

Kansas Working Papers in Linguistics

edited by

John Kyle

**Volume 23, Number 2
1998**

Partial funding for this journal is provided by the
Graduate and Professional Association of the University of Kansas

ISSN 1043-3805

© Linguistic Graduate Student Association
University of Kansas, 1999

Kansas Working Papers in Linguistics
Volume 23, Number 2
1998

Semantic Features as a Cause of Tensification in Korean Hangyoo Khym	1
From Reflexive to Passive Joong-Sun Sohn	13
Representing Meaning in the Headlines of News Reports: A Critical Linguistic Analysis Su Jung Min	33
A Pilot Study of the Achievement of English Pronunciation of Mandarin Speakers: Children vs. Teenagers Yihsiang Kuo	53
Acquisition of the Passive Francine Hill	63
The Effect of Age of Acquisition on Age-appropriate Language Use Amy Rosenberg	71
A Study of the Effect of Age in the Pronunciation of English Vowels by Spanish Speakers Allen Quesada	79

SEMANTIC FEATURES AS A CAUSE OF TENSIFICATION IN KOREAN

Hangyoo Khym
The University of Kansas

Abstract: Nominal compounds of 'N1 + N2'¹ in Korean can be classified into the following three major categories²: co-compound, subcompound, and fusion. Among these three major categories, insertion of /t/ ³ in the compounding process and subsequent tensification are found only in subcompounds. This peculiar phenomenon of /t/ insertion which causes, in turn, tensification in subcompound words has been long controversial because linguists have not been able to expect in which phonological environment of subcompounding insertion of /t/ takes place. In this paper, I explore a phonological rule which makes it possible to expect the phonological environments of subcompounding that allow insertion of /t/ and automatic tensification of the subsequent consonant. In this process, I show that semantic relation(s) between combined roots should be considered at least as one of the important structural descriptions in phonology.

1. Discussion I

When there is a nominal compound of the structure 'N1 + N2' and the coda of N1 is filled with a voiced segment, voicing of the following obstruent of N2 is quite generally expected instead of tensing. Interestingly enough, however, for Korean nominal compound words, tensification of the following obstruent in the onset of N2 is observed as often as voicing. The following are the data I will discuss here. (1) and (2) have examples of co-compound and fusion respectively. These two examples are added for comparison with those examples of subcompound. In (3), ' ' is used for tensed sounds not for ejectives.

(1) Co-compound

a. **maso**

ma # so

horse cow

'horse and cow'

b. **pɔmkail**

pɔm # kail

spring fall

'spring and fall'

c. **açimcəniək**

açim # cəniək

morning evening

'morning and evening'

d. **santil**

san # til

mountain field

'mountain and field'

(2) Fusion

a. **səwəl**

se # wəl

year month

'time'

b. **kaŋsan**

kaŋ # san

river mountain

'country'

(3) Subcompound

a. Instrumentive/Source

① **ssalsul**## ss⁴al # sul ##

rice wine

'ricewine'

③ **caŋcɔrim**

caŋ # cɔrim

soy food boiled down (in soy sauce)

'beef boiled down in soy sauce'

② **kɔŋpap**

kɔŋ # pap

bean (boiled) rice

'bean-mixed rice'

④ **pulkɔki**

pul # kɔki

fire meat

'grilled meat'

b. Agentive/Patientive

① **hætɔci**

hæt # tɔci

sun rising

'sunrise'

② **mulpaci**

mul # paci

water reception

'gutter'

c. Genitive

① **sɔnt'ɨŋ**

sɔn # tɨŋ

hand back

'back of the hand'

② **cɔŋs'ɔri**

cɔŋ # sɔri

bell sound

'sound of a bell'

③ **muls'ɔri**

mul # sɔri

water sound

'sound of (flowing) water'

④ **nunt'ɔŋca**

nun # tɔŋca

eye pupil

'pupil of the eye'

d. Locative (Time)

① **pɔmp'i**

pɔm # pi

spring rain

'spring rain'

