

# Phonology-Morphology Interaction in Lexical Phonology

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Kim, Ki-Hwa(1995).**Phonology-Morphology Interaction in Lexical Phonology**. *Linguistics* 3. In this paper a theory of phonology-morphology interaction in Lexical Phonology is proposed. This theory distinguishes two types of phonology in relation to phonology-morphology interaction: cyclic phonology and noncyclic phonology. It is argued that clear distinction between cyclic and noncyclic phonological rules exists and that the domain of noncyclic phonology, different from that of cyclic phonology, is not confined to the lexicon. The validity of the arguments is examined through the analyses of Korean.

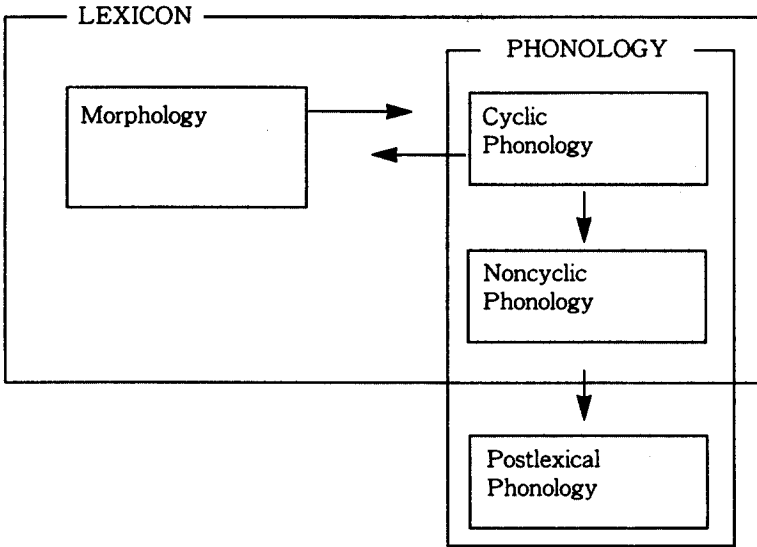
## 1. The model of Lexical Phonology

The purpose of this paper is to present a theory of phonology-morphology interaction in Lexical Phonology(LP). Recent theories of phonology-morphology interaction are divided into two different stream: Interactionism and noninteractionism. Phonologists in favor of interactionism, though differing in details, propose that lexical phonology may precede morphology (Kiparsky 1985; Borowsky 1993; K-H. Kim 1991, 1993; Hargus, 1993; and the others). Phonologists against it, however, propose that phonology may not precede any morphology and that there is no interaction between two modules(Szpyra 1989; Odden 1993; and others). This paper addresses a

question in relation to phonology-morphology interaction in LP: In what way can phonology access morphology? This paper is structured as follows. I begin by outlining a model of phonology-morphology interaction in LP and then go on to discuss phonology-morphology interaction in the cyclic domain and phonology-morphology relation in the noncyclic domain. I examine the validity of my argument through the analyses of Korean and finally summarize the results of these analyses.

To begin with, I outline a model of phonology-morphology interaction in LP, in which lexical phonology is divided into two subcomponents: cyclic and noncyclic.<sup>1</sup>

(1)



Cyclicity of phonological rules in LP is automatically derived as the result of the interaction between two modules — morphology and phonology.<sup>2</sup> In the model (1), however, cyclicity is not considered only as a property of the component but also as a property of the rules, so that two types of phonological rules are assumed with regard to cyclicity.<sup>3</sup> A

phonological rule may be both lexical and postlexical, but not both cyclic and noncyclic. It follows as a logical consequence that the domain of application of cyclic phonological rules should be confined to the cyclic domain. The number of strata in the cyclic domain may be assigned by the principle of domain assignment of cyclic phonological rules in (2)(K-H. Kim 1993: 19).

- (2) Principles of Domain Assignment for cyclic phonological rules
  - a. In the absence of counterevidence, choose the minimum number of strata as the domain of cyclic phonology.
  - b. In the absence of counterevidence, assign only one stratum as a domain of cyclic phonology.

Principles of domain assignment in (2) imply that cyclic phonology consists of just one stratum in unmarked case. Phonological rules in noncyclic phonology are word-level rules, which may apply in postcyclic lexical phonology and also in postlexical phonology in unmarked case. A phonological word may straddle the boundary between the lexical and the postlexical phonology. In other words, there are three possibilities of domain assignment for noncyclic phonological rules.

