Palatalization and depalatalization in computer-mediated Korean within the framework of Optimality Theory*

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Tak, Jin-young. 2012. Palatalization and depalatalization in computer-mediated Korean within the framework of Optimality Theory. *Studies in Phonetics, Phonology and Morphology* 18.3. 471-490. Previous research argues that depalatalization frequently occurs in computer-mediated Korean, while palatalization is one of the least frequent processes (Jeon 2002, 2004; Park 2006). Hence, this paper aims to provide a uniform analysis toward these two phonological processes within the framework of Optimality Theory. Additionally, it is proposed that they are in fact different from the typical palatalization and depalatalization detected in many natural languages (i.e. Spanish, Japanese, Nyamwezi, and so on). Along the lines of Sagey (1986) and van Oostendorp (2005), present research suggests that palatals in computer-mediated Korean are contour segments specified for [+continuant] and [-continuant], while [-anterior] under the Coronal Node does not need to be specified because it is redundant. On the other hand, this paper also facilitates Kiparsky's (1993) lexical prespecification system and argues that palatals that undergo depalatalization are prespecified for [-anterior]. Then, unlike previous research (Jeon 2002, Park 2006, Lee 2010), depalatalization in computer-mediated Korean is defined as the decomposition of palatals c, c', ch into the corresponding alveolars followed by a glide, assuming that alveolars are underspecified for the Coronal Node, whereas palatals and a glide are specified for [-anterior] under the Coronal Node. In addition, palatalization in computer-mediated Korean is analyzed as a phonological process that restrictively applies to some selected words where alveolars followed by i are specified for [+anterior]. Furthermore, within the framework of Optimality Theory, this paper posits that constraints Palatal-i (palatalizing alveolars before [i]) and Integrity-IO (banning a multiple realization of an input) are ranked low, while Coronal-Have[anterior] (which is a lexically specific constraint), Max-Palatal, Identity-[-anterior], and *C-Palatal[-anterior] are undominated. **(Sejong University)**

Keywords: palatalization, depalatalization, computer-mediated communication, decomposition, feature geometry, lexical prespecification, optimality theory

1. Introduction

Computer-mediated Korean (henceforth, CMK), one of the pervasive communication trends among the younger generation, has been regarded as a deviation of the standard written language since the medium of this communication is internet-based, heavily relying on writing. Because of the nature of CMK, there has been a great deal of effort for CMK users to replace phonetic or phonological characteristics such as intonational and other

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prosodic features of speech or facial expressions. To cope with these drawbacks, computer-mediated language users usually facilitate an exaggerated use of spelling and punctuation, the use of capitals, spacing, and special symbols (i.e. pictograms). This is illustrated in (1), based on Crystal (2006: 37) and Lee and Park (2012).

(1) All capitals for 'shouting': I SAID NO
Letter spacing for 'loud and clear': W H Y, N O T; w h y n o t
Word/phrase emphasis by asterisks: the *real* answer
Pictomgrams for smiles: :-)

However, as investigated by many scholars, even though a computer-mediated language is expressed through the medium of writing, it contains many characteristics typical of spoken language, such as short construction (i.e. abbreviation, acronym, and syllable deletion), phrasal repetition, or a looser construction (Song 2000, 2001, Kim 2005, Crystal 2006, Bae 2008). This argument is further supported by Hale and Scanlon (1999) and Davis and Brewer (1997), both of whom propose that one of the main principles of such language is "to write the way people talk, possibly defined as written speech" (Crystal 2006: 27).

Within the realms of the argument by Crystal (2006), a great deal of vocabulary in CMK is also spelled out as it is articulated in natural communication situations. For example, tensification, aspiration, and place assimilation are reflected in CMK. This is seen in (2), drawn from Jeon (2002).

(2) a. Tensification

Underlying	Pronunciation	CMK	
hak.kyo	ha.k'yo	ha.k'yo	'school'
sa.kən	sa.k'ən	sa.k'ən	'incident'
b. Aspiration			
$c^huk.ha$	$c^hu.k^ha$	$c^hu.k^ha$	'congratulation'
silh.ta	$ʃil.t^ha$	$sil.t^ha$	'to hate'
c. Place assimilation			
in.kan	iŋ.gan	iŋ.kan	'human being'
in.ki	iŋ.k'i	iŋ.k'i	'popularity'[1]

As shown in (2), data *hak.kyo* is realized as *ha.k'yo* in CMK; *ha.k'yo* is a phonetic or surface representation of a phonological or underlying representation /hak.kyo/ in Standard Korean. Furthermore, $c^huk.ha$ is written as $c^hu.k^ha$ in CMK in which the latter reflects the pronunciation more accurately. In the same sense, /in.ki/ in Standard Korean is realized as *iŋ.k'i* both in real pronunciation and in CMK. Considering the fact that tensification, aspiration, and place assimilation are very pervasive phonological rules in Standard Korean, it can be proposed CMK utilizes them frequently; therefore, it is

[1] This also undergoes another phonological rule, tensification, and is transcribed as *iŋ.k'i*.

suggested that a considerable number of words in CMK are spelled out as they are produced (Lee 2010).

