REDUPLICATION IN OPTIMALITY THEORY: KOREAN PARTIAL REDUPLICATION[*]

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1. Hidden identity in Korean partial reduplication

Internal reduplication in Korean has been regarded as one of the most controversial issues in Korean phonology since the (underlined) middle part of a stem seems to be inserted.

(1)	asak	a-sa-sak	'crunchy'
	culuk	cu-lu-luk	'pouring'
	c'oloŋ	c'o-lo-loŋ	'dropping'
	t'aliŋ	t'a-li-liŋ	'ringing'
	p^{h}utik	p^{h}u-ti-tik	'fluttering'
	k^{h}uŋc'ak	k^{h}uŋ-c'a-cak	'clattering'

For this type of reduplication, it was often claimed that the internal structure of *asasak* can not be regarded as *asa+sa+k* since **asa* is not used independently (Chae 1986). Thus, it is viewed as the internal type in that the internal part *-sa-* of *-asak* is copied in *asasak.* A similar description is found in Y.-S. Kim (1984:202-203), where, following the insight of Marantz (1982), internal reduplication is claimed to be a case of "infixation" and that these cases are the consequences of the association of phonemic melodies and CV reduplicating affixes, as shown in (2).

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(2)   a     a s a k     s a k
      |       | |       | | |
      V  +    CV    +   CVC
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This sort of description looks quite simple, but if we recognize infixation, a fundamental problem is raised for overall Korean grammar: whether we have to recognize infixation just for reduplication. In other words, infixation is a very rare type of word formation in most languages (probably excluding Semitic languages) and it is hard to be recognized in Korean phonology and morphology as there is no other known case of infixation in Korean.

On the other hand, McCarthy & Prince (1986) claim that those cases viewed as infixation in fact belong to either prefixation or suffixation.[1] Thus those cases viewed as infixation in Korean are reanalyzed as suffixation as shown below.

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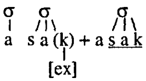
[1] The prefixal type, also called the "initial" reduplication, is affixation in that the initial syllable of the stem is copied before the base: e.g. *tuŋsil* -> *tu-tuŋsil* 'floating', *t'ɛkul* -> *t'ɛk-t'ɛkul* 'rolling'.

(3) 

asak → *asasak*

According to this description, the unit of reduplication is one "heavy" syllable and the procedure of reduplication is right-to-left suffixation. What is interesting here is that the final consonant of the stem is considered [extrametrical] and thus does not surface. This proposal eliminates the need for infixation in Korean phonology and gives a general description of internal reduplication as a subtype of suffixation. However, as extrametricality is assigned to a non-peripheral segment, a substantial defect for the universal nature of this notion might appear: only a peripheral segment is to be extrametrical. Moreover, although the stem-final segment is extrametrical and is not pronounced, it is still copied in the reduplicated form. Also, it is to be noted that extrametrical things are usually not deleted.

In a more recent study by Jun (1994), this issue was approached in a more convincing way. Following the prosodic studies by Lee (1974) and Hayes (1980), Jun assumes that Korean metrical feet are "right-headed", "unbounded" and "quantity-sensitive" and proposes the following generalizations. First, all the inputs to partial reduplication contain a single foot. Second, regardless of the type of partial reduplication, all the output words contain only a single (unbounded) foot since they have a single heavy syllable only on their right edge.

(4)

Stem		*Reduplication*		*Multiple reduplication*	
cu.luk	→	cu.lu-luk	→	cu.lu-lu-lu-luk	'sound of rain dropping'
a.sak		a.sa-sak		a.sa-sa-sa-sak	'crunching'
wa.cak		wa.ca.cak		wa.ca-ca-ca-cak	'munching'
u.cik		u.ci.cik		u.ci-ci-ci-cik	'cracking'

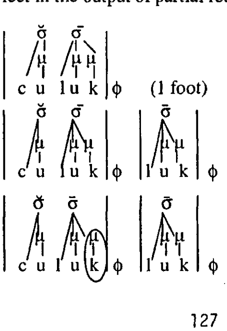
Three, the process of partial reduplication is reduplication of a heavy syllable from which the final consonant is deleted due to Metrical Weight Constituency. Following these generalizations, the output *cu.lu-luk* from *cu.luk* is obtained as shown in (6).

