복합명사의 어원에 대하여

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Compounds in Korean

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A. Root Compounds

The initial lax obstruent of the second element in a noun + noun compound undergoes a rule of tensification. The two nouns in this nominal compound meet an additional condition that they have the structural relation modifier (Mod) + head (H), i.e., it must be a subcompound, since a head + head relation forming a cocompound does not trigger tensification. Stated in this way, this looks like a simple rule, but there are many apparent exceptions and complex related issues, and despite the fact that a great deal has been written on this phenomenon, it needs a more systematic and principled accounting, beyond a list of exceptions or a superficial treatment of them. I will attempt here to give just such an account on the basis of the proposed multi-face model. I begin with a brief review of one traditional account and several recent studies.

H-S. Lee (1950:159 85), observing the tensing phenomenon in nominal compounds, postulated that an s is inserted between the two nouns (this is the so-called epenthetic-s), which then tensifies the initial obstruent of the second noun. In Lee (1950), this s inserted no matter what segment the first noun, whether an obstruent, a sonorant consonant, or a vowel. As the following examples show, this epenthetic-s is phonetically reazlized in different forms

1) a. Tensing after an obstruent
/cip pel/ [cip p'ê̂l] `house bee'
b. Tensing after a sonsonant consonant
/pom palam/ [pom p'aram] `spring wind'
c. Tensing after a vowel
/ko ki pap/ [ko gi p'ap] `a bowl of rice'

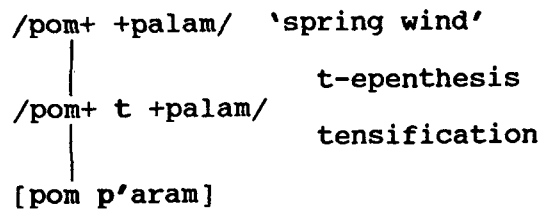
Note that in the examples in (1a), the final obstruent of the first noun provides a sufficient phonological condition for tensification (Post-obstruent Tensing), yet H-S . Lee(1950) assumed that tensification is motivated by compounding. The first generative account was attempted by C-W . Kim (1970). He postulated t rather than s as the epenthetic conscnant in compounds, and proposed four rules of epenthesis depending on the nature of the segments across the compound boundary. Among the four obligatory insertion rules triggered by the compound boundary, it is the t-epenthesis rule which interacts with tensification rule. His assumption of tensification within a compound is that the lexical items constructing a compound should carry a compound boundary with them and that it is this compound boundary that triggers the t-epenthesis rule to apply, causing tensification of the following segment via Post-obstruent tensing, This rule is given as follows in KIM(1970):

(2) t-epenthesis

$$\phi \text{ --> } t \;/\; + \_\_\_\_\_ + \; C$$

Some examples are given below.

(3)



Kim-Renaud (1974) also proposed a pair of rules for compound tensification. The first is, as in C-W. Kim (1970), t-epenthesis where t is inserted before a compound boundary. Kim-Renaud's analysis is dintinguished from C-W. Kim's analysis in that she made an elaborate classification of different boundaries such as compound boundary (C), Chinese loan-word boundary (!), verb stem boundary (&), and modifier boundary (=). Her rule is as follows.

(4) t-epenthesis

$$\phi \;\text{->}\; t \;/\; [+son] \_\_\_\_\_ \; C \begin{bmatrix} +cons \\ -tense \end{bmatrix}$$

(C:compound boundary)

(e.g. pom palam [pom p'aram] 'spring wind')

Again, the inserted t triggers Post-obstruent tensing. When this t is later dropped through Cluster simplification (to be discussed in detail later in this section), the initial obstruent of the second word of the compound is opaquely tensified. I said "opaquely" because the normal phonological environment for tensing is not visible, as the final segment of the first noun is not an obstruent.

K. Chung (1980) attempted to give a functional classification to apparent exceptions to tensification. Chung (1980) firstly showed the compounding structures in which tensification cannot occur: (i) two different 'words' connected by any kind of a conjunctor, and (ii) adjective or derminer + noun construction. Tensing is in general permitted in other constructions. However, not all compounds with thess structures permit tensification. In order to specify the exact environments for tensification, Chung adopted a functional approach. This is to say that tensification is dependent on the kind of function that each noun plays within the compound. He classified compounds into the following six functional categories (Chung 1980:39-41).

(5) a. The first element of a compound denotes 'time'.
/pom pi/ [pom p'i] 'spring rain' (rain in spring)
cf. /sil pi/ [sil bi] 'misty rain' (*rain in mist)
b. The first element of a compound denotes 'place'.
/san tal/ [san t'al] 'mountain moon' (the moon over a mountain)
cf. /pan tal/ [pan dal] 'half moon'
c. The first element of a compound denotes the 'origin' of the second one.
/c^ho pul/ [c^ho p'ul] 'a candle light' (light from a candle)
cf. /hûyn pic^h/ [hûyn bic^h/ 'a white light' (*light from white)
d. The first element of a compound denotes 'use for'.
/cam cali/ [cam c'ari] 'a sleeping place' (a place used for sleeping)
cf. /ce cali/ [ce jari] 'the original place' (*a place used for origin)
e. The second element of a compound is a monosyllabic Sino-Korean word.
/il sim/ [il s'im] 'the first trial'
cf. /ceil simli/ [ceil simli] 'the first trial'
f. The first element is the proper name of the second.
/hûyma cip/ [hûyma c'ip] 'hope house' (the house called "Hope")

S-C. Ahn (1985) also established t-epenthesis rule which was only for compounds whose first noun ends with a sonorant segment. Insertion of t was grammtically motivated by morpheme brackets like '$]_N$' or '$_N[$'. In Ahn, t-epenthesis does not apply when the first noun ends in an obstruent. In his model of the lexicon this rule works only within the first stratum of subcompounding. In Ahn (1985:58-64) t-epenthesis rule is represented as follows:

(6) t-epenthesis

$$\phi \rightarrow t \;/\; [+son]\ ]_N \_\_\_\_\ {}_N[\ C$$

(domain: stratum 1)

The rule in (6) shows how the initial obstruent of the second noun in compounds is tensified. In the following is a sample derivation of a compound /pom palam/ in Ahn (1985).