However, in CMK depalatalization (i.e. *tyukim* 'death' from Standard Korean *cukim*), which makes Korean words deviate more from their real pronunciation, occurs frequently; it is defined as changing palatals *c*, c^h, *c'* into alveolars *t*, t^h, *t'* and a glide. If this is the case, then, how different is depalatalization in CMK from depalatalization in other natural languages? Linguists' interest in CMK is in how these novelties can be accounted for in terms of phonology. Therefore, this paper investigates so-called depalatalization and palatalization in CMK within the framework of Optimality Theory (Prince and Smolensky 1993, McCarthy and Prince 1996).

This paper is organized as follows. Section 2 is devoted to offering a brief introduction of the Korean vowel system and palatalization in Standard Korean along with depalatalization in other languages. Section 3 provides the data on depalatalization in CMK and an analysis of depalatalization and palatalization in CMK within the framework of Optimality Theory. Further, this section argues that in this type of communication Coronal-Have[anterior], Identity-[+anterior], *C-Palatal, and Identity-[-anterior] are ranked highly, while Integrity-IO and Palatal-*i* are dominated. A summary is offered in section 4.

2. Preliminaries

2.1 Korean phonology

Before providing an analysis on depalatalization and palatalization in CMK, the Korean vowel system relevant to the present paper should be introduced. This process accompanies diphthongization (i.e. palatals *c*, c^h, *c'* in CMK are systematically realized as alveolars *t*, t^h, *t'* and glide *y* or *w*, forming a diphthong with the following vowel).

This paper adopts an eight-vowel system, following Kang (2003) and Shin and Cha (2003).

(3) 8 vowel-system in Korean (Kang 2003, Shin and Cha 2003)

	front		back	
	[-round]	[+round]	[-round]	[+round]
[+high]	i		ɨ	u
[-high, low]	e		ə	o
[+low]	ɛ		a	

Given in (3), the tableau in (4) displays all possible combinations for Korean diphthongs.

(4) On-glides in Korean

	front		back	
	[-bk,-rnd]	[-bk,+rnd]	[+bk,-rnd]	[+bk,+rnd]
[+high]	*yi	wi	*yɨ *wɨ	yu *wu
[-high, low]	ye	we	yə wə	yo *wo
[-low]	yɛ	wɛ	ya wa	

As indicated in (4), **yi* and **wu* are not permissible in Korean due to the Obligatory Contour Principle (OCP); **yɨ* and **wɨ* are not allowed as well since *ɨ* can only form an off-glide diphthong *ɨy*, disallowing other diphthongs such as **yi*, **wi*, and **iw*.

Next, this section introduces palatalization in Korean, which can be compared to depalatalization in CMK. Palatalization, an opposite process to depalatalization, is a common phonological process in Korean where alveolar sounds (i.e. /t/, /t^h/) are palatalized when followed by a vowel /i/ or a glide /y/.[2] The relevant data are presented in (5).

(5) t-palatalization in Korea (Kim 2002, Lee 2004)

a. /mat-i /	[maji]	'the eldest'
eldest-noun form suffix		
b. /kut-i/	[kuji]	'firmly, strongly'
become stuff-adverbial suffix		
c. /pat^h-i/	[pac^{h}i]	'a field'
field-nominative suffix		
d. /kat^h-i/	[kac^{h}i]	'like, together'
same-adverbial suffix		

As presented in (5), when /t/ and /t^h/ are followed by a morpheme beginning with /i/, they become the corresponding palatal sounds, [c] and [c^h], respectively. On the other hand, the data in (6) do not undergo palatalization even before /i/. What is crucial in these processes is whether a morpheme boundary exists between a stem and a triggering segment /i/.

