

KOREAN BASE VOWEL SHORTENING REVISITED*

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1. Introduction

The purpose of this paper is to provide a comprehensive description of vowel shortening phenomena in verb and adjective bases in Korean, traditionally known as verb stem vowel shortening. Vowel shortening (VS) in verb/adjective bases refers to a phenomenon in which a vowel in the base is shortened when a suffix is added. Although researchers concur that the process is triggered by suffixes, no agreement has been reached on which suffixes trigger VS. Some scholars state that a vowel is shortened before a vowel-initial suffix (Kim-Renaud, 1974, 1995; Kim, 1998, 2000), one example of which is shown in (1).

- (1) ta:m-¹ ‘to put in’ tam-uni ‘to put in and then’
sa:l- ‘to live’ sal-a ‘to live and’ (Kim, 1998: 294)

Some scholars have observed that VS occurs in voice-derived forms such as passive and causative (Huh 1965; Martin, 1968, 1992; Sohn 2001), regardless of whether the suffixes start with a vowel, as in (2a), or a consonant, as in (2b).

- (2) a. cwu:l- ‘to decrease’ cul-i (CAUS)² ‘reduce’
b. a:l- ‘to know’ al-li (CAUS) ‘inform’
ka:m- ‘to wind’ kam-k (CAUS) ‘be wound’ (Sohn, 2001: 193)

In response to their observations of seeming inconsistencies in the patterns of suffixes that do and do not trigger VS, others have concluded that VS-triggering suffixes are lexically determined (Davis and Cho, 1994; Ko, 2002, 2010, 2013).

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¹ The present study uses the Yale Romanization system for data transcription. See Table 19 for IPA equivalents of the Yale Romanization system for vowels. IPA equivalents of the Yale Romanization system for consonants are as follows: pp = [p'] tt = [t'] ss = [s'] cc = [c'] kk = [k'] ng = [ŋ]. In this chapter, long vowels are indicated by the symbol ‘:’. The use of this symbol is not suitable for long vowels in Nuu-chah-nulth, in which double characters are conventionally used. Thus, in this dissertation, two different ways of representing long vowels have been adopted, in an effort to respect the conventions of each language, with the price of some inconsistency.

² Abbreviations: ACC = accusative AH = addressee honorific CAUS = causative DC = declarative sentence-type suffix IN = INF = inferential NOM = nominaliser

Note that, as shown in (3), segmentally identical suffixes sometimes behave differently: in (3a), the nominalising suffix *-i* accompanies VS, whereas in (3b), the adverbial suffix *-i* does not.

- (3) a. Nominalising suffix *-i*
 ki:l- 'long' kil-i 'length'
 te:p- 'hot' tewi 'heat'
- b. Adverbial suffix *-i*
 ko:p- 'beautiful' ko:i³ 'beautifully'
 ma:nh 'abundant' ma:ni⁴ 'abundantly' (Davis and Cho, 1994: 3)

Given the many apparent anomalies in base VS, it seems reasonable to closely examine the VS-triggering suffixes. Although some studies have noted the existence of exceptional suffixes (Davis and Cho, 1994; Ko, 2002, 2010), to date, nobody has completed a comprehensive analysis of the relationship between these suffixes and base VS.

The current study proposes that base VS should be treated differently in inflectional morphology and derivational morphology. On the one hand, in inflectional morphology, VS in verb/adjective bases occurs before vowel-initial suffixes, with no exceptions. No consonant-initial suffixes trigger VS. In this case, VS is considered as a phonological process. In derivational morphology, on the other hand, a base vowel is shortened when followed by particular suffixes, including the noun-deriving suffixes *-i* and *-um*, the adverb-deriving suffix *-o/u*, the passive suffixes *-i*, *-hi*, *-li*, and *-ki*, and the causative suffixes *-i*, *-hi*, *-li*, *-ki*, *-u*, and *-ku*. Note that causative/passive suffixes are derivational in Korean (Han, 2006; Ko and Ku, 2009; Lee, 2005, Sohn, 2001). Based on this observation, the present study proposes that VS in derivational morphology is a lexically specified alternation, rather than a phonologically conditioned alternation.

