetic value similar to /e/ as in "bait" in English.

25. The phoneme /ɛ/, as in /k\*ɛdɑ̃/ break in Korean, has a phonetic value similar to /ɛ/ as in "bet" in English.

26. The phoneme /ə/, as in /kə:rɪ/ distance in Korean, has a phonetic value similar to /ə/ as in "about" in English, but the length of Korean /ə/ is considered to be longer than that of English /ə/.

27. [ʌ], an allophone of Korean /ə/, as in [ʌmɪ] mother has a phonetic value similar to /ʌ/ as in "butt" in English.

28. The phoneme /ʊ/, as in /nʊn/ eye in Korean, has a phonetic value similar to /ʊ/ as in "foot" in English.

29. The phoneme /o/, as in /mʌʔk\*ogɪ/ fish in Korean, has a phonetic value similar to /o/ as in "boat" in English.

30. The phoneme /w/, as in /wango/ obstinacy in Korean, has a phonetic value similar to /w/ as in "want" in English.

31. The phoneme /j/, as in /jay/ sheep in Korean, has a phonetic value similar to /j/ as in "yes" in English.

#### English Phonemes Which do not Exist in Korean

1. /f/, voiceless labio-dental fricative consonant, as in "fat."

2. /v/, voiced labio-dental fricative consonant, as in "vane."

3. /θ/, voiceless dental fricative consonant, as in "thing."

4. /ð/, voiced dental fricative consonant, as in "then."

5. /z/, voiced alveolar fricative consonant, as in "zoo."

6. /ʒ/, voiced palato-alveolar fricative consonant, as in "vision."

7. /æ/, low front unrounded tense vowel, as in "apple."

8. /ɔ/, low back rounded tense vowel, as in "caught."

9. /i/, high front unrounded tense vowel, as in "feel."

10. /u/, high back rounded tense vowel, as in "food."

## CHAPTER IV

### PREDICTION OF PROBLEMS IN ENGLISH PHONEMES FOR KOREAN SPEAKERS

#### Introduction

In Chapter II and III I have analyzed the phonemes in Korean and English, and compared the sound systems of two languages. Based on the analysis and comparison of phonemes between Korean and English, I will in this chapter predict possible problem sounds in English for Korean speakers to discriminate.

#### Voiceless Stops

Voiceless stops /p/, /t/, and /k/ exist in both languages. Korean has voiceless slightly aspirated stops in word initial position, as in /pʰl/ fire, /tʰl/ moon, and /kʰl/ road. Voiceless stops become voiced stops between voiced sounds, as in [pʰbʰ] a married couple, [kwado] a fruit knife, and [qgɪ] baby. Voiceless stops are unreleased in word final position, as in [mq]gɪp=] a horse's hoof, [pat=] yard, and [pɑk=] gourd. On the other hand, voiceless stops in English are aspirated when they are syllable initial, as in "pass", "task", and "king", but they are unaspirated after /s/ at the beginning of a syllable, as in "speak", "student", and "sky." Although the phonetic values between

English voiceless stops and Korean voiceless stops in word initial position are different, Korean speakers do not seem to have problems in producing aspirated English /p/, /t/, and /k/ in word initial position because of the fact that Korean speakers tend to transfer strongly aspirated Korean obstruents for voiceless English obstruents (Chu, 1979). Because of the influence of this tendency, Koreans are expected to have strongly aspirated /p/, /t/, and /k/ even where they should not be aspirated, for example, even after /s/ as in "speak", "student", and "sky."

#### Voiced Stops

Voiced stops /b/, /d/, and /g/ can be found in both languages, but they occur differently in Korean and English. For example, in Korean, [b], an allophone of Korean /p/, [d], an allophone of Korean /t/, and [g], an allophone of Korean /k/, occur only between voiced sounds as in [pɯbɯ] a married couple, [sɛŋdo] cadet, and [kogrɛ] meat, whereas in English voiced stops occur in word initial, medial, or final position. Koreans will not have trouble with word medial voiced stops in English, which occur between voiced sounds as in "number", "radio", and "sugar." Since voiced stops do not occur in word initial or final position in Korean, Koreans will find word initial or final voiced stops hard to hear and pronounce. Because Korean has very slightly aspirated /p/, /t/, and /k/ in word initial position, Koreans are predicted to substitute Korean /p/, /t/, /k/ for word initial English /b/, /d/, and /g/ respectively. Because Korean has unreleased /p/, /t/, and /k/ in word final position, it is expected that Koreans will substitute Korean /p=/, /t=/, and /k=/ for

word final English /b/, /d/, /g/ respectively. In both cases, Korean speakers are expected to pronounce voiced English stops without voicing because of the influence of voiceless Korean /p/, /t/, and /k/ or /p=/, /t=/ and /k=/. Sometimes Koreans tend to transfer Korean /p\*/, /t\*/ and /k\*/, which are voiceless unaspirated tense stops for word initial English /b/, /d/ and /g/ respectively. Thus, they will pronounce /p\*ɛk=/ for "bag", /t\*ajm/ for "down", and /k\*oʔ/ for "goal."

#### Nasals

Nasals /m/, /n/, and /ŋ/ exist in both languages and occur in the same places in both languages. Since these sounds have the same phonetic value in both languages and occur in English syllables in the same places as in Korean syllables, Korean speakers are predicted not to have any problem in hearing and pronouncing these sounds.

#### Voiceless and Voiced Labio-Dental Fricatives

Both /f/, voiceless labio-dental fricative, and /v/, voiced labio-dental fricative, do not exist in Korean. Because of the absence of these sounds, Korean speakers are predicted to have problems in hearing and producing the two sounds. In hearing /f/ and /v/, Koreans will confuse /f/ with /p/, and /v/ with /b/ because of the absence of an /f/ vs. /p/ and /v/ vs. /b/ distinction in Korean. It is predicted that Korean learners will have difficulty in discriminating between "feel" and "peel", "vote" and "boat", and so on, when they listen to these words. On the other hand, in their pronunciation of /f/, Korean speakers sometimes transfer



strongly aspirated Korean /ph/ for English /f/ because they think that Korean /ph/ is the closest to English /f/. As a consequence, they will often pronounce /phɨn/ for "fine", /khophɨ/ for "coffe", and /naɨph/ for "knife."

In producing /v/, Korean speakers are expected to transfer Korean /p/ for word initial English /v/ because they feel that Korean /p/ is the closest to English /v/ in word initial position. They will pronounce /p n/ for "van". Note that Korean /p/ is not so much aspirated as English /p/ in word initial position. For medial English /v/, Koreans tend to use [b], an allophone of Korean /p/ because they think that /b/ is the closest to English /v/ medially. For word final /f/ or /v/, Korean speakers sometimes tend to add a vowel. For example, they will pronounce /ɨphɨ/ for "if", and /phaɨbɨ/ for "five."

Because Korean words do not end with fricatives, and do not have word final consonant clusters, Korean speakers will tend to add vowels after the fricatives at the word final position or between consonants in clusters. For details, see Chapter V.

#### Voiceless and Voiced Dental Fricatives

Both /θ/, voiceless dental fricative, and /ð/, voiced dental fricative, do not exist in Korean. Since these sounds do not appear in Korean, Koreans are predicted to have problems in hearing and pronouncing them. In hearing /θ/ and /ð/, Koreans will confuse /θ/ with /s/, and /ð/ with /d/ because /s/ and /d/ more closely approximate /θ/ and /ð/ respectively, than do any other Korean sounds. Koreans will have difficulty in discriminating between "thick" and

"sick," "they" and "day," and so on when they listen to these words. In producing /θ/, Koreans tend to transfer Korean /s/, /s\*/, which is voiceless tense alveolar fricative, or /t/ for English /θ/. Thus Koreans are expected to say /sri/, /s\*ri/, or /tri/ for "three", but usually tend to transfer Korean /s\*/ for word initial English /θ/, Korean /s/ for medial English /θ/, and Korean /s/ and additional vowel for word final English /θ/. As a result, Koreans will pronounce /s\*ɪŋ/ for "thing", /bɔ̃sdeɪ/ for "birththday", and /s\*ʌsɪ/ for "southth." On the other hand, in producing /ð/, Korean speakers tend to transfer Korean /t/ or [d], an allophone of Korean /t/, for English /ð/ because they feel that Korean /t/ and /d/ are the closest to English /ð/. For word initial English /ð/, Koreans may use Korean /t/. Thus they will pronounce /tə/ for "the." For medial English /ð/, they tend to use Korean /d/. Thus they will pronounce /mʌdər/ for "mother." For word final English /ð/, Koreans sometimes use Korean /d/ and an additional vowel. Thus they will pronounce /wɪdɪ/ for "wth."

#### Voiceless and Voiced Alveolar Fricatives

While /s/ exists in both languages, /z/, the voiced alveolar fricative, does not appear in Korean. However, Koreans will not have difficulty in hearing the difference between /s/ and /z/ because /s/ is a voiceless sound while /z/ is a voiced. In producing /s/, Korean speakers tend to use Korean /s/ for English /s/ which occurs before a consonant as in "history" or "sky", but they sometimes use Korean /s\*/, voiceless tense alveolar fricative, before a vowel as in "sing" or "lesson." They will say /s\*ɪŋ/ for "sing." Because

/s/ never occurs in word final position in Korean, Korean speakers tend to add the vowel /ɪ/ for word final English /s/. For example, they will pronounce /trɛsɪ/ for "dress." On the other hand, in producing /z/, Koreans often transfer Korean /tʃ/ for word initial English /z/, and Korean /dʒ/ for word medial English /z/ because they feel that Korean /tʃ/ and /dʒ/ are the closest to word initial and medial /z/ respectively. Thus they will pronounce /tʃu/ for "zoo", and /mjɪdʒɪk/ for "music." For word final English /z/, Koreans tend to add the vowel /ɪ/; for example, they will say /s\*ɑɪdʒɪ/ for "size."

