An Optimality-Theoretic Approach to Reduplication in Korean Ideophones*

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This paper examines the reduplication behavior observed in Korean ideophones within the framework of Optimality Theory. We argue that the various effects of reduplication, which can be largely classified into two, segmental and templatic variation, are instances of the emergence of the unmarked (TETU). This means that the more unmarked segmental content and the more harmonious syllable template emerge only in the reduplicant through the constraint ranking FAITH-IO≫PHONO-C≫ IDENT-BR (McCarthy and Prince 1995).

To resolve the cases which seem to be quite asymmetric in terms of the template, we propose the constraint *CLASH between the base and the reduplicant, to the effect that they are, in fact, conspiring to improve the syllable structure harmony, and show that no other than OT-based approach can offer a generalized and consistent explanation about it.

1. Introduction

Reduplication refers to the affixation of a morpheme whose phonological form depends in all or in part on the phonological form of the host stem to which it attaches, to the effect of expressing certain semantic features. As Sapir (1921: 76) observes, 'Nothing is more natural than the prevalence of reduplication. The process is generally employed, ··· with self-evident symbolism, to indicate such concepts as distribution, plurality, repetition, customary activity, increase in size, added intensity, continuance'. What is odd about reduplication as an affixation process is the fact that the affixes

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are phonologically underspecified in reduplication, that is, the reduplicative morpheme is phonologically defective. The phonological realization of that morpheme is achieved by copying a portion of the segmental representation of the base, or the entire base, to which the underspecified morpheme is attached. The former is called the phenomenon of partial reduplication, the latter that of total reduplication.

Reduplication, though somewhat observed in common nouns as in *cip-cip, kos-kos, cokak-cokak* to indicate plurality, is one of the most striking characteristics of Korean ideophones[1] as a means of conveying nearly all the concepts described by Sapir.

(1) a. tuŋsil-tuŋsil, kalki-kalki, t^hutəl-t^hutəl, cakil-cakil, nəul-nəul
b. aloŋ-taloŋ, als'oŋ-tals'oŋ, ollok-pollok, ulkis-pulkis, oson-toson, ult^huŋ-$pult^h$uŋ, wækak-tækak, atuŋ-patuŋ

(2) a. k'waŋ>k'wa-kwaŋ, p'aŋ>p'a-paŋ, k'æŋ>k'æ-kæŋ
b. tuŋ>tu-tu-ŋ, sak>sa-sa-k, asak>asa-sa-k, otok>oto-to-k, culuk>culu-lu-k, holok>holo-lo-k, walak>wala-la-k, patik>pati-ti-k, puliŋ>puli-li-ŋ, t'aliŋ>t'ali-li-ŋ, k'ækæŋ>k'ækæ-kæ-ŋ, k'olik>k'oli-li-k, p'otik>p'oti-ti-k
c. kolu>kol-kolu, t'ekul>t'ek-t'ekul, t'əlim>t'əl-t'əlim, pətim>pət-pətim, pəsis>pəs-pəsis

The examples in (1) are the cases of total reduplication, where the entire phonemic melody is copied. Total reduplication is assumed to be a type of co-compounding, though some slight segmental variation is observed as in (1b). All the examples in (2) are the cases of partial reduplication, in which we can observe some featural variation in (2a), templatic variation in (2b) and (2c). Why should it be so and what is the directionality of this change? We will argue that it can be seen as a corollary of the emergence of the unmarked and euphonic syllable template, and this will be analyzed under the framework of Optimality Theory.

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[1] Korean makes use of a system of phonetic symbolism to create different flavors or connotational variants of words by vowel alternation as in *pənc'ək/panc'ak, pollok/pulluk, p'ikək/pækak, t'ik'im/t'ak'im*, or consonant alternation as in *putil/p^hutil, piŋpiŋ/p'iŋp'iŋ/p^hiŋp^hiŋ, colcol/c'olc'ol/c^holc^{h}ol, kamul/k'amul*, or templatic extension as in *p'aŋ/p'a-pa-ŋ, təlk^{h}ək/təlk^{h}ə-tə-k/təlk^{h}ək-təlk^{h}ək*. These means of changing the flavors of sound symbolic words are highly productive and used at the will of the speaker.

2. Optimality Theory

Optimality Theory, which was proposed by Prince and Smolensky (1993), and McCarthy and Prince (1993) and developed by many others, is an attempt to shed a fresh light on the role of well-formedness constraints in linguistic theory.

