THE OPTIMALITY-THEORETIC APPROACH TO SYLLABLE STRUCTURE CHANGE OF ENGLISH LOAN WORDS IN KOREAN

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1 INTRODUCTION* Natural languages have language-specific syllable structures Phonetically, Korean does not allow consonant clusters either in the onset or in the coda position, while English does Differences like these are motivations that force source words to change their syllable structure to fit that of the target language when borrowing occurs Take the English word 'dress' [dres] for example It is a monosyllabic word for English native speakers However, when it is borrowed into Korean, it becomes a trisyllabic word [tɨ rɛ sɨ] A monosyllabic English word 'bus' [bʌs] becomes a disyllabic word [pʌ sɨ] in Korean Changes like this is mainly due to the difference in the syllable structures of Korean and English

In this paper, I discuss the syllable structure change of English loan words in Korean within the Optimality Theory (henceforth OT) Section 2 is for the basic characteristics of Korean syllable phonology for further discussion Main discussion starts from Section 3 in which a constraint hierarchy for English loan words in Korean will be explored In section 4, the constraint hierarchy developed in section 3 will be further refined by exceptional English loan words as well as by pure Korean data until the final constraint hierarchy is attained Section 5 concludes

2 CHARACTERISTICS OF KOREAN SYLLABLE PHONOLOGY

2 1 SYLLABLES IN KOREAN The maximal syllable structure of Korean is (C)V(C) [1] The onset and the coda are optional Underlyingly there might occur two consonants in the coda, but when they are realized as a surface form, only one consonant is allowed for the onset and coda each The following data show this regulation clearly

(1) a /saks/ *'fee'* → [sak] b /salms-to/ *'life-TOP'* → [samto]
c /os/ *'clothes'* → [ot] d /pat^h/ *'rice field'* → [pat]

2 2 OBSTRUENT NEUTRALIZATION IN KOREAN As we see from (1c) /os/ *'clothes'*→ [sak] and (1d) /pat^h/ *'rice field'* → [pat], there is an important phonological phenomenon in Korean, which is called 'Obstruent Neutralization' All the obstruents in the coda are neutralized The rule may be described as (2)

(2) Obstruent Neutralization in Korean (S Kang (1995 6))
a Coda licenses only Place, [+nasal], and [+lateral]
b {p, p', p^h} → [p] / __]σ
{t, t', t^h, s, s', c, c', c^h} → [t] / __]σ
{k, k', k^h} → [k] / __]σ

* I am grateful to the audience, especially to Michael Henderson and Fiona Mclaughlin for helpful comments and encouragement.

[1] I excluded glides here If glides are included, then the maximal Korean syllable structure will be (C)(G)V(C)

The rule of (2) also implies that Korean obstruents in the coda position surface unreleased, which is usually represented as [X$^{\neg}$] / __]σ [2] That is to say, phonetic/ phonological information of the inputs cannot be fully maintained in the Korean coda Thus, when English sounds with features like [+continuant] or [+del rel] occur in the coda position of Korean, vowel epenthesis is needed in order to provide an onset position in which those features are realized

2 3 CONSONANTS OF ENGLISH LOAN WORDS IN KOREAN In Korean, all consonants are voiceless Voiced consonants are allophones There is a 3-way contrast of consonants in Korean plain, aspirated, and glottally tensed The contrast may be symbolized as /p/, /p^{h}/, and /p'/, /t/, /t^{h}/, and /t'/, etc All of them are phonemic When English sounds are introduced into Korean, they are converted as the closest sounds of Korean, but they lose voiced/voiceless contrast The following has part of consonant conversion of English consonants in Korean [3]

(3) Stops Eng → Kor

/p/ → /p^{h}/, /b/ → /p/
/t/ → /t^{h}/, /d/ → /t/
/k/ → /k^{h}/, /g/ → /k/

(4) Fricatives Eng → Kor

/s/ → /s/, /z/ → /č/
/f/ → /p^{h}/, /v/ → /p/

With the information given above, in the following section, I will discuss the syllable structure change of English loan words in Korean