(7) /pom palam/ 'spring wind'

[[pom]$_N$ $_N$[palam]]

[[pom]$_N$ t $_N$[palam]] t-epenthesis

[pom t p'alam] POT

[pom p'alam] Stray Erasure Principle

[pom p'aram]

J-M. Kim (1986) basically agreed with C-W. Kim's analysis that the epenthetic-s (=sa-i si-os) is not present underlyingly, but that it is inserted between two words of a compound. Below is her rule of epenthetic-s (J-M. Kim 1976:178).

(8) epenthetic-s in compounding

$$\phi \text{ --> } C \;/\; [[X]_N \_\_\_\_ [Y]_N]_N$$

Rule (8) does not apply to any compound, but only to compounds with the Modifier-Head relationship. In the following are three types of Modifier-Head relationship that Kim posits.[2]

(i) The second word is for the purpose of the first word.

$[[ton]_N\ [cikap]_N]_N$ [ton c'igap] 'a money purse' (a purse for the purpose of carrying money)

(ii) The composite meaning of the first and second words indicates a kind of the second word.

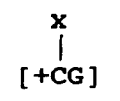
$[[pata]_N\ [koki]_N]_N$ [pada k'ogi] 'sea fish' (a kind of fish)

(iii) The second word is a part of the first word.

$[[non]_N\ [patak]_N]_N$ [non p'adak] 'a rice paddy floor' (floor is a part of rice paddy)

In order to treat tensification, H-S. Sohn (1987) postulated two morphological structures for Korean words: endocentric and exocentric. The former includes two morphological constructions of inflection and derivation whose structure is '[[X] Y]'. In this structure X is a stem, and Y represents a set of suffixes. The latter includes compounds, both subcompounds and cocompounds, whose structure is represented as '[[X] [Y]]'. In this structure both X and Y are nouns. Sohn limits tensification to subcompounds which have a head as in an endocentric structure. In order to assign a structure to compounds she postulates an abstract Denominal Adjevtive Morpheme. This morpheme does not have any phonetic form, and is represented as 'ϕ'. She argues that this null morpheme is functionally the same as the epenthetic-s and proposed that it be autosegmentally represented as an x-slot in the core tier linked to a feature [+CG] (=[+Constricted Glottis]) in the segmental tier.

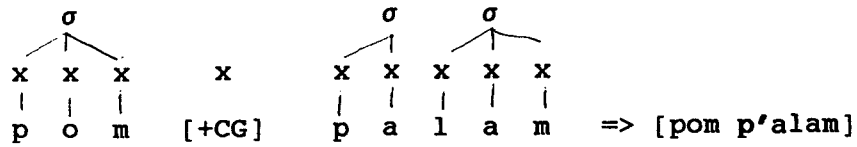
(9) Denominal Adjective Morpheme



The way that this morpheme is responsible for tensification in

compounds is illustrated below:

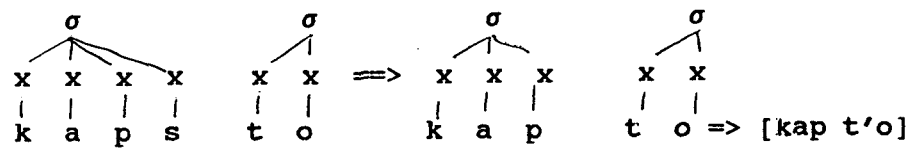
(10) /pom palam/ 'spring wind'



In (10) [+CG] spreads to the following obstruent making it a consonant with a constricted glottis, i.e., a tense consonant. The x-slot, to which [+CG] was linked before its spreading to the following obstruent, still remains. This slot, however, cannot be syllabified into any adjoining syllable because the canonical syllable structure in Korean does not permit more than one onset and one coda. The unsyllabified x-slot is then deleted by Stray Erasure Principle.[3]

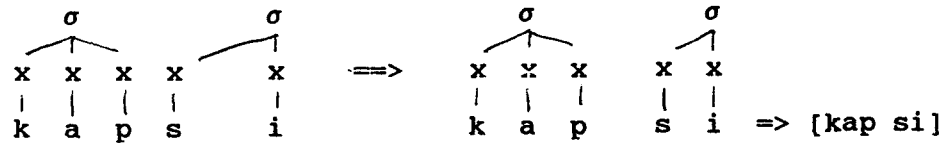
The following example illustrates this principle at work.

(11) [[kaps]$_N$ [to]$_{Suff}$]$_N$
price also



The word /kaps/ ends with a consonant cluster, and when the following morpheme begins with a consonant, syllabification rule fails to syllabify the middle consonant of a three-consonant sequence (i.e., the second of the cluster). It is this stranded segment that is deleted by Stray Erasure Principle. Note, however, that the same consonant becomes the onset of the following syllable when it begins with a vowel, and it survives as the following derivation shows.

(12). [[kaps]$_N$ [i]$_{Suff}$]$_N$
price Nom.



However, in a compound, in which the first word ends with a vowel, the picture is a bit more complicated. First, the feature [+CG] spread to the right, making the receiving segment a tense consonant. As [+CG] spreads, it is delinked from the x-slot, and this x is syllabified to join the preceding syllable as the coda. Now, this completely unspecified segment x is phoneticlly realized as t in Sohn's inventory of underspecified segments in Korean.[4]

Finally, this t optionally assimilates to the following consonant in the place of articulation, i.e., the place features of the following segment spread to the delinked x. The path of derivation of the compound /pata koki/ 'sea fish' is as follows. Tiered representations of the derivation are given in the following page.