② **mulk'ɔki**

mul # kɔki

water fish

'fish'

③ **pamk'əri**

pam # kəri

night street

'night streets'

④ **kaŋs'aram**

kaŋ # saram

river man

'a man living at a river'

⑤ **kaŋp'aram**

kaŋ # param ##
 river wind
 'a breeze from the river'

⑥ **kyəlp'aram**

kyəl # param ##
 winter wind
 'winter wind'

e. Beneficiary⁵① **kəkɪp'æ**

kəkɪ # pæ ##
 fish boat
 'fishing boat'

② **camc'ari**

cam # cari ##
 sleep space
 'bed'

As we see from the data of co-compound and fusion in (1) and (2) respectively, they do not show tensification in surface forms; while the data under (3.c) to (3.e) show tensification in subcompounding.

Comparison of the phonological environments of the data in terms of [\pm tensification] is shown in the following:

(4)	P.E. ⁶	Realization	- Tensification	+ Tensification
	-m # k-	→ -mk- / -mk'-	1.b: pə <u>mk</u> aił	3.d.③: pa <u>mk</u> 'əri
	-m # c-	→ -mc- / -mc'-	1.c: açim <u>c</u> əniək	3.e.②: ca <u>mc</u> 'ari
	-n # t-	→ -nt- / -nt'-	1.d: sa <u>nt</u> il	3.c.①: sə <u>nt</u> 'iŋ
	-ŋ # s-	→ -ŋs- / -ŋs'-	2.b: ka <u>ŋs</u> an	3.c.②: cə <u>ŋs</u> 'əri
	-l # s-	→ -ls- / -ls'-	3.a.1: ss <u>ls</u> ul	3.c.③: mu <u>ls</u> 'əri
	-ŋ # p-	→ -ŋp- / -ŋp'-	3.a.2: kə <u>ŋp</u> ap	3.d.⑤: ka <u>ŋp</u> 'aram
	-l # k-	→ -lk- / -lk'-	3.a.4: pul <u>lk</u> əki	3.d.②: mu <u>lk</u> 'əki
	-l # p-	→ -lp- / -lp'-	3.b.2: mu <u>lp</u> aci	3.d.⑥: kiə <u>lp</u> 'aram

As we see from the description of (4), expectation of tensification is not easy. The same phonological environment causes tensification in some data crossing over the # boundary, but not in others.

Among others, Kim (1975), applying the idea of 'boundary', suggested the following rule to explain this phenomenon.

$$(5) \phi \rightarrow t / [+son] \text{ ______ } C \begin{bmatrix} +cons \\ -tens \end{bmatrix} \quad (C = \text{compound boundary})$$

However, his data were quite limited and we can easily find data that are not explained in his rule. For example, in the following data, tensification does not occur though the environments meet with the condition of (5): (1a) ma # so → maso, *horse and cow*, (1b) pəɔm # kaił →

pɔmkaiɭ, *spring and autumn*, (2b) kaŋ # san → kaŋsan *country*, (3.a.1) ssal # sul → ssalsul *ricewine*, etc.

Jung (1980) tries to explain the same phenomenon by way of following two rules:

(6) a. $C \rightarrow [+tens] /$ $\left[\begin{array}{c} \text{--- C ---} \\ [+son] \\ <[+nas]> \text{---} \\ \text{--- l } \end{array} \right] V^{**} \left[\begin{array}{c} \text{---} \\ N <V^{**}> \\ \text{---} \end{array} \right] \left[\begin{array}{c} \text{---} \\ N <SM> \\ \text{---} \end{array} \right]$

b. $\phi \rightarrow t / \left[\begin{array}{c} V^* \text{---} \\ N \end{array} \right] \left[\begin{array}{c} \text{---} \\ N \end{array} \right] C$

(SM = Sentence Marker, V** = verb, V* = Vowel)