The procedure adopted in Optimality Theory is as follows; the function Gen(erator) emits a set of candidates consistent with a given input, and Eval(uation) comparatively evaluates sets of forms with respect to a given constraint hierarchy. Such a candidate that best-satisfies or minimally violates the grammar's constraint ranking is chosen as optimal, and the other non-optimal candidates don't have any grammatical status.

Correspondence Theory under Optimality Theory, which was originally proposed by McCarthy and Prince (1995) to explain reduplicative morphology, treats mapping relation between various representations, that is, between the input and the output, and between the base and the reduplicant; and the phonology of one part may be matched in the other directly without any intermediate operations. The interaction of base and reduplicant identity (IDENTITY-BR), with phonological constraint (PHONO-C) leads to the effects of the various results depending on the ranking of the constraint system, which will be examined in the following sections. The following diagram represents their basic model.

(3) Basic Model (McCarthy and Prince 1995: 252)

Input: /AFRED + Stem/[2]

⇅ *I-O Faithfulness*

Output: R ⇌ B

B-R Identity

As shown in (3), the input is mapped onto the output by IO-faithfulness, which can be seen in nonderived words. And BR-Identity relates the base to the reduplicant, and its ranking with respect to the phonological constraints results in various aspects of reduplication.

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[2] McCarthy and Prince employ a purely terminological distinction between 'identity' and 'faithfulness' solely to emphasize the distinct dimensions, but in fact these are perfectly homologous noitions. Also '+' simply indicates mere combination without directional prejudice.

The constraints employed in Correspondence Theory are largely divided into two groups: markedness constraints on the structural well-formedness reflecting the easiness of the speaker's speech production and faithfulness constraints on the relation between the correspondents reflecting the convenience of the hearer's perception. The former is a set of articulatorily motivated constraints related to the syntagmatic and phonotactic requirements of a given language, while the latter is related to the principle of the maximization of discriminability, which seeks to maintain the phonetic distinctions between different representations.[3]

These functional forces interact and conflict with each other. For example, minimization of articulatory effort conflicts with maximization of perceptual contrast, and the attested surface form is determined through the conflict resolution between them. How to predict which condition wins in a conflict of this kind has not been explained before the advent of Optimality Theory. Within the Optimality-Theoretic framework, where all the constraints are rankable and violable, we can find a way out of it. From the teleologic dynamical point of view, it might be thought that these conflicting forces exert their own pressure and finally ceases to fluctuate at some state of equilibrium, which is the way the facts of a given language are.

The following are some constraints that are relevant in the discussion of reduplication of Korean ideophones.

(4) a. **Speaker-oriented Phonological Constraints**

ONSET (*[$_{\sigma}$V): Syllables have onsets.

* $_{Wd}$[[+cons]: Word-initial onset may not be filled with consonant.[4]

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[3] Additionally we might assume a third function of leveling conditions, which states that allomorphy in paradigms tends to get eliminated in consideration of language acquisition.

[4] In Axininca Campa, an Arawakan language of Peru, its surface structures are replete with vowel-initial words.

(1) osampi-sampi
amina-mina
osaŋkina-saŋkina

This mode of departure from strict ONSET obedience is common in other languages as well. I assume, following Itô (1989), that some version of initial extrametricality would be appropriate to give a motivation to this fact. To put it more precisely, the domain in which all syllables must satisfy the syllable structure conditions starts from the head (i.e., the vowel) of the initial syllable. This requires word-medial syllable to have onsets.

NO CODA (*C]$_\sigma$): Syllables may not have codas.

* EFFORT : An articulation which requires more effort is disfavored.

* CLASH : Adjacent identical prosodic templates are prohibited in derived environment.

b. **Hearer-oriented Morphological Constraints**

MAX : Every element of B has a correspondent in R.

IDENT : Correspondents are identical.

DEP : Every element of R has a correspondent in B.

3. Default Segmentism

In the section 3 and 4, we will re-examine the reduplication of Korean ideophones from the functional perspective. We will largely confine our attention to the mismatch between the base and the reduplicant in terms of segment and prosodic template, and discuss them in that order.

Total reduplication can be classified into two according to the position of the base.

