

Neutralizations and variations in Korean verbal paradigms

Yoonjung Kang

University of Toronto

1 Introduction

The unsuffixed form of a Korean noun has a special status in the noun paradigm and many Korean nouns are being restructured based on their unsuffixed form. For example, the noun /puək^h/ ‘kitchen’ alternates between [puək^h-e] (LOC: a vowel initial suffix) and [puək] (without a suffix) due to a restriction against a laryngeally marked coda. In a more common pronunciation, however, the noun is restructured as /puək/ based on the unsuffixed form: [puək] ~ [puək-e]. However, a similar restructuring is unattested in verbs and this asymmetry is attributed to the fact that verbs cannot stand alone in Korean and hence do not have a “base” which can force an overapplication of deaspiration in other forms in the paradigm (Kenstowicz 1997).

In this paper, I examine the dialectal variations in Korean verb conjugation and propose that the Korean verbal paradigm has a base too—namely, the “A-initial” suffix form—and that a good deal of dialectal variations in Korean verbs are explained as a result of reanalysis of the verbal stem’s UR based on this base form. Under this analysis the observed noun-verb asymmetry follows from the different phonological properties of the nominal and verbal bases. Implicit in the claim of the current paper is the assumption that there is a single form in the paradigm that learners pay a particular attention to in the language in general (Albright 2002). While there is some sporadic evidence that forms other than the unsuffixed form of the noun or the A-initial suffix form of the verb may act as a base of reanalysis (Kang, in preparation), the single base hypothesis seems heuristically useful and empirically justified to a large extent in Korean. I start with some background in morphophonology of Korean verbs.

2 Background

2.1 Verbal suffixes

Verbal suffixes in Korean can be grouped into 4 categories according to their phonological properties. Examples of the four suffix types are given in (1). “A-initial” suffixes show vowel harmony with the stem vowel and alternate between an [a]-initial form (for a stem with /a o/) and an [ə]-initial form (for a stem with /i i u e ə æ/), as shown in (1a) for /ə/~a/, which has multiple functions as a declarative, imperative and interrogative sentence ending. When the stem ends in a vowel, the sequence of the stem-final vowel plus the suffixal vowel is eliminated through vowel deletion or devocalization

as shown in (2).¹

	<i>C-final stem:</i> /mək-/ ‘to eat’	<i>V-final stem:</i> /ka-/ ‘to go’
a. <i>A-initial suffix:</i>	mək-ə	ka (<ka-a)
b. <i>i-initial suffix:</i>	mək- <u>imjən</u>	ka- <u>mjən</u>
c. <i>C-initial suffix:</i>	mək- <u>k’o</u>	ka- <u>ko</u>
d. <i>C-alternating suffix:</i>	mək- <u>s’imnita</u>	ka- <u>mnita</u>

(2) a. /a-a/ → [a]	: /ka-a/	[ka]	‘to go’
b. /ə-ə/ → [ə]	: /sə-ə/	[sə]	‘to stand up’
c. /i-ə/ → [ə]	: /s’i-ə/	[s’ə]	‘to use’
d. /e-ə/ → [eə] ~ [e]	: /se-ə/	[seə] ~ [se]	‘to count’
e. /æ-ə/ → [æə] ~ [æ]	: /næ-ə/	[næə] ~ [næ]	‘to take out’
f. /o-a/ → [oɑ] ~ [wɑ]	: /s’o-a/	[s’oɑ] ~ [s’wɑ:]	‘to shoot’
g. /u-ə/ → [uə] ~ [wə]	: /tsu-ə/	[tsuə] ~ [tswə:]	‘to give’
h. /i-ə/ → [iə] ~ [jə]	: /ki-ə/	[kiə] ~ [kjə:]	‘to crawl’

“i-initial” suffixes show an alternation between i and Ø, as shown in (1b) for /(i)mjən/ ‘if’; the i form occurs after a consonant-final stem and the Ø form occurs after a vowel-final stem. “C-initial” suffixes have invariant shapes except for alternations due to regular phonological processes such as post-obstruent tensification as shown in (1c) for /-ko/ ‘and’: /mək-ko/ [mək-k’o]. “C-alternating” suffixes have a long and a short allomorph and the long form occurs after a consonant-final stem and the short form occurs after a vowel-final stem, as shown in (1d) for /-(s)i)mnita/ ‘addressee honorific declarative sentence ending’. In the following discussion, C-alternating suffix forms will be shown only when crucial for the discussion.

2.2 /h/ and /ʔ/-final verbs

Korean has quite a few verbal stems that end in /h/. Stem-final /h/ may be preceded by a vowel as in /tsoh-/ in (3a), or by a coronal sonorant (/n, l/) as in /manh-/ in (3b).

(3)	<i>A-initial</i>	<i>i-initial</i>	<i>C-initial</i>
a. /tsoh-/ ‘to be good’	tso-a	tso- <u>ini</u> *tso-ni	tso- <u>k^ho</u> (</tsoh-ko/) tso- <u>s’o</u> (</tsoh-so/) tson- <u>ni</u> (</tsoh-ni/)
b. /manh-/ ‘to be plenty’	man-a	man- <u>ini</u>	man- <u>k^ho</u> , man- <u>s’o</u>

The stem-final /h/ is deleted before an A-initial suffix or an i-initial suffix. The deletion of an intersonorant /h/ is only optionally attested in casual speech in other morphological contexts but is obligatory in the verbal stem-final position. Before a consonant-initial suffix, /h/ is realized as aspiration, tensification, or gemmination of the following consonant as applicable. Note that in (3a), the i-initial suffix form of the verb ‘to be good’

has the *i*-allomorph ($[\widehat{\text{tso-}}\mathbf{i}\widehat{\text{ni}}]$), indicating that the allomorph selection treats the verb as consonant-final even though the final consonant [h] is not realized in the surface.