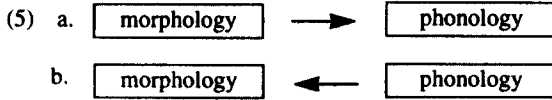
- (3) a. Only to noncyclic lexical phonology
  - b. Only to postlexical phonology
  - c. Both to noncyclic lexical and to postlexical phonology

In the domain assignment for noncyclic phonological rules, however, the nature of the language in question should be taken into consideration. For example, English, a stress-timed language, is greatly sensitive to pause assignment while Korean, a syllable-timed language, is not. Therefore the domain for noncyclic phonological rules can be assigned as in (4).<sup>4</sup>

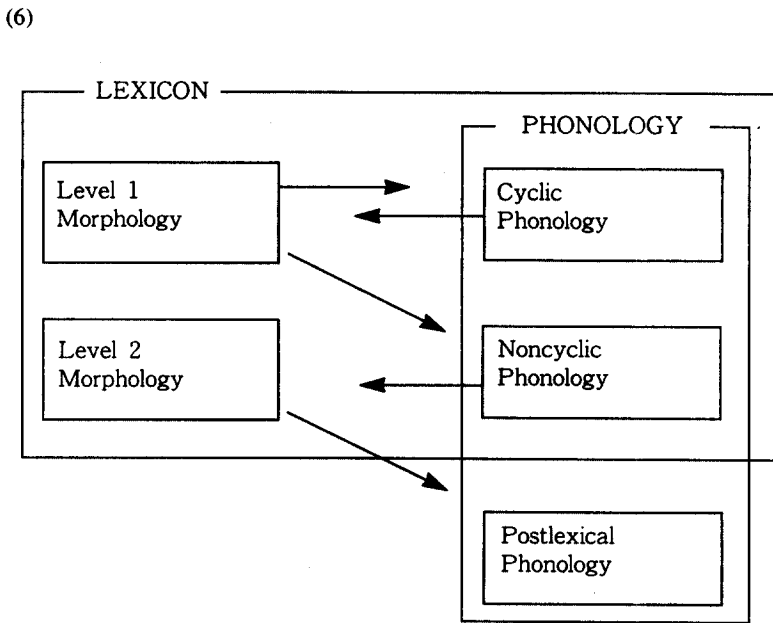
- (4) Principles of Domain Assignment for noncyclic phonological rules.
  - a. In a syllable-timed language, assign either noncyclic lexical phonology or postlexical phonology as the domain of noncyclic phonological rules in the absence of counterexample.
  - b. In a stress-timed language, assign both noncyclic lexical and postlexical phonology as the domain of noncyclic phonological rules in the absence of counterexample.

In the model (1) noncyclic lexical phonology is postcyclic. The model (1) assumes that there is no morphology after noncyclic phonology. However,

'noncyclic' can be defined in the other way as in (5b).



(5b) implies that the output of word level phonology may be the input of another morphology, as in the model (6) proposed by Borowsky (1993).



The model (6) requires Level 2(L2) morphology for word level rules. Borowsky (1993) argues that all word-level affixes also go through the phonology on the word cycle in English before they are joined together by morphological processes. In the model (6), there will be no further lexical phonology after L2 morphology.

In the following sections, I first discuss the phonology-morphology interaction in Lexical Phonology and then proceed to discuss the theoretical

consequences of each model.

## 2. Phonology-Morphology Interaction

Phonological rules on the stem cycle are cyclic: the output of morphological operations may be the input of cyclic phonology. In the model (1) a clear distinction between cyclic and noncyclic phonological rules may be drawn as in (7)(K-H. Kim 1993:17).

### (7) Distinction between Cyclic and Noncyclic Phonological Rules

	Cyclic Rules	Noncyclic Rules
Domain of Application	cyclic phonology: lexical	noncyclic phonology: lexical and postlexical
Ordering of Application	before all noncyclic rule applications	after all cyclic rule applications: postcyclic
Condition of Application	morphologically conditioned	purely phonologically conditioned
Lexical Exceptions	possible	none
Strict Cyclicity Condition (SCC)	should obey SCC	have nothing to do with SCC

Cyclic rules apply only in the derived environments — either to the output of morphological operations or to the phonological structure derived as a result of the application of cyclic phonological rules.. Cyclic rules are sensitive to morphological boundaries. Each time cyclic phonological rules may apply, bracket erasure works as a locality constraint on what phonological rules may access.

