Consonant Cluster Simplification in Korean English[1]

Kim, Ki-Hwa
(Sohae College)

Kim, Ki-Hwa. 2000. Consonant Cluster Simplification in Korean English. *Linguistics* 8-1, 275-295. The purpose of this paper is to examine within the OT framework whether it is possible to predict the CCS of Korean English. The analysis in rule-and-derivation phonology shows that the CCS of Korean English is characterized by extra-vowel insertion regardless of its syllabic constituency, which leads to the assumption that the CCS is the result of filtering English in terms of Korean phonology and of the consonant cluster being simplified. Such assumption enables prediction on the CCS of Korean English within the OT framework, as follows. The CCS, the Korean version of English, is an error pattern caused by assuming different constraint ranking from that of English, and also the result of a transfer of Korean phonology by assuming the Korean language specific constraints. **(Sohae College)**

1. Introduction

Consonant cluster simplification (henceforth CCS), the topic of this paper, is one of the major mistakes that Koreans make in the course of the acquisition of English as a foreign language (K.-H. Kim 1999). Koreans as foreign language learners tend to speak or read English syllable by syllable, where more than a consonant is not allowed in the syllable-final as well as in the syllable-initial position. This can be analyzed as the result of a transfer of Korean phonology, and of the

---

1) Here 'Korean English' is defined as the interlanguage which Korean students and adults speak in the course of foreign language acquisition. I would like to thank an anonymous referee for many valuable comments, which enable me to review this paper from a different point of view. Any faults which remain are of course my responsibility.

consonant cluster being simplified. In relation to CCS, this paper raises two questions. First, in what pattern are the consonant clusters simplified? Second, is it possible to predict the CCS of Korean English?

The purpose of this paper is to examine within the framework of Optimality Theory (OT) whether it is possible to predict the phenomena of consonant cluster simplification in Korean English. This paper hypothesizes that the native language has influence on foreign language acquisition although its degree may differ, and that the CCS is caused by the effort of syllabifying English on the basis of the principle of Korean phonology. In the first part of this paper the transfer of Korean phonology in the syllabification of Korean English will be discussed through data analyses. The second part of this paper will discuss the issue in OT terms, where whether the CCS of Korean English can be predicted by differentiating ranking constraints will be examined.

2. Patterns of CCS

This section will first examine, through data analysis, the validity of the assumption that CCS in Korean English occurs as the result of Korean phonology being reflected in the syllabification of English.[2] This section will also examine whether it is possible to describe the patterns of CCS in the same way, drawing a comparison between the patterns of CCS in the syllable-intial and in syllable-final.

2.1 Symmetry between the syllable-intial and syllable final CCS

The mispronunciation (*) in the data (1) shows the syllable-initial CCS in Korean English.

2) This data is based on the English class observation of Korean students and on discussions with my colleague, Professor Adam R. Lee.

(1)	spring	[spriŋ]	*[sə · pə · riŋ]
	stop	[stɑp]	*[sə · top]
	skirt	[skə:rt]	*[sə · kə · tə]
	play	[plei]	*[pəl · le · i][3]
	try	[trai]	*[tə · ra · i]
	class	[klæs]	*[kəl · læ · sə][4]

The syllable-initial CCS of Korean English is characterized as an extra-vowel insertion, which has the effect of making one-syllable words into two or three-syllable words. On the other hand, the mispronunciation (*) in the data (2) shows the syllable-final CCS in Korean English.

(2)	ask	[æsk]	*[æ · sə · kə]
	next	[nekst]	*[nek · sə · tə]
	hold	[hould]	*[hol · də]
	camp	[kæmp]	*[kæm · pə]
	land	[lænd]	*[læn · də]

The syllable-final CCS of Korean English is also characterized as an extra-vowel insertion, which has the effect of making one-syllable words into two or three-syllable words.

The above data supports the assumption that CCS occurs as a consequence of a transfer of Korean phonology. The maximum syllable structure of Korean English is CVC, as in (3)[5] (σ = syllable),

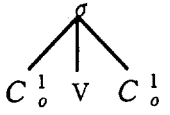
---

3) The mispronunciation of a vowel can also be analyzed as the result of Korean phonology being reflected in the syllabification of English. English diphthongs are bimoraic whereas Korean diphthongs are monomoraic in prosodic terms. Thus Koreans tend to speak an English diphthong either as two separate vowels or as a single sound.

4) The /l/-reduplication in Korean English will be discussed in 2.2.