Jung covers broader and more data than those in this paper: it goes beyond nominal compound of N1 + N2 which is the main focus of this paper. Jung explains tensification in subcompound ranging from 3.c to 3.e such as 'sɔnt' iŋ *back of the hand* (3.c.①), *mulk'ɔki fish* (3.d.②), *came'ari bed* (3.e.②), and more data such as *pɔmp'aram⁷ spring wind*, *sulc'ip⁸ a bar*, *tɔnc'uməni a (coin) purse*, etc. (Of course, the new data introduced by Jung can be explained by my theory which will be developed and depicted soon.) However, what about the data from (1) to (3b) which do not show any tensification? Neither is possible by (4) of Jung (1980), nor are the following counter data, which have the same phonological environment as Jung's (1980) data⁹. Consider (7):

(7) Data from Jung	Vs.	Counter Data against Jung
a. pɔmp'aram <i>spring wind</i>		a' kimpinyə <i>a gold(en) hairpin</i>
b. sulc'ip <i>a bar</i>		b' tɔlcip <i>a stone house</i>
c. tɔnc'uməni <i>a (coin) purse</i>		c' pitancuməni <i>a purse made of silk</i>

The existence of data such as those from (1) to (3.b) plus the counter-data shown in (5) is strong evidence of the insufficiency in explanatory power of Jung's set of rules.

Another approach to this topic done by Ahn (1985) is different from Kim and Jung in that Ahn is based on morphological explanation rather than phonological one. Trying to unify two separate rules offered by Jung which are shown above, he suggests a morphological level on which / t /-insertion occurs.

(8) t-epenthesis

$\phi \rightarrow t / \left[\begin{array}{c} [+son] \\ <[+lat]> \end{array} \right] \left[\begin{array}{c} \text{---} \\ N \end{array} \right] \text{---} \left[\begin{array}{c} \text{---} \\ N \end{array} \right] C$
 <D> (domain: S1)

Ahn assumes four levels in the morphological component: S1 for subcompounding, S2 for co-compounding, S3 for derivation, and S4 for inflection and case-marking. He further assumes that /t/ insertion takes place only on the first level, that is, S1.

By limiting the level of /t/ insertion to S1, which is assumed for sub-compounding, Ahn explains tensification in (7.a,b,c) such as **pɔmp**'aram *spring wind*, **sulc**'ip *a bar* and **tɔnc**'uməni *a (coin) purse* as well as the data of co-compounding such as (1.a) maso *horse and cow*' and (1.b) pɔmkaił *spring and fall*, etc. Ahn, however, cannot deal with the counter examples against Jung which are shown as (9) in the following. (9) below is a repeat of part of (7). Consider:

(9) Counter Data against Jung(1980)

a' ## kɪm # pinyə ##	→	kɪmpinyə	<i>a gold(en) hairpin</i>
b' ## tɔl # cɪp ##	→	tɔlcɪp	<i>a stone house</i>
c' ## pitan # cuməni ##	→	pitancuməni	<i>a purse made of silk</i>

The data shown in (9) belong to sub-compound words, so that they are supposed to be subject to Ahn's rule. Again, however, it cannot explain why the data (9) do not show the expected process, nor can we include the data (9.a',b',& c') in the co-compound category.

The discussion so far leads us to conclude that as far as phonological approach is concerned, we cannot explain /t/-insertion and subsequent tensification phenomena which occur irregularly inside compound words because the same environment(s) cause different phonological results.

2. Discussion II

Before we get into the answer to the question, we need to know firstly about Hyman's (1978: 443-447) suggestion concerning 'boundary change'. He suggests two grammatical boundaries within a word: one is '#' which is for internal word boundary and the other is '+' which is for morpheme boundary. Phonological rules are supposed not to be able to apply crossing over the internal word boundary '#' in order to influence a segment belonging to another word. Whereas they can cross the '+' boundary, which means that phonological sound change crossing over a word boundary depicted here as consonant tensification in the onset of the following root, should be preceded by the application of some rule or condition which allows crossing-over or weakening of # boundary. This idea as well as the relative strength of each boundary in morphology is expressed in the following:

