ON THE REPRESENTATION OF FIXED SEGMENTISM AND MELODIC OVERWRITING IN ECHO REDUPLICATION: AGAINST A PRECEDENCE-BASED MODEL

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1. Introduction

Much research in morphology and phonology has concentrated on the representation of phonological effects in reduplication. Particular attention has been paid, on the one hand, to cases of "underapplication" and "overapplication" of phonological processes in the reduplicant and, on the other hand, to cases of "backcopying" of a reduplicant-targeted process onto the base. Three main models have been proposed to account for these properties of reduplication: a correspondence-based model (Base-Reduplicant Correspondence Theory: McCarthy and Prince 1986), a morphological doubling model (Morphological Doubling Theory: Inkelas and Zoll 2000, 2005), and a precedence-based model (Precedence Theory: Raimy 2000).

As has been noted by Raimy, Inkelas and Zoll, and many others working on reduplication, Base-Reduplicant Correspondence Theory (BRCT) in Optimality Theory (OT) has the disadvantage of necessarily making use of reduplication-specific machinery—reduplicant faithfulness constraints, base-reduplicant identity constraints, and input-reduplicant identity constraints—to account for the full range of data; due to the segment-counting nature of faithfulness constraints, the theory also makes incorrect predictions about when overwriting (as opposed to affixation) will take place (cf. Nevins 2005).

On the other hand, Morphological Doubling Theory (MDT) and Precedence Theory (PT) rely only on mechanisms that are motivated elsewhere in the morphology. MDT and PT are also similar in their modular view of morphology and phonology, but in other respects, they are radically different models of reduplication. Raimy (2000) argues that PT is the superior model because it accounts for backcopying effects[1] that MDT cannot account for, but PT in turn has been criticized for its lack of constraining mechanisms (cf. Downing 2001, Nevins 2002). The goal of this paper is to investigate the extent to which MDT and PT diverge in their accounts of fixed segmentism and melodic overwriting effects in echo reduplication. It will be shown that in these cases PT suffers not so much from a lack from constraining mechanisms, but from paradoxes and lost generalizations that arise out of its formalisms.

2. Fixed Segmentism

To begin, two cases of fixed segmentism are presented below to sketch out how they would be analyzed under MDT and PT.

2.1. Kinnauri

The first case occurs in Kinnauri, a Sino-Tibetan (Western Himalayish, Kanauri) language spoken in India. In Kinnauri there is a reduplicative process denoting generality that fixes the

[1] In the case of Malay nasal spread, it is not clear from the data cited in Raimy (2000) that the backcopying does not also occur in base-initial syllables beginning with obstruents that normally block nasal spread. If it does, then PT cannot account for this case of backcopying, either.

initial vowel of the reduplicant according to prespecified correspondences, as seen below in data from Sharma (1988: 62-3).[2]

(1) Fixed vowels in Kinnauri nominal reduplication

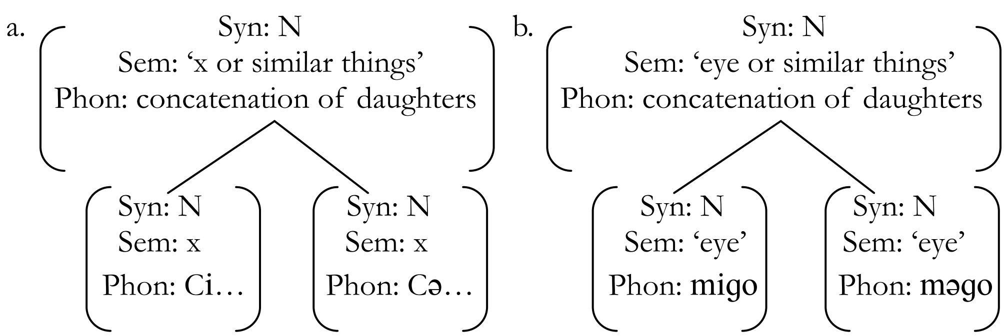
a.	mi	'man'	mi-ma	'human being, etc.'
b.	migo	'eye'	migo-məgo	'eye or similar things'
c.	kimo	'home'	kimo-kəmo	'home or similar things'
d.	ze	'sheep'	ze-za	'sheep, etc.'
e.	baŋo	'leg'	baŋo-buŋo	'leg, etc.'
f.	batəŋ	'talk'[3]	batəŋ-butəŋ	'idle talk'
g.	gudo	'hand'	gudo-gədo	'hand, etc.'