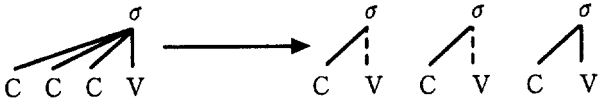
5) It is generally accepted that a syllable consists of an optional onset (nonhead) and a rime (head) and that a rime consists of a nucleus (head) and an optional coda (nonhead) (see Clements and Keyser 1983; Mohanan 1986;

(3)

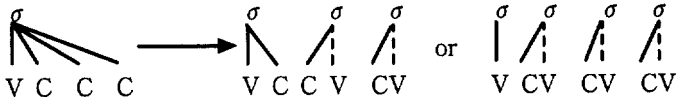


but the CV pattern is preferred, which is the cause of an extra-vowel insertion in Korean English.

(4) a. Vowel insertion in the word-initial consonant clusters



b. Vowel insertion in the word-final consonant clusters



What should be noted here is that the extra-vowel insertion in Korean English occurs when the consonants in the cluster are obstruents, except when the first consonant of the clusters is a coda as in (4b). In conclusion, the CCS of Korean English is characterized by an extra-vowel insertion, not by the deletion of the consonants, which occurs in the same way in the coda as well as in the onset.[6)]

Borowsky 1987, Blevins 1995, etc.). However, there are different views on the syllable structure of Korean (J.-Ch. Bae, 1989, K.-S. Lee 1993, Ch.-S. Kang 1990: 115-116, S-C. Ahn 1998: 83-90). The type where the nucleus is more closely related to a coda than to an onset is supported as universal, but the type where the nucleus is more closely related to an onset than to a coda may be supported by the syllable-final /h/ deletion of Korean (Ch.-S. Kang 1990: 115, S.-C. Ahn 1998: 84, K.-H. Kim 1998). A third type is flat, where the nucleus is not more closely related to an onset than to a coda and that there is no crucial distinction between them in terms of their weight. This paper adopts the third one for no other reason than that it is convenient to describe CCS in Korean English.

6) H.-B. Yoo (1999) argues that there is asymmetry between coda-CCS and onset-CCS on the basis of the observation that the coda-CCS occurs in Japanese

2.2. Word-medial geminates

The word-medial geminates in Korean English is a phenomenon which at first glance seems like a counterexample to CCS.

(5)	comma	[kɑ · mə]	*[kom · ma]
	summer	[sʌ · mər]	*[səm · mə][7]
	dinner	[dɪ · nər]	*[dɪn · nə]
	running	[rʌ · nɪŋ]	*[rən · nɪŋ]

The mispronunciation (*) of the data (5) shows the way Koreans speak English in the course of foreign language acquisition.[8] The major difference between English and Korean English in (5) is the clusters formed from identical consonants in Korean English, which can be analyzed as a result of being loyal to the spelling pattern. However, there are no clusters formed from geminates in English regardless of syllabic constituency (Hammond 1999: 72). Thus it can be assumed with a logical consequence that the word-medial geminates in Korean English are the result of a transfer of Korean phonology in the course of foreign language acquisition.

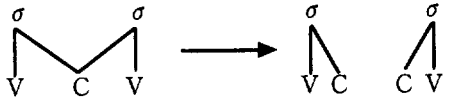
The substructure of the word-medial geminates in Korean English can be characterized as (6a).

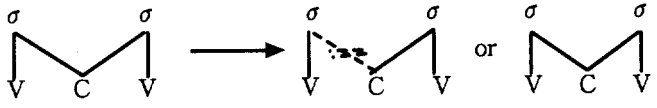
---

by the deletion of consonants while the onset-CCS by the insertion an extra vowel. It can be analyzed as the effects of Japanese phonology, where there is no coda-consonant except [n] and the generalized syllable structure is CV. Thus it can be concluded that Yoo's argument works as another evidence of the claim that the syllable structure of an interlanguage reflects a phonology of one's native language.

7) In Korean [r] cannot occur in coda, so that Koreans tend to regard [ər] as [ə].

8) Of course, Koreans do not always say the word-medial geminates in a pattern [C · C]. As an example, the generalized Korean version for English word, 'tennis' [ten · is]' is *[te · ni · sə]. The discussion of this section is, however, confined to the unsimplified consonant clusters in Korean English.

(6) a. 

b. 

The comparison of (6a) with (6b) shows that Korean English prefers /...VC · CV.../ structure to /...V · CV/ structure or ambisyllabic structure. In other words, the word-medial geminates in Korean English is characterized as a phenomenon to keep the CVC structure.

2.3. /l/-reduplication

Another phenomenon that should be noted in Korean English is the /l/-reduplication.