(10) Boundary Change (Hyman 1978)¹⁰

| | > ## > # > + > ϕ

Second, it is necessary to assume that semantic features such as Agentive, Patientive, Genitive, Locative (Time), etc., which are used to distinguish among subcompound words, must be included as part of the structural description. With these two conditions in mind, we can expect that the internal structure of the subcompound words which show /t/ insertion and subsequent tensification should be [# _____ + _____ #] after boundary change. Therefore, subcompound words with the internal structure [## N1 # SR* # N2 ##] will experience weakening of internal word boundary '#' to '+' only when SR* (Semantic Relations) is one of those such as Genitive, Locative(Time), and Beneficiary. After weakening of the internal word boundary, /t/-insertion and subsequent tensification will follow. The process of boundary weakening could be described as (11):

(11) Boundary Weakening Condition

$$\# \rightarrow + / \begin{array}{c} C \\ [+son] \end{array} \left. \vphantom{\begin{array}{c} C \\ [+son] \end{array}} \right] N_1 \text{ _____ } \left[\begin{array}{c} SR^* \\ [Gen] \\ [Loc] \\ [Ben] \end{array} \right] \text{ _____ } N_2 \left[\right.$$

(SR* =Semantic Relation)

Concerning the inserted sound, there have been many explanations. However, based on the following data, I will follow the explanation of /t/-insertion which was suggested by Kim-Renaud (1975), Yoo (1964), and Heo (1984) among others. Consider:

- (12) a. / c^ho # pul / → [c^hot[̃]p'ul] ~ [c^hop'ul] <GENITIVE>
 candle light
 'candlelight'
- b. / k^ho # tɪŋ / → [k^hot[̃]t'ɪŋ] ~ [k^ho t'ɪŋ] <GENITIVE>
 nose ridge
 'the ridge of the nose'
- c.(=3.e.ⓐ) / kɔki # pæ / → [kokit[̃]p'æ] ~ [kokip'æ] <BENEFICIARY>
 fish boat
 'fishing boat'
- d. / næ # ka / → [næt[̃]k'a] ~ [næk'a] <LOCATIVE>
 river side
 'riverside'

All the data in (12) belong to subcompounds with semantic relations of Genitive (12a,b), Locative (12d) and Beneficiary (12c). For each of the data of (12) which have N₁ as an open syllable, we have two realizations: one with /t/-insertion and the other without /t/-insertion, but both with tensification. The data in (12) and those from (3.c) to (3.e) show two important similarities: (1) all of them belong to the category of sub-compound words. (2) All of them belong to the semantic categories of Genitive, Locative (Time) and Beneficiary. In addition to

these similarities, the observation that there could be two realizations of each subcompound word in (12), one of which has unreleased [$t^{\text{̰}}$] in the coda of N_1 , leads us to the assumption that probably all the subcompound data which show the same tensification phenomenon may experience /t/ insertion after boundary weakening which is caused by the intervening proper semantic relations. The rule for /t/ insertion should be as follows.

(13) /t/-Insertion Rule

$$\phi \rightarrow t / \text{]}_{N1} + \text{ ______ } + N2\{$$

Based on the two important rules¹¹ we have developed so far and some other rules which have already explored for the explanation of Korean data, let's see how the data in (3.c - e) and (12) could be explained. (14) is a repeat of some data of (3.c-e) and (12) which are showing tensification, while (13) is a repeat of some data without tensification. Consider:

(14) Data with Tensification

a. (=12a)	/ c ^h o # GEN ¹² # pul /	˘candlelight˘
	candle light	
	c ^h o + pul	(11) Boundary Weakening Condition
	c ^h o t pul	(13) /t/ Insertion
	c ^h o t [̰] pul	Obstruent Unreleasing ¹³ (or Neutralization)
	c ^h o t [̰] p'ul	Tensification after Obstruent Unreleasing ^a
	c ^h o t [̰] p'ul	(CCSR ^b)
	[c ^h ot [̰] p'ul] ~ [c ^h op'ul]	Output