The /t/-palatalization rule in Korean works as a supporting evidence for assuming two distinct phonological rules(K-H. Kim 1992, 1993).

- (8)
- |    |   |   |                         |
|----|---|---|-------------------------|
|    | underlying  | surface   |                         |
| a. | (kath) <sub>σ</sub> (i) <sub>σ</sub>                    | (ka) <sub>σ</sub> (chi) <sub>σ</sub>                    | 'together'              |
|    | (mat) <sub>σ</sub> (i) <sub>σ</sub>                     | (ma) <sub>σ</sub> (ci) <sub>σ</sub>                     | 'the first'             |
|    | (path) <sub>σ</sub> (i) <sub>σ</sub> (lan) <sub>σ</sub> | (pa) <sub>σ</sub> (chi) <sub>σ</sub> (lan) <sub>σ</sub> | 'with a field'          |
| b. | (ka) <sub>σ</sub> (chi) <sub>σ</sub>                    | (ka) <sub>σ</sub> (chi) <sub>σ</sub>                    | 'value'                 |
|    | (ma) <sub>σ</sub> (ti) <sub>σ</sub>                     | (ma) <sub>σ</sub> (di) <sub>σ</sub>                     | 'a node'                |
|    | (path) <sub>σ</sub> (i) <sub>σ</sub> (lan) <sub>σ</sub> | (pat) <sub>σ</sub> (i) <sub>σ</sub> (lan) <sub>σ</sub>  | 'the furrow of a field' |

Forms in (8a) undergo /t/-palatalization and resyllabification but forms in (8b) do not. The differences in phonological behavior can be construed as the difference in morphological structure.

(8')	underlying	surface	
a.	[[kat <sup>h</sup> ] <sub>A</sub> i] <sub>Adv</sub>	[kac <sup>h</sup> i] <sub>Adv</sub>	'together'
	[[mat] <sub>N</sub> i] <sub>N</sub>	[maci] <sub>N</sub>	'the first'
	[[pat <sup>h</sup> ] <sub>N</sub> ilan] <sub>N</sub> <sup>5</sup>	[pac <sup>h</sup> ilan] <sub>N</sub>	'even a field'
b.	[kac <sup>h</sup> i] <sub>N</sub>	[kac <sup>h</sup> i] <sub>N</sub>	'value'
	[mati] <sub>N</sub>	[madi] <sub>N</sub>	'a node'
	[[pat <sup>h</sup> ] <sub>N</sub> [ilan] <sub>N</sub> ] <sub>N</sub>	[patilan] <sub>N</sub>	'the furrow of a field'

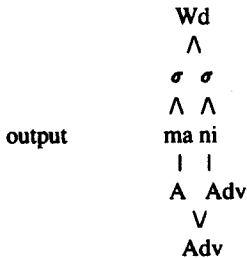
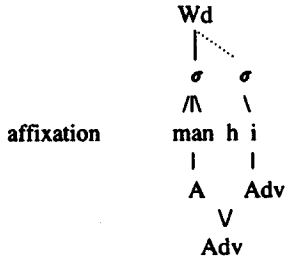
In most cases phonological structure is identical with morphological structure, so that morphological boundaries can be regarded as the phonological bracket for rule application. There are, however, a certain number of cases in which phonological and morphological structures of words are different rather than identical. Then how can phonological rules access the output of morphological operations? Three available approaches may be assumed with regard to phonology-morphology mismatch:

- (9) a. to apply phonological rules directly to morphological structure.  
 b. to rewrite morphological structure into phonological structure by algorithm  
 c. to assume two distinct phonological and morphological structures in the lexicon using the notion of morphological and phonological subcategorization.

Consider the following derivation of an Korean example, 'manh-i' meaning 'many or much', where /h/ is deleted before resyllabification takes place.