(7) a.	black	[blæk]	*[bəl · læk]
	clean	[kli:n]	*[kəl · li:n]
	plan	[plæn]	*[pəl · læn]
b.	film	[film]	*[fil · ləm]

The mispronunciation (*) in the data (7a) and (7b) shows the syllable-initial and the syllable-final /l/-reduplication, respectively, in Korean English. From the viewpoint of Korean English, the /l/-reduplication and the word-medial geminates have the identical structure / ...VC · CV.../ by the vowel-insertion as in (4). However, the /l/-reduplication has a different cause from the word-medial geminates.

There are two types of syllable-final /lC/ clusters in relation to the CCS of Korean English.[9]

9) There is no example of the syllable-initial /lC/ consonant clusters except /ly/ in English (Hammond 1999: 52, K.-H. Kim 2000: 137). The /ly/ consonant cluster in English (e.g. 'lurid' [lyurɪd], 'luminous' [lyumɪnəs]), however, is not considered as a

(8) cold	[kould]	*[kol · də]
golf	[gɑlf]	*[gol · fə]
help	[help]	*[hel · pə]
silk	[silk]	*[sil · kə]

The data (8), unlike the data (7b), shows that CCS occurs just by vowel insertion without /l/-reduplication. The difference between the data (8) and (7b) is due to the consonant following /l/. The extra-vowel insertion in Korean English occurs only after obstruents, as noticed in the previous section. Here we can raise the following questions. What is the cause of the /l/-reduplication? In what phonological environment does the /l/-reduplication occur? Is it possible to draw regularity in relation to the asymmetry between the data in (6) and (5b)? This paper will find the answer to the questions in Korean phonology.

2.4. Transfer of Korean Phonology

First, we can assume the phonological environment for the /l/-reduplication of Korean English on the analogy of Korean phonology. The data (9) shows that [l · l] is a generalized pattern in Korean.[10]

(9) [mul · le]	'spinning wheel'	[nol · le]	'(I) will play'
[pəl · le]	'bug'	[sɑl · le]	'(I) will buy it'
[kul · le]	'yoke'	[pul · le]	'(I) will untie it'

Korean morphology also supports the assumption that the [l · l] pattern of Korean English is a transfer of the Korean sound pattern. The Korean

---

cluster in terms of Korean Phonology since the substructure of Korean diphthongs is GV and the glide /y/ in front of a vowel is recognized as a part of a diphthong. On the other hand, there are no /Cl/ clusters in English. The unsuffixed /lC/ clusters include all the obstruents and nasals except a few of the voiced obstruents, /lg, lz, l ʤ, lð, lŋ/ (see Hammond 1999: 61, K.-H. Kim 2000: 185, 191).

10) There is no case of the /l/-reduplication in English.

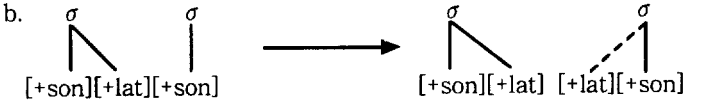
affix '-i-' ('-' is a morphological boundary) has several allomorphs including '-li-,' '-ki-,' and '-hi-' and their distribution has nothing to do with the phonological environment except '-li-'(Ch.-K. Ha 1993: 117; J.-K. Shim 1987: 393).[11] The affix -li- observes the phonological restriction that it occurs only when the final sound of its preceding element is /l/. This is true of noun-forming derivations. The data (10) shows that [li], not [i], always occurs after the stem-final /l/ when the noun-forming affix '-m' is suffixed.

(10) [mul · lim] 'being bitten' [al · lim] 'being noticed'
[təl · lim] 'being lifted' [mil · lim] 'being pushed'
[pal · lim] 'being sold' [ol · lim] 'being lofted'

In relation to the affixation of '-li-', two possibilities can be assumed in rule-and-derivationphonology. One is that the '-li-' is directly affixed from lexical entry whenever its stem ends in /l/. The other is that the underlying form /i/ for the affix '-i-' is the cause that the stem-final consonant /l/ is reduplicated between vowels in the course of derivation.

On the analogy of Korean phonological and morph-phonological evidence, the phonological environment for the /l/-reduplication in Korean English can be schematized as in (11).

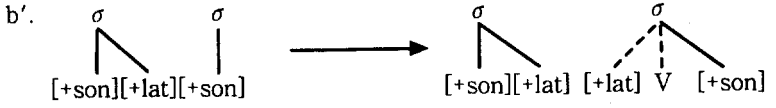
(11) a. 

b. 