The remainder of this chapter is organized as follows: Section 2 presents preliminary information, including the Korean vowel inventory and sources of data. Section 3 examines previous studies on VS. Section 4 describes VS in inflectional morphology and Section 5 examines VS in derivational morphology. Section 6 concludes the paper.

2. Preliminaries: Korean vowel system and sources of data

This section provides some background information on Korean as a basis for understanding later discussions in this chapter. Information is provided on the

³ *Kop* is an irregular adjective. P-irregular adjectives usually behave like p-irregular verbs (Lee, 2000: 169). However, *ko:-i* seems to be idiosyncratic.

⁴ The base-final /h/ is usually deleted. When /h/ occurs before an obstruent-initial suffix, then it is aspirated on the following obstruent: /ma:nh-ta/ → [ma:nt^ha] (Davis and Cho, 1994:7).

Korean vowel system, focusing on the long/short distinction; sources of the data are explained.

The Modern Central (Standard) dialect of Korean comprises ten short vowels and their ten long counterparts (Sohn 2001, Lee and Ramsey 2000, Lee 1999). Table 1 illustrates the phonemic vowel inventory of Korean. The symbols used in the table are in IPA; the symbols in parentheses represent the equivalents in the Yale Romanization system. The Yale Romanization system is used to represent the data throughout this chapter, following the convention employed in morphological studies of the Korean language. In Central dialects, the high front round vowels /y, ø/ tend to be pronounced as the on-glide diphthongs [wi] and [we], respectively. Some researchers consider the eight simple vowels, excluding /y, ø/, to be phonemic.

Table 1 *Phonemic Vowel Inventory of Modern Central Korean*

	Front				Back			
	Unrounded		Rounded		Unrounded		Rounded	
High	i (i)	i:	y (wi)	y:	ɨ (u)	ɨ:	u (wu)	u:
Mid	e (ey)	e:	ø (oy)	ø:	ə (e)	ə:	o (o)	o:
Low	ɛ (ay)	ɛ:					a (a)	a:

With respect to long vowels, it is not known at what point this feature became distinctive. Even though the long vowels are phonemic in present-day Korean, they are not indicated in *Hankul* orthography or in *Hwunminjengum*⁵. According to *Hwunminjengum Hay-Lyey*⁶, Middle Korean was a tone language with four lexical tones: *pyengseng* (level tone), *sangseng* (rising tone), *keseng* (departing tone), and *ipseng* (entering tone). Many studies of long vowels state that long vowels originate from the *sangseng* (rising tone) of Middle Korean. While tones were marked in *Hunminjeongeum*, vowel length was not. Thus, the question of whether long vowels were phonemic in Middle Korean remains inconclusive. The most widely accepted account is that the long vowels existed concomitantly with the rising tone in Middle Korean, and vowel length was retained as a trace of the former rising tone (Huh, 1965; Ko, 2002; Lee, 1977). While the vowel length contrast is disappearing in modern Korean, this contrast remains robust in the Central and Cenla dialects. As of 2000, among speakers aged approximately 50 and older, vowel length remains distinctive (Sohn 2001), but many studies have reported that the contrast is disappearing in younger generations (Park, 1994; Kim, 1998; Kim and Han, 1998; Ko, 2002; Lee, 2010).

Since the status of the vowel length contrast is not straightforward, I have chosen data for the present study with caution. The data in this study are drawn either from previous literature or from my own (native Korean) vocabulary. In cases of words chosen from my own vocabulary, I have consulted the *Kuke tay*

⁵ *Hwunminjeongeum*, which translates literally as “a correct sound to instruct people”, is a Korean writing system that was invented by King Sejong and scholars in 1446.

⁶ Interpretation of *Hwunminjeongeum*

sacen [*Comprehensive Dictionary of Korean*] (Lee 1982), one of the most representative dictionaries, to confirm my own impressions of vowel length. Unless otherwise specified, I have drawn the data from my own vocabulary, a native speaker of Busan Korean (Kyeng-sang dialect).