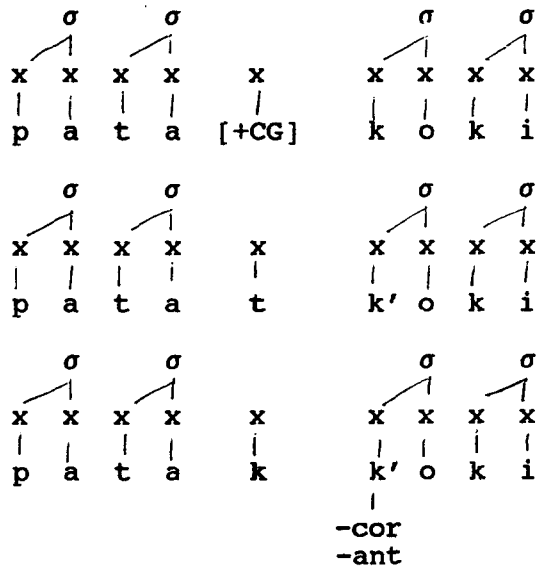
(13) /pata [+CG] koki/ UR

pada k'ogi spreading of [+CG]

pada t k'ogi segmentalization of x

pada k k'ogi place assimilation

(14) [[pata]$_N$ [koki]$_N$]$_N$ 'sea fish'



==> [padak k'ogi]

B. Voicing in Compounds

Up to now we have reviewed several past studies on tensification in compounds. The common thread in them is that the initial obstruent of the second noun is tensified because of the morphologically inserted segment (s or t).

However, the rules such as t-epenthesis and Post-obstruent tensing cannot account for the examples in (15) below in which the initial obstruent of the second noun is not tensified even though the morphological structure of the examples allows the t-epenthesis rule to apply. Instead, the initial obstruent of the second noun becomes voiced. In the case of s, it remains as unvoiced s, because there is no [z] in Korean. The crucial point is that it doesn't become a tense [s'].

(15) [[namu]$_N$ [pæ]$_N$]$_N$ [namu bæ] 'a boat made of wood'
wood boat
[[tol]$_N$ [tali]$_N$]$_N$ [tol dari] 'a stone bridge'
stone bridge

It's not that tensification cannot occur here. It may. But when it does, the compound comes to have a different meaning, as shown in (16).

(16)
[[namu]$_N$ [pæ]$_N$]$_N$ [namu p'æ] 'a boat carrying wood'
wood boat
[[tol]$_N$ [tali]$_N$]$_N$ [tol t'ari] 'stepping stones'
stone bridge

In order account for the apparent counterexamples to tensification exemplified in (15), H-S. Sohn (1987) classified three environments where the denominal adjective morpheme cannot be inserted. First, when the first word is an original (root, nonderived) adjective the morpheme cannot be inserted to derive an adjective (in 17a). Second, when a subcompound consists of a verb and a noun, and the verb becomes an adnominal form by inflection, the initial obstruent of the second word in the compound is not tensified (17b). Third, in a cocompound in which two words are connected with 'and', tensification does not occur (17c).

(17) a. [[pan]$_A$ [tal]$_N$]$_N$ *[pan t'al] [pan dal]
half moon 'half moon'
b. [[kal]$_V$ ûn]$_V$ [koki]$_N$]$_N$ [kan gogi]
grind Mod meat 'ground meat'
c. [[pom]$_N$ [kaûl]$_N$]$_N$ [pom gaûl]
spring fall 'sprind and fall'

However, the examples in (15) are not categorizable in terms of any classes in (17). For example, in /tol tali/ 'a stone bridge', /tol/ 'stone' is neither a root adjective nor a verb with an adnominal suffix. Nor is the construction a cocompound, but a subcompound word in which /tali/ is its head.

S-C. Ahn (1985:83-85) argued that in /tol tali/ the first word /tol/ can be regarded as an adjective which is derived by <u>zero derivation</u> a la Kiparsky (1983:2-10). In order to account for the derivational relation in such words as <u>récórd$_V$</u> - <u>récord$_N$</u>, <u>permít$_V$</u> - <u>pérmit$_N$</u>, and <u>conflíct$_V$</u> -<u>cónflict$_N$</u> in which there is no overt affix to indicate the word-formation process involved, Kiparsky (1983) assumed that either the noun or the verb in these pairs is basic and that the other is derived by <u>zero derivation</u> or <u>conversion</u>. According to Ahn (1985)'s analysis the first words are underlyingly nouns, and they are converted into adjectives or determiners by zero derivation. Below are some examples with equivalent English examples both in meaning and derivational structure.

(18) [[pan]$_N$ ϕ]$_D$ = [[half]$_N$ ϕ]$_A$
[[on]$_N$ ϕ]$_D$ = [[full]$_N$ ϕ]$_A$

If we apply the same process to /tol tali/ 'a stone bridge' in

(15b), [[tol]$_N$ [tali]$_N$] will be [[[tol]$_N$ ϕ]$_D$ [tali]$_N$]. However, this analysis in terms of categorial change is not appropriate to account for the examples in (15), because in these examples the zero-derived adjectives in Korean can be modified by another adjective although those of English cannot. After undergoing zero-derivation, a derived adjective cannot be modified by another adjective again, unless one has an access to the derivational history of the derived adjective in Korean.

(19) [[[nulên]$_A$ kûm]$_A$ [can]]
yellow gold cup

*[[[yellow]$_A$ gold]$_A$ [cup]]

The following examples shows that the initial noun in the compounds can be modified by another adjective.

(20) [[[tantanha-n]$_A$ [namu]]$_N$ [bæ]N] 'a boat made of hard wood'
hard wood boat wood

[[[kêm-ûn]$_A$ [tol]]$_N$ [tali]$_N$] 'a black-stone bridge'
black stone bridge bridge

Chung (1980:45) noted the difference between (15) and (16) and attempted to account for it in terms of six anticonditions to tensification.[5] An anticondition specific to the examples in (15) is given below.

(21) The first word describes the material or shape of the second word.

A similar argument has been advanced by K-H. Lee (1984:146). He postulaltes a condition of [t-epenthesis] in order to account for the examples in (15). The condition is as follows:

(22) condition 1 for t-epenthesis

t-epenthesis is not applicable if the constituent preceding the epenthetic consonant has the semantic feature specification [+material]

Thus, in /namu pæ/ 'a wooden boad', since the first word /namu/ 'wood' is the material of which /pæ/ 'boat' is made, t-epenthesis rule does not apply and /p/ is not tensed.

However, the analysis by Chung and K-H. Lee is ad hoc in the sense that a morphologically conditioned phenomenon cannot be goverend by semantic reasons. If one follows their analysis, it means that one may stipulate as many separate conditions as the number of exceptions one finds.