(10)	a. underlying	[manh] <sub>A</sub> , [ ___ i] <sub>Adv</sub>
	affixation	[[manh] <sub>A</sub> i] <sub>Adv</sub>
	h-deletion	ϕ
	output	[mani] <sub>Adv</sub>
	b. input	manh
	invisibility <sup>6</sup>	man <h>
	PCF(algorithm) <sup>7</sup>	[man] <sub>p</sub> [i] <sub>p</sub>
	affixation	[[man][i] <sub>p</sub>
	phonological rule	[mani] <sub>p</sub>

c. underlying [manh]A/Wd, [ \_\_\_ i]Adv  
                   ^  
                   [σ(...σ)]Wd



In (10a) /h/-deletion rule applies directly to morphological structure (Kiparsky 1982; Mohanan, 1982). In (10b) word-final /h/, mismatch between phonological and morphological structure, is treated as 'invisibility' and then a morphological structure is encoded into its corresponding phonological structure by algorithm (Inkelas 1993). In (10c) every morpheme is assumed to have two distinct, copresent structures in the lexicon — one motivated by the morphology and the other by the phonology (Booij and Rubach 1984, 1987; Booij and Lieber 1993).

The derivation in (10) shows that assuming two distinct structures gives preferable description of phonology-morphology mismatch. However, to decide which is preferable between (10b) and (10c) is an open question, requiring further study.

### 3. Noncyclic phonology

The purpose of this section is to discuss the necessity of L2 Morphology. Noncyclic phonological rules behave in a totally different manner from cyclic phonological rules as shown in (7). If the adjunction of two morphemes creates a geminate, there is obligatory degemination in the cyclic domain (/in+numerable/ → [inumərəbl]) while there is no obligatory degemination in the postcyclic domain. Word-level forms look like concatenations of morphemes. For example, such words as *unnatural*, *pine needle*, *rat trap*, *bus stop* read at normal speed just like *u[n n]atural*, *pi[nn]eedle*, *ra[tt]rap*, *bu[ss]top*, *not u[n]atural*, *pi[n]eedle*, *ra[t]rap*, *bu[s]top*. On the basis of the observation Borowsky(1993) suggests that word-level morphology should follow noncyclic phonology. The differences between stem level and word level forms are also observed in Korean. <sup>8</sup> Compare word level forms in (12) with stem level forms in (11).

(11)	underlying	surface	
	(cip) <sub>σ</sub> (i) <sub>σ</sub>	(ci) <sub>σ</sub> (bi) <sub>σ</sub>	'house(subj.)'
	(cip <sup>h</sup> ) <sub>σ</sub> (i) <sub>σ</sub>	(ci) <sub>σ</sub> (p <sup>hi</sup> ) <sub>σ</sub>	'straw(subj.)'
	(k'och) <sub>σ</sub> (əɭ) <sub>σ</sub>	(k'o) <sub>σ</sub> (c <sup>h</sup> əɭ) <sub>σ</sub>	'flower(obj.)'
	(pat <sup>h</sup> ) <sub>σ</sub> (i) <sub>σ</sub>	(pa) <sub>σ</sub> (c <sup>hi</sup> ) <sub>σ</sub>	'field(subj.)'
	(t'am) <sub>σ</sub> (i) <sub>σ</sub>	(t'a) <sub>σ</sub> (mi) <sub>σ</sub>	'sweat(subj.)'
	(kip) <sub>σ</sub> (i) <sub>σ</sub>	(ki) <sub>σ</sub> (pi) <sub>σ</sub>	'deep; depth'
	(mək) <sub>σ</sub> (i) <sub>σ</sub>	(mə) <sub>σ</sub> (ki) <sub>σ</sub>	'food'

(12)	a.	(cip) <sub>ω</sub>	(cip) <sub>ω</sub>	'house'
		(cip <sup>h</sup> ) <sub>ω</sub>	(cip) <sub>ω</sub>	'straw'
		(sot <sup>h</sup> ) <sub>ω</sub>	(sot) <sub>ω</sub>	'pot'
		(kis) <sub>ω</sub>	(kit) <sub>ω</sub>	'feather'
		(os) <sub>ω</sub>	(ot) <sub>ω</sub>	'clothing'
		(nac) <sub>ω</sub>	(nat) <sub>ω</sub>	'day'
		(k'och) <sub>ω</sub>	(k'ot) <sub>ω</sub>	'flower'
		(pak') <sub>ω</sub>	(pak) <sub>ω</sub>	'outside'
		(puək <sup>h</sup> ) <sub>ω</sub>	(puək) <sub>ω</sub>	'kitchen'