3. Description of vowel shortening in previous studies

In previous literature, a full description of vowel shortening (VS) in verbal and adjectival bases has not, surprisingly, been made. To my knowledge, Huh (1965: 264-265) was the first to note base VS. He states that a long vowel in a verbal or adjectival base becomes short when followed by a vowel-initial suffix. Huh also mentions that VS occurs in some words such as *al-li-ta* ‘to inform’, *yel-li-ta* ‘to be opened’, *wul-li-ta* ‘to resound, to make someone cry’, although he did not observe that all these words contain the causative suffix *-li*. Martin (1968) notes that “[B]asic vowel length in the last syllable of a base drops before those ending shapes that begin with vowels (*e/a, o, i; un, -ul*, etc.) and usually in derived forms (such as passives and causatives)” (p.102-103). His observation is accurate in the sense that derived forms are included in the description, but neither the details of derived forms nor examples are provided. Later works by other scholars cite just part of Martin’s description. For instance, Kim-Renaud (1973: 21), citing Huh (1965) and Martin (1968), mentions that “underlying long vowels in verb stems are shortened when a vowel initial affix follows”. Her description of VS is only partly complete. She neither mentions adjective bases (although her examples include the adjective, *coh* ‘good’) nor includes ‘derived forms’. Relatively recent works consider that VS occurs before vowel-initial suffixes, though with some irregularity (Kim, 1998, 2000). Sohn (2001) states that VS occurs before a vowel-initial suffix or a causative/passive suffix. Although their theoretical analyses are distinct, Davis and Cho (1994) and Ko (2002, 2010) agree that VS is attributable to a certain group of suffixes. Ko’s studies describe more VS-associated suffixes than do any other works. However, no comprehensive description of the process has yet been provided.

As briefly reviewed above, VS has not been described systematically in previous literature. As a consequence, theoretical accounts of VS, which will not be examined in this paper, are affected by the incomplete description of the phenomenon. See Lee (2013) for various theoretical accounts of base VS. The following subsection provides a comprehensive description of VS by examining inflectional and derivational morphology in turn.

4. Base vowel shortening in inflectional morphology

VS in the base of verbs and adjectives behaves differently in inflectional and derivational morphology. An examination of VS in inflectional morphology is first provided.

When inflectional suffixes are affixed to a verbal/adjectival base, vowels in the base are shortened if the suffix begins with a vowel. The examples in (4), drawn from Kim (1998: 294), show this fact clearly. Suffixes starting

with a consonant, such as the declarative sentence ending *-ta* and the connective clause ending *-ko*, do not trigger base VS. In contrast, vowels in the base are always shortened when affixed by vowel-initial inflectional suffixes, such as the connectives *-a* and *-uni*. The examples in (4) also demonstrate that it is the suffix that triggers VS, rather than a property of the base, since the same bases, *ta:m-*, *sa:l-*, and *kwu:lm-* either lose vowel length or retain a long vowel in the presence or absence of a suffix, respectively.

(4)		Declarative	Sequential	Causal	Causal	Gloss
			Connective	Connective	Connective ⁷	
	a.	ta:m- ta:m-ta	ta:m-ko	tam-a	tam-uni	‘to put in’
	b.	sa:l- sa:l-ta	sa:l-ko	sal-a	sal-uni	‘to live’
	c.	kwu:lm- kwu:m-ta	kwu:m-ko	kwulm-e	kwulm-uni	‘to starve’

The following examples in (5) demonstrate that adjectives are inflected in the same way as verbs.

(5)		Declarative	Causal	Causal	Gloss
			Connective	Connective	
	a.	co:h- co:-tha	co-a	co-uni	‘be good’
	b.	ma:nh- ma:n-tha	man-a	man-uni	‘be plentiful’
	c.	ko:p- ko:p-ta	ko-wa	ko-uni	‘be pretty’

To my knowledge, no exceptions have been observed about the given generalization that long vowels become short before vowel-initial inflectional suffixes. From this fact, I conclude that VS in inflectional morphology is a phonologically conditioned alternation.

However, it should be pointed out that there is disagreement on the status of VS in multi-syllabic words (Ko, 2002; Davis and Cho, 1994). Ko (2002: 32) states that VS does not apply when bases are multisyllabic. The examples, which are in IPA in the source, are re-written below using the Yale system for consistency. The vowel-initial suffixes *-e* and *-uni* that attach to the multi-syllabic bases in (6) do not trigger VS.