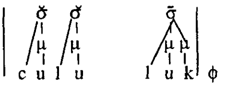
(5) Metrical Weight Constituency
The number of feet in the output of partial reduplication must be identical to that in the input.

(6) Base

Reduplication

Metrical Weight Constituency

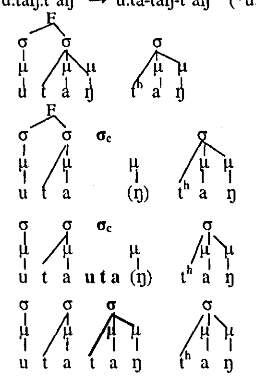


Output 

As claimed in Lee (1992), however, this approach has a problem dealing with multisyllabic stems such as the trisyllabic stem *wa.caŋ.c*^{h}*aŋ* 'with a clash' is expected to generate an undesirably reduplicated form like **wa.caŋ.c*^{h}*a-caŋ*, rather than the correct one *wa.ca-caŋ.c*^{h}*aŋ*. Moreover, we need a rule ordering for affixing CVC before applying MWC. Otherwise, we may have to retain the coda consonant, producing a wrong result. Furthermore, it is difficult to explain why Metrical Weight Constituency should be applied until we see the final output.

Jun's problem was challenged by Lee (1992), based on the notion of "prosodic circumscription" (McCarthy & Prince 1990). According to Lee, the initial disyllabic foot of a (multisyllabic) stem is prosodically circumscribed to be used as a base. Then a light syllable CV, called the "core syllable", is inserted before the final consonant of that foot since the final consonant of the initial foot is considered to be extrametrical. But, in the case of monosyllabic words, the foot consists of the entire (bimoraic) word since there is only one foot in the word. Therefore, as expected in the directionality of association with suffixation, the phonemic content of the affixed core syllable is realized by copying and associating the rightmost syllable of the foot. The following illustration shows the process of internal reduplication with affixation and the extraprosodicity of the foot-final consonant, melody copying, and association and syllabification. (The relevant parts are bold-faced.)

(7) u.taŋ.t^{h}aŋ → u.ta-taŋ-t^{h}aŋ (*u.taŋ.t^{h}a-taŋ)



Affixation and Extraprosody of the foot-final C

Melody Copying

Association and Syllabification

Note, however, that both proposals still revive the infixation controversy. Moreover, Lee's "core" syllable indicates a CV sequence in affixation, rather than a CVC proposed in McCarthy & Prince (1986) and Jun (1994). Thus it triggers a controversy over the authentic unit of copying in Korean partial reduplication. Furthermore, in both rule-based approaches, there is no satisfactory explanation why we should apply Metrical Weight Constituency or extraprosodicity unless we see the correct output in advance. In addition, it is hard to observe the common aspect or the difference between internal reduplication and other types of reduplication in a simple way.

2. A correspondence account: reduplicative identity

Before proposing a new account, I will introduce the following three assumptions. First, there is no genuine case of infixation in Korean morphology, observing that internal reduplication can be regarded as a case of suffixation as will be shown below. The difference between internal reduplication and final reduplication (as well as prefixal reduplication or other types of reduplication) is in constraint ranking. Second, internal reduplication in Korean is foot-based and Korean metrical feet for reduplication are right-headed, unbounded and quantity-sensitive. Here we assume that a heavy syllable forms a foot in reduplication and light syllables are attached to a rightward heavy syllable to be linked to the foot. If there is no heavy syllable, however, those stray light syllables form a foot on their own. Thus, the rightmost syllable of the foot is copied for partial reduplication. Third, if a stem is multisyllabic, the word tree is left branching. We can sum up the procedures of foot formation and stray syllable adjunction as follows.

(8) Foot formation in reduplication
- a. A metrical foot is assigned to a heavy syllable.
- b. Metrical feet are constructed from right to left.
- c. Metrical feet are unbounded.
- d. Metrical feet are right dominant.
- e. The word tree is left branching and the left foot is labeled strong iff branching.