(1) Compound as a Syntactic Phrase

J-M. Kim (1986:211-213) argued that the examples in (5.15) are simply exceptions to epenthetic-s. She invoked these exceptions to argue that the epenthetic-s rule belongs to the lexical domain instead of the post-lexical domain because only the lexical domain permits exceptions. According J-M. Kim (1986) compounds in (15) and (16) have morphologically the same Modifier-Head relationship.

The epenthesis rule applies to compounds in (16) but not to those in (15); the latter are simply marked as lexical exceptions. The second criterion for distinguishing between lexical rules and post-lexical rules is that the former permits lexical exceptions whereas the latter does not.[6]

However, if we prove that the examples in (15) are syntactic phrases, (15) will no longer be exceptions. (23) and (24) show how a compound and a phrase are distinguished from each other.

(23) Compound Word

the White House 'Americal president's residence'

a.*He saw the White House, but he did not see the Blue one yet.
b.*I like the really White House.
c.*What is White?
*How is the House?
d.*The White House which is movable

In Williams and Di Sciullo (1987:49-54) a compound which is dominated only by X^0 such as N, V, A, and P, is a word, while a compound which is dominated by X' such as NP, VP, AP, and PP is a phrase.[7] In (23a) words are "referential islands" although phrases are not. It means that "reference" is assigned only to phrases, not to the internal words of a compound. Thus, we find no compound of the form /White one/, with /one/ refering to a certain house. Second, the parts of a compound cannot be modified separately. In (23b) the adverb /really/ cannot modify /White/ alone. Third, no word in a compound can be replaced by a WH-question word. In (23c) /House/ cannot be asked separately by /what/. And, /White/ cannot be asked by /how/, either. Fourth, in /White House/, the second word cannot be modified by a relative clause. In (23d) /the White House which is movable/ with /House/ as the antecedent of /which/ generates an ungrammatical clause.

If we change the compound /the White House/ into a syntactic phrase /a white house/ 'a house which is white', the ungrammatical clauses in (23) will become grammatical as follows:

(24) Syntactic Phrase

a white house 'a house which is white'

a. He saw a white house, but he did not see a blue one yet.
b. I like the really white house.
c. What is white?
How is the house?
d. The white house which is movable (where house is the antecedent)

The distinction between a compound and a phrase shown in (23) and (24) can apply to the examples in (15) and (16). /tol tali/ in (16b) shows the same behavior as the compound /White House/ in

(23). For example,

(25) Compound Word

[[tol]$_N$ [tali]$_N$]$_N$ [tol t'ari] 'stepping stones'

*tol tali-ka yêki-e iss-ta. kû tali-ka
stone bridge-Nom here-Loc is-SE that bridge-Nom
acu kil-ta.
very long-SE

'Here are stepping stones; that step is very long.'

In the above examples, neither part in the compound is referential to anything. Thus, in (25) /kû/ of /kû tali/ does not refer to any stone. Nor can any of the words in a compound be modified separately.

If the compound /tol tali/ in (25) is replaced by /tol tali/ 'a stone bridge' in (15b) the clauses in (25) will become grammatical just as the clauses in (23) become grammatical as in (24) when we substitute /a white house/ for /the White House/.

(26) Syntactic Phrase

[[tol]$_N$ [tali]$_N$]$_{NP}$ [tol dari] 'a stone bridge'

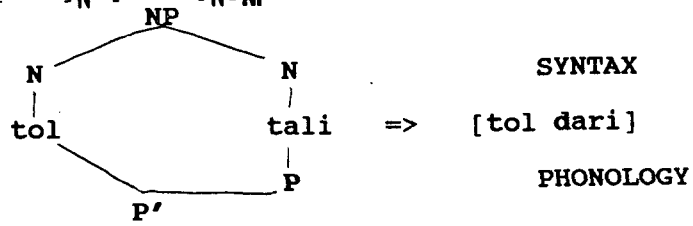
tol tali-ka yêka-e iss-ta. kû tali-ka acu
kil-ta.

'a stone bridge is here. that bridge is very long.'

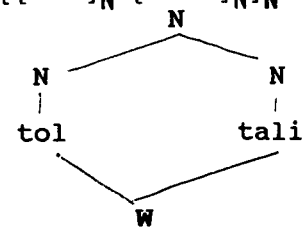
(2) Syntactically conditioned Voicing in Compounds

The examples in (25) and (26) have shown that a construction like /tol tali/ 'a stone bridge' is a syntactic phrase, not a compound. In Korean tensification always occurs within a Phonological word (W) whose domain is decided only by the word-internal morphological structures. The morphological structures of words are assigned on the morphology plane. However, the examples in (15) cannot be included in this domain because they are syntactic phrases whose structures are assigned on the syntax plane. Instead, they are included in a phonological phrase where voicing occurs, but not tensing. Thus, /tol tali/ [toldari] 'a stone bridge' and /tol tali/ [tolt'ari] 'stepping stones' should be represented differently as follows.

(27) a. [[tol]$_N$ [tali]$_N$]$_{NP}$ 'a stone bridge'



b. $[[tol]_N\ [tali]_N]_N$ 'stepping stones'



MORPHOLOGY

=> [tol t'ari]

PHONOLOGY

(3) Extended Examples of Compounds as Syntactic Phrases

In (27) I have shown that a compound which is proved to have a phrasal structure rather than a word is susceptible to voicing. In this part I will show another kind of compounds in which the initial obstruent of the second noun is voiced. Examine the following.

(28)

a. $[[kæ]_N\ [pap]_N]$ [kæ bap] 'dog food'
*[kæ p'ap]

b. $[[pæ]_N\ [pat^h]_N]$ [pæ bat] 'a pear orchard'
*[pæ p'at]

In K. Chung (1980:37) the compounds in (28) are excluded from the category of compounds allowing tensification because the first noun of the compound specifies the species name of the second noun, which is one of his six negative conditions disallowing tensification. Likewise, K-H. Lee (1984:142-147) accounts for compounds in (26) on the basis of a condition stipulated to block t-epenthesis from applying. If the constituent preceding the compounding boundary has the feature specification [+animate], the initial obstruent of the second noun is not tensified. He also accounts for compounds in (28b) by assigning [-t epenth] specifically on the word /pat^h/ 'field'. In this analysis tensification is conditioned by the feature [±t epenth]. In J-R. Oh (1988:176-182) only the compounds in (28a) are explained. The [+animate] feature of the first noun in compounds conditions tensification. In these compounds tensification is blocked because the first noun is an animal with the [+animate] feature.