Sharma identifies four base-reduplicant vowel correspondences according to which the first vowel in the reduplicant is fixed: /i/ → /ə/ or /a/ (e.g. 1a-c); /e/ → /a/ (e.g. 1d); /a/ → /u/ (e.g. 1e-f); and /u/ → /ə/ (e.g. 1g).

2.1.1. MDT Analysis of Kinnauri

MDT represents reduplication as a morphological construction that takes two syntactically and semantically equivalent stems. Thus, in the case of form (1b) *migo-məgo* 'eye or similar things', the construction takes two stems, an /i/-stem and an /ə/-stem:

(2) MDT representation of Kinnauri reduplication as a morphological construction[4]



Note that the daughters in the reduplication construction are themselves the heads of constructions—the first an identity construction making no change in an /i/-containing input, the second a construction replacing the initial vowel of an /i/-stem with /ə/.

(2a) represents the version of the construction in the case of /i/ → /ə/ base-reduplicant vowel correspondence. In this case the construction takes an /i/-stem and an /ə/-stem (but in other cases, the construction takes an /e/-stem and an /a/-stem, or an /u/-stem and an /ə/-stem,

[2] The reduplicant is underlined in the examples below.
[3] Note that the gloss for this form is an extrapolation on the part of the author. Sharma (1988) does not gloss the base, giving only the gloss of the reduplicated form.
[4] 'Syn' = syntactic specification, 'Sem' = semantic specification, 'Phon' = phonological specification.

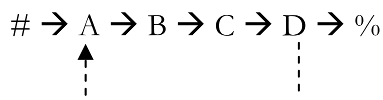
etc.). Crucially, the information contained in the construction specifies information about its daughters; thus, just as the English plural construction, for example, specifies that it combine a daughter that is a noun (i.e., [Syn: N] in the notation above) with a daughter that is /z/, the Kinnauri reduplication construction specifies that it may combine stems in pairs dictated by the vowel correspondence relations described above, ruling out other stem combinations (including identical stems).

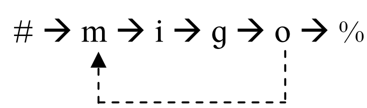
(2b) shows how the reduplication construction arrives at the attested form of *migo-məgo*. The nested constructions headed by the daughters, which are left out of the schematic in (2), are the identity construction and vowel-replacing construction described above, and the cophonology associated with the reduplication construction headed by the mother simply concatenates the daughters to produce *migo-məgo*.

2.1.2. PT Analysis of Kinnauri

In contrast to MDT, PT represents reduplication as the addition of a new precedence link. Phonological representations in this theory consist of segments, string boundaries (including the start of a string, represented by '#', and the end of a string, represented by '%'), and precedence links between them showing the order in which they are to be linearized at spell-out. Thus, total reduplication consists of adding a precedence link from the final segment of the word to the initial segment of the word:

(3) PT representation of total reduplication as the addition of a precedence link

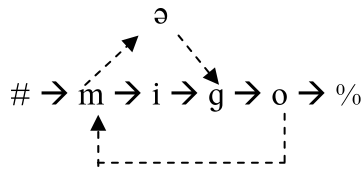
a. 

b. 

(3a) shows the general case of total reduplication, while (3b) represents total reduplication of (1b) with complete base-reduplicant identity. For linearization of (3b) to occur properly, it must proceed according to at least three principles: Link Maximization, Link Priority, and Link Economy. The principle of Link Maximization compels linearization to take a path that traverses all precedence links; thus, a linearization that simply ignores the added reduplication link in (3b) is out on the grounds of failing to traverse all links. The principle of Link Priority might be seen as a corollary of Link Maximization: if two links are encountered at a certain point in the precedence structure, the newer link is followed to ensure that it gets traversed before the end of the word is reached. Since the links between the segments in the base, being specified in the underlying lexical representation, will always be the oldest links, in (3b) the reduplication link is followed after /o/, which necessitates that linearization loop through all the segments again to reach the end of the word and terminate; this loop results in *migo-migo*. Finally, the principle of Link Economy mandates that linearization take the shortest route through all links in a precedence structure; this is how infinite looping through a reduplication structure is ruled out.