11) The difference can be drawn in comparison of (d) with (a)-(c).

a.[po · i · ta]	'to be seen'	c.[kam · ki · ta]	'to be wound'
[sak · i · ta]	'to be melted'	[pəs · ki · ta]	'to be peeled'
[s'ah · i · ta]	'to be piled'	[c'ic · ki · ta]	'to be torn'
b.[mək · hi · ta]	'to be eaten'	d.[mul · li · ta]	'to be bitten'
[cəp · hi · ta]	'to be folded'	[təl · li · ta]	'to be lifted'
[tat · hi · ta]	'to be closed'	[pal · li · ta]	'to be sold'

The schema (11) entails that the consonant /l/ can be reduplicated between sonorants.[12] (11a) presupposes that the vowel insertion of (4a) should precede the /l/ reduplication. As for the Korean version *[fil · lə m] of English [film], an alternative to (11b) can be considered on the analogy of Korean noun-forming derivation in (10).



Thus the rule ordering for the /l/-reduplication will be (12) in a rule-and-derivation phonology.

(12) a. vowel insertion
b. /l/-reduplication

In the framework of Lexical Phonology (LP), the derivation for the Korean version of English will be as in (13).[13] In (13) the Korean version *[bəl · læk], *[fil · ləm], and *[hel · pə] for English [blæk], [film], and [help], respectively, can be derived by presupposing that the vowel insertion rule triggers the /l/-reduplication rule. On the other hand, the postlexical domain in LP entails that the rule application is optional and

12) Every other factor is excluded except the phonological environment for the reduplication of /l/ in the schema (8), where the feature [+sonorant] is used instead of [+syllabic] in two reasons. First, this paper assumes that syllable structure is a derived property of phonological representations (see K.-H. Kim 1993: 25-28) and that whether or not a segment is syllabic depends on its position within syllable structure, not on any inherent phonological property of its own. Second, the feature [+sonorant] enables us to bridge a gap between Korean and English since Koreans tend to reduplicate /l/ not only between a vowel and a nasal as in *[fil · ləm] for 'film', but also between vowels as in *[kol · la] for 'cola' and *[bol · liŋ] for 'bowling'.

13) This paper, following K.-H. Kim (1993, 1995), assumes that the framework of LP consists of three subcomponents: lexical cyclic and noncyclic components, and postlexical component.

that the output is far from structure preserving.

(13)	black	film	help	Lexicon
	[blæk]	[film]	[help]	Lexical representation
Postlexical Domain	[bəlæk]	_____	_____	(4a)
	_____	_____	[helpə]	(4b)
	[bəllæk]	_____	_____	(9a)
		[fillem]		(9b')
	[bə · læk]	[fil · ləm]	[hel · pə]	Syllabification (3)
	*[bəl · læk]	*[fil · ləm]	*[hel · pə]	Phonetic representation

However, the derivation (13) lacks the explanation for the cause of vowel insertion, so that it fails to predict that the outputs, *[bəl · læk], *[fil · ləm], and *[hel · pə] are the result of a transfer of Korean phonology. In conclusion, the LP framework has limitations in the description of the CCS of Korean English.

2.5. Characteristics of the CCS in Korean English

So far this chapter has examined the CCS in Korean English on the basis of the data analysis, where some generalizations are made on the CCS pattern. First, the maximum syllable structure of Korean English is characterized as the CVC pattern. Second, the CCS of Korean English is triggered by vowel insertion, not by consonant deletion. Third, the vowel insertion occurs regardless of syllabic position, which leads to symmetry between the simplification of the syllable-initial and of the syllable-final consonant clusters. Fourth, the extra-vowel insertion occurs only after obstruents. Fifth, the gemination of a consonant and the /l/-reduplication can be interpreted as the result of the effort to keep the CVC pattern. Sixth, the CCS in Korean English is the result of a transfer of Korean phonology. As a tentative, this section described the CCS of Korean English in a rule-and-derivation phonology. In LP terms, the CCS of Korean English can be derived in

the postlexical domain by assuming that the vowel insertion precedes the /l/-reduplication. However, the rule-and-derivation phonology has limitations in that it cannot predict the CCS of Korean English nor explain the cause of the vowel insertion. Let us proceed to examine in the following chapter whether it is possible to predict the CCS of Korean English within the OT framework.