The so-called ‘s’-irregular verbs such as ‘to compose’, shown in (4), developed from verbs that used to have a stem-final /z/ in Middle Korean (MK) but synchronically the stem-final consonant is deleted before a vowel-initial suffix and surfaces as tensification or gemmination of the following suffixal consonant before a consonant-initial suffix.

(4)	<i>A-initial</i>	<i>i-initial</i>	<i>C-initial</i>
$[\widehat{\text{tsi}}\text{ʔ-}]$ ‘to compose’	$[\widehat{\text{tsi}}\text{-}\text{ə}]$	$[\widehat{\text{tsi}}\text{-}\mathbf{i}\widehat{\text{ni}}]$	$[\widehat{\text{tsi}}\text{-}\mathbf{k}'\text{o}], [\widehat{\text{tsin}}\text{-}\mathbf{ni}]$
Cf. MK: $[\widehat{\text{tsiz}}\text{-}]$	$[\widehat{\text{tsiz}}\text{-}\text{ə}]$	$[\widehat{\text{tsiz}}\text{-}\text{ini}]$	$[\widehat{\text{tsis}}\text{-}\text{ko}]$

In MK, the stem-final /z/ alternated between [z] (before a vowel-initial suffix) and [s] (before a consonant-initial suffix). In subsequent sound changes, the phoneme /z/ is lost in the majority of dialects and coda [s] neutralized to [t], which is subject to place and manner assimilation, leading to the current alternation in ‘s’-irregular verbs. Note that similar to /h/-final verbs, the allomorph selection of *i*-initial suffixes treats these verbs as consonant-final ($[\widehat{\text{tsi}}\text{-}\mathbf{i}\widehat{\text{ni}}]$, $*[\widehat{\text{tsi}}\text{-}\mathbf{ni}]$). These verbs are still written with final letter ‘s’ but in fact the stem is never realized with [s] in the surface. Following Bak (2004) among others, I assume that these verbs are underlyingly /ʔ/-final and that /ʔ/ is deleted before a vowel-initial suffix (parallel to /h/) and is realized as modification of the following consonant before a consonant-initial suffix.

The behavior of nasal-final verbs is also peculiar in that they tensify the suffix-initial consonant. For example, the verb ‘to plant’ is realized as $[\text{sim}\text{-}\text{ə}] \sim [\text{sim}\text{-}\mathbf{i}\widehat{\text{ni}}] \sim [\text{sim}\text{-}\mathbf{k}'\text{o}]$, $*[\text{sim}\text{-}\text{ko}]$. Post-nasal tensification is not a general process of Korean phonology but applies to all verbs ending in a nasal without exception. I will assume that all nasal-final verbs in Korean in fact end in /ʔ/ underlyingly.

The verbs discussed in this section are “irregular” in that their patterns do not follow from the rest of Korean phonology straightforwardly and we need to posit morphologically conditioned rules and/or an abstract underlying segment /ʔ/. However, the nature of their irregularity differs from that of the verbs to be discussed in the next section in that while for the latter, the irregularity is characterized as unexpected changes in the surface shape of *stem* itself, for the former, the irregularity surfaces as unexpected changes in the *suffix*, such as aspiration, tensification and gemmination, even though this irregularity may have arisen from the property of the stem.

2.3 Irregular verbs

In addition to the ‘s’-irregular verbs in (4), Korean has several other classes of verbs that are traditionally referred to as irregular. Examples for each class are given in (5). While the literature agrees in general in classifying the verbs in (5) as irregular, there are two other classes of verbs—/i/-final and /l/-final verbs—which are variably classified as “regular” or “irregular”. Examples are given in (6).

	<i>A-initial</i>	<i>i-initial</i>	<i>C-initial/C-alternating</i>
(5) a. 'p'-irregular: 'to help' [t <u>ou</u>]~[t <u>op</u>]	tow-a	tou-mjən	top-k'o
Cf. /p/-regular: 'to be narrow' /tsop-/	tsop-a	tsop-imjən	tsop-k'o
b. 't'-irregular: 'to load' [sil]~[sit]	sil-ə	sil-imjən	si-k'o (<sit-ko)
Cf. /t/-regular: 'to close' /tat-/	tat-a	tat-imjən	ta-k'o (<tat-ko)
c. 'li'-irregular: 'to flow' [hi <u>ll(i)</u>]~[hi <u>li</u>]	hill-ə	hili-mjən	hili-ko
Cf. /li/-regular: 'to pour' /t'ali/	t'al-a	t'ali-mjən	t'ali-ko
d. 'ha'-irregular: 'to do' [he]~[h <u>a</u>]	he	ha-ni	ha-ko
e. 'h'-irregular:			
'yellowish' [nule]~[nulə]~[nul <u>əh</u>]	nule	nulə-ni	nulə-k ^h o
Cf. /h/-regular: 'to insert' /nəh-/	nə-ə	nə-ini	nə-k ^h o
f. 'lə'-irregular: 'to reach' [i <u>ll(i)</u>]~[i <u>li</u>]	ilil-ə	ili-mjən	ili-ko
(6) a. /i/-final: 'to be big' /k ^h i-/	k ^h -ə	k ^h i-ni	k ^h i-ko
b. /l/-final: 'to open' /jəl-/	jəl-ə	jə-sini	jə-na, jəl-ko/jə-mnita
		jəl-mjən	

In all i-final verbs the final vowel [i] is systematically deleted before a suffixal vowel as discussed in (2c) leading to an i-∅ alternation of stem as shown in (6a). The weak vowel [i] is deleted adjacent to another vowel only optionally in other morphological contexts and therefore, the stem-final i-deletion does not follow from a more general phonology of the language straightforwardly. On the other hand, i-final verbs are exceptionless in showing the prevocalic i-deletion and can be considered “regular” in this respect.