(5)[5] a. BASE + RED

allok-tallok, als'oŋ-tals'oŋ, aloŋ-taloŋ, auŋ-tauŋ,
otol-totol, antal-poktal, omok-comok, oŋkis-c'oŋkis,
ulkin-pulkin, ukək-cikək

b. RED + BASE

wækak-tækak, ollok-pollok, ulkis-pulkis, əlki-səlki,
opul-k'opul, wæŋkaŋ-tæŋkaŋ, atuŋ-patuŋ, ult^{h}uŋ-pult^{h}uŋ

For the examples such as *oson-toson, aki-caki, akin-pakin, ancəl-pucəl, æmyən-kilmyən*, where either of their constituents is not independently used, we will assume that the base of the reduplication of Korean ideophones is not necessarily independent.

All the examples in (5) can be categorized into a total reduplication, but unlike *yakim-yakim, tækul-tækul, təŋsil-təŋsil, cakil-cakil*, where both the

[5] There are a bunch of examples, where both of the constituents occur as independent words: *əkis-pəkis, alt'il-salt'il, okil-pokil, ulləŋ-c^{h}ulləŋ, k'omc'ak-tals'ak, p'ic'uk-p'æc'uk, silluk-sælluk, siŋkis-pəŋkis, əŋkil-pəŋkil, asak-pasak, walkak-talkak, uksil-tiksil*. Here it is not clear which of the two is the base or the reduplicant. So we will regard these examples as a special case of primary compounding, for they contain two bases that occur as independent words as in the canonical compounds.

constituents are identical in their phonological material, the reduplicant shows some change in the host stem's phonological content, a case of incomplete reduplication. In (5a), where the reduplicant is suffixed, a consonant is inserted in the onset position of the reduplicant, while the consonant is deleted or changed into [-cons] segment in word-initial onset position in the prefixed reduplication of (5b).

How can it be explained? In a rule-based approach, separate rules are needed; consonant insertion rule ($\emptyset \rightarrow C$) for (5a), and consonant deletion rule ($C \rightarrow \emptyset$) for (5b). These two rules, though they don't contain overt structural similarities to be collapsed, are conspiring to yield the well-formed target. In other words, rule-based approach does not capture this functional goal.

The functional goal to target word-initial onsetless syllable and to avoid word-medial onsetless syllable can be characterized in terms of the more general output constraint which the output representation must meet. The constraint-based Optimality Theory is superior to the hitherto standard approach in that it can capture the functional unity more directly. In effect, the constraint-based theory exposes the common conceptual core of a number of different-looking phenomena, and leads to a deeper understanding of some poorly-resolved issues in linguistics.

The overall ranking for the segmental variation shown in (5) is as follows:

(6) MAX-IO, DEP-IO $\gg$ $*_{Wd}$[[+cons], $*[_{\sigma}V$[6] $\gg$ MAX-BR, DEP-BR

(7) a.[7]

/allok+RED/	DEP-IO	$*_{Wd}$[[+cons]	$*[_{\sigma}V$	DEP-BR
allok-allok			** !	
☞ allok-tallok			*	*
tallok-tallok	* !	*		

[6] According to Pānini's Theorem, the local constraint ranking between $*_{Wd}$[[+cons] and $*_{\sigma}$[V will be such as $*_{Wd}$[[+cons] $\gg$ $*_{\sigma}$[V, for $*_{\sigma}$[V is more general than $*_{Wd}$[[+cons].

[7] We assume that total reduplication occurs at the same level as primary compounding, where resyllabification process does not apply. Thus, the syllable structure of *allok-allok* is *al.lok.al.lok* rather than **al.lo.kal.lok*.

b.

/RED+pollok/	MAX-IO	*WD[[+cons]	*[σV	MAX-BR
pollok-pollok		*!		
☞ ollok-pollok			*	*
ollok-ollok	*!		**	

As shown in (7), the reduplicant is subject to the phonological well-formedness constraints. In (7a), the unmarked consonant[8] *t* is epenthesized reduplicant-initially to satisfy the constraint ONSET; in (7b), reduplicant-initial consonant is deleted by the constraint *WD[[+cons]. The mismatch between the base and the reduplicant can be accounted for by the constraint ranking PHONO-C ≫ IDENT-BR. This ranking ensures that *t* is inserted in (7a), while any word-initial consonant is deleted in (7b).

Next we will consider another segmental variation which is observed in such as follows.