(9) Stray Syllable Adjunction
- a. Adjoin a stray syllable as a weak member of an adjacent right foot.
- b. If there is no foot rightward, a stray syllable gets a foot assigned by default.

We now consider the Optimality Theory of McCarthy & Prince (1995, 1997) where each reduplicative affix has its own correspondence relation. For example, the following two constraints require the basic correspondence relation between the base and the reduplicant.

(10) MAX-BR: Every segment of the base has a correspondent in the reduplicant.

(11) DEP-BR: Every segment of the reduplicant has a correspondent in the base.

MAX-BR prohibits deletion of input segments, while segmental epenthesis and fixed default segmentism are prohibited by DEP-BR in reduplication (Alderete et al. 1997).[2] Therefore, reduplication is total in normal cases, i.e., total reduplication, while these two constraints can be violated in partial reduplication (McCarthy & Prince 1995).

Along with these output-output correspondence relationships, there are parallel requirements that the output (i.e., the base or the reduplicant) be as close as possible to the input. Therefore,

[2] There is still a possibility of violating DEP-BR in Korean reduplication (for fixed segmentism).

the following two faithfulness constraints balance the overall correspondence relationships among the three basic elements.

(12) MAX-IB: Every segment of the input has a correspondent in the base.

(13) MAX-IR: Every segment of the input has a correspondent in the reduplicant.

Despite this basic correspondence relation, however, selection of an optimal output is often determined by the interaction between faithfulness constraints and certain prosodic constraints on output configurations. More specifically, in partial reduplication, while faithfulness constraints prefer structural identity, constraints on output configurations often favor modification of the input, overriding faithfulness. Therefore, the following constraint is to be imposed for proper reduplicative affixation in Korean partial reduplication.

(14) RED=σ: Affix a syllable for reduplication

This constraint simply requires that the prosodic unit for copy be a syllable, regardless of the shape of the stem-final syllable. In other words, it does not matter whether we copy CV or CVC since Input-Reduplicant Faithfulness indicates a more optimal form which is closer to the stem-final syllable.

On the other hand, reduplicative identity is also obscured in internal reduplication as the final stem consonant does not show up in the output. In other words, by not showing the stem-final consonant, the same number of feet may be preserved in the output. For this inalterability of the foot number, I will propose the following IDENT(Ft) constraint.

(15) IDENT(Ft): The foot number of the output is identical to that of the input.

This prosodic constraint is an input-output constraint, requiring that the foot number of the input be preserved in the reduplicated output form. With RED=σ, this constraint plays a dominant role in the selection of optimal outputs as shown in the following table. (A pair of parentheses indicates a foot domain.)

(16)

/(a.sak) + Af_{RED}/	RED=σ	IDENT(Ft)	MAX-IR	MAX-IB	MAX-BR
a. (a.sak-<u>a.sa</u>)	*!	*!	*		*
b. (a.sak)-(<u>sa</u>)		*!	**		*
c. (a.sak)-(<u>sak</u>)		*!	*		*
d. (a.sa-<u>sa</u>)			**	*	*
e. (a.sa.k-<u>ak</u>)			**		**
☞ f. (a.sa-<u>sak</u>)			*	*	*

First of all, we can eliminate (16a) copying two syllables by the RED=σ constraint as RED=σ indicates us to copy a syllable for affixation, regardless of the weight of the shape of the stem-final syllable. In other words, we can copy either CV or CVC from the stem to generate possible candidates, because the optimal one will come out as the one which is closer to the input, rather than the base. Therefore, the earlier controversy on the authentic unit of copy for reduplication is naturally resolved. Second, (16b, c) violating IDENT(Ft) are eliminated although they comply with MAX-IB.[3] Consequently, there remain three candidates (16d, e, f) to be further evaluated with respect to the three faithfulness constraints, MAX-IR, MAX-IB, and MAX-BR. Then due to the dominance of MAX-IR over MAX-IB and MAX-BR, (16f) wins over (16d, e). In other words, in addition to lack of the first stem vowel, the reduplicant in (16d) lacks the final consonant and the reduplicant in (16e) misses the onset consonant of the stem. In the optimal output (16f), however, the only missing stem segment in the reduplicant is the vowel, which causes the minimal violation. Moreover, we can also observe that prosodic constraints are ranked higher than faithfulness constraints, which leads to a generalization of dominance of prosody over faithfulness in internal reduplication. Furthermore, the high ranked RED=σ and IDENT(Ft) work in a categorial way, unlike those faithfulness constraints whose violations are evaluated gradiently.