b.	(cip) <sub>ω</sub> (an) <sub>ω</sub>	(cip) <sub>ω</sub> (an) <sub>ω</sub>	'the inside of a house'
	(cip <sup>h</sup> ) <sub>ω</sub> (sin) <sub>ω</sub>	(cip) <sub>ω</sub> (s <sup>h</sup> in) <sub>ω</sub>	'straw shoes'
	(sot <sup>h</sup> ) <sub>ω</sub> (mul) <sub>ω</sub>	(sot) <sub>ω</sub> (mul) <sub>ω</sub>	'pot water'
	(kis) <sub>ω</sub> (thəl) <sub>ω</sub>	(kit) <sub>ω</sub> (thəl) <sub>ω</sub>	'feather'
	(os) <sub>ω</sub> (kis) <sub>ω</sub>	(ot) <sub>ω</sub> (kit) <sub>ω</sub>	'lapel'
	(k'oc <sup>h</sup> ) <sub>ω</sub> (nip) <sub>ω</sub> <sup>9</sup>	(k'ot) <sub>ω</sub> (nip) <sub>ω</sub>	'petal'
	(puək <sup>h</sup> ) <sub>ω</sub> (nil) <sub>ω</sub>	(puək) <sub>ω</sub> (nil) <sub>ω</sub>	'kitchen work'

Forms in (12) undergo word-final neutralization, but forms in (11) do not. On the other hand, forms in (11) undergo resyllabification but forms in (12) do not. Forms in (11) are stem level forms derived from phonology-morphology interaction. Forms in (12) are word level forms including underived words and compounding. It follows as a logical consequence that the word final neutralization rule is a noncyclic lexical phonological rule.

The differences in phonological behavior between stem and word level forms work as a supporting evidence for the necessity of noncyclic phonology in the lexicon. However, it is not a supporting evidence for the necessity of L2 morphology. The word final neutralization rule in Korean derives the same effect from the compounding words as from the underived words, without regard to noncyclic phonology-morphology ordering.

(13) a. Morphology precedes noncyclic phonology

Underlying	[cip] <sub>N/ω</sub> , [an] <sub>N/ω</sub>	[cip <sup>h</sup> ] <sub>N/ω</sub> , [sin] <sub>N/ω</sub>
Word level morphology	[[cip] <sub>N</sub> [an] <sub>N</sub> ] <sub>N</sub>	[[cip <sup>h</sup> ] <sub>N</sub> [sin] <sub>N</sub> ] <sub>N</sub>
Noncyclic phonology	((cip) <sub>ω</sub> (an) <sub>ω</sub> ) <sub>ω</sub>	((cip) <sub>ω</sub> (sin) <sub>ω</sub> ) <sub>ω</sub>
Output	[(cip) <sub>ω</sub> (an) <sub>ω</sub> ] <sub>N/ω</sub>	[(cip) <sub>ω</sub> (sin) <sub>ω</sub> ] <sub>N/ω</sub>
	'the inside of a house'	'straw shoes'

b. Noncyclic phonology precedes L2 morphology

Underlying	[cip] <sub>N/ω</sub> , [an] <sub>N/ω</sub>	[cip <sup>h</sup> ] <sub>N/ω</sub> , [sin] <sub>N/ω</sub>
Noncyclic phonology	(cip) <sub>ω</sub> , (an) <sub>ω</sub>	(cip) <sub>ω</sub> , (sin) <sub>ω</sub>
L2 morphology	[[cip] <sub>N</sub> [an] <sub>N</sub> ] <sub>N</sub>	[[cip] <sub>N</sub> [sin] <sub>N</sub> ] <sub>N</sub>
Output	[(cip) <sub>ω</sub> (an) <sub>ω</sub> ] <sub>N/ω</sub>	[(cip) <sub>ω</sub> (sin) <sub>ω</sub> ] <sub>N/ω</sub>
	'the inside of a house'	'straw shoes'

The outputs of (13a) and (13b) are identical, which do not present grounds for setting up L2 morphology after noncyclic phonology. There is, however, another noncyclic phonological rule in Korean, which behaves differently from the word final obstruent neutralization rule.

- (14) a. (totuk)<sub>ω</sub>(nom)<sub>ω</sub> → (toduŋnom)<sub>ω</sub> 'a thief'  
 (kuk)<sub>ω</sub>(mul)<sub>ω</sub> → (kuŋmul)<sub>ω</sub> 'soup'  
 b. (totuk)<sub>ω</sub>(macas'ni)<sub>ω</sub> → (toduŋmacænni)  
 'Were you robbed of something?'

