An Optimal Analysis of Korean Copula

Mira Oh

(Yeojoo Institute of Technology)

Oh, Mira. 1998. An Optimal Analysis of Korean Copula. *Studies in Phonetics, Phonology and Morphology* 4, 175-187. The purpose of this paper is to demonstrate that Optimality Theory provides a better account for the various alternations exhibited by Korean copula than a sequence of separate phonological rules. The OT analysis crucially relies on the morphological and prosodic structure of Korean copula. This paper argues that Korean copula is a clitic morphologically and an affixal clitic prosodically. (Yeojoo Institute of Technology)

1. Introduction

Many languages do not tolerate a sequence of adjacent vowels deriving from morphological or syntactic concatenation. This paper deals with the various realizations of Korean copula, /i/, when adjacent to another vowel. Korean copula takes three forms. The first is null realization of the copula when preceded by a vowel and followed by a consonant as illustrated in (1a). Korean copula is also realized as [y] when preceded and followed by a vowel as given in (1b). Finally, the copula triggers y-epenthesis when preceded by a consonant and followed by a vowel as given in (1c).

(1) a. /sinsa + i + ta/ [sinsata], /sinsa + i+ myən/ [sinsamyən]
　　　 gentleman COP Ind.　　gentleman COP Cond.
　　　 '(He) is a gentleman.' 'If (he) is a gentleman,'
　　 b. /sinsa + i + əs + ta/ [sinsayət'a]
　　　 'gentleman' COP Tns. Ind.
　　　 /sinsa + i + eyo/ [sinsayeyo]
　　　 'gentleman' COP Ind.

   c. /san   + i + ə s + ta/   [saniy ə t'a]
       'mountain' COP Tns. Ind.
       /san   + i + eyo/   [saniyeyo]
       'mountain' COP Ind.

Put another way, the copula, /i/, is deleted between a vowel and a consonant, is realized as [y] between vowels, and is realized as [iy] between a consonant and a vowel. These facts are schematized in terms of rule formation as in (2).

(2) a. /i/ --> / V + _____ C
    b. /i/ --> [y] / V + _____ V
    c. ᴓ --> [y] / C + i _____ V

The rules in (2) do not capture the generalization that various phonological processes conspire to avoid hiatus. This paper aims to show that Optimality Theory as a model of constraint interaction provides a better analysis regarding the alternations in (1) compared to the rule approach.

We also need to take the different realizations of [cuky ə tta] and [cukiy ə tta] into an account. The former is the past form of /cuk + i + ta/ 'to kill', [cuky ə tta], and the latter is the past form of /cuk + i +ta/, [cukiy ə tta] 'it was oatmeal'. Such a different realization will be accounted for based on the morphological and prosodic structure of the copula, which I consider in the next two sections.

2. The Morphological Structure of Korean Copula

Korean copula exhibits numerous interesting behaviors in morphology. There have been three approaches with respect to the dispute over the morphological status of the copula in Korean. The first approach treats the copula as either an inflectional affix or a derivational affix (Jung 1959).[1] The second approach takes the copula as an independent word,

' Ahn (1996) also takes the affix approach in that he argues that the copula is a

a syntactic verb (Song 1988, Choi 1963). The third one is the clitic approach where the copula is analysed as a bound word, i.e., clitic, as opposed to either an affix or an independent verb (Oh 1991). In this paper, adopting Oh's (1991) analysis, we assume that Korean copula is a clitic. Before proceeding, a few arguments for the clitic analysis are in order. Firstly, Korean copula is promiscuous in its host selection as illustrated in (3).

(3) a. 내가 사랑하는 사람이다. (Attached to NP)
      nay-ga sarangha-nun saram-i-ta
      I -nom love   man - Cop-Decl
      This is the man whom I love.
    b. (Ahn 1996)
      이야기에 열중해서--일까? (Attached to adverbial clause)
      iyaki-ey yelcwung-hay-se-i-l-kka
      talking-on intent-do-because-be-Aspect-Q
      Is that because x is intent on talking?
    c. 부산에서부터--이다. (Attached to PP)
      pwusan-eyse-pwute-i-ta
      Pusan-at-from-be-Decl It is from Pusan.
    d. 그의 대답은 '네가 해' --였다. (Attached to root clause)
      ku-uy taytap-un ney-ka hay-i-ess-ta
      He-Poss answer-Top you-Nom do-be-Past-Decl
      His answer was 'You do it'.