3. Featural correspondence

The correspondence relation is not limited to segmental properties as we often find cases where selection of an output is constrained by featural BR-Identity relationship. Therefore, we employ featural identity constraints requiring that corresponding segments be featurally identical to one another. In Korean internal reduplication, if the stem has a heavily aspirated (i.e., paraintensive) consonant or an unaspirated (i.e., intensive) one, the tenseness is expected to appear in the corresponding consonant of a reduplicant.

(17) BR-Ident(tense)
The [+tense] of a base has a correspondent in the reduplicant.

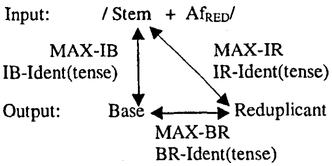
Furthermore, as the tenseness of the input stem is expected to show up in the output base, we may need the following additional IDENT constraint for tenseness.

(18) IB-Ident(tense)
The [+tense] feature of the input has a correspondence in the base of the output.

This constraint discourages any candidate whose base misses the [tense] feature of the stem from being selected as an optimal form.

These faithfulness/identity constraints shown so far can construct the diagram shown in (19) to display the basic correspondence relations in Korean internal reduplication. And the data in (20) show the alternation of the [tense] feature between base and reduplicant.

[3] It might look more consistent to have MAX(Ft) and DEP(Ft) to get the same result but there are two reasons for not doing this. First, those segmental and featural identity constraints, such as MAX-BR, MAX-IB and MAX-IR, have corresponding identity constraint among BR, IB and IR, unlike this prosodic constraint which has only one correspondence between input and output. Second, we need both MAX and DEP constraints to eliminate those undesirable cases in (16). This constraint is like a razor with two edges cutting out both foot addition and foot reduction, indicating the strong restriction, "no more, no less".

(19) 

(20) (p'aŋ)	→	(p'a-paŋ)	'bang'	*(p'a-p'aŋ)
(k'waŋ)		(k'wa-kwaŋ)	'boom'	*(k'wa.k'waŋ)
(k^huŋ)(k^hwaŋ)		(k^huŋ)(k^hwa-kwaŋ)	'boom boom'	*(k^huŋ.k^hwa.k^hwaŋ)
(k^huŋ)(c'ak)		(k^huŋ)(c'a-cak)	'clattering'	*(k^huŋ)(c'a-c'ak)

Note that the foot-initial [tense] feature is not realized in a reduplicant consonant. In other words, the correct outputs violate BR-Ident(tense) requiring that a base segment and the corresponding segment in its reduplicant be identical in tenseness. However, as the foot-initial [tense] feature is not realized in the corresponding reduplicant consonant, we need the following new constraint avoiding non-initial realization of the [tense] feature and BR-Ident(tense) is ranked lower than this constraint.

(21) *SHARE(tense): $*\sigma + \sigma\mu\mu]_{Wd}$
[tense]
Avoid sharing [tense] between the base and its heavy syllable reduplicant word-finally.

(21) shows that the tense feature for the (paraintensive) heavily aspirated or the (intensive) unaspirated consonants can not be shared between the base and the reduplicant word-finally. (Here it is to be noted that the tenseness is relevant to onsets as the tenseness is neutralized syllable-finally in Korean (Ahn 1998).) As specified in the constraint, however, an open syllabic stem is not subject to this constraint due to the lack of a (bimoraic) heavy syllable. Furthermore, the tense feature of the stem has a correspondent in the base, rather than in the reduplicant, by IB-Ident(tense) which should therefore be ranked higher than *SHARE(tense).