3 EXPLORATION OF COSTRAINT HIERARCHY FOR ENGLISH LOAN WORDS IN KOREAN

Pure Korean data and English loan word data are given as (5) and (6) respectively (7) has the constraints needed for the discussion of this paper Consider

(5) Pure Korean Data

a /ɨ/ → [ɪ] *two,* a' /kak/ → [kak] *angle*
b /sup^{h}/ → [sup] *forest,* b' /os/ → [ot] *clothes*
c /kaps/ → [kap] *price*

(6) English Source → Loan Words in Korean

a /ten/ *ten* → [t^{h}en] ← licensed string of phonemes
b /bʌs/ *bus* → [pʌ sɨ] ← *unlicensed C in the Coda
c /post/ *post* → [p^{h}o sɨ t^{h}ɨ] ← *CC in the Coda
d /drɛs/ *dress* → [tɨ rɛ sɨ] ← *CC in the Onset
e /strayk/ *strike* → [sɨ t^{h}ɨ ra ɪ k^{h}ɨ] ←* CCC in the Onset + a diphthong in the Nucleus

[2] In Korean, neutralized consonants in the Coda are all plain voiceless stops So, unless necessary, I will use [p, t, k] for neutralized stops in the Coda Narrow transcription for neutralized stops will be [p$^{\neg}$, t$^{\neg}$, k$^{\neg}$]

[3] I listed the conversion of consonants that are related with the discussion of this paper

(7) Constraints [4] (c f Prince and Smolensky, 1993)

a *CC Avoid CC
NoComplex Avoid XX associated with one association line
b -Coda Syllables must not have a coda
c Coda-Cond Coda licenses only Place, [nasal], and [lateral] (Kang 1995)
d FILL Syllable positions must be filled with underlying elements
e ONS Syllables must have onsets
f PARSE(Seg) Underlying segments must be parsed into syllable structure
g PARSE(Feature) Underlying segmental features must be parsed into syllable structures

3 1 INTERIM CONSTRAINT HIERARCHY OF KOREAN The maximum Korean syllable is CVC The Onset and the Coda are optional In the languages like Korean, it has been agreed that PARSE and FILL usually dominate ONS and –Coda (Prince & Smolensky, 1993) Our discussion will begin with the interim constraint hierarchy that may be developed through pure Korean data /i/ *two* → [i] (5a), and /kak/ *angle* → [kak] (5a') The analysis of (5a) and (5a') is given as (8) and (9) respectively The subsequent interim constraint hierarchy is given as (10) Consider

(8) Input /i/ '*two*' → Optimal Output [i] (=5a)

Candidates	Parse	Fill	ONS
a ☞ i			*
b <i>	*!		
c □ i [5]		*!	

(9) Input /kak/ '*angle*' → Optimal Output [kak] (=5a')

Candidates	PARSE	FILL	-Coda
a ☞ kak			*
b ka<k>	*!		
c ka.k □		*!	

(10) Interim Constraint Hierarchy of Korean
PARSE, FILL >> ONS, -Coda

3 2 CONSTRAINT HIERARCHY FOR ENGLISH LOAN WORDS IN KOREAN Consider the optimal selection of /ten/ *ten* → [ten] of (6a), first

[4] A_{LIGN}-R will be added to (7) as we enter section 4 2

[5] □ will be filled with the default vowel [ɨ] when candidates surface Except [ɨ], depending on the feature of the preceding consonants, roughly [+palatal], [i] may be inserted In this paper, only [ɨ]-epenthesis is discussed

(11) Input /ten/ *'ten'* → Optimal Output [ten] (=6a)

Candidates	PARSE	FILL	-Coda
a ☞ ten			*
b te<n>	*!		
c te n □		*!	

The interim constraint hierarchy of (10) selects an optimal candidate [ten] correctly This result may be expectable because the input has a licensed string of phonemes of Korean However, when it comes to the input (6b), /bus/ *bus*, then it immediately raises a problem, since the input /bʌs/ - or / pʌs/ by automatic conversion of English phonemes- has the Coda that is unlicensed in Korean A wrong prediction by PARSE<<>> FILL >> -Coda is shown in the following tableau (12)

(12) Unlicensed C in the Coda (=6b)

Input /bʌs/ → Optimal Output [pʌ s□] (Non-optimal Selection)

Candidates	PARSE	FILL	-Coda
a *☞ pʌs			**
b pʌ<s>	*!		
c pʌ s□		*!	