(8) k'waŋ>k'wa-kwa-ŋ, p'aŋ>p'a-pa-ŋ, $t^haŋ$>t^ha-ta-ŋ,
k'æŋ>k'æ-kæ-ŋ, t'ak>t'a-ta-k

In the above examples, we can observe that every reduplicant loses the tenseness and aspiration of the base, thus begins with plain consonant; the reduplicant copies all properties of the base consonant except for the laryngeal specification. Why does it go that way? I argue that the simpler feature specification is preferred as the reduplicant, insofar as it does not incur any significant change in connotational meaning. The following constraint ranking is responsible for the desired output.

(9) FAITH-IO ≫ *EFFORT ≫ IDENT-BR

[8] As seen in (5a), most epenthetic segments are coronals. This is because coronals represent the unmarked place of articulation in consonants. This hypothesis is based on the cross-linguistic patterns that they are the most frequently chosen segments in phonemic inventories, and in sound change they are more liable to assimilate to the neighboring consonant and to appear as the product of neutralization. Variation within coronals might be thought to be due to ideophone-particular semantic differentiation, and the change from *t* to *p* is thought to be the result of labial assimilation.

(10) [9]

/k'waŋ+RED/	FAITH-IO	*EFFORT	IDENT-BR
☞ k'wa-kwa-ŋ		*	*
k'wa-k'wa-ŋ		** !	
kwa-kwa-ŋ	* !		

* EFFORT constraint is motivated by the maximum ease of articulation on the part of the speaker, while faithfulness and identity constraints are associated with the distinctness of hearer's recognition.

On the phonetic ground, plain stop /k/ is more unmarked than tensed stop /k'/, that is to say, plain stop sound has only articulatory gesture on the supralaryngeal tier, while tensed and aspirated stop have additional [constricted] and [spread] categorial gesture respectively. In accordance with the functional principle of minimization of effort, there appears the ranking that favors a reduction of the number of gestures, a kind of weakening, for the loss of a gesture implies an articulatory gain. Thus a universal ranking within the *GESTURE family is expected to be *GESTURE (tensed C), *GESTURE (aspirated C) ≫ *GESTURE (lax C). This speaker-oriented markedness constraint is in conflict with the hearer-related constraint which favors the identity of the base and the reduplicant, and the higher-ranked phonological constraint selects the optimal candidate which obeys phonological constraint even when such obedience means inexactness of copying. In the examples of (8), the change from more marked segment into less marked is observed only in reduplicant. In this respect, this is a real instance of the general model for 'The Emergence of The Unmarked (TETU)', that is, the unmarked articulation is an emergent property of the reduplicant, but not even of the language as a whole. It is studied in McCarthy and Prince (1994), where phonological markedness constraints are obeyed in reduplications or other morphological domains, though they are freely violated in the language as a whole. This type of behavior supports the OT conception of constraints as ranked,

[9] Note that we assume the reduplication in (8) is not prefixal but suffixal. It is in accordance with meta-constraint ranking I-B(=I-O) Faithfulness ≫ I-R Faithfulness. This means that the reduplicant can never be more faithful to the input than the base is, since the output reduplicant has no access to the input stem except through the output base.

rather than parameterized; parametrization of phonological constraint would be an all-or-nothing matter and could never produce emergence of the unmarked.

4. Unmarked Prosodic Template

Now let us turn the attention to the various patterns of the reduplicative template. The data to be dealt with here are given below.

(11) a. tuŋ>tu-tu-ŋ, puŋ>pu-pu-ŋ, sak>sa-sa-k, cik>ci-ci-k
b. culuk>culu-lu-k, asak>asa-sa-k, patik>pati-ti-k, pasak>pasa-sa-k, holok>holo-lo-k, ucik>uci-ci-k, p'otik>p'oti-ti-k, t'atak>t'ata-ta-k, wacak>waca-ca-k, puliŋ>puli-li-ŋ, k'waliŋ>k'wali-li-ŋ, t'aliŋ>t'ali-li-ŋ

Of course the total reduplication can be applied to the stems in (11), all yielding well-formed attested forms: *tuŋ>tuŋ-tuŋ, sak>sak-sak, cik>cik-cik, k'waŋ>k'waŋ-k'waŋ, t^haŋ>t^haŋ-t^haŋ, culuk>culuk-culuk, asak>asak-asak, pati k>patik-patik*, etc. But when partial reduplication is applied, the placement of the reduplicant is determined phonologically. The basic observation is that the infixal placement of the reduplicant results in superior syllable structure. Constrast *culuk-luk* with *culu-lu-k*. In the illicit, merely suffixed form, the reduplicant introduces a new closed syllable *.luk.* into the word. In the correct output, suffixal reduplicant is located before the stem-final coda. In other words, a phonotactic constraint, NO-CODA, is directly responsible for the locus of the reduplicant. NO-CODA is the grammatical basis for syllable markedness. From the phonotactic point of view, locating σ-reduplicant before a final consonant makes good sense, since it is consonant with an unmarked syllable structure, as the following tableau shows.