However, the representation in (3b) obviously does not incorporate the fixed vowel of the reduplicant. The fixed vowel in the actual form of (1b) requires the addition of two more precedence links:

(4) PT representation of Kinnauri reduplication as the addition of three precedence links



Here already PT encounters a problem with getting the output of its representation to come out correctly. What is to prevent linearization from taking the path through the fixed vowel /ə/ before going through the reduplication path? Both paths, as modifications added to the underlying lexical precedence structure, are newer than the underlying lexical path. In fact, Link Priority predicts that after /m/ the newer link to /ə/ will be followed over the older lexical link to /i/. Furthermore, neither Link Maximization nor Link Economy can rule this linearization out, since it is just as maximizing and just as economical as the linearization which goes through the reduplication loop first; it simply traverses the links in a different order.

To arrive at the attested form, it appears that one must allow linearization the ability to "look ahead" in the precedence structure. If look-ahead is granted, then Link Priority can be revised as follows: if two links are encountered at a certain point in the precedence structure, the newer link is followed if and only if it is the newest link in the precedence structure (i.e., there are no new links that are newer than it). Of course, this revision requires the additional assumption that the link to /ə/ is added to the precedence structure before the reduplication link is, though there is no clear motivation for this ordering. If there is any ordering at all, it seems that the more restricted link should be added later. Kinnauri has plenty of other reduplication processes (cf. Sharma 1988: 168, 178), but no independent rule replacing vowels of word-initial syllables with /ə/; in other words, reduplication is the more general process, while vowel replacement is contingent upon reduplication.

Addition of a link to /ə/, then, should only be licensed if there is a reduplication link in the structure already. Otherwise, these two links need to be bundled together such that a link to /ə/ always co-occurs with a reduplication link. In this case, the natural assumption would be that they are added to the precedence structure at the same time, but if a relative ordering of their addition must be assumed, there seems to be no reason not to allow a link to /ə/ to be added before the reduplication link. This, however, is still a stipulation; it is at least as plausible to add the reduplication link first.

Another possible solution to the problem of ordering link addition is to assume, first, that underlying lexical links have special status that results in their being traversed last and, second, that Link Priority actually compels linearization to traverse older links before newer links. In this case the reduplication link can be added before the link to /ə/, which follows from the implicational relationship between the two, and when linearization has reached the point after /m/, it will not take the path to /ə/ because, looking ahead, it will see that the reduplication path is older. Therefore, linearization will continue through /o/, take the reduplication path, and then take the path through /ə/ to the end of the word. This seems to be the superior solution, as it avoids having to stipulate an unmotivated ordering of link addition.[5]

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[5] Yet another possibility is that the link to /ə/ is actually added during linearization instead of beforehand—specifically, in the middle of linearization's traversal of the reduplication link. This would certainly get the order of the links'

Thus, it is possible to get the right linearization of (4), but not without granting special status to lexical links, granting look-ahead to linearization, and revising Link Priority to take into account the entire precedence structure and compel linearization to traverse older links first.

2.2. Limbu

The second case of fixed segmentism to be discussed is in Limbu, a Sino-Tibetan (Kiranti, Eastern) language spoken in Nepal and India. In Limbu, prefixing reduplication occurs as a marker of expressivity in verbs. The first syllable in the reduplicant has an unpredictable, unanalyzable fixed form that depends on the verb, while the last syllable reduplicates the verb root, as seen below in data from Weider and Subba (1985: 92-3).