The copula can combine with various categories besides their normal attachment to NPs and also has freedom to be separated from their hosts. It is in line with Zwicky and Pullum's (1983) tests for choosing between an inflectional affix and a clitic: clitics can exhibit a low degree of selection with respect to their hosts, while affixes exhibit a high degree of selection with respect to their stems. Secondly, Korean copula cannot be an independent word either since it cannot stand alone, and always requires their host to be attached to as shown in (4).

Free suffix as opposed to a Bound suffix.

(4) (Ch 1991:709)

/haksæŋ-i-ni/   Are you a student?
student-Cop-Question

*/ɨŋ, i-ya/   Yes, I am.
yes-Cop-Decl

/ɨŋ, haksæŋ-i-ya/   Yes, I am a student.
yes- student -Cop-Decl

Likewise, the copula cannot occur in complete isolation, which is one
of the criteria for identifying clitics (Zwicky 1985: 288). Thirdly,
t-palatalization also provides a piece of evidence for the clitichood of
the copula. An independent word does not trigger t-palatalization but
the copula /i/ triggers it as shown in (5).

(5) a. /sot^h-i-ta/ --> [soc^{h}ida]   'It is a pot.'
       pot-Cop-Decl

    b. /pat^h-ilaŋ/--> [pac^{h}iraŋ]   'field and'
       field CONJ

       /kat^h-i/ --> [kac^{h}i]   'together'
       same-adverbalizer

       /kut-hi/ --> [kuc^{h}i]   'make it hard'
       hard-causativizer

    c. /sot^h-i-ta/ -->[sodida]   '(He) is holding a pot on head.'
       pot hold something on head

       /pat^h-ilaŋ/ --> [padiraŋ]   'field ridge'
       field ridge   [panniraŋ][2]

As shown in (5c), palatalization does not occur between independent
words but the copula and an affix triggers palatalization as illustrated in
(5a,b). Likewise, Korean copula exhibits a mixed word/affix status
which satisfies the definition of a clitic in (6).

---

[2] Nasal assimilation is triggered by n-insertion in (5c) which applies in a
compound when the first member of a compound ends with a consonant and
the second member of a compound begins with /i/ or /y/.

(6) Nevis (1987:252)

A clitic is a word or morpheme (possibly morphologically complex) that exhibits a mixed word/affix status.

To summarize, I assume that Korean copula is a dependent word in this paper based on the tests developed by Zwicky & Pullum (1983) and Zwicky (1985).

3. The Prosodic Structure of Korean Copula

Oh (1997) argues that Korean copula is an affixal clitic within the Optimality Theory framework and provides constraint ranking in Korean. Selkirk (1995) analyses the prosodic structure of English function words based on morphosyntactic structure and constraint ranking under Optimality Theory (McCarthy & Prince 1993). Selkirk (1995) assigns a surface prosodic structure to a Function word-Lexeme sequence by way of differences in the morphosyntactic input structure. Selkirk's theory makes four different types of prosodic structure available for assigning a surface prosodic structure to a syntactic phrase [Fnc-Lex] sequence as in (7).

(7) Selkirk (1995)
    S-structure [Fnc Lex]
    P-structure   (i) $((fnc)_{PWd}\ (lex)_{PWd}\ )_{PPh}$ Prosodic Word

        Prosodic Clitics:
                (ii) $(fnc(lex)_{PWd})_{PPh}$ Free clitic
                (iii) $((fnc\ lex)_{PWd}\ )_{PPh}$ Internal clitic
                (iv) $((fnc(lex)_{PWd})_{PWd})_{PPh}$ Affixal clitic

Selkirk (1995) opts for (6iii) as the optimal (grammatical) representation of non-phrase final function words in English based on constraint ranking in Optimality Theory.

Notice that the Strict Layer Hypothesis (SLH) of Selkirk (1984) has

the effect that units of the prosodic hierarchy are composed of units of the next layer down and, conversely any unit of the hierarchy is exhaustively contained within the dominating unit of the next layer up. Selkirk (1995) weakens the earlier categorical statement of the SLH, which she now proposes replacing by four constraints, two apparently universally inviolable (8a) and two violable (8b); these remain equivalent to the SLH in the weak sense that the SLH is satisfied if and only if each of the individual constraints is satisfied.