(6) No palatalization in Korean (Kim 2002, Lee 2004)

a. /mati/	[madi]	'a knot, a joint'
b. /titita/	[tidida]	'to step on'
c. /t^{h}i/	[t^{h}i]	'a mote'
d. /nɨt^{h}inamu/	[nɨt^{h}inamu]	'a selkova'

Assuming different morphological configurations of the data in (5) and (6), Ahn (1998) adopts a notion of the strict cyclicity. In this framework, *t*-palatalization is a lexical rule restricted by the strict cyclicity, banning a lexical

[2] It is argued that there are four types of palatalization in Korean: *t*-palatalization, *s*-palatalization, *l*-palatalization, and *n*-palatalization (Ahn 1998, Jeon 2005). The environment for each palatalization process varies. Therefore, this paper only focuses on *t*-palatalization.

rule from applying to the root cycle and from returning to a previous cycle. For this reason, *t*-palatalization cannot apply to /mati/ 'knot' since it is a root, while it applies to [[mat]-i] in the first cycle after a noun suffix is attached. This is seen in (7) from Ahn (1998:125).

(7) Derivations of [[mat]-i] 'eldest' and [mati] 'knot'

[mat] 'eldest'	[mati] 'knot''
(The condition not met)	(Blocked by the strict cyclicity) t-palatalization

root cycle ----------

[[mat] i]	——	noun derivation
[[mac]i]	——	t-palatalization

1st cycle ---------- (lexical)

[maji]	[madi]	voicing

[maji]	[madi]	surface

2.2 Depalatalization in other languages

Depalatalization, an opposite process to palatalization in which palatalized consonants are realized as their corresponding alveolars, has been well documented in the phonological literature. For example, Spanish proscribes palatal consonants in the domain-finial position, resulting in depalatalization (Bermudez-Otero 2006, Mascaró and Lloret 2006, Pons-Moll 2008). As seen in (8), masculine singular forms in (8b) exhibit depalatalization in coda position. By contrast, feminine singular/plural forms in (8a) are not affected by this rule; the palatals occur in onset position.

(8) Depalatalization in Spanish

a. Feminine

[don.θé.ʎa]	'maiden (singular)'
[don.θé.ʎas]	'maiden (plural)'
[dó.ɲá]	'Madam (singular)'
[dó.ɲás]	'Madam (plural)

b. Masculine

[don.θél]	'young male (singular) noble'
[dón]	'Mister (singular)'

However, as illustrated in the data in (9), depalatalization overapplies in onset position in masculine plural forms.

(9) Depalatalization in onset position
[don.θé.les] 'maiden (plural)'
[dó.nes] 'Mister (plural)'

The bulk of research analyzes this type of overapplication in Spanish with a Base-Identity effect between singular forms and plural forms; feminine and masculine singular forms are a base (i.e. a free-standing output) to which their plural forms must be faithful. Therefore, any candidate that preserves the palatality of bases is realized as an optimal form, resulting in depalatalization in masculine plural forms in onset position.

Japanese is also known as a language that historically underwent depalatalization of sibilants before [e] (Ito and Mester 1995). This is seen in (10).

(10) Pronunciations of sibilants in Japanese (Ito and Mester 2003)[3]

	spelling	16th century	modern	
a.	<cuxe>	[kuʃe]	[kuse]	habit
b.	<…xeba>	[…ʃeba]	[…seba]	conditional marker
c.	<jingo>	[ʒeŋgo]	[zeŋgo]	front and back
d.	<caje>	[kaʒe]	[kaze]	wind
e.	<xinin>	[ʃinin]	[ʃinin]	dead person
f.	<saqe>	[sake]	[sake]	rice wine

Assuming that palatalization is applied before [i] and depalatalization before [e], Ito and Mester (1995) propose Palatal(high, front) and DePalatal(mid, front) constraints, resulting in two different constraint rankings: Palatal(high, front) >> Identity-[ant] for the contemporary pronunciation and DePalatal(mid, front) >> Identity-[ant] for the sixteenth century pronunciation. However, later they abandon this analysis due to the fact that palatalization before [e] is well attested elsewhere and phonetically well-grounded; there is no convincing argument to support depalatalization before [e]. To account for this, Ito and Mester (2003) suggest a language specific spacing/contrast constraint, Contrast > *i/e*. This constraint declares that that the contrast of only [i] and [e] between two items [ʃi] and [ʃe] is not enough, so depalatalization occurs to maximize the contrast, deriving [ʃi] and [se]. In other words, the enhancement of the contrast between two items results in polarizing the consonants; [ʃi] and [se] is a better contrast rather than [ʃi] and [ʃe]. This is seen in (11).

[3] The spellings <x> and <j> denoted the palatals [ʃ] and [ʒ], respectively.