(22)

/(k^huŋ)(k^hwaŋ) + Af$_{RED}$/	RED=σ	IDENT(Ft)	*SHARE (tense)	IB-Ident (tense)	BR-Ident (tense)	MAX-IR	MAX-IB	MAX-BR
a. (k^huŋ)(k^hwaŋ)-(k^hwaŋ)		*!				***		***
b. (k^huŋ)(kwa-k^hwaŋ)				*!	*	****	*	****
c. (k^huŋ)(kwa-kwaŋ)				*!		****	*	****
d. (k^huŋ)(k^hwa-k^hwaŋ)			*!			****	*	****
☞e. (k^huŋ)(k^hwa-kwaŋ)					*	****	*	****
f. (k^huŋ)(k^hwa-k)	*!					*****	*	*****

In (22), it is observed that *SHARE(tense) plays a major role in the selection of the optimal form (22e) (over 22d) which avoids sharing [tense] between the base and its heavy syllable reduplicant word-finally. In ther words, by *SHARE(tense) and IB-Ident(tense), we get a case of TETU (i.e., the emergence of the unmarked (Alderete et al. 1997)) in the initial consonant of the reduplicant. Therefore, BR-Ident(tense) (or IR-Ident(tense)) is violated.

Shown below is that the same account can be extended to the description of certain cases of "final" reduplication where CV is affixed, achieving uniformity of the constraint application and of the description of overall suffixal reduplication.

(23)

/(a.c^{h}a) + Af$_{RED}$/	RED=σ	IDENT(Ft)	*SHARE (tense)	IB-Ident (tense)	BR-Ident (tense)	MAX-IR	MAX-IB	MAX-BR
a. (a.c^{h}aT)-(c^{h}a)		*!			*	*	*	**
b. (a.c^{h}a-c)	*!				*	**		**
c. (a.c^{h}a-ca)					*	*		**
d. (a.c^{h}a-caT)						**		**
e. (a.c^{h}a-a)						**		**
☞f. (a.c^{h}a-c^{h}a)						*		**

This current account, nevertheless, seems to face a problem when we observe that certain forms like (c^{h}al)(k^{h}ak) can be reduplicated either way as observed in (c^{h}al)(k^{h}a.kak) or (c^{h}a-c^{h}al)(k^{h}ak). That is, the second form (c^{h}a-c^{h}al)(k^{h}ak) seems to violate the *SHARE(tense) as the reduplicant shares [+tense] with the base. In other words, there is a certain asymmetry relation between the initial-foot and the non-initial foot with respect to sharing the [tense]. More specifically, those in (24b) allow the reduplicants sharing [+tense] with the base segments.[4]

(24) a.. One-foot stem

(p'aŋ)	->	*(p'a-p'aŋ)	but	(p'a-paŋ)	'bang'
(c'an)		*(c'a-c'an)		(c'a-can)	'Tadaa-'

b. Two-foot stem: affixation in the first foot

(c^{h}al)(k^{h}ak)	->	(c^{h}a-c^{h}al)(k^{h}ak)	but	*(c^{h}a-cal)(k^{h}ak)	'click'
(s'ak)(t'uk)		(s'a-s'ak)(t'uk)		*(s'a-sak)(t'uk)	'snipping'

c. Two-foot stem: affixation in the second foot

(c^{h}al)(s'ak)	->	*(c^{h}al)(s'a-s'ak)	but	(c^{h}al)(s'a-sak)	'slapping'
(cil)(p^{h}ək)		*(cil)(p^{h}ə-p^{h}ək)		(cil)(p^{h}ə-pək)	'squishing'

This asymmetry, however, can still be dealt with by employing the same *SHARE(tense) constraint already introduced above and its interaction with two featural IDENT constraints. In othere words, as *SHARE(tense) constrains only the word-final foot such as (24a) and (24c), the cases like (24b) are not subject to this constraint. No further complication is thus caused here. (We omit the three low ranked faithfulness constraints, MAX-IR, MAX-IB, and MAX-BR.)