A similar ambiguity applies to /l/-final verbs. All /l/-final verbs show an alternation between [l] and ∅. An example is given in (6b). The ∅ form occurs before suffixes beginning with [s] or [n] and a few other suffixes where [l] form would create an unsyllabifiable cluster ([jə-m], *[jəl-m] ‘open-ing’, [jə-mnita], *[jəl-mnita] ‘open-addressee honorific declarative’), while [l] form occurs elsewhere. Deletion of /l/ in these segmental environments is not systematically attested in other morphological contexts. Another peculiarity of /l/-final verbs is that the suffixal allomorph selection treats these verbs as if they are vowel-final regardless of whether the suffix actually attaches to the [l] form or the ∅ form ([jəl-mjən] ‘open-if’: cf. [mæk-imjən] ‘eat-if’). In other words, the irregular nature of the /l/-final verbs is not only due to the unexpected alternation of the stem itself but to the unexpected choice of suffixal allomorphs. These verbs, however, may still be considered “regular” in that all /l/-final verbs follow the pattern without exception. Such ambiguity in classification also applies to the laryngeal-final verbs discussed in the previous section; we need additional rules or an abstract segment to account for their patterns but nevertheless the pattern applies to all relevant verbs without exception.

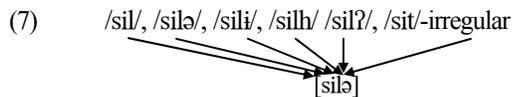
It seems that the classification of verbs into regular vs. irregular is not a categorical issue but a verb may exhibit a different degree or type of irregularity (cf. Park 2004). Related to this issue is the fact that there is no consensus in the literature regarding the

proper lexical representation of irregular verbs (cf. Rubach and Booij 2001); some opt for a single UR analysis with an abstract underlying form and/or morphologically conditioned phonological rules (essentially treating them as “regular”) while others denounce the abstractness of such analyses and argue for a more concrete approach where the irregular alternants are listed in the underlying representation (Um 1999 for a recent discussion). This highlights the diversity of perspectives on (and somewhat arbitrary nature of) the classification of regular and irregular patterns. In the current paper, for the sake of concreteness, I will assume that the verbs in (5) are irregular and listed with multiple allomorphs in the UR, while other verbs, including *i* and *l*-final verbs, are regular in that their surface alternation is derived from a single UR via (morphologically conditioned) phonological rules.

3 The base of verbal paradigms

In this section, I will present the data on variations attested in verbal paradigms. It will be demonstrated that most of these variations find a natural explanation if the A-initial suffix form is posited as a **base** of the paradigm based on which other forms in the paradigm can be projected. The primacy of vowel-initial suffix forms in the verbal paradigm and their role as a locus of potential reanalysis has been pointed out previously, most notably by Hyun Kim (2001). In this paper, building on Hyun Kim’s insight, I make a more specific proposal that it is the A-initial suffix form, in particular, that serves as the primary base of Korean verbal paradigm. I will not address the question of why the A-initial suffix form is chosen as the verbal base except for noting that the common sentence ending /ə~/~/ɑ/ occurs in high frequency in casual speech (H. Choi 2003) and in children’s speech (Lee et al. 2003) and also it is a semantically unmarked sentence ending (Kim and Suh 2004).

The A-initial suffix form, however, is not very “informative, in the sense that it preserves the most contrasts” (Albright 2002). The processes affecting vowel sequences in the stem-suffix juncture and deletion of a stem-final laryngeal consonant before vowel-initial suffixes (section 2.2.) all lead to neutralization of underlying contrasts of stems in the A-initial suffix form. Therefore, in all but very few cases, given a particular A-initial suffix form of a verb, one cannot tell for certain what the correct UR of the stem should be. The classes of irregular verbs further compound the ambiguity. For example, given an A-initial suffix form [silə], theoretically, there are at least 6 different types of verbs that can result in this form, as the figure in (7) shows schematically. Such ambiguity of the base form leads to frequent misanalyses and as a result variations and changes occur. I will discuss changes attested in irregular and regular verbs in turn.



3.1 Changes in irregular verbs

For all types of irregular verbs, there are variants where the alternation is regularized based on the A-initial suffix form. Examples of regularization for ‘hɑ’-irregular, ‘h’-irregular, ‘lǎ’-irregular, and ‘li’-irregular verbs are listed in (8) through (11). (S) and (V) mark the standard forms and the dialectal variants, respectively. The forms showing the crucial changes are highlighted in bold face. The data for this study are drawn from Bak (2004), M. Choi (1985, 1988, 1993), B. Kim (2003), H. Kim (2001, 2002), Park (2002), Um (1999), Yoo (2000), and AKS (1990-1995). Unfortunately, space limitation prevents giving credit to all relevant sources for each datum and identifying the dialects where the forms are spoken. Specific examples are from AKS (1990-5) unless specified otherwise.

(8) ‘hɑ’-irregular	<i>A-initial</i>	<i>i-initial</i>	<i>C-initial</i>
(S) /hæ-/~/hɑ-/ ‘to do’	hæ	hɑ-ni	hɑ-ku
(V) /hæ-/	hæ (<hæ-ɑ)	hæ-ni	hæ-ku
(9) ‘h’-irregular			
(S) /nule-/~/nulǎ-/~/nulǎh-/ ‘to be yellowish’	nule	nulǎ-ni	nulǎ-k ^h u
(V) /nule-/ (M. Choi 1993)	nule (<nule-ǎ)	nule-ni	nule-ku
(10) ‘lǎ’-irregular			
(S) /ilil(i)-~/~/ili-/ ‘to reach’	ilil-ǎ	ili-mjǎn	ili-ko
(V) /ilili-/ (M. Choi 1993)	ilil-ǎ (<ilili-ǎ)	ilili-mjǎn	ilili-ko
(11) ‘li’-irregular ²			
(S) /hill(i)-~/~/hili-/ ‘to flow’	hill-ǎ	hili-mjǎn	hili-ko
(V) /hilli-/	hill-ǎ (<hilli-ǎ)	hilli-mjǎn	hilli-ko