To avoid a non-optimal selection for (12), we may depend on the peculiar Korean phonological phenomenon of 'Obstruent Neutralization' The phonemic contrast among plain voiceless, aspirated, and glottalized obstruents is neutralized to plain voiceless stops in syllable-final position Thus, Korean only allows [p, t, k, n, m, l, ŋ] as legitimate codas This observation has been introduced previously as (2a&b), which is repeated as (13)

(13) Coda-Cond Coda licenses only Place, [+nasal], and [+lateral]

Note that the new hierarchy including inviolable constraint (13) works for optimal candidate selection in (14)

(14) Unlicensed C in the coda (=6b)

Input /bʌs/ → Optimal Output [pʌ s□] (Optimal Selection)

Candidates	Coda-Cond	PARSE	FILL	-Coda
a pʌs	*!			*
b pʌ<s>		*!		
c ☞ pʌ s□			*	

Note that we need to have PARSE dominate FILL in order to have (14c), [pʌ s□], as an optimal candidate

Tableau (15) in the following has /post/ *post* of (6c) as an input It has an unlicensed CC in the Coda Tableau (15) shows that the constraint hierarchy we have

developed for (14) works for (6c) as well Consider

(16) Coda with Consonant Clusters (=6c)

Input /post/ → Optimal Output [p^ho s□ t^h□] (Non-optimal Selection)

Candidates	Coda-Cond	PARSE	FILL	-Coda
a. ☞ po s□ t□			**!	
b pos<t>	*!	*		*
c pos t□	*!		*	*
d post	*!			**

Relative ranking of Coda-Cond to PARSE and FILL is crucial for optimal selection here, since the hierarchy PARSE>>Coda-Cond<<>>FILL would result in wrong selection of (16d) [post] as an optimal candidate

Unlike the input /post/ of (16), tableau (17) in the following has an input with consonants clusters in the Onset And we can see that the hierarchy fails to do an optimal selection Consider

(17) Onset with consonant clusters (=6d)

Input /dres/ → Optimal Output [t□ rɛ s□] (Non-optimal Selection)

Candidates	Coda-Cond	PARSE	FILL	-Coda
a t□ rɛ s□			**!	
b * ☞ trɛ s□			*	
c trɛ<s>		*!	*	*
d <t>rɛ s□		*!	*	*
e t□ rɛs	*!		*	*

As we have noted, the input /dres/ of (17) is different from /post/ of (16) in that /dres/ of (17) has a CC in the onset, while /post/ of (16) in the coda The selection of the incorrect optimal output in (17) may indicate either that there may be another constraint needed but yet explored, or that we may be wrong with the hierarchy of constraints which we have discussed so far I will simply take the former argumentation mainly due to the fact that a CC in Korean is not allowed Note that if we need a new constraint to avoid a CC, then the constraint should be an inviolable constraint The new constraint may be formalized like the following

(18) *CC Avoid a CC linked by the same association string of a syllable

Application of the new constraint hierarchy with *CC ranked the highest, but unranked to Coda-Cond and PARSE is shown as (19)

(19) Input /dres/ → Optimal Output [t□ rɛ s□] (=6d) (Optimal Selection)

Candidates	*CC	Coda-Cond	PARSE	FILL	-Coda
a ☞ t□ rɛ s□				**!	
b tre s□	*!			*	
c tre<s>	*!		*		
d <t>rɛ s□			*!	*	
e t□ res		*!		*	*

Next is the analysis of the most complicated input in that the input has a CCC in the Onset and a diphthong in the Nucleus Again, we can identify that the constraint of (19) needs further refinement Consider

(20) CCC in the Onset + a Diphthong in the Nucleus (=6e)

Input /strayk/ → Optimal Output [s□ t^h□ ra ɪ k^h□] (Non-optimal Selection)

