On the behavior of [l] as a [+consonantal] segment in Koreann

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I. Introduction

The segment /l/ in Korean is generally considered to be a [+consonantal] segment in the Korean literature (Kim-Renaud 1974, C. Kim 1973). Recent work, however, attempts to treat it as a [-consonantal] segment by showing some behaviors in the same way that vowels do with respect to /ɨ/-deletion, allomorphy distribution, and consonant cluster (Kim 1992). Departing from Kim (1992), I argue that /l/ should be treated as a [+consonantal] segment by broadly examining the behaviors of /l/ in the phenomena of epenthesis and palatalization.

To illustrate, I examine the phenomena above in terms of general properties of coronals found across languages, and thereby testify to the status of /l/ as a coronal in Korean. This will in turn support my basic argument that /l/ should be treated as a [+consonant] segment in Korean. This paper is organized as follows. In Section 2, I will critically review the arguments of Kim (1992). Here, I will show that her arguments are not tenable by presenting some pieces of evidence against them. Section 3 is reserved for a brief illustration of coronal syndrome with reference to Kenstowicz (1994). In Section 4, I examine behaviors of /l/ in Korean, and it is shown that it carries most properties of coronals. Based on the facts illustrated in Section 4, I reach the conclusion in Section 5 that /l/ in Korean should be treated as a [+consonantal] segment.

2. Critical Review of Kim (1992)

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In this section, I will briefly review Kim's major arguments for /l/ as a [-consonantal] which characterize /l/ as a vowel-like segment. To illustrate, Kim examines the behaviors of /l/ in /i/-deletion, allomorphy-distribution, and consonant cluster simplification. The first two phenomena are overviewed here.

2.1. i-Deletion

First of all, Kim (1992) argues that both a vowel and /l/ systematically trigger /i/- deletion. According to her, /i/ drops when it is contiguous either to a vowel or to /l/ in derived environments as follows:

(1)   [i] - deletion contiguous to a vowel (Kim 1992:305)

    a. [iV] sequence

      /camki - ʌ/   →   [camkʌ]

       lock   -adverbial   [i]-deletion

      /moi - ʌsʌ/   →   [moasʌ]

       see - sequential   Vowel harmony & [v]-deletion

    b. [Vi] sequence

      /ka - il/   →   [kal]

       go modifier   [i]-deletion

    b. /ka - ini/   →   [kani]

       go   sequential   [i]-deletion

The fact that /i/ gets deleted when contiguous to a vowel leads Kim to make a prediction that /i/-deletion is determined by a purely phonological environment. The examination of more data, however, reveals that this phonological condition does not always bring about /i/-deletion. Let us look at the analysis of the apparent counterexamples to Kim's argument.

(2) a. cco - vmjcn [ccoɨmjən]   *[ccomjən] 'to peck at'
     b. s'ɨ - ita   [s'ɨita]   * [s'ita]   'to be written'

The examples in (2), contrary to Kim's claim, obviously show that /ɨ/ does not get deleted whenever contiguous to a vowel.

(3) /ɨ/-deletion contiguous to /l/
     a. /malɨ - li/   →   [malli]
        dry   causative [ɨ]-deletion
     b. /kal - ɨni/   →·   [kalni]   →   [kani]
        grind sequential [ɨ]-deletion   [l]-deletion before /n/

Like Kim's argument, if /ɨ/ get deleted in a purely phonological environment by the adjacency of /l/, it can be assumed that the following two rules are supposed to apply: 1) /ɨ/ -->Ø / ___ /l/, or 2) /ɨ/ -->Ø / /l/ ___. Therefore, it can said that /ɨ/-deletion can be triggered by the surrounding /l/. However, look at the following.

(4) A. /ɨ/ -->Ø / ___ /l/
     a. calɨ - li --> calli   cf) calɨ - lə --> calɨlc 'to cut'
        cut causative   purpose
     b. pulɨ - li --> pulli   cf) pulɨ - lə --> pulɨlc 'to call'
     c. nulɨ - li --> nulli   cf) nulɨ - lə --> nulɨlc 'to press'
     d. c'ilɨ - li --> c'illi cf) c'ilɨ - lə --> c'ilɨlc 'to pierce'

     B. /ɨ/ -->Ø / /l/ ___
     a. kal - ɨni --> kani   'to grind'
     cf) mul - ɨməjn --> mulɨmcjn   'if (he) bite'
         tɨl - ɨməjn --> tɨlɨməjn   'if (he) holds up'