3. Theoretical Prediction on the CCS of Korean English

3.1. Assumptions on foreign language acquisition

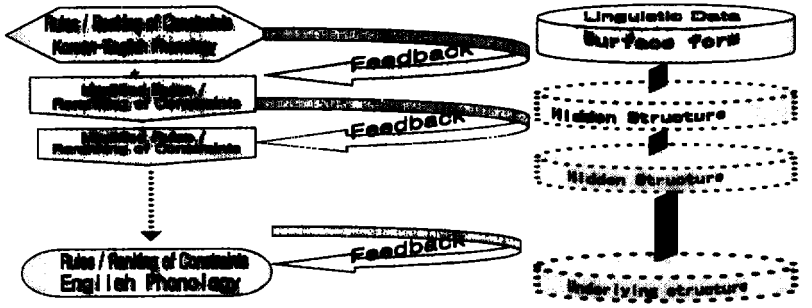
CCS can also be observed in native speakers of English. English syllables can have as many as three consonant sounds before and after the vowel and native speakers of English sometimes simplify clusters in ways that don't interfere with understanding. For example, /t/ in an 'sts' cluster of 'costs', /k/ in an 'sks' cluster of 'asks', and /ɵ/ in an 'nths' or 'ngths' cluster of 'months' and 'strengths' can be deleted (Hagen & Grogan 1992: 163, K.-H. Kim 2000: 239). On the other hand, CCS in Korean English occurs with a different cause in a different way from the one that native speakers of English show. Koreans tend to insert an extra vowel sound, [i] or [ə], after each consonant in the cluster of English in trying to make consonant clusters easier to pronounce. The data analyses in the previous section show that Koreans tend to syllabify English on the basis of Korean phonology. The maximum syllable structure is CVC as in (3), which is the identical with the surface maximum syllable structure of Korean.[14]

This paper schematizes the assumption on foreign language acquisition as in (14), which presupposes the following two things.

14) The underlying maximum syllable structure of Korean is CVCC but there are no clusters on the surface (K.-H. Kim 1993: 76-80). It is done by consonant deletion. For example, /s/ is deleted in a 'ps' cluster of /kaps/ for 'price' and /l/ in a 'lm' cluster of /salm/ for 'life'.

First, Koreans are under the influence of Korean phonology in the course of the acquisition of English as a foreign language. Second, the shorter the term Koreans learn English is, the greater the degree of a transfer of Korean phonology will be. The process of foreign language acquisition in (14) can be interpreted in rule-and-derivation phonological terms, as the process of drawing rules. At first Korean learners of English may draw rules from the surface form of English under the great influence of Korean phonology. Then they may proceed to modify their English phonological rules, making a comparison between the surface forms and their hidden structure, until they acquire the underlying phonological structure of English.

(14)



In the OT framework (Prince & Smolensky 1993, McCarthy & Prince 1994, 1995, see Gilbers & Hoop 1998, Hammond 1999, and Roca & Johnson 1999), the process of foreign language acquisition in (14) can be rephrased as the process of modifying the ranking of constraints. For example, Korean learners of English may estimate the surface form of English by the constraint ranking of Korean English at first. Then they may evaluate the hidden structure associated with the surface form and proceed to differentiate the ranking of constraints in order to find a way to fill a gap between the surface form and its hidden structure, until they find out the ranking of constraints to choose the optimizing output the native speaker of English prefers.[15]

3.2 Constraint ranking for English syllables

On the basis of the previous discussion, it can be assumed within the OT framework that the difference in syllabification between English and Korean English can be explained by the difference of constraint ranking in the selection of the optimal output for the identical input. Syllabification is the determination of the well-formedness of the syllable structure. This section will discuss the constraint ranking in relation to syllabification of English.

The basic principles of syllabification for English are as follows.

(15) Principles of headship in English (Mohanan 1986: 30).
A segment is syllabic if the following conditions are met:
a. it is [+ sonorant]
b. it is stem final if it is [+cons]
c. it constitutes a sonority peak within its syllable.
In all other cases, it is nonsyllabic.

(16) Principle of maximal syllabification (Kiparsky 1979: 432-433)
Given alternate syllabifications for a string, choose the one that minimizes the total number of syllables.

The OT framework assumes that the principles in (15) and (16) can be expressed by the hierarchy of the cross-linguistically assumed syllable

---

15) This paper hypothesizes that foreign language acquisition is different from child language acquisition in that there exists interference of the mother language in foreign language acquisition, which is realized as a form of interlanguage such as Korean English. So foreign language acquisition in OT terms can be characterized as a process of approximating native speaker's constraint ranking (see D. Gilbers & H. de Hoop, 1998: 11). On the other hand, the child phonology is simpler in a highly principled way in comparison with the adult phonology, but the same as the universal structure that underlies the adult phonology (Macken 1995). Thus, child language acquisition in OT terms can be defined as a process of drawing a language-specific constraint ranking from the universal constraint ranking (Gnanadesikan 1995, Stemberger & Bernhart 1997, H.-B. Yoo 1999).

well-formedness constraints in (17) and sonority constraints in (18), which have the function of predicting the way consonants go in the syllable margins and vowels in the nucleus.