Note that the changes shown in the above data all eliminate the irregular allomorphy but do not necessarily lead to a more uniform realization of the stem at the surface level. For example, for (10), in the standard form, the stem alternates between ‘l’ and Ø ([ilil-] ~ [iliØ-]) but in the new variant, the stem alternates between Ø and ‘i’ ([ililØ-] ~ [ilili-]). If improving the surface-level similarity between the stem alternants is the main motivation behind the change, it is puzzling why the new variant should be any better than the standard form. However, if the change is analyzed as a result of reanalysis of the stem’s UR based on the A-initial suffix form, the change makes more sense. The same line of argument applies to most other data discussed in the paper.³ Reanalysis patterns found in ‘t’ and ‘p’-irregular verbs are more varied.

(12) ‘t’-irregular			
a. /l-/~/t-/ → /lʔ-/	<i>A-initial</i>	<i>i-initial</i>	<i>C-initial</i>
(S) /mul-/~/mut-/ ‘to ask’	mul-ǎ	mul-ini	mu-k’o (<mut-ko)
(V) /mulʔ-/	mul-ǎ	mul-ini	mul-k’o

<u>b. /l-~/t-/ → /lh-/</u>			
(V) /mulh-/	mul-əṣə	mul-ijŋk'e	mul-k^ho
<u>c. /l-~/t-/ → /li-/</u>			
(S) /til-~/tit-/ 'to listen'	til-ə	til-ini	ti-k'o (<tit-ko)
(V) /t̄li-/	t̄li-əṣə	t̄li-ijŋk'e	t̄li-ko
<u>d. /l-~/t-/ → /l-/</u>			
(S) /kil-~/kit-/ 'to raise water'	kil-ə	kil-ini	ki-k'o (<kit-ko)
(V) /kil/ (B. Kim 2003)	kil-ə	ki-ni	kil-ta

't'-irregular verbs are variably reanalyzed as /l̄-/final, /lh-/final, /li-/final or /l-/final, with the first two more common than the latter two. What these varied classes of verbs have in common is that they all end in [-lə] in the A-initial suffix form. In fact, the attested changes in 't'-irregular verbs exhibit the whole range of possible reanalysis schematically shown in (7) except for the most straightforward reanalysis as a /l̄-/final stem. Note that in (10) and (11), also, the reanalysis does not take the entire A-initial suffix form of the verb as the stem (*/hillə-/: [hillə] ~ *[hillə-ni] ~ *[hillə-ko]), which would have given a uniform surface form for the verbal stem, [hillə-], and fared much better in terms of OO-correspondence than the actual choice (/hilli-/: [hill-ə] ~ [hilli-ni] ~ [hilli-ko]), where the stem final [i] alternates with ∅ (Cf. Oh (2004)'s output-to-output correspondence analysis). As we will see throughout the paper, in the reanalysis of verb stems, there is a strong preference to assign an overt exponence for the *suffix* (or for any morpheme in general) if possible and this factor trumps over a preference for uniform exponence of stems. But, in cases where it is impossible to assign an overt component to the suffix form, as is the case in (8) and (9), the whole-word-as-stem analysis does occur.

(13) 'p'-irregular

<u>a. /u~/p/ → /u/</u>	<i>A-initial</i>	<i>i-initial</i>	<i>C-initial</i>
(S) /tou-~/top-/ 'to help'	tow-a	tou-mjən	top-k'o
(V) /tou-/	tow-a	tou-mjən	tou-ko
<u>b. /u~/p/ → /u~/up/</u>			
(V) /tou-~/toup-/	tow-a	tou-mjən	toup-k'o
<u>c. /u~/p/ → /wa/</u>			
(V) /towa-/	towa	towa-mjən	towa-ko
<u>d. /uu~/up/ → /uʔ/</u>			
(S) /kuu-~/kup-/ 'to grill'	kuw-ə	kuu-ni	kup-k'o
(V) /kuʔ-/ (M. Choi 1993)	ku-wə (<ku-ə : glide insertion)	ku-uni (<ku-ini : assimilation)	ku-k'o
<u>e. /uu~/up/ → /uh/</u>			
(V) /kuh-/ (M. Choi 1993)	ku-wə (<ku-ə)	ku-uni (<ku-ini)	ku-k^ho

'p'-irregular verbs are variably reanalyzed as a /u/-final, /l̄-/final, /h/-final, 'up'-irregular, and /wa/-final verb, the last of which is far less common than the others.⁴ The rarity of the

final type of reanalysis can be attributed to the fact that this analysis fails to assign a non-zero exponence to the suffix. The change of [tou-ko] to [toup-ko] in (13b) is different from all other cases of changes discussed so far in that the change does not eliminate an irregular alternation; rather the change alters the irregular verb to another type of irregular verb.⁵

To recapitulate, all the cases presented in (8) through (13) show that the A-initial suffix form remains constant, while other forms in the paradigm may change in accordance with a reanalysis of the stem based on the A-initial suffix form.