The examples in (4) demonstrate that /i/-deletion always does not take place when adjacent to /l/. If /i/ gets deleted with the adjacency of /l/, we can face the difficulty of why *l* in *causative li* provides an environment for deletion and *l* in *purpose lə* not. That is, considering Korean has a rich morphology of verbal suffixes, and the morphology and phonology process are interwoven, this is not a simple matter which will be determined by just a vowel or /l/. Some Korean verbal suffixes have two allomorphic forms whose appearance is conditioned by phonological environments. In certain morphemes, the initial consonant gets deleted after a vowel (ex. *mək-so* 'eats' vs. *ca-o* 'sleeps'), while in certain other morphemes, the consonant gets deleted after a consonant (ex. *ke:-lil* 'dog(accusative)' vs. *cip-il* 'house(accusative)).

In addition to this, it is necessary to take only morphological conditions into consideration when the verbal suffixes in (2) and (4) are attached to stems. That is, without the influence of phonological condition, a combination of stems and suffixes is determined by morphological condition of verbal suffixes by themselves (Sohn 1994). Thus it can be said that /i/-deletion before or after /l/ is morphologically, not phono- logically determined as shown in (4).

2.2. Allomorphy Distribution

Next, we are going to look at verbs with a final /l/. On Kim's account, unlike consonant final verbs, these verbs with a final /l/ patterns with vowel-final verbs with regard to allomorphic distribution as in (4).

    (5) A.   With formal affix [sip - ip] (Kim 1992:307)

        a. *after a consonant*
          /mʌk-sipnita/   [mʌks'imnida] (with tensing) 'to eat'
        b. *after a vowel*
          /po-ipnita/   [pomnida]   'to see'

c. *after /l/*

/kal-ipnita/ → kalpnita → [kamnida]   'to grind'
         [l]deletion due to syllabification

B.   <u>With processive affix [nin ~ in] (Kim 1992:307)</u>
a. after a consonant
   /cap - ninta/   [camninda]   'to catch'
b. after a vowel
   /ka - inta/   [kanda]   'to go'
c. after [l]
   /kal - inta/ → kalna → [kanda]   'to grind'
              [l] deletion due to syllabification

Without a very detailed explanation, Kim claims through this superficial observation that /l/ patterns with vowels in allomorphophy distribution. As seen in b and c (5A), as a first step, (b) and (c) take the different allomorphs from the consonant in (a) and then /i/ is shown to be deleted after a vowel or /l/. But there is no reason why /i/ has to be deleted after a vowel in b (5A) and why /i/ deletion is ordered before /l/ deletion in c (5A). Even though we accept this fact that /i/ deletion should take place prior to /l/ deletion, this does not constitute a piece of substantial evidence that /l/ patterns together with vowels. The same is true of (5B).
   Let us look at the following examples.

(6)   a.   /tul - ipnita /   [tulimnita]   'to lift'
      b.   /cəl - ipnita /   [cəlimnita]   'to limp'

If /i/ deletion is predicted in accordance with (5c), (6a) and (6b) provide us with the counterexamples to Kim's claim. Thus, incorrect forms such as *[tumnita] and *[cəmnita] would be produced.

3. Coronal Syndrome

In this section, the notion of coronality which will be summarized is quite significant in that our study is mainly concerned with the status of /l/ in Korean as a coronal consonant. Among many other characteristics of coronal consonants which are well-documented by Kenstowicz (1994:516, Paradis and Prunet 1991), I will briefly review some of them which are quite relevant to our following discussion.

First, the coronal is the most commonly chosen epenthetic consonant across languages. Thus, if a language has processes such as epenthesis and deletion, coronal consonants would be an optimal candidate. French epenthesis of /t/ in liaison is a good example.

(7) a. va + il → va*t*il 'is he going'
     b. glouglou + er → glouglou*t*er 'to make such noise'
                                    (Kenstowicz 1994:516)

Examining Korean noun compounds, Kang (1997) clearly shows that Korean is also one of the languages which chooses a coronal as an epenthetic consonant. The following are Korean examples where the empty C-slot is filled with a default consonant [t] (Kang, 1997:208).

(8) a. u o s   ---> u *t* o t   ' an overcoat'
        | | | | | | |
        v c v c   v c v c

    b. u ə l u n   ---> u *t* ə r u n   'one's senior'
        | | | | | | | | | | |
        v c v c v c   v c v c v c

Second, coronals more freely combine with each other as well as other consonants, eluding phonotactic constraints that are enforced on other consonants such as labials and velars. For example, in English morpheme-final clusters which consist of stop

and fricative, one of its elements must be coronal (Kenstowicz 1994:517).