#### Voiceless and Voiced Palato-Alveolar Fricatives

/ʃ/, voiceless palato-alveolar fricative occurs in both languages. In Korean, [ʃ], an allophone of Korean /s/, occurs only before /Y/ as in [ʃɪp=t\*ɑ] (be easy), or before /ɥ/ as in [ʃɪɪ:] readily whereas in English /ʃ/ occurs initially as in "show", medially as in "fishing", and finally as in "cash." Korean speakers are expected to have problems in discriminating the difference between English /s/ and /ʃ/ because in English, /s/ and /ʃ/ are separate phonemes whereas in Korean, [ʃ] is an allophone of /s/. As a consequence, English /ʃ/ as in "shock" initially, "mashes" medially, and "swish" finally will be confused respectively with English /s/ as in "sock" initially, "masses" medially, and "Swiss" finally. In Korean speakers' pronunciation, there is a tendency to pronounce English /ʃ/ with an added vowel /Y/ or /ɥ/. For example, they pronounce /ʃɪɪp/ for ship, /mɔɪʃɪn/ for motion, and /wɑʃɪ/ for wash because of the fact that in Korean /ʃ/ occurs only before /Y/ or /ɥ/.

On the other hand, /ʒ/, voiced palato-alveolar fricative, does not exist in Korean. In English, /ʒ/ does not appear at the beginning of words. It occurs medially as in "vision," or finally as in "camouflage." Because of the absence of this sound in Korean, Korean speakers are predicted to have problems in hearing and producing the sound. Because English /ʒ/ and /z/ do not appear in Korean, and because the distinction between /ʒ/ and /dʒ/ does not exist in Korean, Korean speakers are predicted to have great problems in discriminating between /ʒ/ and /z/, or between /z/ and /dʒ/. For example, they will have great difficulty in discriminating between /ʒ/ as in rouge and /z/ as in ruse, between /ʒ/ as in lesion and /dʒ/ as in legion. Because Korean speakers feel that Korean /dʒ/, an allophone of Korean /tʃ/, as in /kʌdʒɪ/ branch is the closest to English /ʒ/, they tend to transfer Korean /dʒ/ for English /ʒ/ in their pronunciation. Thus they will mispronounce /mɛdʒə/ for measure. For word final /ʒ/, they tend to add a vowel. For example, they will pronounce /beɪdʒɪ/ for beige.

#### Voiceless and Voiced Alveo-Palatal Affricates

Although /tʃ/, voiceless alveo-palatal affricate exists in both languages, it occurs differently in Korean and English. For example, in Korean /tʃ/ occurs only initially as in /tʃʌdʒw/ frequently, whereas in English it occurs initially as in "chair", medially as in "bachelor", and finally as in "watch." In producing this sound, Korean speakers tend to transfer Korean /tʃh/ for English /tʃ/ because of the tendency to transfer strongly aspirated Korean obstruents for voiceless English obstruents (Chu, 1979). As a result, they will

pronounce /tʃhaɪld/ for child, /thɪtʃhə/ for teacher, /sphɪtʃhɪ/ for speech, and so on.

/dʒ/, voiced alveo-palatal affricate, can be found in both languages. In Korean, [dʒ], an allophone of Korean /tʃ/, occurs only between voiced sounds as in /pɑdʒɪ/ trousers and /kɑmdʒɑ/ potato, whereas in English it occurs initially as in "just", medially as in "manager", and finally as in "page." Because this sound patterns differently in both languages, Korean speakers will find it hard to discriminate the sound correctly. It seems to be very difficult for Korean speakers to differentiate between /dʒ/ as in ledger and /z/ as in leisure and between /dʒ/ as in g and /z/ as in z because Korean does not have either the /dʒ/ vs. /ʒ/ or /dʒ/ vs. /z/ distinction. In producing this sound, Koreans tend to transfer Korean /tʃ/ for word initial English /dʒ/ because they feel that Korean /tʃ/ is the closest to word initial English /dʒ/. For example, they will pronounce /tʃɔɪ/ for joy. For medial English /dʒ/, Korean speakers are not expected to have problems because Korean has [dʒ], an allophone of Korean /tʃ/, which occurs between voiced sounds. For word final English /dʒ/, Korean speakers tend to add a vowel after the final /dʒ/. For example, they will pronounce /beɪdʒɪ/ for beige.

#### /l/ and /r/

Both /l/ and /r/ can be found in both languages. In Korean, /l/ occurs in word final position as in /tɑl/ moon, or between vowel and consonant as in /nɑlgɛ/ wing whereas [r], an allophone of Korean /l/, occurs only between vowels as in [ɯrɪ] we. [r] never occurs in

word initial position, whereas in English both /l/ and /r/ occur initially, medially, or finally. Since both /l/ and /r/ never occur in word initial position, Korean speakers are expected to have problems in discriminating between "least" and "road", "load" and "road", and so on when they hear or pronounce these two sounds.

#### /h/

This sound occurs in both languages. Since this sound has the same phonetic value in both languages and occurs in English syllables in the same places as it does in Korean syllables, Korean speakers are predicted not to have any problems in hearing and pronouncing the sound.

#### /w/ and /j/

Both /w/ and /j/ exist in both languages. Since these two sounds have a similar phonetic value in both languages, Korean speakers are expected not to have problems in hearing and pronouncing them. However, in pronouncing the English sequence /wʊ/ as in "woman", Korean speakers tend to transfer /u/ for /wʊ/ because Korean does not have the English sequence /wʊ/ (Chu, 1979). Thus they will pronounce /umən/ for "woman." In pronouncing the English sequence /jɪ/ as in "yeast", Korean speakers are expected to transfer /i/ for /jɪ/ because Korean does not have the English sequence /jɪ/ (Chu, 1979). As a result, they will have difficulty in pronouncing the difference between /jɪ/ as in "yeast" and /i/ as in "east." They are also expected to have difficulty in hearing the difference between /jɪ/ as in "year" and /ɪ/ as in "ear."

## /i/ and /ɪ/

Korean /ɪ/, as in /kɪl/ road, may be said to have a phonetic value similar to the English /ɪ/ as in "dip." Korean, however, may use length contrastively as in /ɪl/ day vs. /ɪ:l/ work. But as Chu (1979) states:

the contrast between the short and long /i/ is lost in some dialects of Korean and is fast disappearing in most dialects of Korean. Korean learners, in whose dialects of Korean the contrast between the long and short /i/ is lost, find it difficult to hear the difference between the two varieties of /i/ in English (p. 16).

As a result, Korean speakers are predicted to have difficulty in discriminating between English /i/ as in "eat" and English /ɪ/ as in "it." In their hearing and pronunciation, Korean speakers will confuse each with itch, beat with bit, steel with still, and so on.

## /u/ and /ʊ/

Korean /ʊ/ as in /pʊl/ fine may be said to have a phonetic value similar to English /ʊ/ as in "pull". According to Chu (1979),

like the distinction between the long and short /i/, the distinction between the long and short /u/ is lost in most dialects of Korean. As a result, Korean learners often have difficulty in hearing the difference between the short and long /u/ in English (p. 17).

Korean speakers are also predicted to have difficulty in discriminating the difference between fool and full, cooed and could, and pool and pull in their pronunciation.

## /ɛ/ and /æ/

/ɛ/, mid front unrounded lax vowel, exists in both languages whereas /æ/, low front unrounded tense vowel, does not exist in Korean. Although Korean speakers are expected not to have problems in producing /ɛ/, they are expected to have difficulty in pronouncing /æ/. In producing /æ/, Koreans tend to transfer Korean /ɛ/ for English /æ/. Thus, they will pronounce /phɛn/ for "pan", /thɛn/ for "tan" and so on. Because the distinction between /ɛ/ and /æ/ does not exist in Korean, Korean speakers are expected to have difficulty in discriminating the difference between pen and pan, ten and tan, beg and bag, and so on.

## /e/

This sound exists in both languages. Since the phonetic value between Korean /e/ as in /te/ place and English /e/ as in "age" is considered to be similar, Korean speakers are expected not to have a problem in discriminating this sound.

## /o/ and /ɔ/

/o/, mid back rounded tense vowel, exists in both languages whereas /ɔ/, low back rounded tense vowel, does not exist in Korean. Because the phonetic values of Korean /o/ and English /o/ are considered to be similar, Korean speakers are expected not to have difficulty in producing this sound. On the other hand, in producing /ɔ/, Koreans will tend to transfer Korean /o/ for English /ɔ/. Thus they will pronounce /khol/ for "call", /khot/ for "caught" and so



on. In hearing /o/ and /ɔ/, since Korean does not have the /o/ and /ɔ/ distinction, Koreans will have difficulty in discriminating the difference between boat and bought, ball and bowl, and so on.

### /ɑ/

This sound can be found in both languages. Since the phonetic value between Korean /ɑ/ as in /ɑgɪ/ baby and English /ɑ/ as in "father" is considered to be similar, Korean speakers are expected not to have difficulty in discriminating this sound.

### /ə/ and /ʌ/

In Korean, /ə/ occurs before [+length] as in /kə:rɪ/street and /ʌ/ occurs before [-length] as in [kʌrɪ] distance. In English, /ə/, known as the most common unstressed vowel, occurs initially as in "above", medially as in "banana", and finally as in "drama", and /ʌ/ occurs initially as in "up" and medially as in "love." However, Korean speakers are expected not to have great problems in discriminating these sounds because the phonetic values between Korean /ə/ and English /ə/, Korean /ʌ/ and English /ʌ/ are considered to be similar.