⁷ In Kim (1998), *-a* and *-uni* are defined as Stative and Effective respectively, with no explanation of the terms. This study, however, refers to *-ko*, *-a*, and *-uni* as Connective suffixes, following Yeon and Brown (2011). Yeon and Brown categorize *-a/e*, a short form of *-a/ese* as a causal connective that forms the infinitive form of the verb; and *-uni*, a short form of *-unikka*, as a causal connective that forms the causative construction. *Ko* is a connective denoting additional and sequential connection.

(6)	Declarative	Sequential	Causal	Causal	Gloss
		Connective	Connective	Connective	
a. te:lep-	te:lep-ta	te:lep-ko	te:lep-e	te:lep-uni	to be dirty
b. yo:ngseha-	yo:ngseha-ta	yo:ngseha-ko	yo:ngseha-a	yo:ngseha-uni	to be straight
c. se:samsulep-	se:samsulep-ta	se:samsulep-ko	se:samsulep-e	se:samsulep-uni	be necessary to say anew

In contrast, Davis and Cho (1994) claim that VS occurs on the first syllable of multi-syllabic words. The examples from David and Cho (1994: 5) in (7) illustrate that the first long vowel undergoes VS when vowel-initial suffixes are added, as in *kkeci-e* and *kkeci-ni*.

(7)	Declarative	Sequential	Causal	Causal	Gloss
		Connective	Connective	Connective	
a. kke:ci-	kke:ci-ta	kke:ci-ko	kkeci-e	kkeci-ni	to sink
b. nay:khi-	nay:khi-ta	nay:khi-ko	naykhi-e	naykhi-ni	to incline
c. kka:talop-	kka:talop-ta	kka:talop-ko	kkatalow-a	kkatalow-uni	to be fastidious

Furthermore, the vowel length in *se:samsulep* 'be necessary to say anew' in (6) and *kke:ci*'sink' in (7) is not consistent with that recorded in the *Kuk.e tae sacen [A Comprehensive Korean Dictionary]* (Kim, 1982), which is considered an authoritative source in the current study.

Given that the vowel length contrast is disappearing (Park, 1994; Kim, 1998; Kim and Han, 1998; Ko, 2002; Lee 2010), it would be a challenging task to clearly determine whether VS occurs in multi-syllable words. This task remains open for further study.

5. Vowel shortening in derivational morphology

Within derivational morphology, VS behaves differently from that in inflectional morphology. When a verb or an adjective is affixed with a derivational suffix, base VS is not influenced by whether the initial sound in the suffix is a consonant or a vowel. Rather, VS consistently accompanies certain suffixes, regardless of initial sounds in the latter.

Korean has a large number of derivational suffixes. Lee (2005) lists 231 derivational suffixes and 140 derivational prefixes; Sohn (2001) states that there are several hundred derivational affixes, including 270 prefixes. All prefixes in Korean are derivational and are not associated with VS. Thus, prefixes will not be discussed further. Despite the large number of derivational suffixes, only a limited number of them can be added to verbs or adjectives. These are verb/adjective-deriving suffixes, noun-deriving suffixes, and adverb-deriving suffixes. Below, I discuss suffixes belonging to these three categories in relation to VS in verb and adjective bases.

5.1 Verb/adjective deriving suffixes

Three types of suffix derive verbs/adjectives: causative, passive, and some intensifier suffixes. Some suffixes (*-i*, *-hi*, *-li*, and *-ki*) are used to form both causative and passive. Below, I examine each type of verb/adjective-deriving suffix.

First, as previous studies (Martin, 1992; Sohn, 2001) point out, the causative/passive suffixes *-i*, *-hi*, *-li*, and *-ki* accompany VS, as shown in (8). Notice that the causative/passive suffixes start with either the vowel *i* or a consonant, as in *-li*, *-ki*, and *-hi*.

(8)	UR	Gloss	Causative/Passive
a.	kkwu:-	'borrow'	kkwu-i 'loan'
	nwu:p-	'lie down'	nwu-i 'lay down'
b.	sa:l-	'live'	sal-li 'save'
	a:l-	'know'	al-li ⁸ 'inform'
c.	ta:m-	'put in'	tam-ki 'be put in'
	a:n-	'hug'	an-ki 'make someone hug'
d.	pa:lp-	'step on'	pal-phi ⁹ 'be stepped on'
	te:p-	'hot'	te-phi 'heat'

In addition to passive/causative suffixes, the suffixes, *-wu*, *-kwu*, and *-chwu* are used exclusively for the causative construction. The vowel-initial causative marker *-wu* accompanies VS in (9a). The consonant-initial causative suffix *-kwu* also shortens a vowel in the base, as in (9b).