Candidates	*CC	Coda-Cond	PARSE	FILL	-Coda
a.* ☞ s□ t^h□ ra ɪ$k^{\neg}$				**	*
b s□ t^h□ ra ɪ k^h□				***!	
c s□ t^h□ raɪ k^h□				***!	
d <s>t^h□ ra. ɪ$k^{\neg}$			*!	*	*
e st^h□ ra ɪ$k^{\neg}$	*!			*	*

To avoid non-optimal selection of (20a) *☞ [s□ t^h□ ra ɪ$k^{\neg}$], we need to have answers to the following two issues

(1) Incorrect conversion of the input segment /k/ Recall that one of the reasons of Korean vowel epenthesis is to maintain the phonetic/phonological information of source segments as much as possible As previously mentioned (p2,2 3 (3)), English /b, d, g/ and /p, t, k/ are 'almost automatically' converted as Korean [p, t, k] and [p^h, t^h, k^h] respectively [6] This conversion may be dealt with by introducing another constraint called 'PARSE(Feature)' of (7g) that is repeated as (21) in the following

(21) PARSE(Feature) Underlying segmental features must be parsed into syllable structures

PARSE(Feature) of (21) requires feature correspondence between Input and Output By PARSE(F), candidates with the [$k^{\neg}$] in the coda can be excluded (20a, d & e)

(2) Incorrect conversion of English diphthong /ay/ to [ai] in Korean Every English diphthong should be converted as two individual vowels in Korean This may be accomplished by expanding *CC to 'NoComplex' of (7a), which is repeated as (22)

[6] More accurately speaking, English /p, t, k, b, d, g/ correspond to Korean /p^h, t^h, k^h, p, t, k/ word-initially and word-internally Exceptions to this conversion could be found in the word-final position, the Coda One of them is /buk/ → [buk$^{\neg}$], instead of [bu k^hɨ] The explanation for these exceptional cases will be given in the related section in 4 2

(22) NoComplex Avoid XX associated with one association line

NoComplex requires one-to-one correspondence between syllable-internal positions and segments NoComplex and PARSE(F) should also be ranked the highest, since both of them represent inviolable phenomena of loan word phonology Tableau (23) in the following shows selection of optimal candidate [s□ t^h□ ra. ɪ k^h□] Consider

(23) CCC in the Onset + a Diphthong in the Nucleus (=6e)

Input /strayk/ → Optimal Output [s□ t^h□ ra ɪ k^h□] (Optimal Selection)

Candidates	No-Compl	Coda-Cond	PARSE (Seg)	PARSE (Feature)	FILL	Onset [7]	-Coda
a. s□ t^h□ ra ɪk^l				*!			
b s□ t^h□ ra ɪk^h		*!					
c s□ t^h□ raɪ k□	*!						
d s□ t^h□ raɪ k^h□	*!						
e s□ t^h□ ra ɪ k□				*!			
f ☞ s□ t^h□ ra ɪ k^h□							
g st^h□ ra. ɪk^l	*!						
h st^h□ ra. ɪk^h	*!						
ɪ <s>t^h□ ra ɪk^l			*!				
j <s>t^h□ ra ɪk^h		*!					

To analyze optimal candidate selection, first of all, we may exclude candidates with an aspirated stop, [k^h], in the Coda position (23b, h & j) Second, we may exclude candidates with a plain voiceless 'neutralized' velar stop [k^l] in the Coda (23a, g, & i) and in the Onset (23c & e) because of incorrect conversion Third, we may exclude candidates with a diphthong in the Nucleus (23c& d) In this way, we have the optimal candidate (23f) correctly

The constraint hierarchy of (23) works well for the English loan word data of (6a-e) However, it is yet a final hierarchy In the following section, the validity of the constraint hierarchy (23) will be tested by pure Korean data

4 CONSTRAINT HIERARCHY (23) AND PURE KOREAN DATA (5)

It will be desirable for us to explore ONE optimal constraint hierarchy that would work both for English loan words and pure Korean words If such a hierarchy is not available, then the next optimal solution would be to find two constraint hierarchies with the least variation.