## CHAPTER V

### OTHER PROBLEMS STEMMING FROM THE NATURE OF THE KOREAN LANGUAGE ITSELF

#### Consonant Clusters

Many consonant clusters are found in English in word initial position, as in "strike," or in word final position, as in "stumped," whereas in Korean no word initial or final consonant clusters are observed. In Korean, only medial consonant clusters are found as in /ko:mbo/ a pockmarked person, /v:lbo/ crybaby, /maŋgʌp= / a horse's hoof, and so on. As a result, Korean speakers are predicted to have problems in pronouncing word initial or final consonant clusters in English. When Korean speakers pronounce word initial or final consonant clusters in English, they tend to use an additional vowel, especially Korean /ɨ/, between consonants in clusters. For example, they will pronounce /sɨthɨroŋ/ for strong, /khɨraɪm/ for crime, /phɛsɨtɨ/ for fast, /mɨlkɨ/ for milk, and so on. Because the Korean syllable takes the following four forms - V as in /ɪ/ louse; VC as in /ɑ/ egg; CV as in /nɑ/ I; and, CVC as in /tɑ/ moon - Chu (1979) says

Korean learners often restructure the English consonant clusters in such a way as to make them to confirm the standard Korean syllable structure by using the least salient Korean vowel (p. 119).

### Influence of the Rules for Assimilation in Korean

According to one of the rules for assimilation in Korean, /n/ becomes /l/ when it is followed immediately by an /l/. For example, in Korean, /n/ as in /tʃhə:n#lɪ/ a long distance becomes /l/ as in [tʃhə:llɪ]. Korean speakers tend to transfer this rule to English. Thus they will pronounce /meɪllɪ/ for mainly, /loʊllɪ/ for lonely, and so on. Korean speakers are even observed to transfer this rule to the English /n/ + /r/ sequence (Chu, 1979). Thus they will pronounce /hɛllɪ/ for Henry. According to another rule for assimilation in Korean, /p/ becomes /m/ when it is followed immediately by /m/ or /n/. For example, /p/ as in /pɑp#mʌk=t\*ɑ/ to eat boiled rice becomes /m/ as in [pɑmmʌt=t\*ɑ]. Because of the influence of this rule, Korean speakers are expected to pronounce /ɪkwɪmmənt/ for equipment. Another rule in Korean says that /t/ becomes /n/ when it is followed immediately by /m/ or /n/. For example, /t/ before /n/ as in /pɑt#nɪnda/ receive becomes /n/ as in [pɑnnɪnda], or /t/ before /m/ as in /mɑt#mjənɪrɪ/ the eldest daughter-in-law becomes /n/ as in [mɑnmjənɪrɪ]. Because of the influence of this rule, Korean speakers will pronounce /swɪnmit/ for sweetmeat, /hi hɪn mɪ/ for He hit me, and so on. In Korean, /k/ becomes /ŋ/ when it is followed immediately by /m/ or /n/. For example, /k/ before /m/ as in /kʊk#mʊl/ soup becomes /ŋ/ as in [kʊŋmʊl], or /k/ before /n/ as in /mʌk#nɪnda/ to eat becomes /ŋ/ as in [mʌŋnɪnda]. Because Korean speakers tend to transfer this rule to English, they will pronounce /kɪŋmɛrɪ/ for kick Mary, or /teŋ mɪ hoʊm/ for take me home, and so on.

There is another rule in Korean in which /l/ becomes /n/ when it immediately follows either /m/ or /ŋ/. For example, /l/ after /m/ as in /kɑm#lo/ nectar becomes /n/ as in [kɑmno]. Because of the influence of this rule, Korean speakers will pronounce /hɛmnɪt/ for hamlet. /l/ after /ŋ/ as in /tʃʊŋ#ljək=/ gravity becomes /n/ as in [tʃʊŋjək=]. Because of the influence of this rule, Korean speakers will pronounce /kɪŋnɪ/ for kingly, /loŋ nʌn/ for long run, and so on.

#### Influence of /n/ Insertion Rule in Korean

In Korean, /n/ is often inserted between two words if the first word ends in /p/, /t/, /k/, /m/, /n/, or /ŋ/ and if the second word begins with /ɪ/ or /j/. For example, /tʃɑn#ɪ:l/ small matters becomes [tʃɑn nɪ:l] because /n/ is inserted between /n/ and /ɪ/, /nɑm#jə/ man and woman becomes [nɑm njə] because /n/ is inserted between /m/ and /j/, and /sɛŋ#jʊk/ raw meat becomes /sɛŋnjʊk/ because /n/ is inserted between /ŋ/ and /j/. Korean speakers tend to transfer this rule to English by pronouncing /kɪm njʊkən/ for keep your gun, /kɪŋ njʊkə tog/ for kick your dog, and so on.

## CHAPTER VI

### AUDITORY DISCRIMINATION TEST

To discover how Koreans actually perceive problem sounds predicted by the contrastive analysis presented so far, I have conducted an auditory discrimination test. The purpose of the auditory discrimination test is to measure objectively whether Korean speakers have an ability to discriminate among the phonemic contrasts in English.

#### Methods

##### Subjects

Twenty-one native speakers of Korean were used as subjects for the auditory discrimination test. There were twelve male Korean graduate students, who were enrolled at Oklahoma State University, and nine female Koreans, who were spouses of Korean students. They all have studied English for over ten years since junior high school in Korea and have lived in America for one or two years.

##### Materials

The test content was based on a contrastive analysis of the phonemes of Korean and English since not all phonemic contrasts in

English needed to be tested. The phonemic contrasts predicted by contrastive analysis to be difficult for Koreans to discriminate were selected.

In selecting phonemic contrasts in English vowels, I tried to select vowels which have similar phonetic values, e.g., front vs. front vowels, front vs. central vowels, central vs. back vowels, back vs. back vowels, high vs. mid vowels, mid vowels vs. low vowels but, in some cases, front vs. back vowels or high vs. low vowels. In most of the cases, Koreans were expected not to have great problems in discriminating the phonemic contrasts between vowels which had different phonetic values, e.g., front vs. back vowels or high vs. low vowels. In selecting phonemic contrasts in consonants, I have also selected consonants which had similar phonetic values.

For example, since Korean voiced obstruents never occur in syllable final position, Koreans were expected to have difficulty in discriminating the phonemic contrasts between voiceless obstruents and voiced obstruents, especially in word final position. Thus, I have selected minimal sentences in which the phonemic contrasts between voiceless and voiced obstruents appear in word final position. The test includes forty-six questions, which are presented through the test tape to the examinees, and each question contains three sentences in which a single distinction in sound affects the meaning, e.g., one sentence is different from the other two sentences because of a change in a single phoneme. One female American graduate student, who has taken a phonetics course, majoring in Teaching English as a Second Language at Oklahoma State University has recorded the test tape using a cassette tape recorder. Samples of the auditory discrimination

test are included in the appendix. Phonemic contrasts and sentences were not written out on the examinees' answer sheet. In designing the test, I have chosen most of the sentences from Nilsen (1973).

### Procedures

The testees were asked to listen to the test tape presented through the cassette tape recorder and to identify one sentence which was different from the other two sentences because of a change in a single phoneme. The examinees made a mark on the answer sheet, thus making the scoring completely objective. As I stated earlier, sentences were not written out on the examinees' answer sheet since the purpose of the test was to measure whether the examinees could discriminate between the phonemic contrasts in English. The testees were allowed to leave their answer sheets unmarked if they could not discriminate the phonemic contrasts in question, although every question had the phonemic contrasts. The Bureau of Tests and Measurements at Oklahoma State University scored and analyzed the test. My analysis of the testees' errors was based on this computer assisted test scoring and analysis service.

### Results

Based on the errors made by the subjects in the auditory discrimination test, I made a hierarchy of phonemic contrasts difficult for Koreans to discriminate. I have then tried to categorize and explain the difficulties. Following are classifications and explanations of the major difficult phonemic contrasts.

Discrimination of Voiced Stops from  
Voiceless Stops

According to contrastive analysis, voiceless stops, /p/, /t/, and /k/ and voiced stops, /b/, /d/, and /g/ exist in both languages. Since voiced stops do not occur in word final position in Korean, Koreans were expected to have difficulty in hearing word final voiced stops. As expected, the subjects did not discriminate successfully voiced stops from voiceless stops in word final position. Nineteen out of 21 subjects failed to discriminate /g/ as in "snag" from /k/ as in "snack." Sixteen out of 21 subjects did not discriminate /b/ as in "lab" from /p/ as in "lap." But, in the case of word final /d/, only 8 out of 21 subjects failed to discriminate /d/ as in "card" from /t/ as in "cart." In this case, most of the subjects seemed to discriminate successfully the word final /d/ because they could hear the full release of /t/ as in "cart."

Discrimination of /f/ From /p/ and  
/v/ From /b/

Both /f/, voiceless labio-dental fricative, and /v/ voiced labio-dental fricative, do not exist in Korean. Korean speakers were predicted to confuse /f/ with /p/ and /v/ with /b/ when they listen to these sounds because of the absence of an /f/ vs. /p/ and /v/ vs. /b/ distinction in Korean. As predicted, the subjects showed difficulty in discriminating /f/ from /p/ and /v/ from /b/. Seventeen out of 21 subjects failed to discriminate /f/ as in "cuff" from /p/ as in "cup." Fifteen out of 21 subjects did not discriminate /v/ as in "vase" from /b/ as in "base."



### Discrimination of /t/ From /tʃ/

Most of the subjects (17 out of 21) did not hear the difference between /t/ as in "punting" and /tʃ/ as in "punching." The subjects seemed to have difficulty in discriminating /t/ from /tʃ/ in word medial position since both /t/ and /tʃ/ occur only in word initial position in Korean.

### Discrimination of /θ/ From /f/

Sixteen out of 21 subjects failed to discriminate /θ/ as in "laths" from /f/ as in "laughs" in word medial position. Both /f/, voiceless labio-dental fricative, and /θ/, voiceless dental fricative, do not exist in Korean. The subjects seemed to have problems in hearing the difference between /θ/ and /f/ because both sounds share some similar phonetic values; both sounds are voiceless fricatives, and they are articulated using the upper front teeth.