^aTensification after obstruent unreleasing is a phonological phenomenon without exception in modern Korean. The process can be depicted as the following rule:

The Rule of Tensification after Obstruent Unreleasing

$$[-\text{son}] \rightarrow [+tense] / \#\# X [-\text{rel.}] \text{ ______ } Y \#\#$$

^bCCSR indicates 'Consonant Cluster Simplification Rule'. In Korean, there is a strong constraint which prevents appearance of three successive consonants on the surface form by disallowing more than two consonants in the coda of a syllable. This constraint can be said a kind of syntagmatic constraint which is imposed on phonotactic structure of the output. The rule is as follows:

$$C \rightarrow \phi / \begin{array}{c} \text{Coda} \\ / \backslash \\ C \text{ ______ } \end{array}$$

In the case of '[c^hot[̰]p'ul] ~ [c^hop'ul]' alternation, CCSR is optionally applied, because the surface form can allow both cases. Either of which cases does not include more than three adjacent consonants.

- b. (=3.c.①) / sɔn # GEN # tɪŋ / *the back of the hand*
hand back
 sɔn + tɪŋ (11) Boundary Weakening Condition
 sɔn t tɪŋ (13) / t /-Insertion
 sɔn t[̚] tɪŋ Obstruent Unreleasing (henceforth OU)
 sɔn t[̚] t'ɪŋ Tensification after OU
 sɔn t'ɪŋ CCSR
 [sɔnt'ɪŋ] Output
- c. (=3.d.①) / pɔm # TIME # pi / *spring rain*
spring rain
 pɔm + pi (11) Boundary Weakening Condition
 pɔm t pi (13) / t /-Insertion
 pɔm t[̚] pi OU
 pɔm t[̚] p' i Tensification after OU
 pɔm p' i CCSR
 [pɔmp' i] Output
- d. (=3.d.②) / mul # LOC. # kɔki / *fish*
water fish
 mul + kɔki (11) Boundary Weakening Condition
 mul t kɔki (13) / t /-Insertion
 mul t[̚] kɔki OU
 mul t[̚] k'ɔki Tensification after OU
 mul k'ɔki CCSR
 [mul k'ɔki] Output
- e. (=3.c.①) / kɔki # Ben. # pæ / *fishing boat*
fish boat
 kɔki + pæ (11) Boundary Weakening Condition
 kɔki t pæ (13) / t /-Insertion
 kɔki t[̚] pæ OU
 kɔki t[̚] p'æ Tensification after OU
 kɔki t[̚] p'æ (CCSR)
 [kɔki t[̚] p'æ] ~ [kɔki p'æ] Output

(15) Data without Tensification

- a. (=7.b'=9b') / tɔl # SOURCE # cip / *a stone house*
stone *house*
 not . (11) Boundary Weakening Condition
 not appl. (13) / t /-Insertion
 not appl. OU
 not appl. Tensification after OU
 not appl. CCSR
 [tɔlcip] Output
- b. (=7.c') / pitan # -SR*^c # cuməni / *a purse made of silk (a silk purse)*
silk *purse*
 not appl. (11) Boundary Weakening Condition
 not appl. (13) / t /-Insertion
 not appl. OU
 not appl. Tensification after OU
 not appl. CCSR
 [pitancuməni] Output
- c. (=3.a.④) / pul # INSTRU. # kəkɪ / *grilled meat*
fire *meat*
 not appl. (11) Boundary Weakening Condition
 not appl. (13) / t /-Insertion
 not appl. OU
 not appl. Tensification after OU
 not appl. CCSR
 [pulkəkɪ] Output

3. Conclusion

As (14) and (15) show, all the data which have been left unexplained by previous approaches done by Kim, Jung, and Ahn among others are correctly explained by the framework we have developed in this paper. This framework proposed is largely based on the two critical rules such as 'Boundary Weakening Condition' which is assumed to be caused by the semantic relations and '/ t /-insertion Rule' which directly follows the condition. In order to maintain the critical condition of 'Boundary Weakening', we have to assume that semantic relations between two nominal roots in a subcompound word should be visible in phonological process, which means they have to be admitted as part of structural description in phonology. Further discussion on the possibility of admitting some specific semantic relations into phonology will be required.