(11) a. 16th century pronunciation[4]

	Palatal	Contrast > *i/e*
a. ʃi, se	*!	
☞b. ʃi, ʃe		*

b. Modern pronunciation

	Contrast > *i/e*	Palatal
☞a. ʃi, se		*
b. ʃi, ʃe	!*	

In the sixteenth century's system, Contrast > *i/e* is ranked lower than Palatal, deriving [ʃi] and [ʃe] as optimal forms, while in modern system, Contrast > *i/e* is promoted, resulting in [ʃi] and [se] as a winning pair.

3. Analysis

It is reported that such dialects in Korean as Pyongan and Hamgyong undergo depalatalization. However, from the diachronic approach, it is viewed that these dialects were not affected by palatalization, which began to be widespread in the southern Korean dialects from the eighteenth century. This novel change affected most of the northern dialects except Pyongan and Hamgyong (Chang 1994, King 2006). The fact that the Pyongan and Hamgyong dialects failed to undergo palatalization is well documented as depalatalization in the literature of Korean phonology. In these dialects, alveolars remain unpalatalized before /i/ or /y/; it is analyzed as depalatalization.[5] For example, /cʰənji/ 'heaven and earth' is pronounced as [tʰəndi] in the contemporary Pyongan dialect, while [cʰənji] is an actual pronunciation in the Seoul dialect (King 2006).

Similar to Pyongan and Hamgyong dialects, in CMK the opposite phonological process to palatalization (i.e. depalatalization) frequently applies (Jeon 2002, 2004; Park 2006; Lee 2010). This is seen in (12), (13), and (14).

(12) Depalatalization of c^h

	CMK	
a. cʰucʰən	tʰyutʰyən	'recommendation'
b. cʰaŋgo	tʰyaŋgo	'storage'

[4] Ito and Mester (2003) posit that there are in fact four underlying forms /ʃi, ʃe, si, se/; additional constraints Palatal/i, Palatal/e, and NoMerge evaluate the four underlying forms to derive the right output. However, to illustrate how depalatalization occurs in Modern Japanese, this paper does not introduce a full version of their analysis. Rather, the simple version of their analysis is presented.

[5] Chang (1994) argues that so-called depalatalization can be regarded as non-palatalization since in Pyongan and Hamgyong dialects in fact alveolars followed by /i/ or /y/ did not undergo palatalization. However, since most of the dialects in Korean underwent palatalization, and palatalized consonants are contemporarily regarded as a underlying form as in [cʰənji], rather than [cʰəndi]; depalatalization has been used for a long time and is preferred over non-palatalization. For that reason, this paper uses depalatalization rather than non-palatalization to evade any kind of confusion with respect to the name of these phonological phenomena.

c. c^hukku	t^hyukku	'soccer'
d. $sinc^h$əŋ	$sint^hyəŋ$	'application'

(13) Depalatalization of *c'*

a. c'aciŋ	t'yatiŋ	'fret, irritation'
b. c'okci	t'yokti~ t'yokt'i~ t'yokt'wi	'a piece of paper'
c. c'aksalaŋ	t'yaksaryaŋ	'romantic crush'

(14) Depalatalization of *c*

a. cip	tip~twip	'a house'
b. cikap	tikap~twikap	'a purse'
c. cənhak	tyənhak	'change of schools'
d. cokak	tyokak	'cloth, a piece'
e. cukim	tyukim	'death'

Unlike depalatalization in the Pyongan and Hamgyong dialects, depalatalization in CMK triggers diphthongization as defined as splitting palatals *c*, c^h, *c'* into alveolars *t*, t^h, *t'* and glide *y* or *w*.

Now consider the palatalization data in CMK. As discussed by Jeon (2002, 2004) and Park (2006), CMK hardly undergoes palatalization; little research investigates this process. However, it is found that kat^h*-i* 'together' undergoing palatalization in Standard Korean is occasionally spelled as kac^hi. Surprisingly, most words that meet structural configurations for palatalization in Standard Korean are not affected by palatalization. To account for such distortion, Jeon (2004) posits that the younger generation disfavor regulations, resulting in depalatalization in preference to palatalization. Given this, this approach extends Pater's (2000) and Pater and Coetzee's (2005) lexically specific ranking/constraints and proposes lexically dependent underlying representations with respect to alveolars and palatals in CMK. In other words, assuming that only some selected words are affected by palatalization, this paper accepts the lexical prespecification of [+anterior] for alveolars, which undergo palatalization.

Furthermore, it is also proposed that in cases where depalatalization does not apply in CMK, palatals are unspecified for [-anterior]. This is illustrated in (15).