(17) Syllable well-formedness constraints [16]
  a. ONSET: every syllable must have an onset
  b. NUCLEUS: every syllable must have a nucleus
  c. *CODA: syllables must not have codas
  d. *COMPLEX: constituents must not be complex

(18) Sonority constraints (Roca & Johnson 1999: 593)
  a. *M/V: Vowels must not occupy the syllable margin
  b. *N/C: Consonants must not occupy the syllable nucleus

In addition to the syllable well-formedness constraints, the OT framework assumes the faithfulness constraints in order to prevent the violation of ONSET by /æsk/ and of *CODA by /spriŋ/.

(19) Faithfulness constraints
  a. MAX (formerly PARSE): Every segment in the input has a correspondent in the output.
  b. DEP (formerly FILL): Every segment in the output has a correspondent in the input.

The faithfulness constraints in (19) are the correspondence constraints of the Correspondence Theory (McCarthy & Prince 1995), which substitute that of the standard OT. MAX has the effect of prohibiting deletion, which substitutes formerly PARSE that input segments must

16) The positively stated constraint ONSET is requirement rather than prohibition since every language has consonant-initial syllables and some languages allow no others. Another constraint NUCLEUS is also positively stated since every syllable has a nucleus. On the other hand, the constraints *CODA and *COMPLEX are stated in a negative way. *CODA prohibits codas since every language permits open syllables and some only those. *COMPLEX states that no more than one consonant is associated with one syllable position.

be parsed into syllable structure. On the other hand, DEP has the effect of prohibiting epenthesis, which substitutes formerly FILL that syllable positions are filled with input segments. Thus the ranking for the constraints discussed so for will be as in (20).

(20) Constraint ranking of English
MAX, DEP >> ONSET, NUCLEUS, *CODA, *COMPLEX, *M/V, *N/C

The tableau (21) shows that the constraint ranking (20) choose [æsk] and [spriŋ] as the best optimal output for English /æsk/ and /spriŋ/, respectively, in the form of the interaction between constraints and candidates.

(21) a.

/æsk/	MAX	DEP	Onset	Nucleus	*Coda	*Complex	*M/V	*N/C
☞ æsk			*		*	*		
æ · sk			*	*!	*	*		*
æ · sək		*!	*		*			
æ · sə · kə		*!	*					

b.

/spriŋ/	MAX	DEP	Onset	Nucleus	*Coda	*Complex	*M/V	*N/C
☞ spriŋ					*	*		
s · p · riŋ				*!	*			*
səp · riŋ		*!			**			
sə · pə · riŋ		*!			*			

Before moving on to the discussion on the CCS of Korean English, two more constraints should be assumed in relation to geminates. English does not allow any clusters formed from geminates regardless of syllabic constituency, which can be expressed by the following constraints, *GEMINATES and M-PARSE.

(22) *GEMINATES (adapted from Hammond 1999, 72-73)
Identical consonants cannot cluster tautomorphemically.
(23) M-PARSE (adapted from Hammond 1999, 51)

Morphological words including morphemes are pronounced.

The *Geminates constraint should be ranked higher than the M-PARSE constraint for English so that input strings like /mm/ or /nn/ cannot arise, as shown in the following tableau (24) for /kɑmə/, an English word 'comma.'

(24)

/kɑmə/	MAX	DEP	*Geminates	Onset	*Coda	*Complex	M-Parse
☞ kɑ · mə							*
kɑm · ə				*!	*		*
kom · ma		*!	*		*		

The discussion on the syllabification of English within the OT framework so far suggests that the constraint ranking not only predicts the optimal grammatical output, but also the nearly optimal alternatives. Now this paper will proceed to discuss the CCS of Korean English within the OT framework, drawing a comparison between the constraint ranking of English and of Korean English.

3.3 CCS of Korean English in the OT framework

This section will examine if it is possible to predict the CCS of Korean English by promoting or demoting certain constraints within the OT framework on the basis of the assumption on foreign language acquisition and the syllable well-formedness constraints. There are several differences between English and Korean English in terms of syllabification. First, the syllable structure of Korean English is not that complex. Korean English, under the influence of Korean syllable structure, does not allow more than one consonant in the syllable structure. Thus the maximum syllable structure of Korean English is characterized as /CVC/ but [...V · CV...] is preferred in the case of the sequence /...VCV.../, where vowel insertion occurs in a way that consonant clusters cannot arise. Therefore the following constraint ranking for Korean English can be assumed.