The /k/-nasalization rule, which applies to phrases as well as to words (S-G. Kim 1985: 13), is a noncyclic rule but not a word level rule, so that it is assigned to the postlexical domain by the principles of domain assignment for noncyclic phonological rules in (4).

- (15) a. Morphology precedes noncyclic phonology

Underlying	[kuk]N/ω, [mul]N/ω
Word level morphology	[[kuk]N [mul]N]N
Noncyclic phonology	<u>((kuk)<sub>ω</sub> (mul)<sub>ω</sub>)<sub>ω</sub></u>
Postlexical phonology	((kuŋ) <sub>ω</sub> (mul) <sub>ω</sub> ) <sub>ω</sub>
Output	[(kuŋ) <sub>ω</sub> (mul) <sub>ω</sub> ]N/ω

- b. Noncyclic phonology precedes L2 morphology

Underlying	[kuk]N/ω, [mul]N/ω
Noncyclic phonology	<u>(kuk)<sub>ω</sub>, (mul)<sub>ω</sub></u>
L2 morphology	[[kuk]N [mul]N]N
Postlexical phonology	((kuŋ) <sub>ω</sub> (mul) <sub>ω</sub> ) <sub>ω</sub>
Output	[(kuŋ) <sub>ω</sub> (mul) <sub>ω</sub> ]N/ω

In the model (1) the /k/-nasalization rule in Korean may apply in the postlexical phonology by the principles of domain assignment. In the model (6) the rule also apply in the postlexical phonology since it should apply after compounding in the lexicon. As a result, the model (1) and the model (6) give the same prediction for the word level forms. In conclusion I can not

find any special ground for L2 morphology with regard to the analyses of Korean .

### 5. Summary

Until now I have discussed the phonology-morphology interaction in a theory of LP. This theory distinguishes two types of phonology in relation to phonology-morphology interaction: cyclic phonology and noncyclic phonology. It is argued that clear distinction between cyclic and noncyclic phonological rules exists and that the domain of noncyclic phonology, different from that of cyclic phonology, is not confined to the lexicon. The validity of the arguments is examined through the analyses of Korean. The /t/-palatalization rule in Korean is a typical cyclic phonological rule. Word level rules such as the word final obstruent neutralization rule and the /k/-nasalization rule are noncyclic phonological rules. The principles of the domain assignment for noncyclic phonological rules, however, assign each of them to the different domain. The word final obstruent neutralization rule is assigned to noncyclic lexical phonology while the /k/-nasalization rule to postcyclic phonology. The model I proposed in this paper has a theoretical consequence in that it provides grounds to capture the relevant generalization with regard to phonology - morphology interaction by distinguishing two types of phonology.

### NOTES

1. This model is first proposed by Booij and Rubach (1987) and developed by K-H. Kim (1993). Mohanan and Mohanan (1984) and Halle and Mohanan (1985) also propose noncyclic phonology within the lexicon; however, the model (1) is different in that it draws a clear distinction between the types of phonological rules with regard to cyclicity.
2. 'Cyclicity' has been assumed since Chomsky and Halle (1968, SPE) in an effort to account for the manner of the application of phonological rules systematically. The understanding of cyclicity in Lexical Phonology is quite different from that in SPE, where 'cyclicity' is considered an inherent property and has nothing to do with morphological rule system. In LP, however, 'cyclicity' is defined as the result of phonology-morphology interaction: In the cyclic domain every process of word formation will trigger cyclic phonological rules.
3. Mohanan (1986:51) assumes that cyclicity is as a property of the

stratum, not of the rule in Lexical Phonology. Thus a rule may apply cyclically in one domain and noncyclically in another. The definition in this article, however, is different from that of Mohanan. For further discussion on the necessity of the distinction in types of phonological rules see K-H. Kim(1991, 1992, 1993).

4. Supporting evidence for principles of domain assignment for noncyclic phonological rules can be found in the analyses of palatalization in Korean and in English. See K-H. Kim 1993.

5. A "cosa" in Korean has a syntactic function but phonologically belongs to stem level. According to Booij and Lieber (1993: 39) clitics can be considered as "phrasal affixes", that is, as words that are subcategorized. A "cosa" in Korean may also be considered as a clitic, in that it also forms its own syntactic terminals, their dependence seemingly phonological in nature.