(8) Constraints on Prosodic Domination (Selkirk 1995)
a. i. Layeredness
        No prosodic category dominates a higher prosodic category.
        (e.g. No syllable dominates a foot)
    ii. Headedness
        Any prosodic category (other than one in the bottom level of the prosodic hierarchy) must dominate a member of the next layer down. (e.g. A PWd immediately dominates a foot)
b. i. Exhaustivity
        No prosodic category immediately dominates a constituent below the next layer down.
        (e.g. No PWd immediately dominates a syllable)
    ii. Nonrecursivity
        No prosodic category dominates a constituent of the same layer. (e.g. No PWd immediately dominates a PrWd)

    Selkirk (1995) also proposes constraints on the alignment of prosodic structure and morphosyntactic structure such as WdCon and PWdCon as given in (9).

(9) (Selkirk 1995)
a. The Word Alignment Constraints (WdCon)
   i. Align (Lex,L;PWd,L)   (=WdConL)
   ii. Align (Lex,R;PWd,R)   (=WdConR)
b. The Prosodic Word Alignment Constraints (PWdCon)

i. Align (PWd,L;Lex,L)   (=PWdConL)
ii. Align (PWd,R;Lex,R)   (=PWdConR)

Oh (1997) argues that Korean copula as a morphosyntactic copula has
the status of an affixal clitic situated in a nested phonological word
structure as in (10), which is similar to the reduced object pronouns in
English (Selkirk 1995).

(10) (ɔuk)$_{PWd}$ i)$_{PWd}$
     oatmeal Cop

Oh (1997) proposes the constraint ranking in Korean as shown in
(11) based on such a prosodic structure.

(11) WdCon, ExhPFh >> PWdCon >> NonRec PWd

Main arguments for the affixal clitic come from some phonological
phenomena triggered by the copula. Firstly, compounds do not undergo
the same sandhi rules as the copula as illustrated in (12).

(12) a. /pat^h-ilaŋ/   [padiraŋ] or
        field-ridge   [panniraŋ]
                                     *[pac^{h}ira?]
     b. /path-i/   [pac^{h}i] or [pasi]
        field-COP   *[padi]
     c. /kaps-ə c^{h}i/   [kab ə c^{h}i]
        price worth   *[kaps' ə c^{h}i]
        /kaps-i/   [kaps'i] or [kabi]
        price Cop

Palatalization which takes place within a prosodic word does not
apply to the compound in (12a) but to the copula structure in (11b).
Neutalization, which occurs prosodic word-finally, does not apply to the
copula structure in (12b) but to the compound in (11a). Consonant

cluster simplification obligatorily applies in a compound but it applies optionally in the copula structure as in (12c). Hereby, we conclude that clitics or affixes form phonological words with morphological words while [word + word] cases form phonological phrases (Oh 1991). Secondly, the host with the copula does not constitute a phonological phrase but a prosodic word as illustrated in (13).

(13) a. /cuk - i -ət- ta/   [cugiyət'a]
        oatmeal - COP -Past-Decl   *[cugyət'a]
        It was oatmeal.
     b. /cuk-i   ə di/   [cugiə di]
        oatmeal-Nom where   *[cugiyə di]

In (13b), /cuk-i/ does not undergo y-epenthesis to avoid hiatus. However, /cuk-i/ in (13a) which is the combination of a lexeme and the copula undergoes y-epenthesis across a morpheme boundary. Based on the conclusion drawn from the data in (12), we suggset the prosodic structures for (13a) and (13b) as in (14a) and (14b), respectively.

(14) a. /cuk - i -ət- ta/--> [[[cuk]$_{PWd}$ i]$_{PWd}$ ə tta]$_{PWd}$]$_{PPh}$
     b. /cuk-i   ə di/ --> [[[cuk]$_{PWd}$ i]$_{PPh}$ [ə di]$_{PWd}$]$_{PPh}$

With the prosodic structure of the copula, we will move onto the OT account for the alternations in (1) in next section.

4. An OT Analysis for Phonetic Realizations of Korean Copula

Given that Korean copula is a clitic morphologically and an affixal clitic nested within a prosodic word prosodically, the alternations in (1) can be accounted for consistently within the optimality framework. As mentioned in the first section, the alternations in (1) are the result of the conspiracy to avoid hiatus, which cannot be captured by phonological rules. The interaction of universal constraints instead of the

applications of phonological rules will give rise to various surface forms of Korean copula. The tableaux in (15) show that the optimal outputs of (1a) and (1b) naturally fall out from the constraint interaction.