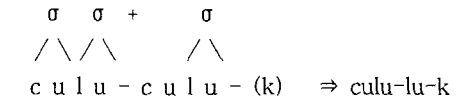
(12) [10]

/culuk$_i$+RED/	MAX-IO	NO-CODA	MAX-BR
a. culuk-luk		** !	**
☞ b. culu-lu-k$_i$		*	***
c. culu-lu	*!		**

As can be seen in (12), candidate (12c), even though the most optimal

with respect to NO-CODA, cannot be chosen as the final output because of the fatal violation of the highest-ranked constraint MAX-IO, and candidate (12a) has a final coda in the reduplicant that can be avoided at the price of incomplete copying. The coda-sparing but inexact reduplicant (12b) is optimal, even though Korean as a whole allows codas. Indeed the base in (12b) has a coda. This is a real-life instance of the emergence of the unmarked syllable in the reduplicant only, which results from the general ranking schema FAITH-IO ≫ PHONO-C ≫ IDENT-BR.

To prove the OT superioity over the other approaches, let us review the prosodic approach presented in McCarthy and Prince (1986) and point out its problematic aspects. McCarthy and Prince (1986) analyze the case of (11) as the simple suffixation of a syllable, with the extrametricality of the stem-final consonant. Their analysis is illustrated as follows:

(13)


Jun (1994), on the other hand, notes that there are many suffixed forms whose final coda is not the same as the stem-final coda, and argues that McCarthy and Prince's coda extrametricality proposal fails to generalize to the entire paradigm.

(14) Base /k'om.cil/	Desired output /k'om.ci.lak/
base	k'om.ci(l)
suffixation of /la/	k'om.ci-la-(l)
output	* k'om.ci.lal[11]

[10] The unlisted candidate *cu-cu-luk* ties with optimal candidate (12b), but fails on the constraint ALIGN-R which demands that the right edge of the stem be aligned with the right edge of the reduplicant and whose severity is assessed gradiently. In the above case, candidate (12b) *culu-lu]-k]* has only one violation mark with respect to ALIGN-R, while another candidate *cu-cu]-luk]* has three marks, thus selecting (12b) as optimal.

[11] Contrary to Jun's analysis, I argue that the templatic extension from *k'omcil* to *k'omcilak* is through fixed segment augmentation of *-ak* rather than suffixation of *-la-*. There are many such word forms observed in Korean as shown below:

(1) k'omcil>k'omcil-ak, k'æcil>k'æcil-ak, kantil>kantil-ak,
k'atil>k'atil-ak, k'umul>k'umul-ək, cumul>cumul-ək
k'opul>k'opul-aŋ, kantil>kantil-aŋ, kupul>kupul-əŋ,

As shown above, the coda extrametricality proposal cannot generalize across the data. Thus he provides an alternative analysis by applying the coda deletion hypothesis rather than coda extrametricality and a metrical constraint, Metrical Weight Consistency, which says that the number of feet in the output of partial extension must be identical to that in the input. The sample derivations are as follows:

(15) (culuk)ϕ > (cululuk)ϕ, *(culuk)ϕ (luk)ϕ [12]
(p'aŋ)ϕ > (p'apaŋ)ϕ, *(p'aŋ)ϕ (paŋ)ϕ
(tuŋ)ϕ (sil)ϕ > (tutuŋ)ϕ (sil)ϕ, *(tuŋ)ϕ (tuŋ)ϕ (sil)ϕ
(sak)ϕ > (sasasak)ϕ, *(sak)ϕ (sak)ϕ (sak)ϕ

Jun's analysis, I think, must be a better approach in that he tries to generalize across all attested patterns of partial extension and provide the 'why' rather than 'how' for that phenomenon, but still there remain some problematic counter-examples to his analysis as shown in (16).