### Discrimination of /ʒ/ and /z/ From /dʒ/

Both /ʒ/, voiced palato-alveolar fricative, and /z/, voiced alveolar fricative, do not exist in Korean, whereas /dʒ/ occurs in Korean. Accordingly, Korean speakers were expected to have difficulty in discriminating /ʒ/ and /z/ from /dʒ/. Twelve out of 21 subjects failed to discriminate /z/ as in "rouge" from /dʒ/ as in "ruse." Six out of 21 subjects did not hear the difference between /z/ as in "zealous" and /dʒ/ as in "jealous."

#### Discrimination of /ʃ/ From /d/

Eleven out of 21 subjects failed to discriminate /ʃ/ as in "loathes" from /d/ as in "loads." According to contrastive analysis, /ʃ/, voiced dental fricative, does not exist in Korean whereas /d/ occurs in Korean. Korean speakers were expected to have difficulty.

#### Discrimination of /b/ From /d/

Both /b/ and /d/ exist in Korean. Since they do not occur in word final position, Koreans were expected to have difficulty in discriminating /b/ from /d/ in word final position. As expected, 10 out of 21 subjects failed to discriminate the difference between /b/ as in "bib" and /d/ as in "bid."

#### Discrimination of /ʃ/ From /s/

Ten out of 21 subjects had difficulty hearing the difference between /ʃ/ as in "clashes" and /s/ as in "classes." Koreans were expected to have problems in discriminating the difference between English /ʃ/ and /s/ because in English /ʃ/ and /s/ are separate phonemes whereas in Korean, /ʃ/, voiceless palato-alveolar fricative, occurs only before /Y/ or /Y/.

#### Discrimination of Nasals

According to contrastive analysis, Korean speakers were expected not to have any problem at all in hearing English nasals. Since nasals, /m/, /n/, and /ŋ/ have the same phonetic values in both languages and occur in English syllables in the same places as they

did in Korean syllables. But on the auditory discrimination test 10 out of 21 subjects turned out to have difficulty in discriminating the difference between /n/ as in "kin" and /ŋ/ as in "king" in word final position, and 5 out of 21 subjects did not discriminate /m/ as in "swimming" from /ŋ/ as in "swinging" in word medial position. This phenomenon is one of the unexpected results.

#### Discrimination of /θ/ From /s/ and /ʃ/

Both /s/ and /ʃ/, an allophone of /s/, exist in Korean, whereas /θ/ does not. Korean speakers were predicted to have problems in discriminating /θ/ from /s/ and /ʃ/ since /s/ and /ʃ/ more closely approximate /θ/ than do any other Korean sounds. As predicted, 9 out of 21 subjects failed to discriminate /θ/ as in "though" from /s/ as in "sought" and /θ/ as in "lathing" from /ʃ/ as in "lashing."

#### Discrimination of /f/ From /v/

Seven out of 21 subjects did not hear the difference between /f/ as in "grief" and /v/ as in "grieve." Both /f/, voiceless labio-dental fricative, and /v/, voiced labio-dental fricative, do not exist in Korean. Because of the absence of these sounds in Korean, Koreans were expected to have problems in hearing the difference. Since voiceless and voiced fricatives never occur in word final position in Korean, Koreans were expected to have difficulty in discriminating /f/ from /v/, especially in word final position.

#### Discrimination of /z/ From /s/

According to contrastive analysis, /s/ exists in both languages whereas /z/, voiced alveolar fricative, does not appear in Korean. However, Koreans were expected not to have difficulty in hearing the difference between /s and /z/ because /s/ is a voiceless sound while /z/ is voiced. But some subjects (7 out of 21) showed problems in discriminating /z/ as in "faze" from /s/ as in "face" in word final position. On the whole, Koreans had problems in discriminating the difference between voiceless and voiced fricatives in word final position since voiceless and voiced fricatives never occur in word final position in Korean.

#### Discrimination of /l/ From /r/

Since both /l/ and /r/ never occur in word initial position in Korean, Koreans were predicted to have difficulty in hearing the difference between /l/ and /r/ in word initial position. But, on the test, only a few subjects (5 out of 21) failed to discriminate /l/ as in "load" from /r/ as in "road."

#### Discrimination of /ɔ/ from /ɑ/

/ɔ/ and /ɑ/ phonemic contrasts turned out to be one of the most difficult phonemic contrasts for Koreans to discriminate. Nineteen out of 21 subjects did not hear the difference between /ɔ/ as in "stalks" and /ɑ/ as in "stocks." According to contrastive analysis, /ɑ/ exists in both languages while /ɔ/, low back rounded tense vowel, does not exist in Korean. The subjects seemed to have a problem in

discriminating /ɔ/ from /ɑ/ since they shared some similar phonetic values; both sounds are low back vowels.

#### Discrimination of /ɪ/ From /ɛ/

Both /ɪ/ and /ɛ/ exist in Korean. Since these sounds have the same phonetic values in both languages, Koreans were predicted not to have any problem in hearing the difference between /ɪ/ and /ɛ/. But surprisingly, most of the subjects (17 out of 21) failed to discriminate /ɪ/ as in "pin" from /ɛ/ as in "pen." Since many people in the southern part of the United States do not discriminate the difference between /ɪ/ and /ɛ/ in their pronunciation, the girl who recorded the test tape failed to discriminate the difference between /ɪ/ and /ɛ/. This turned out to be the reason that most of the subjects failed to differentiate between /ɪ/ and /ɛ/.

#### Discrimination of /æ/ From /ɛ/ and /ɔ/ From /o/

According to contrastive analysis, /ɛ/ and /o/ exist in both languages whereas /æ/, low front unrounded tense vowel, and /ɔ/, low back rounded tense vowel, do not exist in Korean. Korean speakers were expected to have difficulty in discriminating /æ/ from /ɛ/ and /ɔ/ from /o/ since the distinction between /æ/ and /ɛ/, and /ɔ/ and /o/ does not exist in Korean. As predicted, 15 out of 21 subjects did not discriminate /æ/ as in "past" from /ɛ/ as in "pest." Ten out of 21 subjects failed to discriminate /ɔ/ as in "call" from /o/ as in "coal."

Discrimination of /i/ From /ɪ/ and /u/ from /ʊ/

Since the contrasts between /i/ and /ɪ/, and /u/ and /ʊ/ are lost in most dialects of Korean, Korean learners were expected to have difficulty in hearing the difference between /i/ and /ɪ/, and /u/ and /ʊ/. As expected, 12 out of 21 subjects failed to discriminate /i/ as in "feel" from /ɪ/ as in "fill," whereas 9 out of 21 subjects did not discriminate /u/ as in "pooling" from /ʊ/ as in "pulling."

Discrimination of /jɪ/ From /i/

Six out of 21 subjects failed to discriminate /jɪ/ as in "yeast" from /i/ as in "east." Since the English /jɪ/ sequence does not exist in Korean, Korean speakers were expected to confuse /jɪ/ with /i/ in hearing these sounds.

## CHAPTER VII

### PRONUNCIATION TEST

I have designed a pronunciation test to determine how Koreans produce English sounds which do not appear in Korean and whether they transfer rules for assimilation or /n/ insertion in Korean to English when they pronounce English sounds.

#### Methods

##### Subjects

The test has been administered to the same group of subjects who were used as subjects for the auditory discrimination test.

##### Materials

The pronunciation test includes 100 sentences. In selecting sentences which include a consonant being tested, I have chosen sentences in which the consonant in question occurs in every position, e.g., in word initial, medial, or final position, because Koreans are expected to have problems in producing some English sounds in a particular environment even though the sound occurs both in Korean and English. For example, in Korean, [b], an allophone of Korean /p/, occurs only between voiced sounds; thus Koreans are expected to have difficulty in producing word initial or final English /b/. Korean

speakers are expected to transfer Korean /p/ for word initial English /b/, or Korean /p=/ for word final English /b/. In selecting sentences which include a vowel being tested, I have chosen sentences in which a word including the vowel can be replaced by another minimal word; thus, if the testees mispronounce the vowel being tested in a sentence, English speakers will be confused. Samples of the pronunciation test are included in the appendix. The sound being tested was not signaled in each sentence. In designing the test, I have chosen most of the sentences from Nilsen (1973) and Chu (1979).

#### Procedures

When conducting the test, I asked the examinees to read the sentences aloud as naturally as possible and recorded their pronunciation. As I stated earlier, in designing and conducting the test, I have tried to avoid signaling the sound being tested because the examinees can produce a sound correctly if they concentrate on it. And in order to get an accurate measure of how the testees normally express themselves in English, I have not let them know the specific pronunciation point being tested in each sentence. Three female American graduate students of Oklahoma State University have participated in evaluating the testees' pronunciation. The two majoring in Teaching English and a Second Language have taken a phonetics course; the other is a graduate student majoring in Health and Physical Education Leisure Science. I have asked them to evaluate only one sound being tested per sentence. The graders have checked the correct column on the grading paper if the testees pronounce the



sound being tested correctly, and they have checked the incorrect column if the examinees produce the sound in question incorrectly; they then recorded the sound they heard. I have asked the Bureau of Tests and Measurements at Oklahoma State University to analyze the grading results by the three graders. My analysis of the testees' pronunciation errors were based on the computer assisted test scoring and analysis service.

### Results

I did not make a hierarchy of difficult sounds for Korean speakers to produce in analyzing the subjects' pronunciation errors. As I stated earlier, three female Americans participated in evaluating the testees' pronunciation presented through the tape. Since, in some cases, the three graders' evaluation of the subjects' pronunciation was totally different from one another whereas, in some cases, they showed the same evaluation, it was difficult for me to make a hierarchy of sounds difficult for Koreans to produce.

For example, all of the graders evaluated all subjects as producing /ɛ/ as in "send" correctly. On the other hand, in the pronunciation of /u/, one grader reported that all subjects produced /u/ as in "fool" correctly, but two other graders heard only 4 or 5 out of 21 subjects to pronounce the sound correctly, saying that 16 or 17 subjects mispronounced /ʊ/ for /u/. So I have simply tried to classify and explain errors found in the subjects' pronunciation. In the appendix, I present a table of the three graders' evaluations. Following is a classification and explanation of major pronunciation errors made by the subjects.