(15) a. $*V_1V_2$ >> Parse (F) >> Fill >> $*CG$ gives V_1 Elision when preceded by a vowel but followed by a consonant:

/sinsa-i-ta/	$*V_1V_2$	Parse(F)	Fill	$*CG$
☞ sinsata		*		
sinsaita	*!			

b. $*V\ V_2$ >> Parse (F) >> Fill >> $*CG$ gives Glide Formation when preceded and followed by a vowel:

/sinsa-i-ə tta/	$*V_1V_2$	Parse(F)	Fill	$*CG$
☞ sinsay ə tta				
sinsa ə tta	*!			
sinsa y ə tta	*!		*	
sinsa ɛ tta	*!	*		

The optimal candidate is indicated by "->". The optimal candidate is the one with the fewest lowest violations. Violations are indicated by asterisks (*), and an exclamation point indicates each "fatal" violation, i.e. the violation that eliminates a candidate completely.

At this point, one more interesting fact needs to be pointed out. As shown in (16), /cuk-i/ in (16a) as the combination of lexeme and the copula undergoes y-epenthesis which applies within a prosodic word but across a morpheme boundary, while /cuki/ as a derived verb in (16b) does not undergo y-epenthesis but glide formation to avoid hiatus.

(16) a. cuk - i - ə ss- ta   [cugiyə t'a]
        oatmeal - COP-Past-Decl   *[cugyə t'a]
        'It was oatmeal'.
     b. cuk- i - ə ss-ta   [cugyə t'a]

kill   - Past - Decl   *[cugiy ə t'a]
'(He) killed'.

Such a difference in the behavior of /i/ between the copula and an
affix with reference to glide formation can be accounted for by a
position-sensitive parse constraint, Parse (F, lex) (Casali 1996). The
point is that the copula /i/ is parsed, while the suffix /i/ undergoes
glide formation. All roots and clitics are lexical but derivational and
inflectional affixes are non-lexical. Casali (1996) points out that
languages tend to preserve features and/or segments in lexical elements
and also assumes that position sensitive Parse constraints are
universally ranked above ordinary (non-position-specified) Parse (F) as
in (17).[3]

(17) Universal Ranking
     Parse (F, lex) >> Parse (F)

Given that the prosodic structures of (16a) and (16b) are different in
that the copula /i/ is lexical but the derivational suffix /i/ is not lexical,
the tableaux in (18) show how the constraint ranking gives out the
rightful output.

(18) a. *V₁V₂ >> Parse (F, lex) >> Parse (F) >> Fill >> *CG gives
        Glide epenthesis when the copula is preceded by a consonant
        and followed by a vowel: [cukiy ə tta] 'It was oatmeal'

/cuk-i-ə tta/	*V_1V_2	Parse(F,lex)	Parse(F)	Fill	*CG
☞cuk y ə tta				*	
cuki ə tta	*!				
cuky ə tta		*!			*
cuk ə tta		*!	*		

---

[3] In similar vein, McCarthy and Prince (1994b, 1995a) accord preferred status to
roots (i.e. morphological heads). They propose a universal faithfulness
metaconstraint in i).
     I) Root Faithfulness >> Affix Faithfulness

b. $*V_1V_2$ >> Parse (F, lex) >> Parse(F) >> Fill >> $*CG$ gives Glide Formation when the suffix /i/ is preceded by a consonant and followed by a vowel: [cukiyətta] 'killed'

/cuk-i-ətta/	$*V_1V_2$	Parse(F,lex)	Parse(F)	Fill	$*CG$
☞cukiyətta				*!	
cukiətta	*!				
cukyətta					*
cukətta			*!		

Notice that Parse (F,lex) is violated unless there exists segmental identity between a lexical stem and its correspondent free form, while Parse (F) is satisfied although glide formation, /i/ to /y/ occurs.[4] Notice that Parse (F,lex) is vacously satistied in (18b).

The success of this proposal in overcoming the difficulties associated with the different behavior between the copula and the suffix is due to the morphological and prosodic structure of the copula /i/. That is to say, the copula, as a clitic, is lexical and subject to the constraint, Parse (F,lex), while the suffix is nonlexical and vacously satisfied by the constraint.

There remains one final fact of interest to be addressed. To avoid hiatus, /y/ instead of /t/ which is the unmarked consonant in Korean, is epenthesised (Sohn 1986). Speech represents a compromise between two opposing goals: ease of articulation, which requires the minimization of effort during speech production, and ease of perception, which demands maximization and preservation of contrasts (Martinet 1952, Lindblom 1990). Y-epenthesis is an easier process than t-epenthesis when a tongue moves from /i/ to another vowel in the view of ease of articulation. From the view of ease of perception, t-epenthesis might have been preferred. Copula-related y-epenthesis suggests that ease of articulation is preferable to ease of perception in Korean. Vocative forms in (19) also provide another piece of evidence.