(5) Co-occurring fixed syllables in Limbu verbal reduplication

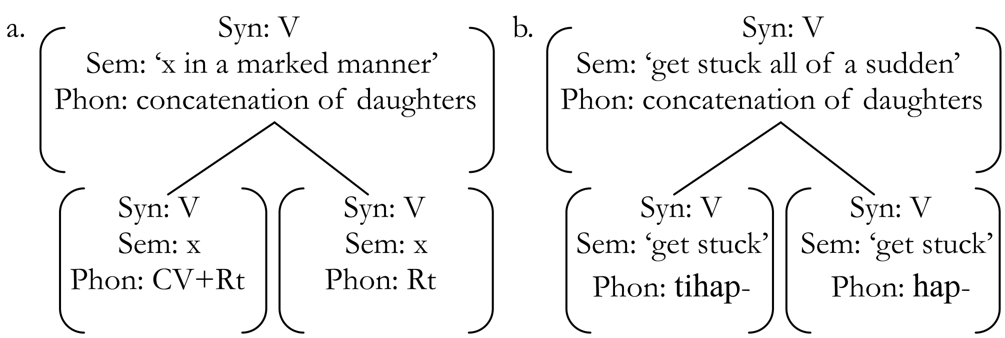
a.	hap-ma	'to get stuck'	<u>tihap</u>-hap-ma	'to get stuck all of a sudden'
b.	k^{h}ip-ma	'to stick'	<u>tig^{h}ip</u>-k^{h}ip-ma	'to stick tightly'
c.	lɛː-ma	'to burn'	<u>sɔllɛː</u>-lɛː-ma	'to burn suddenly'
d.	pɔːp-ma	'to place mud'	<u>tappɔːp</u>-pɔːp-ma	'to place mud clumsily'

Note that the reduplicant undergoes general phonological processes such as intervocalic voicing (cf. 2b) and syllable juncture gemination (cf. 2c-d).

2.2.1. MDT Analysis of Limbu

For a form like (5a), for example, MDT would again represent the reduplicated form as a morphological construction taking two syntactically and semantically equivalent stems. In the case of (5a) *tihap-hap-ma* 'to get stuck all of a sudden', the construction takes an augmented stem and a verb root:

(6) MDT representation of Limbu reduplication as a morphological construction[6]



(6a) shows the general case of the construction, while (6b) shows the implementation for *tihap-hap-* 'get stuck all of a sudden'.

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traversal correct, but by intermingling morphology (i.e., link addition) with spell-out (i.e., linearization), it would also weaken the modularity of morphology that is supposed to be one of PT's defining features. Thus, this idea is not pursued further here.

Though an ordering in link addition is accepted above, in actuality any ordering of link addition here is unmotivated since there is no real evidence (e.g., cyclic phonology) of their ordering in the derivation of the final form.

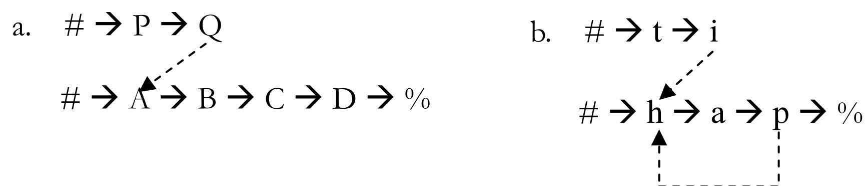
[6] 'Rt' = verb root

Both daughters are again constructions. The first daughter construction takes a verb root and relates it to a form augmented by a CV syllable (in this case of the root /hap-/, the information specified in the construction indicates that it should be augmented by /ti-/), while the second daughter construction takes a verb root and relates it to itself with no change. The reduplication construction takes these two stems and relates them to their concatenated form. This stem in turn becomes the daughter in an infinitive construction that takes it and the infinitive suffix /-ma/ and relates them to the concatenated form seen in (5a).

2.2.2. PT Analysis of Limbu

In the case of (5a), PT must represent the /ti-/ augmentation of the reduplicant as a prefix. This consists of adding a precedence link from the last segment of a prefix string to the first segment of the base:

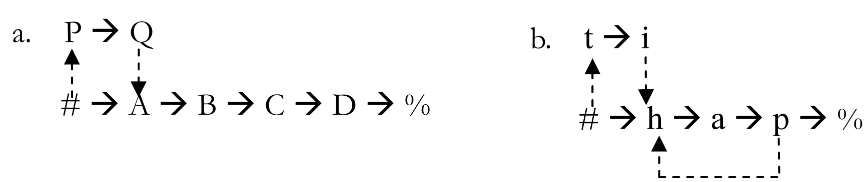
(7) PT representation of prefixing as the addition of a precedence link between two strings



(7a) shows one way to represent the general case of prefixing—a separate prefix string (beginning with its own '#') is linked to the beginning of the base string—while (7b) shows the implementation for (5a). Link Maximization will prevent the prefix from simply being ignored because all links must be traversed. Actually, however, this principle must be revised slightly. As can be seen in (7a) or (7b), the link from '#' to the first segment of the base can never be traversed if linearization begins at the prefix; thus, Link Maximization must be restated as mandating the traversal of as many links as possible (not necessarily all). Later, suffixation of (7b) will occur by adding a precedence link from /p/ to /m/ in the suffix /m → a → %/.