There is a group of apparent counterexamples to the basehood of A-initial suffix form in the Korean verbal paradigm. In many southeastern dialects, 'p'-irregular verbs are realized as regular /p/-final verbs. For example, the verb 'to be pretty' which conjugates as [kow-a] ~ [kou-ni] ~ [kop-k'o] in the standard dialect is realized as [kop-a] ~ [kop-ini] ~ [kop-k'o]. Based on this fact, H. Choi (2003) claims that in Korean, the base of the verbal paradigm is the C-initial suffix form not the A-initial suffix form. But, this claim is based on an incorrect assumption that the southeastern pattern developed from the standard 'p'-irregular paradigm through regularization. Historically, these verbs developed from regularly inflecting /β/-final verbs in MK, which showed an alternation between [β] before a vowel and [p] before a consonant: [koβ-a] ~ [koβ-ini] ~ [kop-ko]. Subsequently, the phoneme [β] is lost; in the majority of dialects, the intervocalic [β] lenited to [w/u], giving rise to the current [u]~[p] alternation in 'p'-irregular verbs; in the southeastern dialects, on the other hand, the intervocalic [β] merged with [b] (an allophone of /p/) rather than with [w]. These divergent developments of [β] occurred in other morphological contexts as well, resulting in dialectal differences such as *sæu* vs. *sæpi* 'shrimp'. A parallel development happened to the so-called 's'-irregular verbs (/z/-final verbs of MK). While intervocalic /z/ is simply lost in most dialects, in many southern dialects, intervocalic /z/ merged with /s/. For example, many southern dialects show /tsis-/: [tsis-ə] ~ [tsis-ini] ~ [tsi-k'o] for the standard /tsi?-/ 'to compose', discussed in (4). As for 't'-irregular verbs, a 't'-irregular verb /tit-/~/til-/ 'to listen' is realized as /t/-regular in the Phyengan dialect: [tit-ə] ~ [tit-ini] ~ [ti-k'o] (< tit-ko). According to Hyun (1958), all /t/-regular verbs of standard dialect had a level tone in MK while all 't'-irregular verbs had a high tone. Interestingly, the only exception to the latter generalization is the verb 'to listen', which is an irregular verb in most dialects but had a level tone in MK. In other words, if the development of 't'-irregular verbs is conditioned by the high tone, as Hyun (1958) proposes, it is the Phyengan dialect that got it right from the beginning and it is the standard dialect (and others) where the lenition of [t] to [l] overapplied in 'to listen' for some reason. In other words, the Phyengan form of 'to listen' did not arise from the regularization of the standard form and hence does not constitute evidence for the basehood of C-initial suffix form.

3.2 Changes in regular verbs

Regular verbs also show variations that stem from a reanalysis of the verbal stem based

on the A-initial suffix form. In (14), the stem-final /jə/ is reanalyzed as a sequence of stem-final /i/ and suffixal /ə/, which surfaces as [jə] via devocalization (cf. (2h)). In (15), verb stems that end in /ə/ is reanalyzed as /i/-final and the vowel [ə] is reanalyzed as suffixal. In (16), stems that end in a laryngeally marked consonant are reanalyzed as /i/-final.

<u>(14) /Xjə-/ → /Xi-/</u>	<i>A-initial</i>	<i>i-initial</i>	<i>C-initial</i>
(S) /k ^h jə-/ ‘to turn on’	k ^h jə (< k ^h jə-ə)	k ^h jə-mjən	k ^h jə-ko
(V) /k ^h i-/ (B. Kim 2003)	k ^h j-ə (< k ^h i-ə)	k^hi-mjən	k^hi-ko
<u>(15) /Xə-/ → /Xi-/</u>			
(S) /sə-/ ‘to stop’	sə (< sə-ə)	sə-mjən	sə-ko
(V) /si-/ (B. Kim 2003)	s-ə (< si-ə)	si-mjən	si-ko
<u>(16) /XC^h-/, /XC’-/ → /XC^hi-/, /XC’i-/</u>			
(S) /kip ^h -/ ‘to be deep’	kip ^h -ə (< kip ^h -ə)	kip ^h -imjən	kip-k’o
(V) /kip ^h i-/ (B. Kim 2003)	kip ^h -ə (< kip ^h i-ə)	kip ^h i-mjən	kip^hi-ko

It is notable that the reanalysis shown in (16) is confined to stems that end in a laryngeally marked segment such as /hult^h-/ ‘to hackle’, /tsit^h-/ ‘to be thick’, /sək²-/ ‘to mix’, and /nop^h-/ ‘to be high’ and does not apply to stems ending in a laryngeally unmarked consonant or a nasal consonant. This is attributed to the fact that in the majority of existing i-final verbs (particularly adjectival verbs) of Korean the prefinal consonant is laryngeally marked (H. Kim 2002) and the reanalysis is sensitive to the segmental patterns found in the existing words of the lexicon.

The reanalysis of verbs ending in a laryngeally marked consonant also highlights the contrast between verbs and nouns. The noun /puək^h/ ‘kitchen’ is reanalyzed as /puək/ with deaspiration of the final consonant, while /kip^h-/ ‘to be deep’ is reanalyzed as /kip^hi/. The noun-verb asymmetry is due to the fact that in nouns, the base is an unsuffixed form where the stem-final aspirated consonant is deaspirated while in the verbal base, the aspiration is preserved.

Also evident in these examples is the strong preference to assign an overt exponence ([ə]) for the A-initial suffix over a preference for uniformity of stem exponence. The case is even more striking in (14) and (15) where the original forms in fact had perfectly uniform stem exponences but the uniformity is undone in the new variants. This is in contrast to the common mistakes found in Child Korean or American Korean, where a whole-word-as-stem analysis seems to be frequent; for example, /k^hi-/ ‘to be big’ and /po-/ ‘to see’ is reanalyzed as /k^hΛ-/ and /pwa-/ based on the A-initial suffix form of the verbs [k^hΛ] and [pwa], respectively (H. Choi 2003 and Lee and Im 2004). This difference between the Adult Korean and Child Korean can be attributed to the underdevelopment of morphological analysis in Child Korean. In other words, children who are making these mistakes likely have not figured out that the A-initial suffix form is a morphologically complex word consisting of a stem and a suffix. Therefore, in Child Korean, the reanalysis tends to choose a more transparent analysis for the stem. On the

other hand, in Adult Korean, the tendency is to overapply their knowledge of stem-suffixal structure of the A-initial suffix form, parsing out an overt suffix when there is none. The next example in (17), however, shows the opposite pattern of change where the originally suffixal vowel is reanalyzed as part of the stem.