However, the analyses by K. Chung (1980), K-H. Lee (1984), and J-R. Oh (1988), which are similar to each other, are very ad hoc becuase they stipulate a specific condition only for the examples in (28). If, however, the examples in (28) are analyzed as phrases, the ad hoc condition in the analyses above need not to be stipulated because they can be accounted for in the same way as was illustrated in (27).

In order to prove that compounds in (28) have a phrasal structure, two arguments will be presented. First, we construct a coordinate structure with two compounds having the same second noun. The repeated second noun in both compounds appears once at the end of the coordinate structure by deleting the second noun of the compound at the initial position. The constructed coordinate

structures are classified into two groups on the basis of the source of the compounds. In the first group exemplified in (29a) below the compounds are from those in (1) in which the initial obstruent of the second noun is tensified. In the second group exemplified in (29b) the compounds are from those in (15) in which the initial obstruent of the second noun is voiced.

(29)

a. /non patak/ + /kil patak/
   /non kil patak/ 'the paddy and the road floor'
   paddy road floor *'paddy-road floor'

b. /yuli cip/ + /pyêktol cip/
   /yuli pyêktol cip/ 'a house built with a brick
   glass block house made from the glass'
   *'a glass and brick house

The coordinate structure constructed with compounds in (29a) is semantically different from the one with compounds in (29b). In the latter the coordinate structure loses the meaning of the conjunctor, and the first noun and the second noun are semantically merged into one noun. For example, in /yuli pyêktol cip/ which is a "blend" of two compounds /yuli cip/ 'a house built with glass' and /pyêktol cip/ 'a house built with bricks', the composite meaning is not 'a house built with glass and with bricks', but rather 'a house built with glass-bricks', as the two nouns form a compound noun /yuli pyêktol/ 'a brick made of glass'. It is this compound noun that now modifies /cip/ 'house'. However, in /kil non patak/, which is also a blend of two compounds /kil patak/ 'the floor of a road' and /non patak/ 'the floor of a paddy', the first and the second noun do not form a compound /kil non/, but they still keep the meaning of -wa/kwa 'and'.

If a coordinate structure constructed with compounds in (28) shows the same behavior as those in (29b), then the compounds in (28) would be said to have a phrasal structure. On the other hand, if the same coordinate structure shows the same one as those in (29a), then the compounds in (28) would be said to have a word structure. For example, in /sakwa kamca pat^{h}/, /sakwa/ 'apple' specifies a kind of /kamca/ 'potato' to form a compound /sakwa kamca/ 'an apple-potato', which indicates a kind of potato. The construction is not a concatenation of two independent nouns giving the meaning of 'an apple and a potato'. Therefore, compounds in (28) are noun phrases (NP's) because the coordinate structures constructed with compounds in (28) show the same semantic result as in (29b).

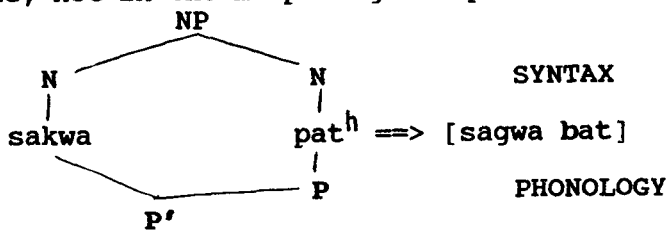
As the second criterion to prove the examples in (28) to be phrases, one can observe the behavior of an adjective like /sæ/ 'new' in the putative compounds. Recall that an adjective cannot modify just a part of a compound, but that it can modify a part of a phrase. In (30) below the adjective /sæ/ 'new' can modify either a part of a compound or the whole compound.

(30) [[sakwa]$_{N}$ [path]$_{N}$]$_{NP}$ 'an apple field'
[[sæ sakwa] pat^{h}] 'a field of new applse'

[sæ [sakwa pat^{h}]] 'new apple-field'

Because compounds in (28) are syntactic phrases rather than words, they should have their syntactic structure represented in the syntactic plane, not in the morphological plane. For example,

(31)



B. Relation between Tensification and Bound and Free Nouns

(1) Definition of Bound and Free Forms

In the compounds, e.g., /hæ toti/, /mul pati/, and /son capi/ contain deverbal nouns whose verbal stems assign a thematic role to their preceding nouns. Thus, the deverbal suffix -i and -(û)m should move to another node in the Logical Form of the grammar. However, compounds, e.g., /ton pêli/, /mul kipi/, and /som pup^{h}i/ contain deverbal nouns which are lexicalized and do not assign any thematic role. Thus, the deverbal suffix in the former should not move to any node in the Logical Form of the grammar. The deverbal nouns cannot appear in a phrase or a sentence, while those in the latter can. According to Bloomfield's definition (1933:160), a linguistic form which is never spoken alone is a bound form; all others (as, /John ran/, or /run/, or /running/) are free forms. In Nida (1978:11) the lexical items which never occur in isolation, that is, are not regularly uttered alone in normal discourse, are bound forms. Bound forms include affixes and some roots. The free forms are lexical items which are uttered in isolation, e.g., /boy/, /girl/, /man/, and always consist of a root. In Scalise (1986:81) lexical items are also divided in to free forms and bound forms. Free forms are defined as those that can appear on the surface as they are without the application of additional morphological rules, and bound forms are defined as those that can never occur in isolation. Bound forms do not undergo lexical insertion. For example, In German a compound contains a form which does not coincide with any inflected forms. /Lachkrampf/ [lax-krampf] 'laughing spasms' contains lach which is not equal to any of the inflectiona forms such as /lachen/ [lax-en] 'to laugh', (ich) /lache/ [lax-e] '(I) laugh', (er) /lacht/ [lax-t] '(he) laughs', (er) /lachte/ [lax-te] '(he) laughed', /gelacht/ [ge-lax-te] 'laughed'. Thus, /lach/ within /Lachkrampf/ cannot be inserted to any position in a phrase or a sentence by lexical insertion. The deverbal nouns included in (5.62) such as toti, pati, capi, colim, kacim, and totum do not undergo lexical insertion, either. The examples in (5.62) shows that these deverbal nouns generate ungrammatical phrases or sentences when they are inserted in a phrase or a sentence. However, the deverbal nouns in (5.63) such

as pêli, kili, têwi, pup^{h}i, kêl.ûm, cam, kûm, and kê.lûm undergo lexical insertion and generate grammatical sentences. Therefore, we can conclude that the deverbal nouns in the former belong to bound forms, and those in the latter belong to free forms.