## Problem Sounds

### Confusion Between /ɪ/ and /i/, and /ʊ/ and /u/

Korean speakers were predicted to have difficulty in discriminating between /ɪ/ and /i/, and /ʊ/ and /u/ because of the loss of distinction between these sounds in most dialects of Korea today. As predicted, the subjects were confused between /ɪ/ and /i/, and /ʊ/ and /u/ in their actual pronunciation. Although Korean /ɪ/ has a phonetic value similar to English /ɪ/, most of the subjects failed to pronounce English /ɪ/ as in "slip" whereas most pronounced English /i/ as in "neat" correctly. But, on the contrary, in the case of /ʊ/ and /u/, most of the subjects did not produce English /u/ as in "fool," but successfully pronounced /ʊ/ as in "pulling."

### Unvoicing of Voiced Stops in Word Final Position

According to contrastive analysis, Koreans were expected to have problems in producing voiced stops in word final position because voiced stops do not occur in word final position in Korean. Korean speakers were predicted to pronounce word final voiced stops without voicing because Korean has unreleased voiceless stops /p/, /t/, /k/ in word final position. The analysis turned out to be the case. The subjects substituted /p=/ for /b/ as in "lab," /t=/ for /d/ as in "bid," and /k=/ for /g/ as in "bag."

Confusion Between /l/ and /r/

Korean speakers were expected to have difficulty in discriminating between /l/ and /r/ because they occur differently in Korean and English. For example, both /l/ and /r/ never occur in word initial position. As expected, the subjects substituted /l/ for /r/, or vice versa. The subjects showed that they had more difficulty in pronouncing /r/ than /l/ in word initial or medial position. For word final /l/ and /r/, most of the subjects gave the correct pronunciation. On the whole, /r/ appeared to be a more difficult sound for Koreans to pronounce than /l/.

/ɛ/ For /æ/

The subjects substituted /ɛ/ for /æ/. This phenomenon was predicted through contrastive analysis. Since /æ/ does not exist in Korean, whereas /ɛ/ occurs in both languages, Korean speakers were expected to have difficulty in pronouncing /æ/.

/o/ For /ɔ/

Many subjects substituted /o/ for /ɔ/. According to contrastive analysis, /ɔ/ does not exist in Korean whereas /o/ occurs in both languages. Korean speakers were expected to transfer /o/ for /ɔ/ since /o/ more closely approximates /ɔ/ than does any other Korean sound.

/b/ For /v/

Since /v/ does not exist in Korean, Koreans were predicted to have problems in producing this sound. As predicted, the testees substituted /b/ for /v/. Although the subjects had problems in producing word initial /v/, most of the subjects' pronunciation seemed to be acceptable in word medial and final position.

/s/ For /ʃ/ and /d/ For /ʒ/

The subjects substituted /s/ for /ʃ/ and /d/ for /ʒ/. Since /ʃ/ and /ʒ/ do not exist in Korean, Koreans were predicted to transfer /s/ for /ʃ/ and /d/ for /ʒ/ since /s/ and /d/ more closely approximate /ʃ/ and /ʒ/ respectively than do any other Korean sounds. Substitution of /s/ for /ʃ/ was obvious in word medial or final position, whereas substitution of /d/ for /ʒ/ was obvious in word initial position.

/dʒ/ For /z/ and /ʒ/

Because of the absence of /z/ and /ʒ/ in Korean, Korean speakers were expected to use /dʒ/ for /z/ and /ʒ/. Most of the subjects mispronounced /dʒu/ for "zoo" and /rudʒ/ for "rouge."

/i/ For /jɪ/

Substitution of /i/ for English /jɪ/ sequence was observed. In pronouncing the English /jɪ/ sequence, Korean speakers were predicted to transfer /i/ for /jɪ/ because Korean did not have /jɪ/ sequence. As a result, most of the subjects mispronounced /ist/ for "yeast."

/u/ For /wʊ/

Since there was no /wʊ/ sequence in Korean, Korean speakers were expected to use /u/ for the /wʊ/ sequence. As expected, some subjects substituted /u/ for /wʊ/. Thus, they mispronounced /umən/ for "woman."

Errors From the Influence of the Rules  
for Assimilation in Korean

As predicted, the rules for assimilation in Korean influenced Korean speakers' production of English sounds. Because of the influence of the rule for assimilation in Korean in which /n/ becomes /l/ when it is followed immediately by an /l/, the subjects mispronounced /ollɪ/ for "only." Koreans were even observed to transfer this rule to the English /n/ + /r/ sequence. Thus the subjects mispronounced /h ll / for "Henry." Under the influence of the rule in Korean in which /p/ becomes /m/ when it is followed immediately by /m/ or /n/, some testees mispronounced /dim maɪnz/ for "deep mines." Some subjects mispronounced /ɪ kʌn maɪzɛlf/ for "I cut myself," /hi hɪn mɪ/ for "he hit me," because of the influence of the rule in Korean in which /t/ becomes /n/ when it is followed immediately by /m/ or /n/. Under the influence of the rule in which /k/ becomes /ɣ/ when it is followed immediately by /m/ or /n/, some subjects mispronounced /kɪɣ mɛɪɪ/ for "kick Mary." Many subjects mispronounced /lɔɣ nʌn/ for "long run," and /hɛmɪt/ for "Hamlet" because of the rule in which /l/ becomes /n/ when it immediately follows either /m/ or /ɣ/.

## Errors From the Influence of /n/ Insertion

### Rule in Korean

In Korean /n/ is often inserted between two words if the first word ends in /p/, /t/, /k/, /m/, /n/, or /ŋ/ and if the second word begins with /j/ or /i/. Under the influence of this rule, some subjects mispronounced /khim njʌ/ for "keep your fingers crossed," /gɛn njʌ/ for "get your gun," and /khiŋ njʌ/ for "kick your dog."

### Sounds With Fewer Problems

#### Voiceless Stops

Most of the subjects did not have difficulty in producing voiceless stops, /p/, /t/, /k/. According to contrastive analysis, although the phonetic values between English voiceless stops and Korean voiceless stops in word initial position are different, Korean speakers do not seem to have problems in producing aspirated English /p/, /t/, and /k/ in word initial position because of the fact that Korean speakers tend to transfer strongly aspirated Korean obstruents for voiceless English obstruents. As expected, the subjects were reported not to have a problem in producing voiceless stops in word initial and medial position. Since voiceless stops are unreleased in word final position in Korean, some subjects were observed not to release voiceless stops in word final position. Thus three Americans reported that they heard /g/ for /k/ as in "snack" since the subjects did not release word final /k/.

/s/

Although the subjects did not have any problem in pronouncing /s/ in word initial and medial position, they showed difficulty in producing syllable final /s/. According to contrastive analysis, since /s/ never occurs in word final position in Korean, Koreans seem to have difficulty in producing word final /s/. The subjects were reported to substitute /z/ for /s/ as in "lease" in their pronunciation of syllable final /s/ in this test. The subjects seemed to think that the sound at the end of the word, "lease" was /z/.

/ʃ/

Most of the subjects did not have problems in producing this sound. But some subjects substituted /s/ for /ʃ/. According to contrastive analysis, Korean speakers were expected to have problems in discriminating the difference between English /s/ and /ʃ/ because in English, /s/ and /ʃ/ are separate phonemes whereas in Korean [ʃ] is an allophone of /s/. [ʃ] occurs only before /Y/ or /4/ in Korean.

/f/

Because of the absence of /f/ in Korean, Korean speakers were predicted to have a problem in producing this sound. They were expected to transfer strongly aspirated Korean /ph/ for English /f/ because Korean /ph/ was the closest to English /f/. But almost all of the subjects produced /f/ correctly in the pronunciation test. They seemed to have already overcome any difficulty in producing this sound. This phenomenon was one of the unexpected results.

/dʒ/

According to contrastive analysis, /dʒ/ can be found in both languages. In Korean, [dʒ], an allophone of Korean /tʃ/, occurs only between voiced sounds whereas in English it occurs initially, medially, and finally. Because this sound patterns differently in both languages, Korean speakers were predicted to have problems in discriminating the sound. As expected, some subjects had problems in producing the sound correctly, substituting /dz/ or /z/ for /dʒ/. For word final /dʒ/, addition of the vowel /i/ was noted.

/ʌ/

Since the phonetic values between Korean /ʌ/ and English /ʌ/ were considered to be similar, Koreans were expected not to have great problems in producing this sound. But some subjects were observed to substitute /ə/ for /ʌ/.

/ɑ/

This sound can be found in both languages. Since the phonetic values between Korean /ɑ/ and English /ɑ/ are considered to be similar, Korean speakers were expected not to have difficulty in discriminating this sound. As expected the subjects did not have any problem in producing /ɑ/ as in "spot." But some subjects were reported to substitute /o/ for /ɑ/ as in "sod" in the test. The subjects seemed to think that the sound being tested was /o/. The spelling of the word coupled with students' unfamiliarity may have led to the unexpected result.



## Non-Problem Sounds

/e/, /ɛ/, /o/

All subjects did not show any problem in producing /e/, /ɛ/, and /o/. Korean speakers were predicted not to have any difficulty in producing these sounds since they occur in both languages and have the same phonetic values in both languages. As predicted, all subjects pronounced them correctly.

Nasals

Since nasals, /m/, /n/, and /ŋ/ have the same phonetic values in both languages and occur in English syllables in the same places as in Korean syllables, Koreans were predicted not to have any problem in producing them. As predicted, all subjects were reported to pronounce them correctly.

/h/, /w/

According to contrastive analysis, /h/ and /w/ exist in both languages. Since these sounds have the same phonetic values in both languages and occur in the same places in both languages, Koreans were predicted not to have any problems in pronouncing them. As predicted, the subjects produced them correctly.