(17) $\widehat{/ts^hi-}/, \widehat{/tsi-}/ \rightarrow /X\emptyset-/$	<i>A-initial</i>	<i>i-initial</i>	<i>C-initial</i>
(S) $\widehat{/ts^hi-}/$ ‘to hit’	$\widehat{ts^h-\emptyset}$ (< $\widehat{ts^hj\emptyset}$ < $\widehat{ts^hi-\emptyset}$)	$\widehat{ts^hi-mj\emptyset n}$	$\widehat{ts^hi-ko}$
(V) $\widehat{/ts^h\emptyset-}/$ (M. Choi 1993)	$\widehat{ts^h\emptyset}$ (< $\widehat{ts^h\emptyset-\emptyset}$)	$\widehat{ts^h\emptyset-mj\emptyset n}$	$\widehat{ts^h\emptyset-ko}$

When a verb that consists of an affricate and $/i-/\widehat{ts^hi-}/$ ‘to hit’ and $\widehat{/tsi-}/$ ‘to carry’—is combines with an A-initial suffix, devocalization of stem vowel creates a sequence of an affricate plus a palatal glide [j], which is not allowed in Korean and the glide is deleted ($\widehat{/ts^hi-\emptyset}/ > [\widehat{ts^hj\emptyset}] > [\widehat{ts^h\emptyset}]$). In some Keyngsang dialects, the A-initial suffix form in its entirety is reanalyzed as a stem and extended to the rest of the paradigm, as shown in (17). Deletion of [j] following an affricate is not a frequently encountered process in Korean and this can make the form too opaque to warrant a reliable reconstruction of the original stem based on the A-initial suffix form only. A reanalysis to an i-final stem is not an option in this case due to a tendency to avoid a sequence of an affricate and [i]. Therefore, the only viable reanalysis is the whole-word-as-stem analysis.

Similarly, in many southern dialects where a tautosyllabic sequence of a consonant and a glide is not allowed, devocalization of stem vowel and subsequent glide deletion makes the A-initial suffix form too opaque and the entire word can be reanalyzed as a stem. For example, the A-initial suffix form of the verb $/t^u-/\widehat{/t^u-}/$ ‘play a hand (of chess)’ is $[t^u\emptyset]$ (< $[t^uw\emptyset]$ < $/t^u-\emptyset/$) and the verb is reanalyzed as $/t^u\emptyset-/\widehat{/t^u\emptyset-}/$ (H. Kim 2002).

A deletion of stem-final laryngeal consonant before a vowel-initial suffix also leads to ambiguity and reanalysis in regular verbs (H. Kim 2001). A stem ending in a long vowel is very often reanalyzed as a laryngeal-final stem as shown in (18).

(18) $/V:/ \rightarrow /Vh/, /V?/$ (H. Kim 2001)			
(S) $/ko:/$ ‘to stew’	ko-a ~ kwa: ~ ko-wa	ko:-mjən	ko:- \widehat{tsi}
(V) $/koh-/\widehat{/koh-}/$	ko-a ~ kwa: ~ ko-wa	ko-imjən ~ ko:-mjən	ko-$\widehat{ts^hi}$
(V) $/ko?-/$	ko-a ~ ko-wa	ko-imjən ~ ko:-mjən	ko-$\widehat{ts^?i}$

As for the changes in the other direction—a laryngeal consonant-final stem changing to a vowel-final stem—a clear example of such reanalysis is reported for American Korean; $/s^h-/\widehat{/s^h-}/$ ‘to stack’ is reanalyzed as $/s^h\emptyset-/\widehat{/s^h\emptyset-}/$. But, in Adult Korean, changes in this direction seem rare if any. There is not enough data to draw any meaningful conclusion but if there is indeed such a contrast between the Adult Korean and American Korean, this seems in line with the previous observation that while in Child Korean and American Korean, the reanalysis tends to opt for a more transparent analysis, in Adult Korean, the tendency is hypercorrection; in this case, the speakers are overapplying their knowledge of intersonorant laryngeal deletion and they create an alternation when there was none

before. /ʔ/-final verbs and /h/-final verbs are rarely reanalyzed as a V-final verb but changes between the two verb types in both directions are attested.

(19) /Vʔ/ → /Vh/

(S) /naʔ-/ ‘to get better’	na-a (<naʔ-a)	na-imjøn	na-k’o
(V) /nah-/	na-a (<nah-a)	na-imjøn	na-k^hu

(20) /Vh/ → /Vʔ/

(S) /s’ah-/ ‘to stack’	s’a-a (<s’ah-a)	s’a-imjøn	s’a-k ^h o
(V) /s’aʔ-/ [YJK]	sa-a	s’a-imjøn	s’a-k’o

(19) is an example where a /ʔ/-final stem in the standard dialect is realized as an /h/-final stem. Changes from an /h/-final stem to a /ʔ/-final stem are also found, as shown in (20) but there seems to be a curious restriction to the change in this direction that the initial consonant of the stem has to be tense. In my own speech, /ts’ih-/ ‘to pound’, /t’ah-/ ‘to braid’, and /s’ah-/ ‘to stack’ can be realized with tensification on the following suffix ([ts’i-k’o], [t’ah-k’o], [s’a-k’o]); in other words, they can be reanalyzed as a /ʔ/-final stem. But, I find a corresponding change in /noh-/ ‘to lay down’, /nəh-/ ‘to insert’, and /tsoh-/ ‘to be good’ unacceptable (*[no-k’o], *[nə-k’o], *[tso-k’o]). This observation is based on my own speech and should be verified based on a systematic study.