(25) Constraint ranking of Korean English
*COMPLEX, ONSET, NUCLEUS, *CODA, *M/V, *N/C >>MAX, DEP

The tableau (26) for *[æ · sə · kə] and *[sə · pə · riŋ] shows that the CCS with the vowel insertion can be licensed by the constraint ranking (25), where *COMPLEX outranks faithfulness constraints.

(26) a.

/æsk/	*Complex	Onset	Nucleus	*Coda	*M/V	*N/C	MAX	DEP
æsk	*!	*	*	*		*		
æ · sk	*!	*	*	*		*		
æ · sək		*		*				*!
☞ æ · sə · kə		*						*!

b.

/spriŋ/	*Complex	Onset	Nucleus	*Coda	*M/V	*N/C	MAX	DEP
spriŋ	*!			*				
s · p · riŋ			*!	*		*		
səp · riŋ				**				*!
☞ sə · pə · riŋ				*				*!

Now let us examine if the other cases in relation to the CCS of Korean English can be licensed by the constraint ranking (25). The syllable structure for the word-medial geminates of Korean English is characterized as [...VC_i · C_iV...] since tautosyllabic consonant clusters are totally disallowed. It can be licensed by assuming that the constraint M-PARSE must outrank *Geminates, which is the reverse of the ranking for English. Thus the tableau for *[kom · ma] is as in (27).

(27)

/kɑmə/	*Complex	Onset	*Coda	M· Parse	*Geminates	MAX	DEP
kɑ · mə				*!			
kɑm · ə		*!	*	*!			
☞ kom · ma			*		*		*

However, the tableau (28) suggests that the constraint ranking for

Korean English should be revised in a way that *[fil · ləm] and *[kəl · li:n] could be evaluated as optimal outputs.

(28) a.

/film/	*Complex	Onset	Nucleus	*Coda	*NVC	M-Parse	*Geminates	DEP
film	*!			*				
fil · m		?	*!	*?	*			
☞ fil · ləm				**		*!	*	*

b.

/kli:n/	*Complex	Onset	Nucleus	*Coda	*NVC	M-Parse	*Geminates	DEP
kli:n	*!			*				
k · li:n		?	*!	?*	*			
☞ kəl · li:n				**		*!	*	*

At first glance, the /l/-reduplication of Korean English seems to be treated identically with the word-medial geminates of Korean English since both of them have the output of [...VC_i · C_iV...] in common. However, *[fil · ləm] violates the M-PARSE constraint unlike *[kom · ma].[17]

In relation to the /lC/ or /Cl/ cluster of English, two types of Korean versions can be assumed. Let us compare the tableau (28) with (29).

(29)

/help/	*Complex	Onset	Nucleus	*Coda	*NVC	M-Parse	*Geminates	DEP
help	*!			*				
he · lp			*!	*	*			
hel · ləp				**		*!	*	*
☞ hel · pə				*		*!		*

The tableaux (28) and (29) show that the reverse constraint ranking of English can predict *[hel · pə], but not *[fil · ləm] and *[kəl · li:n]. Then in what way can *[fil · ləm] be predicted in the OT framework? This paper suggests that we should find the answer in Korean phonology since English

17) The difference between *[fil · ləm] and *[kom · ma] in relation to the M-PARSE constraint supports the argument that geminates in Korean English have two independent motivations.

never allows identical consonant clusters as stated in (22). By the analogy of the data of Korean in (9) and (10) and on the basis of the assumption that Korean English is the result of a transfer of Korean phonology in the course of foreign language acquisition, this paper assumes the constraints on [...Vl · lV...] sequence as in (30), which is equivalent to the rules in (11).

(30) a. *[l · m]
b. *[l · V], *[V · l]

By assuming that the constraints (30) outrank M-Parse, *[fil · ləm] and *[kəl · li:n] can be evaluated as the optimal outputs for Korean English. Thus the tableau (31) is for the Korean version of English /film/.

(31)

/film/	*Complex	Onset	Nucleus	*Coda	*N/C	*[l · m]	*[V · l]	M-Parse	DEP
film	*!			*					
fi · lm	*!		*!	*	*		*		
fil · m			*!	?	*	*			
fil · mə				*		*!		*!	*
☞ fil · ləm				**				*!	*

However, the constraints (30) are far from universal. In addition, English does not allow any geminates as in (22), which can be restated as in (32) by introducing the Obligatory Contour Principle (OCP) in relation to the /...Vl · lV.../ sequence of Korean English.