/tʃ/

Although /tʃ/, voiceless alveo-palatal affricate, exists in both languages, it occurs differently in Korean and English. In producing this sound, Korean speakers were expected to transfer Korean /tʃh/ for English /tʃ/ because of the tendency to transfer strongly aspirated Korean obstruents for voiceless English obstruents. However, the subjects did not have any difficulty in producing English /tʃ/.

## CHAPTER VIII

### CONCLUSIONS

In this thesis, my primary purpose was to provide English teachers of Korean students with useful information on the problems which Koreans might have in discriminating English sounds by pointing out difficult sounds for them to hear and pronounce. I predicted possible problem sounds in English for Koreans to discriminate by analyzing and contrasting the sound systems of Koreans and of English. I conducted an auditory discrimination test and a pronunciation test to discover how Koreans actually perceive and produce problem sounds predicted by contrastive analysis. I then collected and classified errors to explain why certain errors were made. This study was only an attempt to predict, categorize, and explain a small corpus of phonological errors made by Korean students learning English. It should be noted that other Korean students might not have the same problems I presented. Since the subjects of the auditory discrimination test and the pronunciation test have studied and lived in America for one or two years, they might have already mastered some of the phonemic contrasts in English which were predicted to be difficult through contrastive analysis.

As a result, ESL teachers of Korean students should design their own auditory discrimination test and pronunciation test through the same procedures I have followed in this study to find out problem

sounds for their students to discriminate at a particular stage of learning English.

There are a number of limitations and weaknesses in this study. First of all, this study was limited to the segmental features of Korean and English because I felt that the discrimination of phonemes should precede the understanding of suprasegmental features. Although this study did not take suprasegmental features such as intonation, stress, and tone into account, their importance should be noted. Suprasegmentals convey meanings that context alone cannot convey; they affect the intelligibility of segmentals; and it is easier to produce segmentals accurately with a command of the suprasegmentals (Hida, 1977). Secondly, attention was not given to suggestions for dealing with problem sounds since my main interest was to find out how Koreans perceive and produce sounds predicted by contrastive analysis to be problems. However, following are some general suggestions for dealing with errors made by students in their aural-oral English language use.

First, Korean ESL teachers of Korean students should become familiar with the sound system of English. Koreans seldom have the opportunity to learn English from native speakers in Korea. They learn English from Korean teachers who may have problems in hearing and pronouncing contrasting sounds in English. They need to know exactly how phonemes in English are articulated and have an ability to discriminate among the phonemic contrasts in English. It is my belief that only when the teachers can hear and pronounce all the phonemic contrasts in English, can they correct their students' errors.

Second, the teachers may overcome their students' aural-oral errors by using minimal pairs, minimal sentences, and sometimes

practice sentences. Practice sentences are sentences engineered to contain as many occurrences of the sounds being taught as possible (Robson, 1979). The following is an example of a /p/ practice sentence: He put a piece of pie at each place. According to Robson (1979, p. 21),

The idea behind minimal pairs and sentences is to focus the students' attention on the sounds in question. In minimal pairs, the change in meaning of the word or sentence is carried entirely on the alternation between the problem sound and the sound it is confused with. As the student works with these pairs, both listening to them and trying to pronounce them, he knows to distinguish the sounds.

Third, according to Hida (1977), since substituted phones are usually very similar in point of articulation to the target phone, the students should become familiar with the functions of the teeth, lips, tongue, and other articulators. She suggests that well-defined articulatory cues be provided to the students. Profile diagrams and short summaries of how sounds are articulated are a logical solution to this problem. Finally, it is very important that phonemic contrasts be reinforced and used subsequently in order for a target sound to be integrated into the students' language habits and thus be retained (Hida, 1977).

A third weakness comes from the fact that the tests were conducted on a small group of Korean students. Since only 21 Koreans at Oklahoma State University were available as subjects, it was difficult for me to generalize problems that Korean speakers might have in learning English sounds from errors made by this small group.

Fourthly, optimal conditions did not exist in recording the test tape for the auditory discrimination test and the subjects' tapes for

the pronunciation test. Since the subjects' tapes for the pronunciation test were recorded at the subjects' houses, room noise distorted portions of the tapes.

Finally, in designing the tests, I selected minimal sentences with no real attention paid to the frequency of occurrence of the words. It is suggested that words that are of equal frequency of occurrence be used in any future study.

Although this study was conducted under those limitations and weaknesses, it is my hope that this thesis can provide ESL teachers of Korean students with helpful information on methods of discovering problem sounds for their students to discriminate.

## SELECTED BIBLIOGRAPHY

- Ayer, G. W. 1960. "An Auditory Discrimination Test Based on Spanish." Modern Language Journal, 44: 227-230.
- Briere, E. J., R. N. Campbell and Soermarmo. 1968. "A Need for the Syllable in Contrastive Analysis." Journal of Verbal Learning and Verbal Behavior, 7: 384-389.
- Briere, Eugene J. 1967. "Phonological Testing Reconsidered." Language Learning, 17: 163-171.
- Celce-Murica, M. 1976. "Contrastive Analysis and Error Analysis in Perspective." In Celce-Murica, M. (ed.), 112-124.
- Chu, Harold S. and Park, Young-Hee. 1979. "A Contrastive Analysis Between Korean and English for ESL Teachers." ED 191 300.
- Duskova, L. 1969. "On Sources of Errors in Foreign Language Learning." International Review of Applied Linguistics in Language Teaching, 7: 11-36.
- Finocchiaro, M. Bonomo and Sako, Sydney. 1983. Foreign Language Testing. New York: Regents.
- Fries, C. F. 1945. Teaching and Learning English as a Foreign Language. Ann Arbor: University of Michigan Press.
- Harris, David P. 1969. Testing English as a Second Language. New York: McGraw-Hill.
- Heaton, James B. 1975. Writing English Language Test. London: Longman.
- Heo, Ung. 1983. Korean Phonology. Seoul: Jeong Eum Sa.
- Hida, Christine K. 1977. Some Phonological Problems of Japanese Students Learning English. Unpublished Master of Arts Thesis, University of Hawaii.
- Huges, Arthur. 1980. "Problems in Contrastive Analysis and Error Analysis." ED 192 573.
- Jakobovits, Leon A. 1969. "A Fundamental Approach to the Assessment of Language Skills." Journal of English as a Second Language, 4: 63-76.

- Kim, Chin-W. 1965. "On the Autonomy of the Tensity Feature in Stop Classification." Word, 21: 339-359.
- Ladefoged, Peter. 1982. A Course in Phonetics. New York: Harcourt Brace Jovanovich.
- Lado, R. 1957. Linguistics Across Cultures. Ann Arbor: University of Michigan Press.
- Moulton, William G. 1962. "Toward Classification of Pronunciation Errors." Modern Language Journal, 40: 101-109.
- Nilsen, Don and Allen Pace Nilsen. 1973. Pronunciation Contrasts in English. New York: Regents.
- Oller, J. W., Jr. 1979. Language Tests at School. London: Longman.
- Patnaik, B. N. 1976. "Contrastive Analysis and Its Pedagogic Implications." ED 187 124.
- Pike, E. V. 1959. "A Test for Predicting Phonetic Ability." Language Learning: American Journal of Applied Linguistics.
- Robson, Barbara. 1979. "Teaching English Pronunciation to Koreans." ED 195 129.
- Schachter, J. 1974. "An Error in Error Analysis." Language Learning, 24: 205-214.
- Taylor, B. P. 1975. "Adult Language Learning and Their Pedagogical Implications." TESOL Quarterly, 9: 391-399.
- Wardhaugh, Ronald. 1970. "The Contrastive Analysis Hypothesis." TESOL Quarterly, 4: 124-130.



APPENDIXES

APPENDIX A

AUDITORY DISCRIMINATION TEST

## AUDITORY DISCRIMINATION TEST

1. /i/ vs. /I/ distinction
  - a. Feel this bag.
  - b. Fill this bag.
  - c. Feel this bag.
2. /i/ vs. /ɛ/ distinction
  - a. I fell sick.
  - b. I feel sick.
  - c. I feel sick.
3. /I/ vs. /e/ distinction
  - a. Take the pill with water.
  - b. Take the pill with water.
  - c. Take the pail with water.
4. /I/ vs. /ɛ/ distinction
  - a. Hand me the pin.
  - b. Hand me the pin.
  - c. Hand me the pen.
5. /I/ vs. /æ/ distinction
  - a. Pick up the bags.
  - b. Pack up the bags.
  - c. Pack up the bags.
6. /I/ vs. /ʌ/ distinction
  - a. They spin around.
  - b. They spun around.
  - c. They spin around.

7. /e/ vs. /ɛ/ distinction
  - a. Put it in the shade.
  - b. Put it in the shed.
  - c. Put it in the shed.
8. /e/ vs. /æ/ distinction
  - a. It's just a small snake.
  - b. It's just a small snake.
  - c. It's just a small snack.
9. /ɛ/ vs. /æ/ distinction
  - a. She didn't want to talk about the pest.
  - b. She didn't want to talk about the past.
  - c. She didn't want to talk about the pest.
10. /ɛ/ vs. /ɑ/ distinction
  - a. It was a small debt.
  - b. It was a small dot.
  - c. It was a small debt.
11. /æ/ vs. /ɑ/ distinction
  - a. The room is full of cats.
  - b. The room is full of cots.
  - c. The room is full of cots.
12. /ʌ/ vs. /ɑ/ distinction
  - a. He gave me a hog.
  - b. He gave me a hog.
  - c. He gave me a hug.
13. /ʌ/ vs. /ʊ/ distinction
  - a. He had two bucks.
  - b. He had two books.
  - c. He had two books.