4 1 PARSE>>FILL Vs FILL>>PARSE Constraint hierarchy (23) is mostly based on constraints that regulate Korean syllable structures Thus, we may simply expect that the hierarchy will also work for pure Korean data, though it may need some minor revision As is expected, it shows selection of optimal candidates for /ɪ/ *two* → [ɪ] of (5a), and

[7] Onset dominates –Coda both in Korean and English VCVC is syllabified as V CVC

/kak/ *angle* → [kak] of (5a') correctly However, it raises a serious problem for a Korean datum /sup^h/ *forest* → [sup] of (5b) Tableau (24) shows non-optimal candidate selection

(24) Input /sup^h/ *forest* → Optimal Output [supʌ] (=5b) (Non-optimal Selection)

Candidates	No-Compl	Coda-Cond	PARSE (Seg)	PARSE (Feature)	FILL	Onset	-Coda
a sup^h		*!					*
b supʌ				*!			*
c * ☞ su p^h□					*		
d su p□				*!	*		
e su<p^h>			*!				

If the input /sup^h/ *forest* were an English loan word, then vowel epenthesis would be expected in order to maintain the feature [+aspirated] of /p^h/, so that the optimal candidate would be [su p^{h}ɨ] However, unlike English loan words for which vowel epenthesis gets priority, there is no vowel epenthesis expected for pure Korean inputs Rather stray consonant erasure occurs frequently as is exemplified in the following

(25) Stray Consonant Erasure in Korean

a /hɨlk/ *soil* → [hɨk] b /salm/ *life* → [sam]

c /saks/ *fee* → [sak] d /anc/ *to sit* → [an]

We may handle this difference between English loan words and pure Korean words by reversing relative ranking of PARSE and FILL as is shown in (26)

(26) Adjustment of Constraint Hierarchy (23)

English Loan Words in Korean Vs Pure Korean Words

PARSE >> FILL FILL >> PARSE

Reversed ranking of FILL>>PARSE from PARSE>> FILL works for syllabification of pure Korean words, and correctly selects optimal candidates [sup^h] for /sup^h/ of (24) and [kap] for /kaps/ of (5c) as is shown in (27) and (28) respectively

(27) Input /sup^h/ *forest* → Optimal Output [supʌ] (=5b,24) (Optimal Selection)

Candidates	No-Compl	Coda-Cond	***FILL***	***PARSE*** (Seg)	***PARSE*** (Feature)	Onset	-Coda
a sup^h		*!					*
b ☞ sup					*		
c su p^h□			*!				
d su p□			*!		*		
e su<p^h>				*!			

(28) Input /kaps/ *price* → Optimal Output [kap] (=5c) (Optimal Selection)

Candidates	No-Compl	Coda-Cond	***FILL***	***PARSE*** (Seg)	***PARSE*** (Feature)	Onset	-Coda
a kap s□			*!				*
b ka p□ s□			**!				**
c ☞ kap<s>				*!			*
d kaps	*!						**
e ka<p>s		*!		*			*

However, to maintain two different constraint hierarchies - one for English loan words and the other for pure Korean words- may not be a good idea to follow Both cases belong to Korean phonology So, instead of depending on the change of the relative ranking between two big constraints, PARSE and FILL, it might be more desirable to seek for a unified constraint hierarchy with the least variation The following discussion is prepared for this goal

4 2 ALIGN-R AND A UNIFIED EXPLANATION We may have clues from an English loan word [puk] for English /buk/ *book* It is exceptional to the Korean loan word phonology in that the Coda /k/ of /buk/ is not only realized in Korean as [k^h] of [pu k^h□], but also it is even more frequently realized as [k] of [puk] [8] This exceptional case of free variation [k] ~ [k^h] leads us to consider that possibly ALIGNMENT has something to do with both English loan words and Korean words

Surely the Output [puk] is due to the influence of English knowledge And this Output may be handled by introducing ALIGN-R that requires Input R = Output R Unlike English voiceless stops in the Coda which are USUALLY converted as aspirated stops that take the Onset in Korean, however, Korean aspirated stops in the Coda are ALWAYS realized as neutralized stops as is exemplified in /sup^h/ *forest* → [sup] due to the influencing Obstruent Neutralization. This observation indicates that Alignment in Korean is placed the highest like NoComplex or Coda-Cond Thus, we may assume that the emerging of neutralized [k] in the Korean [puk] from English source /buk/ *book* may result from English stops' undergoing the same constraints as pure Korean stops in the Coda position If this is the case, then for the constraint ALIGN R we may have two slots in the constraint hierarchy (1) ALIGN R that is ranked the highest (for pure Korean data and English loan words with neutralized stops in the Coda, (2) ALIGN-R which is ranked lower than that of (1) (for normal English loan words) Note that the general tendency of vowel epenthesis for English loan words implies that for syllabification of English loan words, ALIGN R will be ranked lower than that for Korean