(9) a.   ask, axe ; asp, asps
    b. * afk, *akk

With regard to the phonotactic constraints, Yip (1991: 63) also observes that English mono-morphemic words never include more than one noncoronal consonant.

Third, coronals are more susceptible to Place assimilation. With respect to Korean assimilation, recent studies in Korean phonology have convincingly argued that alveolar sounds easily assimilate their place features to those of labial or velar sounds but not vice versa (Cho 1988, Iverson & Kim 1987, Sohn 1987).

(10) Korean (Iverson & Kim 1987: 185-6)

    a. alveolar →   labial
       /nunmul/   [nunmul] ~   [nummul]   'tears'
       /sinpal/   [ʃinbal] ~   [ʃimbal]   'shoes'

    b. alveolar →   velar
       /pisko/   [pit=k'o] ~ [pik=k'o]   'to come and'
       /sonkalak/ [sonk'arak=] ~ [soŋka'arak=] 'finger'

    c. labial   →   velar
       /papkaps/ [pap=k'ap=] ~ [pak=k'ap=]   'board'
       /kamki/   [kamgi]   ~   [kaŋgi]   'flu'

    d. *labial → alveolar, * velar → alveolar, * velar →labial
       /papto/   [pap=t'o]   *[pap=t'o]   'rice also'
       /kanto/   [kaŋdo]   *[kando]   'robber'
       /kukmul/   [kuŋmul]   *[kummul]   'soup'

Furthermore, these studies explain why coronals are more prone to Place assimilation by using underspecification and feature geometry which we are going to use in the present study.

4. The Status of /l/ as a Coronal

4.1. /l/-Epenthesis

In Section 3, we have seen that coronals are susceptible to epenthetic phenomena. Coronals in Korean likewise show this fact. Bindung *s*, which is treated as a coronal, has drawn a lot of attention from researchers in that it appears, without few exceptions, between two morphemes in compounds (Cook 1987, Kang 1989, and Kang 1997). We can find relevant examples as in *pismul* 'rain water' (from *pi* 'rain' and *mul* 'water') and *chosp'ul* 'candle light' (from *cho* 'candle' and *pul* 'light'). Along with the development of new phonological theories such as Unerspecification, recent studies show that Bindung-*s* is underlyingly associated with the empty C-slot which surfaces as /t/ by default (Kim 1970:17, Kang 1989:101, Kang 1997:209).[1]

In addition to well-recognized /t/-epenthesis, interestingly enough, /n,l/ are often inserted, exemplified as follows:

(11) /n/-epenthesis (Sohn 1994: 488)
    a. namu*s* + ip^h /na.mun.nip^h/   'tree leaf'
    b. hot^h + ipul   /hon.ni.pul/   'sheet'
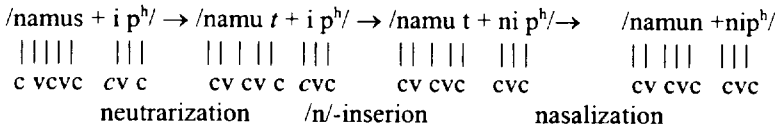   c. us + i   /un.ni/   'upper tooth'

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[1] The Korean consonant system consists of fifteen obstruents and four sonorants. Among the consonants, only /p,t,k,m,n,ŋ,l/ appear at the coda of syllable due to neutralization. So Bindung-*s* has sometimes been treated as '/t/-insertion' due to the fact that it surfaces as /t/.

(12) /l/-epenthesis

    a. ti:l + i:l   / ti:l.li:l/   'field work'

    b. mul + jak   /mul.ljak/   'liquid medicine'

    c. Seoul + jək   /sə.ul.ljək/   'Seoul

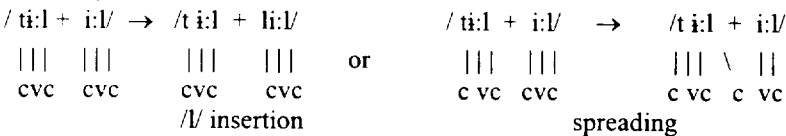   Railroad Station'

As shown in (11) and (12), /n/ and /l/ should be epenthesized before the *i* or *j* preceded by a consonant. For example, a compund noun *namus* + *ip^h* made of *namu* 'tree', epenthetic -*s*, and *ip^h* 'leaf' undergoes the following process of change.