^c By '-SR*' I indicate other possible semantic relations between N₁ and N₂ of a compound other than Genitive, Locative (Time), and Beneficiary.

NOTES

1. Korean has another kind of compound with the structure of $[N + [S_{STEM} + AN(-i)]]_N$. Concerning the production of such kind of compounds as well as related syntactic and semantic constraints, refer to Khym (1997b).

2. Classification of compound words in terms of semantic relation between the two or three nominal roots can be described as follows:

a. Co-compound: $R1 + R2 = R(1+2)$: Each root still maintains its own meaning and R1 is as important as R2.

ex) **maso** *horse and cow* ← **ma** *horse* + **so** *cow*,
santɨl *mountain and field* ← **san** *mountain* + **tɨl** *field*

b. Subcompound: $R1 + R2 = R1 > R2$ or vice versa: One of the two roots will be considered more important than the other.

ex) **ssalsul** *ricewine* ← **ssal** *rice* + **sul** *wine*,
son'tɨŋ *back of hand* ← **son** *hand* + **tɨŋ** *back*

c. Fusion: $R1 + R2 = R3$: Two roots are fused to have a new meaning which is different from or bigger than the compositional meaning of two roots.

ex) **kaŋsan** *country* ← **kaŋ** *river* + **san** *mountain*
sewəl *time* ← **se** *year* + **wəl** *month*

3. Insertion of /t/ for subcompound words, though not all subcompounds, appears as 'ssang siot' in Korean orthography only when the first root of the subcompound word ends with a vowel. The 'ssang siot' in the coda is actually realized as an unreleased [t] in pronunciation because of neutralization. This paper deals with the semantic relation between combined nominal roots and subsequent tensification due to the insertion of the neutralized /t/.

4. /ss/ and /s'/ in Korean are supposed to have the same phonetic value in actual pronunciation, that is, a tense consonant. In this paper, however, I consider the two as different: /ss/ is a tensed consonant or a geminate from the Lexicon, while /s'/ is a tensed consonant derived by the phonological process called "tensification".

5. By 'Beneficiary' I mean the relation 'R2 for doing R1'. For the example of **kɔkip'æ**, *fishing boat*, the prominent relation I have in mind between R1 and R2 is 'a boat for doing fishing'. Some might argue against this intuition. **kɔkip'æ**, *fishing boat*, may mean 'a boat for carrying or delivering fish' as well as doing fishing. This ambiguity might lead readers to think of the semantic relation of 'Instrumentive' shown in 3.a. This possibility, however, can be evaded because the examples of the 'Instrumentive' relation do not indicate the same idea as 3.c. That is, **ssalsul** *rice wine*, and **kaŋpap** *bean-mixed rice* which belong to the class of 'Instrumentive' relation do not mean 'R2 for doing R1' which is for 'Beneficiary'. They indicate 'R2 (partly) made of R1' for **ssalsul** *rice wine*, or 'R2 made of something by means of R1'. A better term for the exact semantic relation of (3e) is requested.

6. P.F. represents phonological environments.

7. The internal structure of **pɔmp'aram** *spring wind* is as follows:

pɔm # param ##
 spring wind
 'wind of spring'

8. The internal structures of **sulc'ip** *a bar* and **tɔnc'uməni** *a (coin) purse* are as follows:

sulc'ip ## sul # cip ## 'wine' 'house' 'a bar'	tɔnc'uməni ## tɔn # cuməni ## 'money' 'purse' 'a (coin) purse'
--	--

9. According to the semantic relations between the combined nominal roots, we can decide on to which category the following data could belong. All the first three examples include tensification which is expectable by our theory; while the second three examples in the right column do not.