The following tableaux have the introduction of the new constraint ALIGN R and subsequent modification of constraint hierarchy (23) Let us first discuss Korean data Consider (29) for selection of [sup] from /sup^h/

[8]Nowadays [puk^1] is a dominant form in Korean [ɪŋ k^h□ dʒet^1] for *inkjet*, [ra.k^het^1] for *racket, etc* also show unreleased voiceless stops in the Coda

(29) Input /sup^h/ *forest* → Optimal Output [sup] (Optimal Selection)

Candidates	No-Compl	Coda-Cond	A_{LIGN-R}	PARSE (Seg)	PARSE (F)	FILL	Onset	-Coda
a sup^h		*!						*
b ☞ sup					*			*
c su p^h□			*!			*!		
d su p□			*!		*	*!		
e su<p^h>				*!				

The highest-located A_{LIGN-R} implies no change of syllable numbers in pure Korean words A Coda in the underlying form must be realized as a Coda unless an empty Onset follows $A_{LIGN\ R}$ is supposed to rank higher than PARSE(S/F) because PARSE(S/F) is sometimes violable One of the two underlying segments needs to be deleted when they surface Ranking between PARSE(S) and PARSE(F) also needs to be refined Unranking between the two constraints makes a non-optimal selection of (29e) [su<p^h>]

Next tableau (30) shows that the newly explored constraint hierarchy of (29) works for /kaps/ *price* → [kap] of (5c, 28) Consider

(30) Input /kaps/ *price* → Optimal Output [kap] (=5c,28) (Optimal Selection)

Candidates	No-Compl	Coda-Cond	$A_{LIGN\ R}$	PARSE (Seg)	PARSE (F)	FILL	Onset	-Coda
a. kap s□			*!			*		*
b ka p□ s□			*!*			**		
c ☞kap<s>				*				*
d kaps	*!	*						**
e ka<p>s		*!		*				*

Tableau (31) shows an optimal selection for (5b') /os/ *clothes* → [ot] Consider

(31) Input /os/ *clothes* → Optimal Output [ot] (=5b',1b) (Optimal Selection)

Candidates	No-Compl	Coda-Cond	$A_{LIGN\ R}$	PARSE (Seg)	PARSE (F)	FILL	Onset	-Coda
a. os		*!						*
b ☞ ot					*			*
c o<s>				*!				
d o s□			*!			*		

As we have seen from (29) – (31), the new constraint hierarchy selects an optimal candidate for each Korean datum.

Next are for English loan words in Korean (32) and (33) have the same input /buk/ *book* As was mentioned, the same input surfaces as two different outputs, [puk] and [pu k^h□] For the former, we need an inviolable $A_{LIGN\ R}$ while for the latter we need

violable A_{LIGN-R} Note that for the two optimal outputs, differently ranked $A_{LIGN\ R}$ has been applied

(32) Input /buk/ *book* → Optimal Output [puk] (Optimal Selection)

Candidates	No-Compl	Coda-Cond	A_{LIGN-R}	PARSE (Seg)	PARSE (F)	FILL	Onset	-Coda
a. ☞ puk					*			*
b pu.k^h□			*!			*		
c pu<k>				*!				

(33) Input /buk/ *book* → Optimal Output [pu.k^h□] (Optimal Selection)

Candidates	No-Compl	Coda-Cond	PARSE (Seg)	PARSE (F)	A_{LIGN-R}	FILL	Onset	-Coda
a puk				*!				*
b ☞ pu k^h□					*	*		
c pu<k>			*!					