Changes between /h/ and /ʔ/-final stems are also attested when the pre-final segment is a nasal. For example, /k’inh-/ ‘to cut’ (also, beginning with a tense consonant) of standard dialect is attested as /k’inʔ-/ ([k’in-k’o]) and /anʔ-/ ‘to hug’ of standard dialect is attested as /anh-/ ([anh-k’o]) (H. Kim 2001).

Finally, /li/-final, /lh/-final and /l/-final verbs share a common shape of the A-initial suffix form, [IV]-final, and therefore interchanges between these verbs are expected and attested. As for /li/-final verbs, changes in all possible directions are attested, as shown in (21). H. Kim (2001) mentions that this verb is also attested as /t’alʔ-/ but does not provide conjugated forms. /l/-final verbs also exhibit changes to laryngeal-final verbs, as shown in (22).

(21) /li-/ → /lh-/, /lʔ-/, /l/ (H. Kim 2001)

(S) /t’ali-/ ‘to follow’	t’al-a	t’ali-ni	t’ali-ko
(V) /t’alh-/	t’al-a (<t’alh-a)	t’al-ini	t’al-k^ho
(V) /t’al/	t’al-a	t’a-ni	t’al-ko

(22) /l/ → /lh-/, /lʔ/

a. (S) /il-/ ‘to wash (rice)’	il-ə	i-ni	il-ko
(V) /ilh-/ (Yoo 2000)	il-ə (<ilh-ə)	il-imin	il-k^hu
b. (S) /mul-/ ‘to bite’	mul-ə	mu-ni	mul-ku
(V) /mulʔ-/ (H. Kim 2001)	mul-ə (<mulʔ-ə)	mul-ini	mul-k’u

As discussed in section 2.3., /l/-final verbs have a quirky stem alternation that follows a complex conditioning and also show a suffixal irregularity. /l/-final verbs are frequently

realized with parts of this quirky patterns straightened out or altered; for example [əl-ɪmjən] ‘to freeze-if’ and [tʰəl-ɪnikʰɑ] ‘to shake-therefore’ are used in place of standard [əl-mjən] and [tʰə-nikʰɑ] (H. Choi 2004). These changes are not a result of reanalysis of the verbal stem, per se, but a result of a change in the stem-final /l/-deletion rule and/or regularization of i-suffix allomorphy. Finally, an /lh/-final verb is reanalyzed as /lʔ/-final; /ɑlh-/ ‘to suffer in pain’ is attested as /ɑlʔ-/ (H. Kim 2001).

What is particularly interesting about the changes in this last group of verbs that share the common [IV]-final shape of the A-initial suffix form is that a reanalysis to a ‘t’-irregular verb is unattested, although it also shares the same [IV] ending in the A-initial suffix form. Recall from (12), the changes in the other direction—from ‘t’-irregular to /lh/, /lʔ/, /l/, and /li/-final verbs—are all attested. In fact, we can make a more general observation that a reanalysis to an irregular verb is very rare in general. The only two cases of reanalysis to an irregular verb encountered so far is a change of ‘p’-irregular verbs to ‘up’-irregular verb (see (13a)) and a change of /ko:-/ ‘to stew’ to a ‘p’-irregular verb ([kɔw-ɑ] ~ [kɔw-ni] ~ [kɔp-tʰɑ]) mentioned in H. Kim (2001). Note that this generalization crucially depends on one’s definition of “irregular” verbs. Changes to marginally irregular verbs—a /i/-final, /h/-final and /lʔ/-final verbs—are very common and changes to a /l/-final verb is not as common but nevertheless not unattested.

4. Conclusion

Based on the data observed so far, several initial hypotheses are proposed regarding the factors that constrain the reanalysis in the verbal paradigm. First, dialectal variations in verbs are most adequately analyzed as a result of reanalysis of the stem’s UR based on the A-initial suffix form of the verb. Second, although there is some evidence for surface-level similarity effect (see notes 3 and 5), the general pattern is best understood as restructuring of the stem’s UR and elimination of irregular allomorphy rather than as levelling of the surface forms of the stem. Third, the reanalysis seems to be sensitive to the make-up of the existing verbs in the lexicon such that the reanalysis prefers a change to a verb type that is statistically better represented. Fourth, unlike in Child Korean or American Korean, in Adult Korean, the reanalysis tends to be hypercorrective such that in many cases a stem alternation is introduced when there used to be none.

Notes

* I would like to thank Adam Albright and Elan Dresher for helpful comments and discussions.

1. Details of vowel harmony and vowel sequence contraction are subject to dialectal variations. The pattern discussed here refers to the standard dialect.

2. Unlike variations attested for verbs in other classes, which tend to be dialect-specific and confined to specific lexical items, the change in ‘li’-irregular verbs is sweeping and applies for almost all verbs in this class and across all dialects.

3. It is not my contention, however, that OO-correspondence does not play any role in

variations and changes in verbal paradigms. In (12a), the C-initial suffix form changes from [mu-k'ŏ] to [mul-k'ŏ] and this change finds a more reasonable explanation with a surface-level correspondence constraint than with a UR misanalysis account. The new form [mul-k'ŏ] inherits the property expected by its own input /mut-ko/—namely, tensification of the suffixal consonant—as well as the surface stem form of the base [mul]. This seems to be a good candidate for an OO-correspondence analysis. If one were to explain this fact as a result of UR reanalysis without recourse to the notion of surface-level identity constraint, one faces an uncomfortable result that the reanalysis creates a novel type of verb (/lʔ/-final) which does not exist in standard Korean. This is at odds with the observation that reanalysis of UR tends to prefer the type of UR that is well attested in the existing words (Albright 2002; see the discussion on (16)). Also, a OO correspondence to the base form can provide an explanation for the underapplication of cluster simplification in verbs like [palp-t'ɑ] 'to tread' where the cluster is variably retained, due to the pressure from the base [palp-ɑ].