- | | | | |
|----|-------------|-----------------------------|---------------------------------------|
| ① | pɔmp'aram | <i>spring wind</i> | ---> (3.d.: Subcompound: Time) |
| ② | sulc'ip | <i>a bar</i> | ---> (3.e.: Subcompound: Beneficiary) |
| ③ | tɔnc'uməni | <i>a (coin) purs</i> | ---> (3.e.: Subcompound: Beneficiary) |
| ①' | kimpinyə | <i>a gold(en) hairpin</i> | --> (3.a.: Subcompound: Source) |
| ②' | tɔlcip | <i>a stone house</i> | --> (3.a.: Subcompound: Source) |
| ③' | pitancuməni | <i>a purse made of silk</i> | --> (3.a.: Subcompound: Source) |

10. Concerning the internal structure of compound, Allen (1978:15), based on the observation of compositional meaning of compound words, suggests the following two kinds of compound : i) strict compound with the structure ' ____ + ____ ' and ii) loose compound with ' ____ ## ____ '. This observation is generalized as 'Strong Boundary Condition'.

a) Strong Boundary Condition

In the morphological structure 'X Bs. Y', no semantic amalgamation process could include either X and Y.

Here 'Bs.' indicates the strong word boundary '##', and 'semantic amalgamation process' indicates every semantic composition process which can not be generalized as well as every phonological rule. This is quite a strong condition and Hyman (1978) suggests a 'Boundary Weakening Condition' as an escape hatch.

11. Actually they are one condition and one rule such as 'Boundary Weakening Condition' in (11) and '/ t /-Insertion Rule' in (13).

12. The semantic relations should be deleted just after they cause boundary weakening, so that they cannot block further phonological processes.

13. In modern Korean, only seven sounds can appear in the coda of a syllable which are [p̚, t̚, k̚, l, m, n, ŋ]. Here ‘>’ indicates ‘Unreleasing’. Obstruent Unreleasing is quite a common phenomenon in Korean. Every obstruent which appears in the coda of a syllable will be unreleased. The rule for obstruent unreleasing will be as follows:

$$[-\text{son}] \rightarrow [-\text{release}] / \quad \begin{array}{c} \text{Coda} \\ \text{---|---} \end{array}$$

REFERENCES

- Ahn, S.-C. 1985. *The Interplay of Phonology and Morphology in Korean*. Univ. of Illinois at Urbana Champaign, Ph.D. dissertation, Hanshin Publishing Co. Seoul, Korea.
- Allen, M. 1978. *Morphological Investigations*. Univ. Of Connecticut, Ph.D. dissertation.
- Hco, W. 1984. *Korean Phonology*. Cheongum Publishing Co. Seoul, Korea.
- Hyman, L. M. 1975. *An Introduction to Natural Generative Phonology*. Academic Press, New York.
- Jung, K. 1980. *Neutralization in Korean: A Functional View*. Univ. of Texas, Ph.D. dissertation, Hanshin Publishing Co. Seoul, Korea.
- Khym, H. 1997b. Constraints on Noun Incorporation in Korean. *Kansas Working Papers in Linguistics* 22:41-55.
- Kim-Renaud, Y. 1975. *Korean Consonantal Phonology*. Tower Press, Seoul.
- Kim, S. 1990. On the Theories of Rule-Ordering in Korean. *Study of Linguistics*, Vol. 5. Seoul National Univ. Press. Seoul, Korea.
- Kim, Y. 1975. *Korean Consonantal Phonology*. Ph.D. dissertation, Univ. of Hawaii.
- Kenstowicz, M. 1994. *Phonology in Generative Grammar*. Blackwell Publishers, Cambridge, Mass.
- Shi, J. 1993. *Word Formation Principles in Korean*. Korea Univ. Ph.D. dissertation, Seoul, Korea.
- Yoo, C. 1964. “A Study of / t /-Insertion in Korean.” *Tongpanghak-jee*. Vol. 7:19-37, Yonsei Univ. Press, Seoul, Korea.