(2) Tensification in Free Forms

In this part I will show that the initial obstruent of the second word is tensified only when the second word belong to free forms. As shown in (32) Korean compounds can be classified into four categories based on to which form the words in a compound belong. First, both parts of a compound are free forms. Second, the first word is a bound form, but the second word is a free form. Third, the first word is a free form, and the second word is a bound form. Fourth, both words are bound forms. This is shown in a tabular form below.

(32)

a.	$Word_1$	+	$Word_2$	=	Free Form	+ Free Form
b.	$Word_1$	+	$Word_2$	=	Bound Form	+ Free Form
c.	$Word_1$	+	$Word_2$	=	Free Form	+ Bound Form
d.	$Word_1$	+	$Word_2$	=	Bound Form	+ Bound Form

Compounds may also be divided into four subcategories based on whether an element in the compound is an original noun or a deverbal noun. They are: (1) noun + noun, (2) noun + deverbal $noun_1$,[8] (3) deverbal $noun_1$ + noun, and (4) deverbal $noun_1$ + deverbal $noun_1$. The examples of each category are given below.

(33)

a. $Word^1$ + $Word_2$ = noun + noun

[[pata]$_N$	[koki]$_N$]	[pata k'ogi]	'a sea fish'
sea	fish		
[[son]$_N$	[tû]$_N$]	[son t'û]	'the back of a hand'
hand	back		
[[c^{h}o]$_N$	[pul]$_N$]	[c^{h}o p'ul]	'candle-light'
candle	light		
[[ton]$_N$	[cikap]$_N$]	[ton c'igap]	'money purse'
money	purse		

b. $Word_1$ + $Word_2$ = noun + deverbal $noun_1$

[[ton]$_N$	[pêl-i]$_N$]	[ton p'êri]	'money making'
money	earning		
[[mul]$_N$	[kup-i]$_N$]	[mul k'ubi]	'a bend in a river stream'
water	bend		
[[k^{h}o]$_N$	[kil-i]$_N$]	[mom k'iri]	'an elephant'
nose	length		
[[yêlûm]$_N$	[têw-i]$_N$	[yêrùm t'êwi]	'summer heat'
summer	heat		

c. $Word_1$ + $Word_2$ = devebal $noun_1$ + noun

[[nol-i]$_N$ [pæ]$_N$] [nori p'æ] 'a pleasure boat'
pleasure boat
[[kûli-m]$_N$ [pus]$_N$] [kûrim p'ut] 'a paint brush'
picture brush
[[ca-m]$_N$ [cali]$_N$] [cam c'ari] 'a sleeping place'
sleep place
[[cul-ûm]$_N$ [sal]$_N$] [curûm s'al] 'winkles'
winkle
[[nol-ûm]$_N$ [pic^h]$_N$] [norûm p'it] 'a gambling debt'
gambling debt
[[ul-ûm]$_N$ [soli]$_N$] [urûm s'ori] 'crying sound'
crying sound

d. $Word_1$ + $Word_2$ = deverbal $noun_1$ + deverbal $noun_1$

[[kûs-m]$_N$ [kil-i]$_N$] [kûm k'iri] 'length of theline'
line length
[[k'u-m]$_N$ [t'æ-m]$_N$] [k'um t'æm] 'offsetting the bad
dream offsetting dream'
[[tûli-m]$_N$ [se-m]$_N$] [tûrim s'em] 'payment by in-
hanging counting stallment'
[[êl-ûm]$_N$ [ci-m]$_N$] [êrûm c'im] 'a load of ice'
ice load

Second, in (34) compouds with the morphological structure of (32b) are listed. The first word is bound form, and the second word is free form. The structures of these compound words are noun + noun and deverbal $noun_2$ + noun. In the former the first noun is dependent noun; and, in the latter the deverbal $noun_2$ indicates the deverbal nouns which cannot occur in isolation.

(34)

a. $Word_1$ + $Word_2$ = noun + noun

[[um]$_N$ [cip]$_N$] [um c'ip] 'a dugout mud hut'
dugout hut
[[c^{h}am]$_N$ [pap]$_N$] [c^{h}am p'ap] 'food for the break'
break food

b. $Word_1$ + $Word_2$ = deverbal $noun_2$ + noun

[[kal-i]$_N$ [kikyê]$_N$ [kari k'igyê] 'a plowing machine'
plowing machine
[[pipi-m]$_N$ [pap]$_N$] [pibim p'ap] 'a rice hash'
hash rice
[[kuki-m]$_N$ [sal]$_N$] [kugim s'al] 'wrinkles'
wrinkling path

[[kêsûl-ûm]$_N$ [ton]$_N$] [kêsûrûm t'on] 'change'
change money
[[titi-m]$_N$ [tol]$_N$] [tidim t'ol] 'a step-stone'
step stone
[[totu-m]$_N$ [tæ]$_N$] [todum t'æ] 'an elevating stand'

raising stand
[[kalli-m]$_N$ [kil$_N$] [kallim k'il] 'a branch road'
branching road
[[mulli-m]$_N$ [sö]$_N$] [mullim s'ö] 'a clamp'
getting bitten iron

Third, the examples in (35) are compounds whose morphological structure is same as (32c). They can be subcategorized into two clasess based on whether the first word is orignal noun or deverbal noun: noun + deverbal noun$_2$ and deverbal noun$_1$ + deverbal noun$_2$.