(13)

/namus + i p^h/ → /namu *t* + i p^h/ → /namu t + ni p^h/→   /namun +nip^h/

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

c vcvc *cv* c   cv cv c *cvc*   cv cvc   cvc   cv cvc cvc

        neutrarization   /n/-inserion   nasalization

For an epentheic /l/, the process would be more simplified than that of the epenthetic /n/.

(14)

/ ti:l + i:l/ → /t i:l + li:l/   / ti:l + i:l/ →   /t i:l + i:l/

| | | | | | | | | | | | or | | | | | | | | | \ | |

cvc   cvc   cvc   cvc   c vc   cvc   c vc c vc

                /l/ insertion   spreading

Even though a little restricted, note that /n,l/-epenthesis is an obvious phenomenon. What is interesting to us is that all inserted consonants are classified as coronals which appear in neutralization positions. It is consequently clear that /l/ patterns with other coronal consonants.

4.2. Palatalization

Next, I am going to look at palatalization, as a kind of assimilation, to show that /l/ in Korean patterns together with other coronal consonants. Unlike a traditional analysis in which
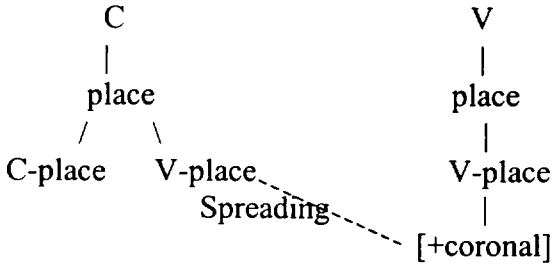
assimilation is a process of changing features already specified (Kim-Renaud 1974), recent work treats assimilation as an instance of spreading certain sets of features (Iverson and Kim1987, Sohn 1987). Especially, with the introduction of the concept of underspecification, one-way spreading as an assimilation from marked to unmarked features is more widely supported in phonological theories.

As seen in the preceding section, many recent studies have shown the unstable characteristics of coronals. Korean is not an exception to the coronal syndrome found universally. With regard to this fact, Ahn (1994: 4), observing a wide variety of Korean assimilation phenomena, proposed a markedness hierarchy like 'Coronal < Labial < Velar.' As seen in 'coronal syndrome,' if coronals are very sensitive to assimilation and other phonological variation, it is not hard for this hierarchy to be expected from the coronal syndrome. That is, due to their unstability in features, coronals are easy to be unspecified and undergo assimilation.

With respect to the interactions of Korean palatalization and umlaut, Hume(1990) makes the interesting observation that palatalization is an example of the spreading of marked high front vowel [+coronal] to the unmarked. Relevant data are in order.

(15) a. /kasi/   [kaʃi]   'thorn'
      b. /əpsi/   [əpʃi]   'without'
      c. /əməni/   [əməɲi]   'mother'
      d. /tani+ta/   [taɲida]   'travel/commute'
      e. /p'al+li/   [p'aʎʎi]   'fast'

(16)   palatalization(Hume 1990)

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        C                        V
        |                        |
      place                    place
      /    \                     |
C-place    V-place.           V-place
            Spreading.           |
                     `-- [+coronal]
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In (16), we can see that a more specified (i.e. more marked) value is spread to the less specified one, converting a less marked segment into a more marked one. This assimilation procedure turns less marked segments into more marked ones. Here, we can see that, as a result of a spreading, /l/ is also palatalized as seen in the given data like other coronal consonants.

4. Conclusion

In this paper, I have examined the behaviors of /l/ in Korean, focusing on some phonological aspects such as epenthesis and palatalization.   It is shown that /l/ in Korean is often inserted between two morphemes in noun compounds, and it readily undergoes palatalization and deletion, all of which are generally treated as core properties of coronals across languages (Kenstowicz 1994, Paradis and Prunet 1991).

Based on the properties of /l/ as coronals, I claim that /l/ in Korean is one of coronal consonants and thus it should be treated as a [+consonantal] segment. Following Sohn (1994), I have argued that /ɨ/-deletion before or after /l/ is morphologically, not phonologically, determined. If this line of argument is correct, Kim's (1992) claim that /l/ should be treated as a [-consonantal] segment solely due to the fact that it, like vowels, triggers /ɨ/-deletion should be untenable.

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