[4] Those cases in (b) might not be regarded as prefixal types as they violate IDENT(Ft).

(25)

/**(c^{h}al)**(k^{h}ak)+Af$_{RED}$/	RED=σ	IDENT(Ft)	*SHARE(tense)	IB-Ident(tense)	BR-Ident (tense)
a. (c^{h}al)(ca-k^{h}ak)	*!				*
b. (c^{h}a-ca-k^{h}ak)	*!	*!			*
c. (ca-c^{h}al)(k^{h}ak)				*!	*
d. (c^{h}a-cal)(k^{h}ak)					*
☞e. (c^{h}a-c^{h}al)(k^{h}ak)					

(26)

/(c^{h}al)**(s'ak)**+Af$_{RED}$/	RED=σ	IDENT(Ft)	*SHARE(tense)	IB-Ident(tense)	BR-Ident(tense)
a. (c^{h}al)(s'ak)-(s'ak)		*!			
b. (c^{h}al)(s'ak)-(s'a)	*!	*!			
c. (c^{h}al)(sa-s'ak)				*!	
d. (c^{h}al)(s'a-s'ak)			*!		
☞e. (c^{h}al)(s'a-sak)					*

(25) and (26) show that we may have two optimal outputs, depending on which part is picked as the head foot (bold-faced). Moreover, in (25), the optimal candidate is not subject to the *SHARE(tense) constraint as the reduplicant does not belong to the word-final foot. Therefore, it is shown again that the featural input-base correspondence relationship can play a role in the selection of an optimal output, while the segmental input-base correspondence is not a major factor as proposed in McCarthy & Prince (1995).

So far we have discussed those cases where a stem is monosyllabic or disyllabic and a reduplicative affix is added to the end of the stem. If the stem is trisyllabic, however, the reduplication procedure gets a little more complicated since the base is the initial disyllbic foot, rather than the whole stem. And these are the cases which Jun's proposal does not handle.

(27) Trisyllabic stems

(wa.caŋ)(c^{h}aŋ)	→	(wa.ca-caŋ)(c^{h}aŋ)	'with a clash'
(u.taŋ)(t^{h}aŋ)		(u.ta-taŋ)(t^{h}aŋ)	'with a boom'
(wa.taŋ)(t^{h}aŋ)		(wa.ta-taŋ)(t^{h}aŋ)	'clattering'

In order to account for these multisyllabic cases, I propose the following alignment constraint based on the basic concept of the Generalized Alignment (McCarthy & Prince 1994).[5]

(28) Align-Af: Align (Af$_{RED}$, R, Ft', R)
The right edge of a reduplicative affix coincides with the right edge of Ft'.

[5] There is a possibility of employing the notion of ANCHOR in McCarthy & Prince (1995) which may subsume the notion of Generalized Alignment. ANCHOR indicates where to start copy (while Align indicates where to put RED) and we thus use the term "correspond", rather than "coincide".

Here Ft' stands for the head foot of a PrWd. Therefore, we can affix a reduplicant after the second syllable (or a third syllable) in a trisyllabic $(\breve{\sigma}\bar{\sigma})(\bar{\sigma})$ sequence, depending on where the native speaker assigns the head foot. (In general, the head foot is assgined to the first foot. And there is no complication in a monosyllabic stem since a stray single syllable forms its own Ft'.)

With this new constraint, we can now take the optimal choice for a reduplicated form of a trisyllabic stem as follows. In the tableau shown below, the reduplicants are underlined for easy comparison. (I omit RED=σ, MAX-BR and IR-Ident for simpler description.)

(29)

/(wa.taŋ)(t^haŋ)+Af_{RED}/	Align-Af	IDENT(Ft)	*SHARE (tense)	IB-Ident (tense)	BR-Ident (tense)	MAX-IB
a. (wa.taŋ)(t^haŋ)-(t^haŋ)		*!				
b. (wa.taŋ)(t^haŋ)-(taŋ)		*!			*	
c. (wa.taŋ)-(taŋ)(t^haŋ)		*!				
d. (wa.ta-ta.t^haŋ)	*!	*!	*!			*
e. (wa.taŋ)(t^ha-t^haŋ)			*!			*
f. (wa.taŋ)(t^ha-taŋ)					*	*
☞g. (wa.ta-taŋ)(t^haŋ)						*

We see that the last candidate violates only the lowest constraint MAX-IB and the reduplicative affix becomes the new right member of the head foot. Thus, the segmental MAX-IB constraint again does not play any major role here.