---

4 Parse (F, lex) can also be interpreted as Ident LS (vocalic) in that Lexical-surface correspondents are identically specified for [vocalic] (Ito & Mester 1997:425)

(19) a. Sumin   -   a
        sumin(name) VOC
     b. Sumi   -   ya
        sumi(name)   VOC
     c. Minsu   -   ya
        minsu (name) VOC

The vocative suffix takes /a/ after a noun ending with a consonant but /ya/ after a noun ending with a vowel. In other words, /y/ instead of /t/ is epenthesised to avoid hiatus.[5] However, as observed by a reviewer, /ya/ as opposed to /wa/ is taken as a vocative suffix in (19c). Given that ease of articulation is in force to epenthesise /y/ in the copula structure, we would expect /wa/ instead of /ya/ in (19c) contrary to fact. We speculate that palatal glide, /y/, which is coronal dependent, is more preferred to labio-velar glide, /w/, in the same way that /t/ is more unmarked than /k,p/ for epenthesis.

5. Conclusion

Korean copula is claimed to be an affixal clitic prosodically. The alternations of the copula in various contexts have been shown to be the result of the interaction of ranked universal constraints rather than the applications of unrelated separate phonological rules. Furthermore, the different behaviour between the copula and a verbal suffix with respect to y-epenthesis is dealt with by way of their differnt prosodic structure.

---

5 As observed by a reviewer, /ya/ as opposed to /wa/ is taken as a vocative suffix in (19c). Given that ease of articulation is in force to epenthesise /y/ in the copula structure, we would expect /wa/ instead of /ya/ in (19c) contrary to fact. We speculate that palatal glide, /y/, which is coronal dependent, is more preferred to labio-velar glide, /w/, in the same way that /t/ is more unmarked than /k,p/ for epenthesis.

References

Ahn, H.-D. 1996. "A Study of Syntactic Word-Formation," *Proceedings of 1996 Seoul International Conference on Generative Grammar.*

Casali, R.F. 1996. "Vowel Elision in Hiatus Contexts," *UCLA Working Papers in Phonology,* 18-56.

Choi, H-B. 1963. "Chapumssi ey tayhaye [A Study of the Copulative Verb]," *Yonsei Nonchong* 2, 1-66, Yonsei University, Seoul

Ito, J. and A. Mester. 1997. "Correspondence and Compositionality: The Ga-gyo Variation in Japanese Phonology," in Iggy Roca ed., *Derivations and Constraints in Phonology.* New York: Clarendon Press.

Jung, I-S. 1959. "Urimal ey ssikarume tayhaye (On the Division of the Korean Parts of Speech]," *Hangul* 125.

Oh, M.-I. 1991. "The Korean Copula and Palatalization, "*Language Research* 27, 711-724. Seoul.

Oh, M.-I. 1995 "The Nonderived Blocking Environment," *Jounal of East Asian Linguistics,* 4, 261-279.

Oh, M.-I. 1997. "The Prosodic Structure of Korean Copula," *Working Papers of YIT.*

McCarthy, J. 1993. "A Case of Surface Constraint Violation," *Canadian Journal of Linguistics* 38, 169-195.

McCarthy, J. and A. Prince. 1993. *Prosodic Morphology I:Constraint Interaction and Satisfaction.* MIT Press. Cambridge, Mass.

Nevis, J. 1987. "Clitics and Semi-clitics in Finnish," *The Nordic Languages and Modern Linguistics* 6, 251-263.

Selkirk, I. 1995. "The Prosodic Structure of Function Words,"*Umass Working Papers in Linguistics,* 439-69.

Song, S-C. 1988. "Explorations in Korean Syntax and Semantics," *East Asian Studies in UC.*

Zwicky, A. 1985. "Clitics and Particles," *Language,* 61, 283-305.

Zwicky, A. and G. K. Pullum. 1983. "Cliticization vs. Inflection: English n't", *Language* 59, 502-13.

6-16, Kyo-ri, Yeojoo-up, Yeojoo-kun, Kyunggi-do
Yeojoo Institute of Technology
E-mail; riroh@yeojoo.ac.kr
FAX: 82-337-884-5481