(16) (t'ekul)ϕ > (t'ek)ϕ (t'ekul)ϕ
(kolu)ϕ > (kol)ϕ (kolu)ϕ
(t'əlim)ϕ > (t'əl)ϕ (t'əlim)ϕ

Notice that input and output are different in foot number against his Metrical Weight Consistency constraint, and should be considered ungrammatical, but nevertheless accepted as well-formed attested forms. Related with this, we can find some examples which apparently show puzzling aspects of templates.

(17) a. tuŋsil>tu-tuŋsil, təŋsil>tə-təŋsil, utaŋt^{h}aŋ>u-ta-taŋt^{h}aŋ,
tuŋsil>tuli-tuŋsil, salc'ak>sali-salc'ak, holc'ak>holi-holc'ak

b. t'ekul>t'ek-t'ekul, kolu>kol-kolu, t'əlim>t'əl-t'əlim,
pətim>pət-pətim, pəsis>pəs-pəsis

These phenomena can also be observed in non-symbolic common nouns: *t'il>t'il-ak, sutkal>sutkal-ak, cətkal>cətkal-ak, məlik^{h}al>məlik^{h}a-ak.* I assume that the above suffixes might contribute some connotational differentiation of meaning, which is the typical characteristic of symbolic words.

[12] Jun assumes, following others, that Korean metrical feet are (i) right-headed, (ii) unbounded and (iii) quantity-sensitive. Therefore, no matter how many light syllables precede a heavy syllable, they form a single foot with the heavy syllable.

As can be seen above, a light syllable is prefixed in (17a) while the maximum syllable (=CVC) is prefixed in (17b). In both cases, the reduplicative template is not a prosodic constituent of the base. The fact is that the reduplicant copies a light syllable template of its base when the base has the heavy syllable template and vice versa. To make matters more confusing, the reduplicative prefix of (17b) has a heavy syllable ($\sigma_{\mu\mu}$), which is more marked template when compared with a light syllable (σ_{μ}), which is against TETU[13].

If we try to analyze these in the framework of McCarthy and Prince's prosodic morphology, a light syllable (σ_{μ}) and a heavy syllable ($\sigma_{\mu\mu}$) are the prosodic template for (17a) and (17b) respectively. This is illustrated in the following sample derivation:

(18) a. σ_{μ} + σ σ
/\ /\\ /\\
t u ŋ s i l t u ŋ s i l ⇒ tu-tuŋsil

b. $\sigma_{\mu\mu}$ + σ σ
/\\ /\/\
k o l u k o l u ⇒ kol-kolu

Although McCarthy and Prince's way of treating partial reduplication offers correct description of the given data, we can find no answer as to the question why a light syllable is copied in (17a) and a heavy syllable in (17b). No conspiracy can be captured.

Why should it be so? I suppose there might be some prosodic output constraint that the identical prosodic templates are not licensed successively in the derived environment. To say in a more principled way, we will regard $\sigma_{\mu\mu}$-reduplication as a tendency to prohibit sequences of adjacent

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[13] One might argue that there are some counter-examples to the tendency of alternating syllable template, as can be seen in *tolili, salili, pulili, pancilili, p^{h}iŋkilili, wakilili, p'æŋkilili,* etc. Our interpretation of these is that, following Kim (1984), these extended forms are derived not by reduplication, but rather by simple rightward copying of the final *l* and i-epenthesis to obtain an optimal syllable structure.
Sample derivations are as follows:

(1) tol > toll > tolili
sal > sall > salili
pancil > pancill > pacilili
p^{h}iŋkil > p^{h}iŋkill > p^{h}iŋkilili

identical 6_{μ}-syllable templates, whereby to achieve a rhythmic effect. We will call it *CLASH, which can be also expressed formally as * XY, where X and Y are adjacent identical surface prosodic templates and where either X or Y is an affix and the other is a proper subpart of a stem.

We humans are assumed to have some sort of psycholinguistic machinery to resist complete identity. The substitution of fixed melodic material for part of the copy in reduplication can be seen as one need to satisfy the identity avoidance, or the OCP, by controlling the content of reduplicative morphemes. Echo words in Kolami (Alderete et al. 1995), e.g. *pal-gil, kota-gita, iir-giir, maasur-giisur, saa-gii*, etc. and Englsih echo word like *table-schmable* are the most typical cases of this. Rhythm might be regarded as another psycho-physiological universal to achieve the avoidance of complete identity with respect to the size of the reduplicative morphemes, which is most strikingly observed in verse instances. Stress-timed languages like English tend to have approximately equal time alloted between stresses. So when there are many syllables between stresses or when two stressed syllables are adjacent, there is a tendency towards shortening of syllable and stress shifting respectively.