(9)	UR	Gloss	Causative
a.	kkay:-	'awake'	kkay-wu 'wake up'
	pi:-	'vacant'	pi-wu 'vacate'
b.	i:l-		il-kwu 'bring under cultivation'

There are a limited number of verbs to which the causative suffixes *-kwu* and *-chwu* can attach. I have not found verbs with long vowels in the base occurring with the causative suffix *-chwu*. While (10) illustrates some examples that are causativized by affixing *-chwu*, VS is not verified, since the lexical bases contain short vowels. We may consider *-chwu* to be a VS-accompanying suffix, by analogy with other causative suffixes.

⁸ *-li* is used as only causative in this case, since the verb *a:l* 'know' cannot be passivized.

⁹ A regular phonological process is involved: When an obstruent and [h] are adjacent, the two sounds merge and become an aspirated obstruent.

The intensifier *-kkali* in (12) accompanies VS. The verbal base *noy:-* becomes short when followed by *-kkali*. The intensifiers *-ttul* (13a) and *-chi* (13b) do not trigger VS. For the suffixes in (14), it is not possible to verify whether they trigger VS, because the base vowels are underlyingly short and bases that can occur with such suffixes are very limited. For these suffixes, base selection is very limited. Words affixed by one of these suffixes are mostly lexicalized and listed as such in dictionaries.

In summary, all passive/causative suffixes (with the exception of *-ay*) accompany VS, regardless of the initial sounds in the suffixes. Also, one of the intensifiers, *-kkali* among others, occurs with VS.

5.2 Adverb-deriving suffixes

In addition to verb/adjective-deriving suffixes, adverb-deriving suffixes also can be added to verbal or adjectival bases, changing the category of the base from a verb/adjective into an adverb. Three suffixes belong in this group: *-i*, *-key*, and *-o/wu*¹¹. Among the three, only *-o/wu* occurs with VS. The suffix *-o/wu* is unproductive and words formed by it are completely fossilized, whereas *-key* is the most productive of the other two. Consider the adverbs in (15), which are derived from verbs by affixing *-o/wu*.

- (15) a. *ne:m-* ‘exceed’ *nem-u*¹² ‘too much, excessively, so’
 to:l- ‘turns’ *tol-o* ‘(over) again’

Yeon and Brown (2011) state that the adverbs above are lexicalized and most native speakers are not aware that they are derived forms.

In contrast to the suffix *-o/wu*, neither *-key* nor *-i* accompany VS. Notice that the two suffixes behave the same way with respect to VS, although one begins with a vowel and the other with a consonant. Sohn (2001: 407) points out that only a limited set of adjectives and verbs can be adverbialised by adding *-i*. The adverbial forms with *-i* in (16), however, are not as lexicalized as the forms with *-o/wu*, in the sense that the etymology is recognizable, but they are nonetheless listed in dictionaries as individual entries.

- (16) *ma:nh-* ‘many’ *ma:n-i* ‘many, much’
 ko:p- ‘beautiful’ *ko:i* ‘beautifully, well’

The suffix *-key*, on the other hand, is productive; adverbial forms with *-key* are not listed in dictionaries. Note that *ko:p* (< *ko:-i*) and *ne:m* (< *nem-u*) also can be affixed with *-key*. (17b) shows its productivity.

- (17) a. *ko:p-* ‘beautiful’ *ko:p-key* ‘well’
 ne:m- ‘exceed’ *ne:m-key* ‘excessively’

¹¹ *o* and *wu* are alternations; *o* comes after vowel *o* and *wu* occurs elsewhere.