(32) OCP on Laterals: *[lat] [lat]

The fact that Korean English violates the OT constraint (32) implies that Korean English is an error pattern of English.

4. Conclusion

This paper has discussed the CCS of Korean English on the basis of the assumption that Koreans tend to filter English in terms of Korean phonology in the course of foreign language acquisition. The first part of this paper discussed the CCS of Korean English in rule-and-derivation phonology. Thus the gemination of a consonant and the /l/-reduplication as well as the vowel insertion in Korean English can be analyzed as the result of the effort to syllabify English in terms of Korean phonology, where the maximum syllable structure is characterized as CVC. The second part of this paper examined the possibility of prediction on the CCS of Korean English in the OT framework. The CCS of Korean English can be expressed in the OT terms by assuming the reverse of English constraint ranking and also by assuming language-specific constraints by the analogy of Korean phonology. This entails that Korean English is an error type of English and also proves that there is a transfer of Korean phonology in the course of English acquisition.

References

Bae, Ju-Chae. 1989. 음절말 자음과 어간말 자음의 음운론, 국어연구 91.

Ha, Chi-Keun. 1993. 국어파생형태론. 남명문화사.

Kang, Chang-Seok. 1990. "음절," 국어연구어디까지 왔나 (서울대학교 대학원 국어연구회 편). 동아출판사

Lee, Ki-Suk. 1993. 음절구조와 음운원리. 한신문화사.

Shim, Jae-Kee. 1987. 국어어휘론. 집문당.

Ahn, Sang Cheol. 1998. *An Introduction to Korean Phonology*. Seoul: Hanshin.

Blevins, J. 1995. "The Syllable in Phonological Theory," in Goldsmith, J. A. (ed.), *The Handbook of Phonological Theory*. pp. 206-244. Blackwell.

Borowsky, T. 1987. "Syllable Codas in English and Syllabification" in *NELS* 17-1. Also in The Phonology Workshop, The Linguist Society of Korea (ed.) 1989. *Phonology and Morphology* 10. pp. 1-10. Seoul: Hanshin.

Clements, G. N. and S. J. Keyser. 1983. *CV Phonology: A Generative Theory of the Syllable*. Cambridge, Mass.: MIT Press.

Gilbers, D. and H. d. Hoop 1998. "Conflicting constraints: An introduction to Optimality Theory," *Lingua* 104, 1-12.

Gnanadesikan, A. 1995. "Markedness and Faithfulness Constraints in Child Phonology," Paper posted on Rutgers Optimality Archive, ROA-67-2000.

Hammond, M. 1999. The Phonology of English. Oxford University Press.

Hagen, S. A. and P. E. Grogan 1992. *Sound Advantage*. Regents/Prentice Hall.

Yoo, Hye.-Bae. 1999. "Consonant Cluster Simplification in Second Language Acquisition," *Studies in Phonetics, Phonology and Morphology*.

Kim, Ki-Hwa. 1993. Palatalization in Lexical Phonology. Ph. D. dissertation. Chonbuk National University.

Kim, Ki-Hwa. 1995. "Phonology-Morphology Interaction in Lexical Phonology," *Linguistics* 3, 57-70.

Kim, Ki-Hwa. 1999. "A project work on English pronunciation," *Linguistics* 7(3), 321-339.

Kim, Ki-Hwa. 2000. English Pronunciation Practice. Sohae College. ms.

Macken, M. A. 1995 "Phonological Acquisition," in Goldsmith, J. A. (ed.), *The Handbook of Phonological Theory*. pp. 671-696. Blackwell.

McCarthy, J. and A. S. Prince. 1994. *Faithfulness and Reduplicative Identity*. University of Massachusetts and Rutgers University ms.

McCarthy, J. and A. S. Prince. 1995. "Prosodic Phonology," in Goldsmith, J. A. (ed.), *The Handbook of Phonological Theory*. pp. 318-366. Blackwell.

Mohanan, K. P. 1986. *The Theory of Lexical Phonology*. Dordrecht: Reidel.

Prince, A. and P. Smolensky. 1993. *Optimality Theory: Constraint Interaction in Generative Grammar*. ms. Rutgers University and University of Colorado.

Roca, I. and w. Johnson 1999. *A Course in Phonology*. University of Essex: Blackwell.

Stemberger, J. and B. Bernhart 1997. *Handbook of Phonological Development*, New York: Academic Press.

Dept. of English Interpretation and Translation
Sohae College
832-1 Oryong-dong
Kusan, Chonbuk 573-717, Korea
e-mail: kihwa@sohae.ac.kr
Fax: +82-63-460-9214