(15) a. Underspecification in CMK alveolars

	t, t^h, t'
Palatalization before *i*	∅
No Palatalization before *i*	[+anterior]
Elsewhere	∅

b. Underspecification in CMK palatals

	c, c^h, c'
Depalatalization	[-anterior]
No Depalatalization	∅

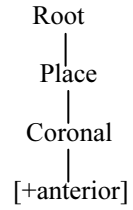
The featural representation of alveolars is presented in (16) by combining Lahiri and Evers' (1991), Kiparsky's (1993), and Horwood's (2006a, 2006b) proposals.

(16) Representation of alveolars

Moreover, the different underlying representations of alveolars before *i* in terms of whether they undergo palatalization are diagramed in (17).

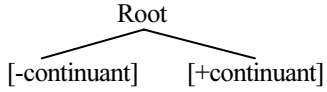
(17) a. Palatalization before *i*

b. No palatalization before *i*



The geometrical representation of palatals in the present analysis is based on Sagey (1986), suggesting that in CMK palatals are contour segments represented by [-continuant] and [+continuant]. This is seen in (18).

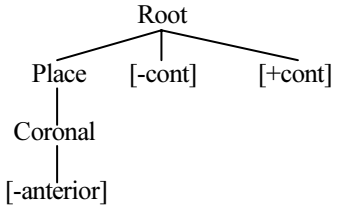
(18) Representation of palatals as a contour segment



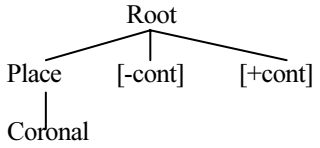
In this system, palatals do not need to be specified for [-anterior] under the Coronal Node due to the fact that the existence of [-continuant] and [+continuant] mapped into the Root Node ensures that the given segment is a palatal. Therefore, [-anterior] under the Coronal Node is a redundant feature. However, based on the fact that palatals in some words fail to undergo depalatalization in CMK, even though depalatalization is one of the most frequent processes, two different featural representations for palatals is introduced: one for ensuring depalatalization in (19a) and the other for not ensuring depalatalization in (19b).

(19) Representations of palatalization

a. Undergoing depalatalization

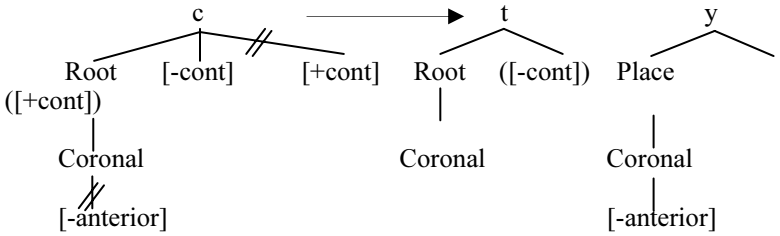


b. Not undergoing depalatalization



As seen in (19), palatals undergoing depalatalization is specified for [-anterior] under the Coronal Node, and alveolars are not specified for an anteriority feature. Therefore, in this representation system, depalatalization from *c* into *ty* is seen as delinking [-anterior] and [continuant]. This is seen in (20).

(20) Feature geometry in depalatalization[6]



To support the present proposal, first two important constraints are introduced: Integrity-IO and Identity-[-anterior]. Constraint Integrity-IO, militating against multiple correspondences or segment splitting, has to be ranked below since palatals are split into alveolars and a glide (Lamontagne and Rice 1995, McCarthy and Prince 1996). Then, Identity-[-anterior], which requires [-anterior] to surface in the output, should be ranked highly so that glide insertion is ensured. In normal Korean phonological processes, Integrity-IO is undominated, and Identity-[-anterior] is not a fatal constraint. Therefore, alveolars are palatalized before a high front vowel. On the other hand, in CMK Integrity-IO is demoted; Identity-[-anterior] emerges and is ranked high, permitting a realization of palatals *c*, c^h, *c'* into alveolars *t*, t^h, *t'* and a glide *y* or *w*. The constraints are illustrated in (21).

(21) a. Integrity-IO (McCarthy and Prince 1996)
No element of the input has multiple correspondents in the output.

b. Identity-[-anterior] (McCarthy and Prince 1996)
Correspondent segments in the input and output have

[6] Features [-continuant] and [+continuant] in parenthesis are not distinctive features.

identical value for feature [-anterior].

In addition to the constraints in (21), other relevant constraints in the present paper are introduced in (22).

(22) Constraints in CMK
a. Max-Palatal
Every palatal in the input has a correspondent in the output.
b. Max-[+continuant] (McCarthy and Prince 1996)
The feature [+continuant] in the input must have a corresponding feature [+continuant] in the output.
c. Palatal-*i* (Rubach 2002)
Coronals are palatalized before *i* or *y*.
d. *C-Palatal (i.e. *C-Palatal$_{[-anterior]}$)
|
[-anterior]
Palatals specified for [-anterior] are not allowed.