6. Invisibility involves the exclusion of some part of the phonological string from the domain of phonological rules. Invisibility is an integrated facet of phonological constituent formation: in particular, 'invisibility effects' results when certain elements of a morphological constituent are excluded from the corresponding phonological constituent.(Inkelas 1993: 84)

7. Inkelas (1993) argues that within the lexicon, phonological rules never apply to morphological strings directly and suggests the following algorithm for encoding the output of morphological constituent into the one accessible to phonological rule.

(9) P-Constituent Formation Algorithm(PCF): (Inkelas 1993: 82)

$$\langle x \rangle_m [x]_{p-1} \rightarrow \langle x \rangle_m [x]_p$$

(11) M-Constituent Formation algorithm(MCF)

$$\langle x \rangle_m \rightarrow \langle x \rangle_{m+1}$$

8. According to Y-S. Kim (1992), the phonological rules applying only to the compounding in Korean are word final neutralization, l-deletion, n-insertion and s-insertion.

9. The surface form of Korean does not have [n] in the word-initial position, so that two possibility can be assumed. One way is to insert [n] in the process of derivation(Y-S. Kim 1992). The other way is to assume underlying /n/. In this article I take up the latter.

## REFERENCES

- Booij, G. E. and R. Lieber (1993) "On the Simultaneity of Morphological and Prosodic Structure," in S. Hargus and E.M. Kaisse eds., *Phonetics and Phonology: studies in*

- Lexical Phonology* vol. 4 23-44, Academic Press, Inc.
- Booij, G. E. and J. Rubach (1984) "Morphological and prosodic domains in Lexical Phonology," *Phonology Yearbook* 1, 1-28.
- Booij, G. E. and J. Rubach (1987) "Postcyclic versus Postlexical Rules in Lexical Phonology," *The Linguistic Inquiry* 18, 1-44.
- Borowsky, T. (1993) "On the Word Level," in S. Hargus and E.M. Kaisse eds., *Phonetics and Phonology: studies in Lexical Phonology* vol. 4 199-234, Academic Press, Inc.
- Chomsky, N. and M. Halle (1968) *The Sound Pattern of English* Harper and Row, New York.
- Halle, M. and K.P. Mohanan (1985) "Segmental Phonology of Modern English," *Linguistic Inquiry* 16, 57-116.
- Hargus, S. (1993) "Phonology-Morphology Interface," in S. Hargus and E.M. Kaisse eds., *Phonetics and Phonology: studies in Lexical Phonology* vol. 4 45-74, Academic Press, Inc.
- Inkelas, S. (1993) "Deriving Cyclicity," in S. Hargus and E.M. Kaisse eds., *Phonetics and Phonology: studies in Lexical Phonology* vol. 4 75-110, Academic Press, Inc.
- Kim, Ki-Hwa (1991) "Study on the Cyclicity of Lexical Phonological Rules," *The Journal of English Language and Literature* 14, 265-285
- Kim, Ki-Hwa (1992) "Lexical Phonology and Palatalization in Korean and in English," *Language Studies* 19, 243-265, Chonbuk National University.
- Kim, Ki-Hwa (1993) *Palatalization in Lexical Phonology* Doctoral dissertation, Chonbuk National University.
- Kim, Soo-Gon (1985) "A Examination of the Theory of Lexical Phonology," *Language Studies* 12, 1-20, Chonbuk National University.
- Kim, Young-Sog and S.-O. Lee (1992) *Generative Morphology* Seoul: Hagyonsa.
- Kiparsky, P. (1985) "Some Consequences of Lexical Phonology," *Phonology Yearbook* 2, 85-138.
- Mohanan, K. P. (1986) *The Theory of Lexical Phonology* Dordrecht: Reidel.
- Mohanan, K. P. and T. Mohanan (1984) "Lexical Phonology of the Consonant system in Malayalam," *Linguistic Inquiry* 15, 575-602.
- Odden (1993) "Interaction between Modules in Lexical Phonology," in S. Hargus and E.M. Kaisse eds., *Phonetics and Phonology : studies in Lexical Phonology* vol. 4 111-144, Academic Press, Inc.
- Szpyra, J. (1989) *The Phonology- Morphology Interface* London: Routledge.

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