(35)

a. Word$_1$ + Word$_2$ = noun + deverbal noun$_2$

[[hæ]$_N$ [tot-i]$_N$] [hæ doji] 'sun rise'
sun rising
[[mul]$_N$ [pat-i]$_N$] [mul baji] 'water collector'
water collector
[[son]$_N$ [cap-i]$_N$] [son jabi] 'a handle'
hand holding
[[non]$_N$ [kal-i]$_N$] [non gari] 'rice-field plowing'
rice-field plowing
[[sal] [put^h-i]$_N$] [sal buc^{h}i] 'a relative'
flesh sticking
[[kü]$_N$ [sal-i]$_N$]$_N$ [kü sari] 'alive at the corner of a checkerboard'
corner of being alive
checkerboard
[[ca]$_N$ [coli-m]$_N$] [ca jorim] 'soy hard-boiling'
soy hard-boiling
[[maûm]$_N$ [kaci-m]$_N$] [maûm gajim] 'one's mental attitude'
mind possessing
[[nun]$_N$ [kali-m]$_N$] [nun garim] 'deceiving'
eye covering
[[pal]$_N$ [totu-m]$_N$] [pal dodum] 'standing on the tiptoe'
foot raising
[[him]$_N$ [kyêlû-m]$_N$ [him gyêrum] 'a contest of strength'
strength contest

b. Word$_1$ + Word$_2$ = deverbal noun$_1$ + deverbal noun$_2$

[[kêl-ûm]$_N$ [kêl-i]$_N$] [kêrûm gêri] 'one's manner of walking'
step walking
[[salli-m]$_N$ [sal-i]$_N$] [sallim sari] 'a household'
household loving
[[kûli-m]$_N$ [kêl-i]$_N$] [kûrim gêri] 'a picture-hanger'
picture hanger

[[cim]$_N$ [pat-i]$_N$] [cim baji] 'a pannier'
load container

Fourth, in (36) both words in compounds word are bound forms. The structures of this compound words will be noun + deverbal noun$_2$

and deverbal $noun_2$ + deverbal $noun_2$. In the former the noun is bound form.

(36) $Word_1$ + $Word_2$ = noun + deverval $noun_2$

[[um]$_N$ [tot-i]$_N$]	[um toji]	'a bud'
bud rising		
[[um]$_N$ [sal-i]$_N$]	[um sari]	'life in the mud hut'
mud hut living		
[[c'ok]$_N$ [mo-i]$_N$]	[c'ok moi]	'collection of pieces'
piece collection		
[[so]$_N$ [pak-i]$_N$]	[so bagi]	'stuffed-cucumber' pickles'
stuffing inserting		
[[ko]$_N$ [tal-i]$_N$]	[ko dari]	'an attached finger loop'
loop attaching		
[[c^{h}æ]$_N$ [pat-i]$_N$]	[c^{h}æ baji]	'beef shoulder'
switch receiving		

From the examples in (33), (34), (35), and (36) we see that the initial obstruent of the second nouns is tensified when they are free form no matter what the first noun belong to. The initial obstruent in the second nouns of (35) and (36) where the second nouns are bound forms is not tensified, instead it becomes voiced. Therefore, in compounds the initial obstruent of the second noun is tensified only when the noun is free form. (37) shows the condition of tensification of the initial obstruent in the second noun within compounds.

(37) **Free Form Condition of Tensification**

> In compounds a initial obstruent of a second noun is tensified iff the second noun belongs to free form when tensification is not motivated phonologically.

The condition above can accout for compounds in which the second noun is /kuk/ 'soup' and its initial k is tensified even though other studies dealt with them as exceptions. For example, in K-H. Lee (1984:146) the extra rule [X [kuk]$_N$]$_N$ -> [-condition 1 for t-epenthesis (a)] is assigned to /kuk/ in order to account for tensification of the initial k in /kuk/. In this rule t-epenthesis (a) is one of six negative conditions, which prevent t-epenthesis from being applied when the constituent preceding the compounding boundary has the semantic feature specification [+material]. However, the condition in (37) can account for tensification in compounds including /kuk/ without stipulating any special rule. Because the noun which belongs to the free form is tensified according to (37), the initial obstruent of /kuk/ will be tensified if this noun is free form. As shown in (38) /kuk/ belongs to the free form because it can appear independently in the sentence. In (38a) /kuk/ functions as the subject; and, in (38b) /kuk/ does as the direct object of the verb /cohaha/ 'like'.

(38) a. **kuk-i** acu masiss-êyo.
soup-Nom very delicious-SE
'the soup is very delicious'

b. sênsæ nim-k'esê kuk-ûl cohaha-si-êyo.
teacher-Nom soup-Acc like-honor-SE
'the teacher likes the soup'

Becuase /kuk/ belongs to the free form, a compound which is constructed with this noun shows tensification at the initial position of the second noun.

(39) [[k^ho]$_N$ [kuk]$_N$] [k^ho k'uk] 'bean soup'
*[k^ho guk]
[[koki]$_N$ [kuk]$_N$] [kogi k'uk] 'meat soup'
*[kogi guk]
[[kimc^hi]$_N$ [kuk]$_N$] [kimc^hi k'uk] 'pickle soup'
*[kimc^hi guk]

(3) Bound Adjuncts and Tensification

This condition is applied only to compounds which are constructed with nouns. If one of the words in compounds is a prefix or a suffix the initial obstruent of the second word is not tensified even though it belongs to free form. In Korean, there are compounds in which are constructed with a word and an affix (prefix or suffix). According to H-B. Choi (1937:657-685) the affixes are bound forms because it is defined as a grammatical element which cannot occur in isolation. The affixes should be attached to words. Especially, when a prefix and a word form a compound the initial obstruent of the word is not tensified even though the second word fullfills the condition in (37). The examples in (40) shows that the initial obstruent of the word in compounds is voiced when it is preceded by a prefix.