As for the trisyllabic stems, Lee (1992) assumes prosodic circumscription for initial disyllabic foot and the last coda consonant of the initial foot as extrametrical. In other words, she assumes that the first two syllables automatically form a foot and become the base for partial reduplication. However, the following examples show that one core syllable is copied from the first heavy syllable forming its own foot, rather than from the second syllable which is light.[6]

(30)	ki.u.t'uŋ	→	ki.u.t'u-tuŋ	(*ki.u-u.t'uŋ)
	ə.si.lim		ə.si.li-lim	(*ə.si-si.lim)
	han.ti.laŋ		han.ti.la-laŋ	(*han.ti-ti.laŋ)
	t'al.ki.lak		t'al.ki-la-lak	(*t'al.ki-ki.lak)

In other words, if the second syllable is light, a reduplicative affix is added after the final (i.e., third) syllable. A reduplicative affixation thus occurs after a Ft', not necessarily after two syllables.

We have shown so far that two prosodic constraints, RED=σ and IDENT(Ft), play the most crucial role. However, we have to note that IDENT(Ft) is inviolable only in internal

[6] Of course, the first syllable can be copied for partial reduplication as in *ki-ki.u.t'uŋ, ha-han.ti.laŋ* and *t'a-t'al.ki.lak*. These examples, however, can be viewed as prefixal partial reduplication as well.

reduplication. In the following case of final reduplication, for example, we observe that as the two candidates are tied for MAX-IR, the more optimal form is selected by other faithfulness constraints, such as MAX-IB. Therefore, the prosodic constraint IDENT(Ft) should be ranked lower than MAX-IR and MAX-IB.

(31)

/(k^huŋ)(cak) + Af_{RED}/	RED=σ	MAX-IR	MAX-IB	MAX-BR	IDENT(Ft)
☞a. (k^huŋ)(cak)-(cak)		***		***	*
b. (k^huŋ)(ca-cak)		***	*	****	
c. (k^huŋ)(ca-ca)		****	*	***	
d. (k^huŋ)(ca-ak)		****	*	*****	
e. (k^huŋ)(cak-ak)		****		****	

In other words, only RED=σ, not IDENT(Ft), is inviolable in all types of partial reduplication. We can then state the difference between internal reduplication and final one is the ranking of IDENT(Ft). Moreover, as both RED=σ and IDENT(Ft) should be ranked the lowest in total reduplication, we can generalize the characteristics of the different types of reduplication in terms of their constraint ranking.

(32) Internal reduplication: RED= σ, IDENT(Ft) >> MAX-IR >> other faithfulness constraints
Final reduplication: RED= σ >> Faithfulness constraints >> IDENT(Ft)
Total reduplication: Faithfulness constraints >> RED= σ, IDENT(Ft)

In other words, MAX-IR and other faithfulness constraints are tied in ranking for final reduplication, while MAX-IR dominates BR-Ident (or MAX-IB) in internal reduplication. In total reduplication, however, faithfulness constraints are more dominant than other constraints.

4. Conclusion

So far, we have observed that Input-Reduplicant identity dominates other faithfulness constraints both segmentally and featurally. The result drawn from both Korean partial reduplication is that we maintain the input form in the reduplicant, rather than in the base, as much as possible. So this is an issue of positional faithfulness for an affix (Beckman 1997) as affixes in general may avoid clusters, complex onsets, long vowels, or geminate, even when roots permit them. On the other hand, there are no segment types or configurations that are only permitted in affixes but barred from roots. Therefore, MAX-IR may be claimed to be a particular case of Affix-faithfulness, since a reduplicant is an affix distinct from the base.

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