¹² Note that in the Yale system *wu* is represented as *u* after bilabials.

b.	nwuc-	‘late’	nwuc-key	‘late’
	ssa-	‘cheap’	ssa-key	‘cheaply’

In summary, in observing adverb-deriving suffixes, it seems conclusive that VS is attributable to a property of individual suffixes, rather than to a group of suffixes (e.g., adverbial suffixes or voice-deriving suffixes). Also, segmental differences (i.e., initial consonant or vowel) do not affect the presence/absence of VS in derivational morphology. Whether the productivity of suffixes plays a role in triggering VS will be determined in the following section.

5.3 Noun deriving suffixes

Korean includes another group of suffixes that can be added to verbal/adjectival bases. These suffixes derive nouns by attaching to verbs/adjectives. There are four noun-deriving suffixes: *-i* ‘act, thing, quality’, *-um* ‘fact, thing’, *-ki* ‘act, thing, quality’, and *-po* ‘thing, person’. Among the four, *-i* and *-um* accompany VS, while *-ki* and *-po* do not. From this group of suffixes, we learn that the productivity of suffixes does not affect VS, considering that the unproductive suffixes *-i* and *-po*, which do and do not trigger VS, respectively, and the productive suffixes *-um* and *-ki* do and do not, respectively. Below, each suffix is examined.

As for the suffix, *-i*, Sohn (2001) points out that a small number of verbs become nominalised by affixing it. Nouns derived by *-i* are relatively lexicalized and mostly listed in dictionaries. The following examples in (18) are all listed in the *Kuk.e tay sacen* [*Comprehensive Korean Dictionary*]. The suffix *-i* shortens the base vowel, as in (18a), unless the base vowel is underlyingly short, as in (18b).

(18)	a.	no:l-	‘play’	nol-i	‘playing’
		ka:l-	‘till, cultivate’	kal-i	‘plowing’
		ke:l-	‘hang’	kel-i	‘hanger’
	b.	kil-	‘long’	kil-i	‘length’
		chwup-	‘cold’	chwuw-i	‘coldness’

The suffix *-um/m*¹³ ‘fact, thing’ nominalises verbs/adjectives. It also shortens the vowel in the base. Some forms derived by affixing *-um/m* are lexicalized and found in dictionaries. Nouns illustrated in (19) are listed in the *Kuk.e tae sacen* [*Comprehensive Korean Dictionary*].

(19)	a.	no:l-	‘play’	nol-um	‘gambling’
		wu:l-	‘cry’	wul-um	‘weeping, crying’
		e:l-	‘freeze’	el-um	‘ice’

¹³ The alternations are phonologically conditioned. *m* occurs with vowel-final bases; *um* occurs with consonant-final bases.

- b. mit- 'believe' mit-um 'belief'

One feature shared by *-um/m* and *-ki* (a discussion of which follows in the next paragraph) is that both suffixes can be used to nominalise a phrase. When used for this purpose, both *-um* and *-ki* are productive, and uniquely among VS-triggering suffixes, they occur after tense markers and the addressee honorific *-si*. In (20a), *-um* affixes to a verbal phrase and turns it to a nominal phrase. This nominalising suffix is followed by the progressive suffix *-ka* in (20b) and by the past tense suffix *-ess* in (20c). The suffix is even followed by both the honorific and the past tense suffix, as can be seen in (20d).

- (20) a. nai mekumul nu.kkipnita.
 nai mek-**um**-ul nu.kki-p-ni-ta
 age eat -NOM -ACC feel-AH-IN -DC
 'I feel that I got old.'
- b. nai mekekamul nu.kkipnita.
 nai mek-e-**ka-m**-ul nu.kki-p-ni-ta
 age eat-INF -PRO -NOM-ACC feel-AH-IN-DC
 'I feel that I am getting old.'
- c. nai mekessumul nu.kkipnita.
 nai mek-**ess-um**-ul nu.kki-p-ni-ta
 age eat-PST-NOM -ACC feel-AH-IN-DC
 'I feel that I am getting old.'
- d. nai mekusyessumul nu.kkipnita.
 nai mek-(**u**)si-**ess-um**-ul nu.kki-p-ni-ta
 age eat-SH-PST-NOM-ACC feel-AH-IN-DC
 'I feel that (someone older than the speaker) got old.'

Given that the tense and honorific suffixes are inflections, it is odd that a seemingly derivational suffix *-um* follows such suffixes. The suffix *-um* can be analyzed as two homophonous suffixes, one a derivational suffix, as in (19), and the other an inflectional suffix, as in (20b - d). Further investigation of this possibility is beyond the scope of this dissertation, but the important point to note here is that in both cases, VS occurs.