In Raimy (2000), however, affixes are not represented as strings with their own beginning or end. Instead, prefixation, suffixation, and infixation in his system are formally identical, consisting of the addition of one precedence link from the base to the first segment of the affix and one precedence link from the last segment of the affix to the base; what differs between the three kinds of affixation are the points at which these links meet the base. The representation in (7) should then be recast as in (8):

(8) PT representation of prefixing as the addition of two precedence links (revised)



However, in this representation there is an inherent conflict between two principles of linearization: Link Maximization and Link Priority. Remember that it was assumed in (4) that the link to reduplication-associated material was newer than the reduplication link itself, and that Link Priority compelled older links to be traversed first. In (8b), though, if the link from '#' to /t/ is bypassed (on the grounds that the reduplication link is older) and the direct link to /h/ is followed instead, then the links in the /ti-/ path will never be traversed, violating Link Maximization (since there is a possible path through the structure that does go through both these links and the reduplication link). On the other hand, if the link from '#' to /t/ is traversed first, then Link Priority is violated, since the reduplication link is the older link in the structure.

Therefore, for linearization to yield a result in (8b), it seems that Link Maximization and Link Priority must be ranked, violable constraints (with Link Maximization ranked above Link Priority). Note, though, that this move makes PT, a derivational, rule-based framework, much more like OT, a framework to which it claims to be diametrically opposed. These issues are further exemplified below in the case of English /ʃm/-reduplication.

3. Melodic Overwriting: The Case of /ʃm/-Reduplication

English /ʃm/-reduplication presents various cases of melodic writing that receive different treatments under MDT and PT. Some of the wide variation in this pattern, described by Nevins and Vaux (2003), is summarized in (9).

(9) Variation in English /ʃm/-reduplication[7]

	/ʃm/-reduplication induces:	*Example*
a.	Overwriting of onset of first syllable	breakfast-[ʃm]eakfast
b.	Overwriting of first onset consonant	breakfast-[ʃm]reakfast
c.	Overwriting of onset of first stressed syllable	obscene-ob[ʃm]ene
d.	Overwriting of onset of first stressed syllable Truncation of reduplicant to stressed portion	confusion-[ʃm]usion
e.	Overwriting of onset of (unstressed) first syllable Overwriting of onset of stressed medial syllable	forbidden-[ʃm]or[ʃm]idden

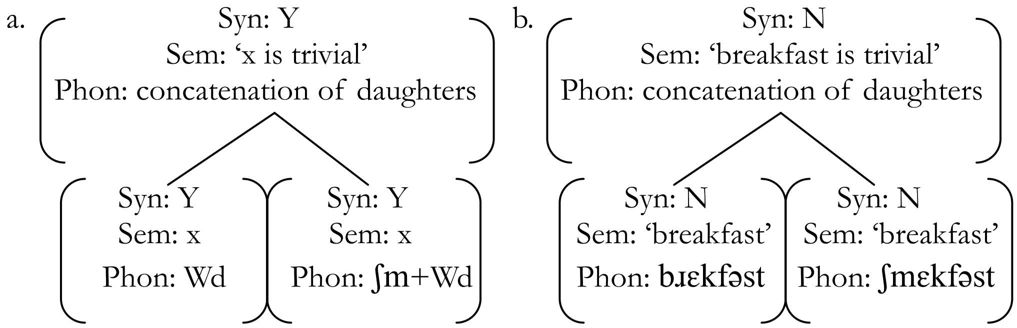
Each of these cases is examined through the formalism of MDT and PT.

3.1. MDT Analysis of Variation in /ʃm/-Reduplication

In MDT, /ʃm/-reduplication is represented as a construction of the form in (10).

[7] These examples are given in English orthography except for the [ʃm] portion. See Nevins and Vaux (2003) for data regarding the distribution of speakers across these different methods of reduplication for various stimuli. Form (9e) *forbidden-[ʃm]or[ʃm]idden* is produced by a small minority of speakers, but is attested in the Fox comedy *Futurama*.