Given (21) and (22), this paper argues that in CMK *C-Palatal$_{[-anterior]}$ and Identity-[-anterior] are ranked above constraints Max-Palatal and Integrity-IO; the decomposition from *c*, *c'*, c^h into *ty*, *t'y*, t^hy, respectively, is licensed as a licit process. Furthermore, different from an actual phonological process, *C-Palatal$_{[-anterior]}$ is highly ranked, while Palatal-*i* is ranked low; any candidate with palatal consonants specified for [-anterior] before *i* or *y* is not preferred. Given this, the constraint ranking is proposed in (23).

(23) Constraint ranking I in CMK
*C-Palatal, Identity-[-anterior] >> Max-Palatal>> Palatal-*i*, Integrity-IO

Based on the constraint ranking in (23), the evaluation of *cokak* → *tyokak* 'cloth, a piece' is illustrated in (24).

(24) Evaluation of *cokak* → *tyokak*

cokak [-ant] [-cont] [+cont]	*C-Pal [-ant]	ID- [-ant]	Max- Pal	Pal-*i*	Int-IO
a. cokak [-ant] [-cont] [+cont]	*!				
b. cokak [-cont] [+cont]		*!			
c. tokak		*!	*		
☞d. tyokak [-ant]			*	*	*

Candidate (24d), which obeys highly ranked constraints *C-Palatal$_{[-anterior]}$, Identity-[-anterior], and Max-[continuant], is selected as the optimal form despite disobeying other constraints. By contrast, the candidate in (24a) is ruled out since this candidate contains palatals specified for [-anterior], incurring a violation of *C-Palatal$_{[-anterior]}$. (24b) and (24c) cannot be a winner due to the fact that both candidates incur a violation of Identity-[-anterior].

The fact that depalatalization is one of the most recurrent processes implies that there may be cases in which palatals in CMK are not depalatalized. In fact, some speakers depalatalize *cokak* 'cloth, a piece' into *tyokak*, while others as *cokak* as it is in the input. As for these cases, this paper posits speaker-dependent underlying representations with respect to alveolars and palatals in CMK. Given this, palatals that do not undergo depalatalization are not lexically specified for [-anterior], while palatals vulnerable to depalatalization are for [-anterior], as indicated in (19b). An evaluation of *cokak* → *cokak* that is not affected by depalatalization is shown in (25).

(25) Evaluation of *cokak* → *cokak*

cokak [-cont] [+cont]	*C-Pal [-ant]	ID- [-ant]	Max-Pal	Pal-*i*	Int-IO
☞a. cokak [-cont] [+cont]					
b. tokak			*!		
c. tyokak [-ant]		*!	*		*

Since palatals that are not applied by depalatalization are not specified for [-anterior], candidate (25a) vacuously satisfies *C-Palatal$_{[-anterior]}$, realized as the winner. By contrast, (25b), where palatal *c* is realized as the alveolar *t*, is ruled out due to a violation of Max-Palatal. Furthermore, the appearance of *y* incurs a violation of Identity-[-anterior] since *y* is specified for [-anterior] and the palatal in the input is not specified for [-anterior].

However, the constraint ranking in (23) cannot account for why tableau (26) abandons the intended winner *t'yatiŋ* 'fret' and chooses the undesirable candidate **t'yatyiŋ* as an output.

(26) Evaluation of *c'aciŋ* → *t'yatiŋ*[7]

c'aciŋ [-ant][-ant]	*C-Pal [-ant]	ID- [-ant]	Max- Pal	Pal-*i*	Int-IO
a. c'aciŋ [-ant] [-ant]	**!				
b. t'atiŋ		**!	**		
☞c.t'yatyiŋ [-ant] [-ant]			**	**	**
d. t'yatiŋ [-ant]		*!	**	*	*

As illustrated in (26), candidate (26d) incurs a violation of Identity-[-anterior] since [-anterior] under the Coronal Node anchoring to the second palatal *c* is eliminated; an unintended candidate in (26c) becomes a winner. However, as argued by Ahn (1998), in Korean *i* can only form an off-glide diphthong *iy*, disallowing such diphthongs as **yi*, **wi*, and **iw*. Therefore, producing **yi* in order to undergo depalatalization in CMK fatally violates a phonotactic constraint banning certain types of diphthongs in Korean. Therefore, in the paper language-specific markedness constraint **yi*/**wi* is proposed (Ahn 1998); it should be ranked above Identity-[-anterior]. The revised constraint ranking ensuring the dominant relationship different from (23) is posited in (27).