(40) [[kæ]$_{BA}$ [salku]$_N$] [kæ salgu] 'a wild apricot'
wild apricot
[[kun]$_{BA}$ [pul]$_N$] [kun bul] 'a fire lit for the the sole purpose of heating floor'
extra fire
[[k'o]$_{BA}$ [polipap]$_N$] [k'o boribap] 'only boiled barley'
only barley-rice
[[nal]$_{BA}$ [talkyal]$_N$] [nal dalkyal] 'a raw egg'
raw egg
[[tol]$_{BA}$ [pæ]$_N$] [tol bæ] 'a wild pear'
wild pear
[[mæn]$_{BA}$ [cumêk]$_N$] [mæn jumêk] 'an bare fist'
bare fist
[[me]$_{BA}$ [co]$_N$] [me jo] 'non-glutinous millet'
not sticky millet
[[min]$_{BA}$ [tækali]$_N$] [min dægari] 'a bald head'
bald head
[[pan]$_{BA}$ [tal]$_N$] [pan dal] 'a half moon'
half moon
[[æ]$_{BA}$ [pêl]$_N$] [æ bêl] 'a rough job'
first job
[[êl]$_{BA}$ [kan]$_N$] [êl gan] 'salting lightly'
rough salting

In H-S. Sohn (1987:260) the left elements were regarded as adjective stems. In order to apply tensification compounds should have subcompounding structure in which both words are nouns. The Denominal adjective derivation of the first noun provides tensification with the phonological environment by inserting the Denominal adjective morpheme between nouns. However, the first words in (5.87) are lexically adjectives, and hence the denominal adjective derivation is not allowed to be applied. Therefore, the initial obstruent of the second words is voiced. In my view the left elements should be prefixes, not adjectives grammatically because they do not occur in isolation. In Korean prefixes are bound forms which cannot occur in isolation, but the adjectives can occur independently.

(41)

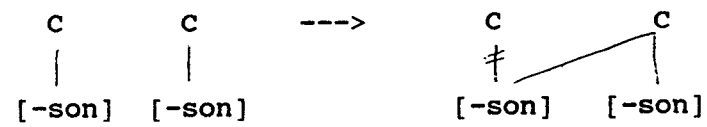
a.	na-nûn **kip'ûta.**	'I am happy'
	I-Top happy	
	*na-nûn **nal.**	
b.	hanûl-i **p^{h}ulûta.**	'sky is blue'
	sky-Nom blue	
	*hanûl-i **pan.**	
c.	nals'i-ka **têpta.**	'weather is hot'
	weather-Nom hot	
	*nals'i-ka **on.**	
d.	san-i **nop^{h}ta.**	'mountain is high'
	mountain-Nom high	
	*san-i **ol.**	
e.	kû cip-i **cohta.**	'that house is good'
	that house-Nom good	
	*kû cip-i **han.**	

NOTES

1. In C-W. Kim(1970) "#" represents a word boundary; "+", a compound boundary; and "-", a morpheme boundary. For example,

salam-i 'person-Subj.' c^{h}æk-ûl 'book-Obj.'
pom++palam 'spring wind' pata++koki 'sea fish'
c^{h}æk#ilkta 'read a book' pap#mêkta 'eat the rice'

2.In J-M. Kim (1986:138), Post-obstruent tensing is represented as follows:



3. This principle is originally due to Steriade (1982:82) who postulated the following in order to deal with an unsyllabified segment.

Stray Erasure Principle
Erase segments and skeleton slots unless attached to higher levels of structure.

Y-S. Kim (1984:18-25) applied this principle to Consonant Cluster Reduction in Korean.

4. The following chart is H-S. Sohn's (1987:210) classification of Korean consonants in the format of underspecification theory. It shows that t is the least specified (=completely unspecified) segment in Korean.

	p	p'	p^h	t	t'	t^h	s	s'	c	c'	c^h	k	k'	k^h	m	n	ng	l	r	h
continuant							+	+												+
anterior									-	-	-	-	-	-			-			
coronal	-	-	-									-	-	-	-		-			
sonorant																		+	+	
nasal															+	+	+			
lateral																		+		
spread gl.			+			+					+			+						+
constrict gl.	+				+			+		+			+							

5. Six anticonditions to tensification postulated in Chung(1980:37-39) are:

a. Two words are parallel, i.e., one does not modify the other.

/pom kaûl/	[pom gaûl]	'spring and fall'
/non pat/	[non bat]	'paddy fields and dry fields'
/p^hal tali/	[p^hal dari]	'arms and legs'

b. The first word describes the material or shape of the second word.

/namu pæ/	[namu bæ]	'a boat made of wood'
/s'al pap/	[s'al bap]	'rice meal'
/pan tal/	[pan dal]	'half moon'
/sil palam/	[sil baram]	'a wisp of breeze'

c. The first word has an appositive relation to the second word and specifies the species name or status.

/hwa sæ/	[hwa sæ]	'a strok'
/pa ul pæm/	[pa ul bæm]	'a rattlesnake'
/êmi talk/	[êmi dak]	'a hen'
/sæk'i tyæci/	[sæk'i dyæji]	'a child pig'

d. The second word denotes the part of the first word which should be animate.

/kæ tali/ [kæ dari] 'dog's leg'
/so kacuk/ [so gajuk] 'cow's skin'

e. The second noun is a 'derived noun'.

/son capi/ [son jabi] 'a handle'
/hæ toti/ [hæ toji] 'sun-rise'

f. The second word is a polysyllabic Sino-Korean word.

/kipon pa c^him/ [kibon ba c^him] 'basic policy'

6. The criteria to distinguish between lexical rules and post-lexical rules are illustrated in Mohanan (1982:73-75) as follows. The portion relevant to our discussion is given in bold face.

Lexical rules	Post-lexical rules
a. their applications have to be word internal	their applications are blind to word-internal structure
b. cannot apply across words	can apply across words
c. all their applications are cyclic	all their applications are not cyclic
d. disjunctively ordered with relation to other lexical rules	conjunctively ordered with relation to lexical rules
e. structure-preserving	structure-changing
f. precede all post-lexical rules	follow all lexical rules
g. can have lexical exceptions	their operations are exceptionless.

7.Di Sciullo and Williams (1987:52) defined the word with the following condition.

--words are opaque to all sentence-level descriptions.

8. The subscript numbers in deverbal nouns indicate to which category they belong.

deverbal $noun_1$ --> free form
deverbal $noun_2$ --> bound form