(10) MDT representation of English /ʃm/-reduplication as a construction

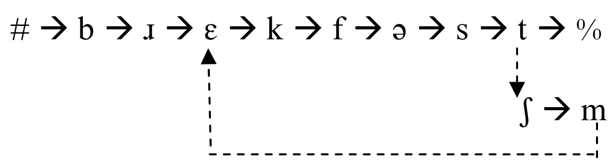


(10a) represents the general case, while (10b) shows the specific construction for (9a) *breakfast-[ʃm]eakfast*. The construction will stay essentially the same for (9b-e) as well; the variation is localized in the cophonology of the construction headed by the right daughter. If the cophonology drives overwriting of the onset of the first syllable, then (9a) results; if it drives overwriting of the first onset consonant, then (9b) results, and so on.

3.2. PT Analysis of Variation in /ʃm/-Reduplication

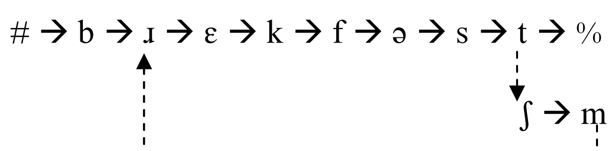
The most common case of /ʃm/-reduplication, in which /ʃm/ overwrites the onset of the initial syllable whether or not it is stressed, is represented in PT as essentially suffixation of /ʃm/ (via a link to /ʃ/) followed by a reduplication link to the appropriate "Anchor Point" in the base string (cf. Nevins and Vaux 2003). In the case of (9a), the Anchor Point is the first vowel:

(11) PT representation of /ʃm/-reduplication overwriting an initial syllable onset



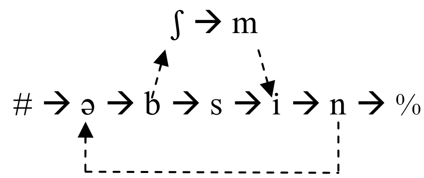
This structure is straightforward and does not cause any problems for linearization. In the case of (9b), the basic precedence structure is the same except the Anchor Point for the reduplication link is the segment after the first consonant:

(12) PT representation of /ʃm/-reduplication overwriting an initial onset consonant



In the case of (9c), in which overwriting is of the onset of the first stressed syllable, the representation is similar to the Kinnauri case in (4) where the medial vowel is replaced by a fixed vowel:

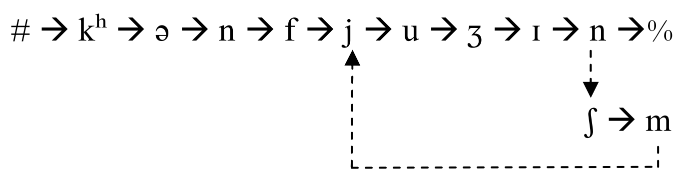
(13) PT representation of /ʃm/-reduplication overwriting the first stressed syllable onset



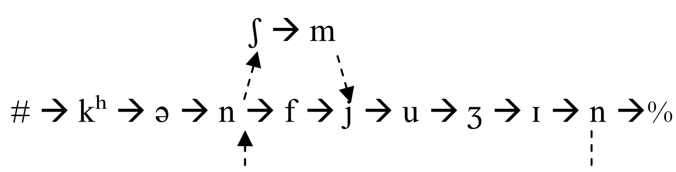
This representation will linearize correctly as long as the same assumptions that led to the correct linearization of (4) hold here as well: (i) the reduplication link is added before the link to /ʃm/, (ii) linearization is able to keep track of the relative order of addition of different links and to look ahead in the precedence structure before deciding whether to go through a particular side path, and (iii) Link Priority compels linearization to traverse the oldest link first, which (excluding the underlying lexical links) is the reduplication link in this case.[8]

However, in the case of (9d), which is like (9c) except that pretonic material is truncated in the reduplicant, there are at least two possible structures. These are the representations in (14) and (15), which correspond in their basic structure to those in (12) and (13):

(14) PT representation of /ʃm/-reduplication overwriting the first stressed syllable onset



(15) PT representation of /ʃm/-reduplication overwriting the first stressed syllable onset