4. Another common variant for 'p'-irregular verbs is found only in polysyllabic stems. In this variant, the stem final /u/ is completely deleted before a vowel-initial suffix: musə~musə-ni~musəp-k'ŏ for the standard musəw-ə~musəu-ni~musəp-k'ŏ. Crucially, in this variant, the A-initial suffix form is altered. However, this is probably a phonetically motivated lenition and cannot be a result of reanalysis based on other forms in the paradigm.

5. This variant is very prevalent in many 'p'-irregular verbs. This is another case, where a more natural explanation is found in an OO-correspondence constraint.

References

- The Academy of Korean Studies (AKS). 1990-1995. *hankwukpangencyocip* ('Korean dialectal data'), vols. 1, 2, 4, 6, 8, 9. Sengnam, Korea: The Academy of Korean Studies.
- Albright, Adam. 2002. *The identification of bases in morphological paradigms*. Los Angeles, CA. Doctoral Dissertation, *UCLA*.
- Bak, Suk-Hui. 2004. ekan caykwucohwauy twu yoin ('Two factors of the restructuring of verbal stems' [translation as given]). *Hangul* 265. 135-169.
- Choi, Hye-Won. 2003. Paradigm Leveling in American Korean. *Language Research* 39,1. 183-204.
- Choi, Hye-Won. 2004. Explaining variation in Optimality Theory: the case of L-irregular verbs. *Studies in Modern Grammar* 38. 169-194.
- Choi, Myeng-Ok. 1988. li, lə-, ε(jə)-, h- pyenchiktongsaury umwunhyensangey tayhaye: pyenchiktongsalul cungsimulo ('On the phonology of irregular verbs: with special attention to li, lə-, ε(jə)-, and h-irregular verbs'). *Language Research* 24, 1. 41-68.
- Choi, Myeng-Ok. 1993. ekanuy caykwucohwawa kyochayhyenguy tanilhwa panghyang ('Restructuring of stem and direction of unification of alternants'). *Sengkoknonchong* 24. 1599-642.
- Kang, Yoonjung. In preparation. The Emergence of the Unmarked in an analogical change. To appear in the proceedings of *Seoul Linguistics Forum*.

To appear. In Kuno, S. et al. eds., *Harvard Studies in Korean Linguistics XI*.

- Kenstowicz, Michael. 1997. Base identity and uniform exponence: alternatives to cyclicity. In *Current Trends in Phonology: Models and Methods*, eds., J. Durand and B. Laks. Salford: University of Salford, 363-394.
- Kim, Bong-Gook. 2003. pokswukicehyenguy yuhyeng (1): hyengsenseng yoinuy kwancemeyse ('The pattern of plural underlying forms (1): from a generative point of view [translation as given]'). *Cintanhakpo* 95. 165-199.
- Kim, Hyun. 2001. hwalyonghyenguy caypunsekey uyhan yongen ekan caykwucohwa: hwuum malum ekanulouy pyenhwaey hanhaye ('Restructuring of verbal stems by the reanalysis of conjugated forms: with a special attention to changes into laryngeal consonant-final stems'). *Kwukehak* 37. 85-113.
- Kim, Hyun. 2002. hwalyonghyenguy caypunsekey uyhan caykwucohwawa pulmyenghwaklon ('An abduction and the restructuring by the reanalysis of conjugated forms [translation as given]'). *Language Research* 38,3. 779-799.
- Kim, Kyu-hyun and Kyung-Hee Suh. 2004. An analysis of Korean sentence-ending suffixes in caregiver-child interaction. *Language Research* 40,4. 923-950.
- Lee, Phil-Young and Yoo-Jong Im. 2004. emi hwalyong olyulul thonghay pon yuauy ene suptuk ('A study on the acquisition of language through the mistake of inflection in childhood [translation as given]') *Kwukekyoyuk* 115. 65-85.
- Lee, Sam-Hyung, Phil-Young Lee, and Yoo-Jong Im. 2003. emalemiuy suptuk kwacengey kwanhan yenkwu ('The study on the process of the acquisition of final endings: A case of Korean children under 36 months [translation as given]'). *Kwukekyoyukhakkyenkwu* 18, 320-346.
- Oh, Mira. 2004. Output-to-Output Correspondence in variants. In *Harvard Studies in Korean Linguistics X*, eds., Susumo Kuno et al. Seoul: Hanshin Publishing, 269-289.
- Park, Sun-Woo. 2002. hyentaykwuke 'lu' pulkyuchik hwalyongey tayhan kochal ('A study of Korean '-li' irregular predicate[translation as given]'). *Hanmahyenkwu* 10. 23-41.
- Park, Sun-Woo. 2004. pulkyuchikhwalyonguy pulkyuchiksengey tayhan kemtho ('On the irregularity of Korean unsystematic conjugation [translation as given]'). *Chengnamemunkyoyuk* 30. 223-249.
- Rubach, Jerzy and Geert E. Booij. 2001. Allomorphy in Optimality Theory: Polish Iotation. *Language* 77. 271-317.
- Um, Yongnam. 1999. Paradigmatic leveling of irregular verbs in Korean dialects: its implications for representations. In *Harvard Studies in Korean Linguistics VIII*, eds., Susumo Kuno et al. Seoul: Hanshin Publishing, 194-208.
- Yoo, Phil-Cay. 2000. Seoulpangen yongen caumekanuy hyengthayumwunlon ('Morphophonology of verb-final consonants in Seoul dialect'). *Kwuehak* 35. 35-65.

Department of Linguistics
University of Toronto
130 St. George Street, Room 6076
Toronto, ON, M5S 3H1, Canada
e-mail: yoonjung.kang@utoronto.ca