(27) Revised constraint ranking II in CMK
yi*/wi*, *C-Palatal, Identity-[-anterior] >> Max-Palatal >> Palatal-*i*, Integrity-IO

[7] Features [-continuant] and [+continuant] are not indicated whenever they are not relevant in terms of the selection of an optimal form.

The evaluation of *c'aciŋ → t'yatiŋ* 'fret', based on the constraint ranking in (27), is presented in (28).

(28) Evaluation of *c'aciŋ → t'yatiŋ*

c'aciŋ [-ant] [-ant]	*yi/*wi	*C-Pal [-ant]	ID- [-ant]	Max- Pal	Pal-*i*	Int-IO
a. c'aciŋ [-ant] [-ant]		**!				
b. t'atiŋ			**!	**		
c. t'yatyiŋ [-ant][-ant]	*!			**	**	**
☞d. t'yatiŋ [-ant]			*	**	*	*

In tableau (28), candidate (28d) is more satisfactory than (28c) since (28c) fatally disobeys *yi/*wi. Again, (28d) is a better candidate than (28b) since (28b) violates Identity-[-anterior] twice, while (28d) does so once. Moreover, (28a) is ruled out because it violates *C-Palatal$_{[-anterior]}$; the candidate in (28d) is chosen as the best output since it incurs a violation of Identity-[-anterior] once, while the one in (28b) does so twice.

Furthermore, Korean does not allow glide *y*, specified for [-back, +high], to form a diphthong with another [-back, +high] vowel, banning *yi (Ahn 1998). This phonotactic constraint *[-back, +high] [-back, +high] is accounted for by means of constraint OCP.

(29) Obligatory contour principle (Leben 1973, McCarthy 1986)
Adjacent identical elements are prohibited (*[-back, +high][-back, +high]).

To derive *t'yokti* from *c'okci* 'a piece of paper' in CMK, this paper proposes that OCP is undominated in the constraint ranking. The constraint ranking is seen in (30), and its evaluation is illustrated in (31).

(30) Revised constraint ranking III in CMK
OCP >> *yi/*wi, *C-Palatal$_{[-anterior]}$ >> Identity-[-anterior] >> Max-Palatal >> Palatal-*i*, Integrity-IO

(31)Evaluation of *c'okci → t'yokti*

c'okci [-ant] [-ant]	OCP	**yi/*wi*	*C-Pal [-ant]	ID- [-ant]	Max- Pal	Pal-*i*	Int-IO
a. c'okci [-ant][-ant]			**!				
b. t'okti				**!	**	*	
☞c. t'yokti [-ant]				*	**	**	*
d. t'yoktyi [-ant] [-ant]	*!				**	**	**

Because the sequence of *yi*, both of which are specified for [-back, +high], is not allowed due to a violation of an undominated OCP constraint, candidate (31d) is eliminated. The candidate with palatals (31a) is a loser since palatals specified for [-anterior] in CMK are disfavored. Then, as for the choice between candidates (31b) and (31c), the latter is chosen due to fewer violations of Identity-[-anterior].

However, some CMK users spell out *cip* 'a house' as either *tip* or *twip*. If so, how can they be permissible? This is a very crucial example to show that CMK users analyze palatals as a contour segment. Since palatals are analyzed as contour segments bearing more than one feature value of a specified type (i.e. continuency), candidates preserving both [-continuant] and [+continuant] are faithful and are chosen as optimal forms (van Oostendorp 2005). Therefore, a segment that contains [+continuant] and is structurally permissible for *cip* is *w*. For those speakers, Max-[+continuant], which realizes *w* instead of *y*, since the sequence of *yi* is not permissible in Korean because of OCP. Moreover, this constraint is ranked critically above Palatal-*i* and Integrity-IO. The new constraint ranking is shown in (32).

(32) Revised constraint ranking IV in CMK
OCP >> **yi*/**wi*, *C-Palatal$_{[-anterior]}$ >> Identity-[-anterior] >> Max-Palatal >> Max-[+continuant] >> Palatal-*i* , Integrity-IO

The evaluation of *cip → twip* is shown in (33).

(33) Evaluation of *cip* → *twip*

cip [-ant][+cont][-cont]	OCP	*yi/*wi	*C-Pal [-ant]	ID-[-ant]	Max-Pal	Max-[+cont]	Pal-*i*	Int-IO
a. cip [-ant][+cont][-cont]			*!					
b. tip				*	*	*!	*	
☞c. twip [+cont]				*	*			*
d. tyip [-ant] [+cont]	*!				*		*	*

Candidate (33a), which is fully faithful to the input, is eliminated due to a violation of *C-Palatal$_{[-anterior]}$; candidate (33b) is not considered an optimal candidate as it violates Max-[-continuant]. In addition, the candidate in (33d) incurs a violation of OCP, and it is ruled out as a winner.