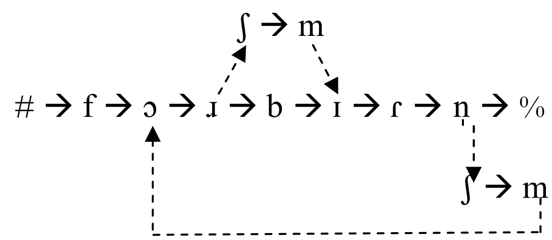
At issue is whether affixation of /ʃm/ occurs before the truncating reduplication, as in (14), or whether the reduplication occurs before the affixation of /ʃm/, as in (15). It should be observed that the Anchor Point for the reduplication link changes depending on this ordering; in (14), it is the first "nuclear segment" (cf. Nevins and Vaux 2003), while in (15), it is the point before the onset of the stressed syllable. It remains unclear why a link that serves the same function in these representations—namely, inducing truncating reduplication—should necessarily connect to different points in the structure, but if one appeals to Raimy's notion of "analytic simplicity" ('use as few

[8] It is also necessary for stress to be accessible in the precedence structure in some way, though this does not appear to be assumed in Raimy's (2000) version of PT where he abandons prosodic notions in favor of simple segmental slots.

links as possible'), then the representation in (15) can be thrown out because it uses one more precedence link than (14).[9] Note, though, that the representation of *confusion-con[ʃm]usion* will have to be like (13), where /ʃm/ is affixed in its own side path. This means that the two forms *confusion-con[ʃm]usion* and *confusion-[ʃm]usion*—which minimally differ in whether or not there is truncation in the reduplicant—come from rather different precedence structures, failing to capture the similarity between these two forms.

Finally, under PT the form in (9e), where /ʃm/ overwrites the onset of both the first syllable and the primarily stressed syllable, has a representation that combines the elements of (13) and (14):

(16) PT representation of /ʃm/-reduplication overwriting two syllable onsets



Though it is not clear that the link from /n̩/ to the lower /ʃm/ is older than the link from /ɹ/ to the upper /ʃm/, as long as it is assumed that the reduplication link is older, linearization will produce the right result by traversing the link from /ɹ/ to the upper /ʃm/ only after passing through the reduplication loop.

Thus, the given PT representations of (9a-e) can linearize correctly, but whereas MDT provides a unified representation of (9a-e) localizing the variation in one daughter construction, PT must resort to at least two substantially different representations to account for all of the data. Unfortunately, such a diversity of representations obscures the unity of these reduplication patterns: they are all variants of the same morphological process. It follows that their formal representations should be similar as well.

4. An Aside: Representing Affix Reduplication

The language of Kannada contains examples of echo reduplication with overwriting that show that the process can apply at various points in the morphology. In Kannada /gii/-reduplication, inflectional morphology such as case endings can appear either outside or inside a reduplicated structure with no change in meaning, as seen in data from Lidz (2001):

(17) Interaction between case inflection and /gii/-reduplication in Kannada

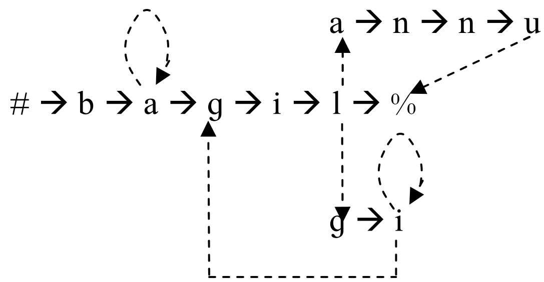
a.	baagil	'door'
b.	baagil-<u>giigil</u>	'door-schmoor'
c.	baagil-<u>giigil</u>-annu	'door-schmoor-ACC'
d.	baagil-annu-<u>giigil-annu</u>	'door-ACC-schmoor-ACC'

[9] The structure in (15) might also be thrown out on the basis of the reduplication link pointing to a 'link intersection' instead of a segment.

In MDT, this alternation can be analyzed as the result of different nestings of the reduplication construction and the accusative affixation construction. In the case of (17c), the reduplication construction is nested in an accusative affixation construction, resulting in (single) affixation of the reduplicated structure. In contrast, in (17d) the accusative affixation construction is nested inside the reduplication construction, and if one daughter is an accusative affixation construction, both daughters will be since they must be syntactically and semantically identical. This nesting therefore results in reduplication of the case inflection as well as the base, yielding (17d).