14. /ʌ/ vs. /ɔ/ distinction
  - a. They were both caught.
  - b. The were both caught.
  - c. They were both cut.
15. /ɑ/ vs. /o/ distinction
  - a. That coat is too small.
  - b. That cõt is too small.
  - c. That coat is too small.
16. /ɑ/ vs. /ɔ/ distinction
  - a. He paid \$100 for the stalks.
  - b. He paid \$100 for the stocks.
  - c. He paid \$100 for the stalks.
17. /ʊ/ vs. /u/ distinction
  - a. They are pulling it.
  - b. They are pooling it.
  - c. They are pooling it.
18. /o/ vs. /ɔ/ distinction
  - a. How do you spell the word 'coal'?
  - b. How do you spell the word 'coal'?
  - c. How do you spell the word 'call'?
19. /jɪ/ vs. /i/ distinction
  - a. Please say 'yeast.'
  - b. Please say 'east.'
  - c. Please say 'east.'
20. /m/ vs. /ŋ/ distinction
  - a. The girl is swimming.
  - b. The girl is swinging.
  - c. The girl is swimming.

21. /p/ vs. /b/ distinction
- Put this in your lab.
  - Put this in your lab.
  - Put this in your lap.
22. /p/ vs. /f/ distinction
- Turn your cup over.
  - Turn your cup over.
  - Turn your cuff over.
23. /b/ vs. /d/ distinction
- His bib was the smallest.
  - His bid was the smallest.
  - His bib was the smallest.
24. /hw/ vs. /h/ distinction
- It is under his wheel.
  - It is under his heel.
  - It is under his heel.
25. /w/ vs. /hw/ distinction
- It was an unusual wine.
  - It was an unusual whine.
  - It was an unusual wine.
26. /f/ vs. /v/ distinction
- I do not like to see her grief.
  - I do not like to see her grief.
  - I do not like to see her grieve.
27. /f/ vs. /θ/ distinction
- He seldom laughs.
  - He seldom laths.
  - He seldom laughs.

28. /v/ vs. /b/ distinction
- Use that for the vase.
  - Use that for the vase.
  - Use that for the base.
29. /θ/ vs. /t/ distinction
- He thought about her.
  - He taught about her.
  - He taught about her.
30. /θ/ vs. /ʃ/ distinction
- The workers are lashing the boat.
  - The workers are lathing the boat.
  - The workers are lashing the boat.
31. /θ/ vs. /s/ distinction
- I never thought it.
  - I never sought it.
  - I never thought it.
32. /ʒ/ vs. /θ/ distinction
- I don't like either.
  - I don't like either.
  - I don't like ether.
33. /ʒ/ vs. /d/ distinction
- That teacher loathes his students.
  - That teacher loads his students.
  - That teacher loads his students.
34. /ʒ/ vs. /z/ distinction
- The baby is teething.
  - The baby is teething.
  - The baby is teasing.

35. /n/ vs. /ŋ/ distinction
- He is our kin.
  - He is our king.
  - He is our kin.
36. /t/ vs. /d/ distinction
- They burned the card.
  - They burned the cart.
  - They burned the cart.
37. /t/ vs. /tʃ/ distinction
- He is punting the ball.
  - He is punching the ball.
  - He is punting the ball.
38. /l/ vs. /r/ distinction
- It is a high load.
  - It is a high road.
  - It is a high road.
39. /s/ vs. /ʃ/ distinction
- How many classes have they had?
  - How many classes have they had?
  - How many clashes have they had?
40. /s/ vs. /z/ distinction
- They did not face him.
  - They did not face him.
  - They did not faze him.
41. /tʃ/ vs. /ʃ/ distinction
- Please match them.
  - Please mash them.
  - Please match them.



42. /dʒ/ vs. /z/ distinction
- He is a jealous lover.
  - He is a zealous lover.
  - He is a zealous lover.
43. /dʒ/ vs. /tʃ/ distinction
- He was joking.
  - He was choking.
  - He was joking.
44. /dʒ/ vs. /ʃ/ distinction
- Is that a jeep coming?
  - Is that a jeep coming?
  - Is that a sheep coming?
45. /ʒ/ vs. /dʒ/ distinction
- How do you spell the word, rouge?
  - How do you spell the word, ruse?
  - How do you spell the word, ruse?
46. /k/ vs. /g/ distinction
- There's a snag in my coat pocket.
  - There's a snack in my coat pocket.
  - There's a snag in my coat pocket.

APPENDIX B

HIERARCHY OF DIFFICULT PHONEMIC CONTRASTS  
FOR KOREANS TO HEAR

## HIERARCHY OF DIFFICULT PHONEMIC CONTRASTS FOR KOREANS TO HEAR

Number of Examinees With Incorrect Answers	The Phonemic Contrasts Tested	distinction
19	word final	/ɑ/ vs. /ɔ/ distinction /k/ vs. /g/ distinction
17	word medial word final	/t/ vs. /tʃ/ distinction /p/ vs. /f/ distinction /l/ vs. /ɛ/ distinction
16	word final word medial	/p/ vs. /b/ distinction /f/ vs. /θ/ distinction
15	word initial	/v/ vs. /b/ distinction /ɛ/ vs. /æ/ distinction
12	word final	/i/ vs. /I/ distinction /ʒ/ vs. /dʒ/ distinction
11	word medial	/ʒ/ vs. /d/ distinction
10	word medial word final word final	/o/ vs. /ɔ/ distinction /s/ vs. /ʃ/ distinction /n/ vs. /ŋ/ distinction /b/ vs. /d/ distinction
9	word initial word medial	/ʊ/ vs. /u/ distinction /θ/ vs. /s/ distinction /θ/ vs. /ʃ/ distinction
8	word final	/t/ vs. /d/ distinction
7	word final word final word final	/s/ vs. /z/ distinction /t/ vs. /ʃ/ distinction /f/ vs. /v/ distinction
6	word initial	/ʌ/ vs. /ɔ/ distinction /jI/ vs. /i/ distinction /dʒ/ vs. /z/ distinction

Number of Examinees With Incorrect Answers	The Phonemic Contrasts Tested		
5	word initial word medial word initial	/hw/ vs. /h/ /m/ vs. /ɱ/ /l/ vs. /r/ /I/ vs. /e/ /e/ vs. /ɛ/	distinction distinction distinction distinction distinction
3		/I/ vs. /ʌ/	distinction
2	word initial	/w/ vs. /hw/ <del>/æ/ vs. /ɑ/</del> /e/ vs. /ɛ/	distinction distinction distinction
1	word medial word initial	/ʃ/ vs. /θ/ /dʒ/ vs. /ʒ/	distinction distinction
0	word initial word initial	/θ/ vs. /t/ /dʒ/ vs. /tʃ/ /i/ vs. /ɛ/ /ɛ/ vs. /ɑ/ /ʌ/ vs. /ʊ/ /ɑ/ vs. /o/	distinction distinction distinction distinction distinction distinction

APPENDIX C  
PRONUNCIATION TEST

## PRONUNCIATION TEST

1. /i/  
She wore a neat suit.
2. /I/  
Don't slip on the deck.
3. /e/  
Can you taste it?  
He is the only one painting.
4. /ɛ/  
Send it carefully.  
Leave your pet with us.
5. /æ/  
He got hurt on the track.  
That map is too old.
6. /ʌ/  
That's my luck.  
He putts golf balls in the cup.  
He was given a nut.  
Is it done yet?
7. /ɑ/  
It was sod in the yard.  
It is only a small spot.
8. /ɔ/  
Spell the word, 'pause.'
9. /u/  
Only a fool horse would do it.

10. /r/

They are pulling it.

11. /o/

Did you know it?

12. /p/

a. initial: He is going to the pike.

b. medial: Can you speak English?

c. final: Why didn't you stop there?

13. /b/

a. initial: Is it in his back?

Would you lend me your bag?

b. medial: They were mobbing the store.

c. final: Put this in your lab.

14. /t/

a. initial: That's a good team.

b. medial: He is an excellent student.

Have you ever been to Ottawa?

c. final: It's a new mat.

15. /d/

a. initial: Can he dump it?

They have built that dam for two years.

b. medial: He hides criminals.

c. final: His bid was the smallest.

16. /k/

a. initial: I think it will be cold.

b. medial: When does the school begin?

c. final: There is a snack in my coat pocket.

## 17. /g/

- a. initial: Please wait by the gait.  
The policeman arrested the gangster.
- b. medial: Jggle the bell.
- c. final: Put it in your bag.

## 18. /m/

- a. initial: The party was mild.
- b. medial: Remind her too rewind the clock.
- c. final: The dome burned.

## 19. /n/

- a. initial: Is there any news?
- b. medial: He is ninning.
- c. final: Bring me the spon.

## 20. /j/

- a. medial: He is a singer.
- b. final: He is our kin.

## 21. /f/

- a. initial: Did you hear about their flight?
- b. medial: These are clffs.
- c. final: You could see the strf.

## 22. /v/

- a. initial: Did you vote yesterday?
- b. medial: Who is her lover?
- c. final: The accident was on the ver.

## 23. /θ/

- a. initial: I never θought it.
- b. medial: Happy birθday to you!
- c. final: Where is souθ?



24. /θ/

- a. initial: When will they come?
- b. medial: Is it clothing?
- c. final: Rabbits breathe the quickly.

25. /s/

- a. initial: There is a sun in the sky.
- b. medial: How many classes are you taking this summer?
- c. final: They have it on a lease.

26. /z/

- a. initial: I will sue the zoo.
- b. medial: They are raising horses.
- c. final: He looked at her eyes.

27. /tʃ/

- a. initial: He bumped his chin.
- b. medial: He is watching it.
- c. final: Please match them.

28. /dʒ/

- a. initial: That's my gin.
- b. medial: There was no margin.
- c. final: It was a purge.

29. /ʃ/

- a. initial: He bumped his shin.
- b. medial: He is washing it.
- c. final: Please mash them.

30. /ʒ/

- a. medial: What is your division?
- b. final: What kind of rouge does she use?