Optimal candidate selection for other English loan words is listed in the following tableaux (34) – (35)

(34) Input /bʌs/ *bus* → Optimal Output [pʌs] (=6b) (Optimal Selection)

Candidates	No-Compl	Coda-Cond	PARSE (Seg)	PARSE (F)	A_{LIGN-R}	FILL	Onset	-Coda
a pʌs		*!						*
b ☞ pʌ s□					*			
c pʌ<s>			*!					
d pʌt [9]				*!				*

(35) Input /drɛs/ → Optimal Output [t□ rɛ s□] (=6d,19) (Optimal Selection)

Candidates	No-Compl	Coda-Cond	PARSE (Seg)	PARSE (F)	A_{LIGN-R}	FILL	Onset	-Coda
a. ☞ t□ rɛ s□					**	**		
b tre s□	*!				*	*		
c tre<s>	*!		*					
d t□ res		*!			*	*		*
e t□ ret				*!		*		*

5 CONCLUSION In this paper, I have discussed the syllable structure change of English loan words in Korean under OT First, by analyzing English loan word data, I have explored the constraint hierarchy that explains syllable structure change of English

[9] This candidate results from Obstruent Neutralization applied to the /s/ in the Coda. This candidate is far from real pronunciation of English loan word [pʌ sɨ] However, theoretically this candidate is possible

loan words Motivated by some English loan words that show Korean-like syllabification in the Coda position, I have further refined the constraint hierarchy for English loan words so that it can cover syllabification of pure Korean words as well

I have shown that the fundamental constraint hierarchy for syllabification such as PARSE(S/F) >> FILL >> Onset >> -Coda may be kept the same for both English loan words and pure Korean words The difference between the two cases is expressed by different ranking of A_{LIGN}-R For English loan words for which vowel epenthesis is dominant, A_{LIGN}-R is ranked lower than PARSE(F) On the while, for English loan words that show Korean-like Coda neutralization and for pure Korean data in which deletion of stray consonant(s) is obligatory, A_{LIGN}-R is ranked as high as NoComplex and Coda-Cond which are inviolable constraints

The final constraints, goal of the discussion of this paper, are listed as (36) and (37) in the following

(36) For English Loan Words in Korean
NoCompl<<>>Coda-Cond<<>> A_{LIGN}-R>>PARSE(S)>>PARSE(F)
>>FILL>>Onset>>-Coda

(37) For Exceptional English Loan Words and all Korean Words
NoCompl<<>>Coda-Cond >> PARSE(S)>>PARSE(F)>> A_{LIGN}-R
>>FILL>>Onset>>-Coda

REFERENCES

Ackema, Peter & Ad Neeleman 1996 Optimal questions ms University of Utrecht

Brohier, Kevin. 1995 Optimality theoretic rankings with tied constraints slavic elatives, resumptive pronouns and learnability ms, MIT

Han, M S & R. S Weinzman 1970 Acoustic features of Korean /P, T, K/, /p, t, k/ and /p^h, t^h, k^h/ Phonetica 22 112-128

Kang, Okmi 1992b Word-internal prosodic words in Korean in the Proceedings of California Japanese/Korean Linguistic Conference II, CSLI, Stanford University

Kang, S 1995 Some phonological phenomena in Korean an optimality theoretic Account Linguistics 3 1-15 The Linguistic Association of Korea Seoul, Korea

Kenstowicz, M 1994 Phonology in generative grammar Cambridge, Mass Blackwell

Kisseberth, C W 1970 On the functional unity of phonological rules Linguistic Inquiry 1 291-306

Kyle, J 1997 Dakota optimality a beginning KWPL Vol 22, No 3

Lee, S 1994 Theoretical issues in Korean and English phonology Doctoral dissertation, University of Wisconsin-Madison

Lee, S J & Joohaeng Lee 1994 Introduction to Korean linguistics Seoul Korea Textbook Incorporation

McCarthy, J & A Prince 1993a Prosodic morphology 1 constraint interaction and satisfaction. ms University of Massachusetts and Rutgers University

Oh, Mira 1992 A reanalysis of consonant cluster simplification and s-neutralization in Korean A paper presented at the 8th International Conference on Korean Linguistics, Washington D C

Prince, A & P Smolensky 1993 Optimality theory constraint interaction in generative grammar Technical Report #2 of the Rutgers Center for Cognitive Science, Rutgers University