In contrast to *-i* and *-um*, the nominative suffixes *-ki* and *-po* do not trigger VS, as can be seen in (21).

- (21) a. u:l- 'cry' u:l-po 'someone who cries often'
 ccay:- 'tear' ccay:po 'a harelipped person (a half-wit)'
- b. ta:m- 'to put in' ta:m-ki 'putting in'
 a:n- 'to hug' a:n-ki 'hugging'

The suffix *-po* is used to refer to a person or an object in a belittling or teasing way. Only a limited number of verbs are nominalised by adding *-po*; the forms are completely lexicalized and listed in dictionaries. The nominalising suffix *-po*, as demonstrated in (21a), does not trigger VS.

The nominalising suffix *-ki* is the most productive among the four. Among words formed by adding *-ki*, none are lexicalized. Like *-um*, *-ki* adds to a stem that contains tense suffixes and/or an honorific suffix. Although both *-um* and *-ki* are productive, Yeon and Brown (2011: 71-72) point out that “*ki* designates the existence (or non-existence) of events, processes and states of affairs that are situated in time (i.e., that would have a given start and end point), *um* is usually employed when what is being talked about is an abstract ‘truth’ (or non-truth) that exists outside of space and time and is not physically ‘real’.” The dimension of abstractness/ concreteness is reflected in the examples in (22).

- (22) a. cemsim mek.kika silleyo.
 cemsim **mek-ki**-ka silh-e-yo
 lunch eat-NOM-NOM hate-INF-ENDING
 ‘(I) don’t like to eat lunch.’
- b. nai mekumul nu.kkipnita.
 nai **mek-um**-ul nu.kki-p-ni-ta
 age eat-NOM-ACC feel-AH-IN -DC
 ‘I feel that I got old.’

The examples in (22) have the same verb, *mek*, which literally means ‘to eat’. In (22b), however, *mekum* is an idiomatic expression, since people do not literally eat ages. However, *mek.ki* is used when the physical activity of eating is referred to. Despite different usage, both *-ki* and *-um* are fairly productive. It is not clear what differences between the suffixes produced their distinct behaviours with respect to VS, but it is clear that productivity does not play a role in determining the presence/absence of VS. The suffix *-po* provides further evidence for this point: neither the productive suffix *-ki* nor the unproductive suffix *-po* occur with VS.

In summary, nominalising suffixes behave like inflectional suffixes. The vowel-initial suffixes *-i* and *-um* accompany VS and the consonant-initial suffixes *-ki* and *-po* do not. This pattern is the same as that seen for inflectional suffixes, but the initial sounds in the nominalising suffixes could presumably be coincidental. It is also possible that the productive suffixes *-um* and *-ki* are inflectional, in that they follow inflectional suffixes in the predicate.

In verbal and adverbial suffixes, we have seen that the initial sounds are not associated with the presence/absence of VS. In addition, it is suggested that productivity is not a factor in triggering VS. Also, it is verified that suffixes belonging to the same category (e.g., adverb-deriving suffixes) behave differently. It appears conclusive that base VS occurs in the presence of individual, triggering suffixes.

6. Conclusion

Verb/adjective base VS has received attention since first observed in Huh (1965). A full description of the process, however, has not been made. The current study has examined base VS and noted that VS behaves differently in two areas of the morphology. In inflectional morphology, on the one hand, VS shows a regular pattern: it occurs only before vowel-initial suffixes. On the other hand, in derivational morphology, a base vowel is shortened when followed by a lexically specified suffix. The lexically VS-specified suffixes include the passive/causative suffixes *-i*, *-hi*, *-li*, and *-ki*, the causative suffixes *-wu* and *-kwu*, the nominalising suffixes, *-i* and *-um*, the adverbialising suffix *-o/wu*, and the verbal intensifier *-kkali*. As can be seen in the list of VS-triggering suffixes, initial sounds do not play a role. Drawing from the observations, I conclude that VS in inflectional morphology is a phonologically conditioned alternation, whereas VS in derivational morphology is not phonologically conditioned, rather it is a lexically specified alternation.

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