31. /l/  
a. initial: This isn't a good lime.  
b. medial: Collect the papers.  
c. final: It was lost in the lie.
32. /r/  
a. initial: It is a high road.  
b. medial: It is blue grass.  
c. final: It was lost in the fire.
33. /h/  
a. initial: Is this the right heat?  
b. medial: Where is the lighthouse?
34. /w/  
a. initial: I am working on it.  
b. medial: Do you like sandwich?
35. How do you spell the word 'yeast?'
36. Do you know that woman?
37. I posted the letter only yesterday.
38. Do you know King Henry?
39. Please don't kick Mary.
40. I cut myself.
41. He hit me.
42. Have you ever entered deep mines?
43. When did you finish reading Shakespear's Hamlet?
44. In the long run, he will marry her.
45. Keep your fingers crossed.
46. Get your gun.
47. Kick your dog.

APPENDIX D

TABLE OF THE THREE AMERICAN GRADERS' EVALUATIONS  
ON THE SUBJECTS' PRONUNCIATION

TABLE OF THE THREE AMERICAN GRADERS' EVALUATIONS  
ON THE SUBJECTS' PRONUNCIATION

Sounds Tested	Grader A		Grader B		Grader C	
	Correct	Incorrect	Correct	Incorrect	Correct	Incorrect
/i/; neat	18	3 (/ɪ/)	21	0	20	1 (/ɪ/)
/ɪ/; slip	6	15 (/i/)	3	18 (/i/)	3	18 (/i/)
/e/; taste	21	0	21	0	19	2 (/ɛ/)
/e/; painting	21	0	21	0	19	2 (/ɛ/)
/ɛ/; send	21	0	21	0	21	0
/ɛ/; pet	21	0	21	0	21	0
/æ/; track	19	2 (/ɛ/)	20	1 (/ɛ/)	12	9 (/ɛ/)
/æ/; map	14	7 (/ɛ/)	21	0	11	9 (/ɛ/)1(/e/)
/ʌ/; luck	21	0	16	3 (/ə/)2(/ɔ/)	17	4 (/ə/)
/ʌ/; putts	11	10 (/ʊ/)	12	9 (/ʊ/)	10	11 (/ʊ/)
/ʌ/; nut	18	3 (/ə/)	15	5 (/ə/)1(/ɔ/)	16	5 (/ə/)
/ʌ/; done	21	0	21	0	21	0
/ɑ/; sod	14	7 (/o/)	16	5 (/o/)	13	6 (/o/)2(/ɔ/)
/ɑ/; spot	21	0	21	0	21	0
/ɔ/; pause	14	7 (/o/)	17	3 (/o/)1(/ɑ/)	12	9 (/o/)
/u/; fool	5	16 (/ʊ/)	21	0	4	17 (/ʊ/)
/ʊ/; pulling	21	0	18	3 (/u/)	20	1 (/u/)
/o/; know	21	0	21	0	21	0
/p/; pike	18	3 (/f/)	18	3 (/f/)	18	3 (/f/)
/p/; speak	21	0	21	0	21	0
/p/; stop	21	0	21	0	21	0
/b/; back	18	3 (/p/)	20	1 (/p/)	21	0
/b/; bag	19	2 (/p/)	20	1 (/p/)	21	0
/b/; mobbing	20	1 (/p/)	21	0	21	0
/b/; lab	8	13 (/p=)	5	14 (/p=)2(/b/)	17	2 (/p=)2(/b/)
/t/; team	21	0	21	0	21	0
/t/; student	21	0	21	0	21	0
/t/; Ottawa	20	1 (/d/)	21	0	21	0
/t/; mat	21	0	18	3 (/t=)	21	0
/d/; dump	21	0	21	0	21	0
/d/; dam	21	0	21	0	21	0
/d/; hides	20	1 (no/d/)	12	9 (no/d/)	12	9 (no/d/)
/d/; bid	12	9 (/t=)	18	3 (/t=)	19	1 (/t=)1(/d/)
/k/; cold	21	0	21	0	21	0
/k/; school	21	0	21	0	21	0
/k/; snack	10	11 (/g/)	15	6 (/g/)	19	2 (/g/)
/g/; gait	21	0	21	0	21	0
/g/; gangster	21	0	21	0	21	0
/g/; jiggle	21	0	21	0	21	0
/g/; bag	8	13 (/k=)	13	7 (/k=)1(/g/)	15	5 (/k=)1(/g/)
/m/; mild	21	0	21	0	21	0
/m/; remind	21	0	21	0	21	0
/m/; dome	21	0	21	0	21	0

Sounds Tested	Grader A		Grader B		Grader C		
	Correct	Incorrect	Correct	Incorrect	Correct	Incorrect	
/n/;	news	21	0	21	0	21	0
	winning	21	0	21	0	21	0
	spoon	21	0	21	0	21	0
/ŋ/;	singer	21	0	21	0	21	0
	king	21	0	21	0	21	0
/f/;	flight	20	1 (/ph/)	20	1 (/ph/)	20	1 (/ph/)
	cliffs	20	1 (/ph/)	21	0	19	2 (/ph/)
	strife	21	0	21	0	20	1 (/ph/)
/v/;	vote	11	10 (/b/)	13	8 (/b/)	13	8 (/b/)
	lover	15	6 (/b/)	21	0 (/b/)	17	4 (/b/)
	curve	21	0	17	3 (/b/)	21	0
/θ/;	thought	17	4 (/s/)	19	2 (/s/)	17	4 (/s/)
	birthday	6	15 (/s/)	21	0 (/s/)	9	12 (/s/)
	south	11	10 (/s/)	15	6 (/s/)	11	10 (/s/)
/ð/;	they	6	15 (/d/)	10	11 (/d/)	9	12 (/d/)
	clothing	16	5 (/d/)	19	2 (/d/)	15	6 (/d/)
	breathe	16	5 (/d/)	16	5 (/d/)	14	6 (/d/)
/s/;	sun, sky	21	0	21	0	21	0
	classes	21	0	21	0	21	0
	lease	8	13 (/z/)	16	5 (/z/)	7	14 (/z/)
/z/;	zoo	1	20 (/dʒ/)	5	15 (/dʒ)1(/dz/)	2	17 (/dʒ)2(/dz/)
	raising	18	3 (/dʒ/)	21	0	16	4 (/dʒ)1(/s/)
	eyes	20	1 (/s/)	19	2 (/s/)	17	4 (/s/)
/tʃ/;	chin	21	0	21	0	20	1 (/ts/)
	watching	20	1 (/ʃ/)	20	1 (/ʃ/)	20	1 (/ʃ/)
	match	21	0	21	0	20	1 (/ʃ/)
/dʒ/;	gin	17	4 (/dz/)	20	1 (/g/)	12	8 (/dʒ)1(/g/)
	margin	16	5 (/z/)	21	0	12	9 (/z/)
	purge	11	10 (/z/)	9	8 (/z/)	4(/dz/)	6
/ʃ/;	shin	17	4 (/s/)	16	5 (/s/)	16	5 (/s/)
	washing	15	6 (/s/)	17	4 (/s/)	14	7 (/s/)
	mash	19	2 (/s/)	20	1 (/s/)	19	2 (/s/)
/ʒ/;	division	14	7 (/dʒ/)	16	5 (/dʒ/)	11	10 (/dʒ/)
	rouge	10	11 (/dʒ/)	10	10 (/dʒ)1(/z/)	5	16 (/dʒ/)
/l/;	lime	19	2 (/r/)	19	2 (/r/)	19	2 (/r/)
	collect	20	1 (/r/)	19	2 (/r/)	19	2 (/r/)
	file	20	1 (/r/)	20	1 (/r/)	20	1 (/r/)
/r/;	road	13	8 (/l/)	13	8 (/l/)	13	8 (/l/)
	grass	13	8 (/l/)	14	7 (/l/)	14	7 (/l/)
	fire	21	0	21	0	21	0
/h/;	heat	21	0	21	0	21	0
	lighthouse	21	0	21	0	21	0
/w/;	working	21	0	21	0	21	0
	sandwich	20	1 (no /w/)	21	0	17	4 (no /w/)
/jɪ/;	yeast	4	17 (/i/)	16	5 (/i/)	6	15 (/i/)
/wɪ/;	woman	14	7 (/u/)	20	1 (/u/)	17	4 (/u/)
/-nɪ-/;	only	6	15 (/lɪ-/)	19	2 (/lɪ-/)	9	12 (/lɪ-/)

Sounds Tested	Grader A		Grader B		Grader C	
	Correct	Incorrect	Correct	Incorrect	Correct	Incorrect
/-nr-/; Henry	8	13 (/ -ll -/)	13	8 (/ -ll -/)	8	13 (/ -ll -/)
/-km-/; kick Mary	18	3 (/ -hm -/)	18	3 (/ -hm -/)	18	3 (/ -hm -/)
/-tm-/; cut myself	16	5 (/ -nm -/)	17	4 (/ -nm -/)	17	4 (/ -nm -/)
/-pm-/; deep mines	17	4 (/ -mm -/)	16	5 (/ -mm -/)	17	4 (/ -mm -/)
/-ml-/; Hamlet	8	13 (/ -mn -/)	7	14 (/ -mn -/)	7	14 (/ -mn -/)
/-hr-/; long run	17	4 (/ -hn -/)	15	6 (/ -hn -/)	14	7 (/ -hn -/)
/-pj-/; keep your	15	6 (/ -mnj -/)	15	6 (/ -mnj -/)	15	6 (/ -mnj -/)
/-tj-/; get your	15	6 (/ -nnj -/)	15	6 (/ -nnj -/)	15	6 (/ -nnj -/)
/-kj-/; kick your	17	4 (/ -hnj -/)	17	4 (/ -hnj -/)	17	4 (/ -hnj -/)

Note: Numbers in the correct and incorrect column refer to the number of students with correct or incorrect pronunciation. The sounds in parentheses in the incorrect column refer to the sounds which the graders heard.

2  
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