Now consider the palatalization data in CMK. As discussed by Jeon (2002, 2004) and Park (2006), CMK hardly undergoes palatalization; little research has been conducted this process. However, it is found that /kat^{h}-i/ 'together' is occasionally spelled as *kac^{h}i*. Surprisingly, most words that meet structural configurations for palatalization in Standard Korean are not affected by palatalization. To account for such distortion, Jeon (2004) suggests that the younger generation's tendency to evade regulations results in a preference towards depalatalization and a disfavor of palatalization. Assuming that only some selected words are affected by palatalization, this paper accepts a lexical prespecification of [+anterior] for alveolars which do not undergo palatalization. On the other hand, the ones that undergo palatalization before *i* are underspecified for the Coronal Node. Therefore, [+anterior] blocks palatalization. Here, it is important to note the ranking of Identity-[+anterior] in order not to undergo palatalization. The final constraint ranking in this paper and the evaluation of *kat^{h}i* → *kat^{h}i* 'together' are given in (34) and (35), respectively.

(34) Revised constraint ranking V in CMK
Identity-[+anterior] >> OCP >> **yi*/**wi*, *C-Palatal$_{[-anterior]}$ >> Identity-[-anterior] >> Max-Palatal >> Max-[+continuant] >> Palatal-*i* , Integrity-IO

(35) Evaluation of *kat^{h}i* → *kat^{h}i*

kat^{h}i | [+ant]	ID- [+ant]	OCP	*yi/*wɨ	*C- Pal | [-ant]	ID- [-ant]	Max- Pal	Max- [+cont]	Pal-*i*
☞a. kat^{h}i | [+ant]								*
b. kac^{h}i | [-ant]	*!			*	*			

As seen in (35), since *t^h* in the input is specified for [+anterior], Identity-[+anterior] penalizes candidate (35b) due to the changing of [+anterior] to [-anterior]. (35a), which is faithful to the input form, becomes the winning candidate.

However, as discussed by Jeon (2002, 2004), palatalization seems to occur in CMK only occasionally. For these cases, this paper argues that only alveolars not specified for anteriority are affected by this process. For these data, lexically specific constraint Coronal-Have[anterior] is proposed. Along the lines of Pater (2000) and Pater and Coetzee (2005), lexically specific constraint Coronal-Have[anterior] emerges when *t* in the underlying representation is not specified for [anterior]. Therefore, candidates where *t* followed by *i* does not have [anterior] are eliminated as the winning candidate.

(36)Evaluation of *kat^{h}i* → *kac^{h}i*

kat^{h}i	Have- [ant]	ID- [+ant]	OCP	*C-Pal | [-ant]	ID- [-ant]	Max- Pal	Pal-*i*	Dep
a. kat^{h}i | [+ant]		*!					*	
☞b. kac^{h}i | [-ant]				*	*			
c. kat^{h}i	*!						*	

In tableau (36), the optimal candidate depends crucially on the surface presence or absence of [+anterior] for alveolars. Given this, it is argued that candidate (36a), specified for [+anterior], cannot be the winner. Moreover, candidate (36c) cannot be selected as the optimal form since it incurs the violation of lexically specific constraint Coronal-Have[anterior]. Therefore, (36b) surfaces as a winner in spite of the violation of *C-Palatal$_{[-anterior]}$.

4. Conclusion

The present paper analyzes palatalization and depalatalization in CMK within the framework of OT by facilitating Kiparsky's (1993) lexical prespecification system. In general, palatals in CMK are contour segments that are specified for both [+continuant] and [-continuant] and unspecified for the Coronal Node since having both [+continuant] and [-continuant] eliminates the necessity for [-anterior] under the Coronal Node. Palatals that undergo depalatalization are prespecified for [-anterior]; constraint *C-Palatal$_{[-anterior]}$ ensures depalatalization. In the same sense, alveolars in CMK that are not specified for [+anterior] undergo palatalization before *i*. However, frequently palatalization does not occur; in these cases, this paper argues that the alveolars before *i* that do not undergo palatalization are prespecified for [+anterior]; Identity-[+anterior], which is undominated, bans alveolars from being palatalized.

By carefully investigating depalatalization and palatalization in CMK, this paper successfully accounts for situations when these two processes occur or when not within the framework of OT incorporated with the prespecified feature system.

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