Syllable-timed languages give about equal time to each syllable, where there appears a strong tendency to have alternating syllable weight. It is particularly manifest in verse-like style. Ideophones are much more like verse-instance than any others. When simple ideophones are extended into larger units, they tend to be in accordance with the eurhythmic alternation.

This effect is well attested in (17)[14]. In partial reduplication, a heavy syllable is reduplicated when its base has the light syllable template, and vice versa, in order to maintain harmonious syllable weight rhythm. The template variation observed in (17) can thus be accounted for by the same constraint ranking responsible for TETU.

(19) MAX-IO, DEP-IO ≫ *CLASH ≫ MAX-BR, DEP-BR

[14] The examples in (11), *tu-tu-ŋ, culu-lu-k, asa-sa-k, t'ali-li-ŋ, p'oti-ti-k*, etc., could be seemingly regarded as another evidence supporting *CLASH effect. But in these examples, unlike in (17), the base template is split into two and the reduplicant is placed infixally; the two constituents concerned with *CLASH are not concatenatively conjoined. This renders the examples in (11) irrelevant to the constraint *CLASH.

(20)

/RED+tuŋsil/	MAX-IO	*CLASH	MAX-BR
a. tuŋ-tuŋ.sil		* !	***
☞ b. tu-tuŋ.sil			****
c. tuŋ-tu.sil	* !		****

(21)

/RED+t'ekul/	DEP-IO	*CLASH	MAX-BR
a. t'e-t'e.kul		* !	***
☞ b. t'ek-t'e.kul			**
c. t'e-t'ek.kul	* !		****

Because IO-faithfulness dominates phonological constraint *CLASH, the effect of *CLASH is not visible in the stem, so candidate (20c) and (21c) fail out. Speaking in a more principled way, phonological constraints cannot compel inexact correspondence between input and output, thus resulting in no application of phonology in the stem. The reduplicant will, however, obey the phonological constraint even when obedience means inexactness of copying. Therefore (20b) and (21b) can be chosen optimal in spite of the maximum violation of BR-identity constraint. Once again the reduplicant obeys a constraint that is otherwise violated freely in the language as a whole.

In the examples of (17a), we can observe a slight difference in the strategy of avoiding identical prosodic templates. This difference depends upon the relative ranking of PARSE and FILL; in low-PARSE ranking, *CLASH effect is enforced by phonetic deletion as in *tuŋsil>tu-tuŋsil* and *təŋsil> tə-təŋsil*, while, in low-FILL ranking, *CLASH effect is obtained by virtue of epenthesis as in *tuŋsil>tuli-tuŋsil, salc'ak>sali-salc'ak,* and *holc'ak>holi-holc'ak.* The reduplicative template in (17b) is a heavy syllable, which seems, at first glance, to be the emergence of the marked not the unmarked. But a little more scrutiny reveals why it should be so. It is the effect of rhythmic syllable template between the base and the reduplicant, another instance of TETU.

5. Concluding Remarks

In this paper, we have explored the two types of asymmetry observed in the reduplication of Korean ideophones from the Optimality-Theoretic perspective; one is involved in the segmental feature and the other is associated with the prosodic template. It was argued that the surface segmental non-identity between the base and the reduplicant is seen as consequences of FAITH-IO ≫ PHONO-C ≫ IDENT-BR. The phonological constraint stands between FAITH-IO and IDENT-BR in the ranking, so its effects are felt only in the reduplicant though not in the ordinary phonology of the language. This is one case of the emergence of the unmarked, well-attested in the Korean ideophone reduplication.

The other is related with the reduplicative template. The placement of the reduplicant in partial reduplication is determined phonologically, being consonant with the unmarked syllable structure. By adopting correspondence-based approach rather than templatic association via extrametricality and the like, we can explain why such reduplicative structures are possible and rule out ungrammatical variants. Finally it has been proposed that the apparently distinct realization of the partial reduplication shown in *tu-tuŋsil* and *kol-kolu* is, in fact, obtained from the conspiracy to the effect of rhythmic syllable structure between the base and the reduplicant. In contrast, no version of serial theory, including input-driven Standard Theory and Prosodic Morphology, can offer a consistent and generalized account for it. Thus, I argue that this strategy might have explanatory adequacy over any of the hitherto derivational attempts.

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