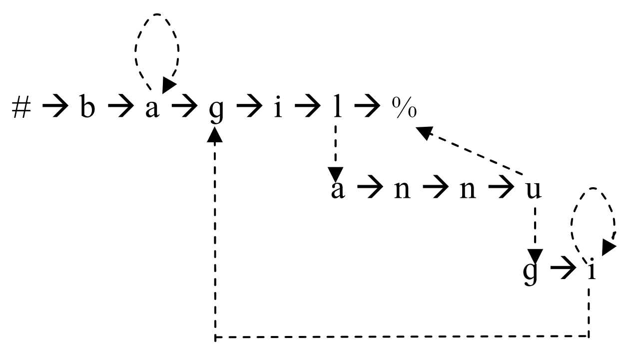
In contrast, a PT analysis posits for (17c) a structure like the following:[10]

(18) PT representation of Kannada /gii/-reduplication



Once linearization reaches the end of the base, Link Maximization forces it to skip the /annu/ suffix loop in favor of the links contained within the reduplicant loop so that these may be traversed before the end of the word. On the other hand, the structure of (17d) links the end of the suffix to the beginning of the fixed /gii/ portion of the reduplicant, a link that is absent in (18):

(19) PT representation of Kannada /gii/-reduplication

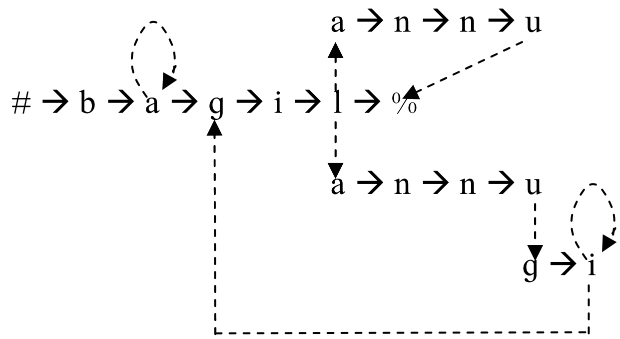


However, (19) cannot be the actual precedence structure for (17d) due to Link Economy. Link Economy regulates against "unnecessary" link traversal; thus, the path through the /annu/ suffix will only ever be taken once. After the reduplication loop is followed and the last segment of the base string is reached for a second time, there is no need to go through the /annu/ path again for reasons for Link Maximization since it has already been traversed between linearization of the base

10 Note that in Raimy (2000) long vowels and geminates result from linearization of a loop linking a segment to itself.

and linearization of the reduplicant. Thus, the structure in (19) will linearize as *baagil-annu-giigil*, not *baagil-annu-giigil-annu*. The precedence structure for (17d) must instead be the following:

(20) PT representation of Kannada /gii/-reduplication



The structure in (20) includes two separate suffix strings that are both linked from the last segment in the base string. This structure will linearize correctly as long as it is assumed that either the two /l → a/ suffix links are equally old and Link Maximization forces linearization to take the lower path, or the lower /l → a/ suffix link is actually older and traversed first by virtue of Link Priority.

Again, the correct linearization can be obtained from this structure, but the structure itself does not seem to correspond to the real nature of this reduplication. While it represents the reduplication of the base material as a loop, it represents the reduplication of the affixal material differently—as essentially double affixation. This then raises the question of what constrains these two affixes to be the same. Why does reduplication produce *baagil*-ACCUSATIVE-*giigil*-ACCUSATIVE, but not *baagil*-ACCUSATIVE-*giigil*-PLURAL or *baagil*-PLURAL-*giigil*-ACCUSATIVE, for example? The structure in (20) predicts these latter, unattested reduplications to be possible as well.

In actuality, the structure in (19) is a better representation of (17d), as the reduplication of the base and the reduplication of the affix arise in the same way at linearization—traversal of the same substring of the structure. However, as already noted, Link Economy, a principle that cannot be abandoned unless infinite looping is ruled out on separate grounds, prevents this structure from linearizing correctly in the first place.

5. Conclusion

In sum, while both MDT and PT make advances over standard BRCT in streamlining the morphology of reduplication-specific mechanisms, PT suffers from formal problems that MDT does not. Downing (2001) and Nevins (2002) observe that PT does not seem to be constrained, but on the contrary, Nevins and Vaux (2003) argue that the theory can be constrained by a well-articulated theory of Anchor Points. Thus, the real problem with PT is that it produces conflicts between representations and the constraining principles that must be assumed to account for their linearization, or else resorts to representations that obscure the real structure of the reduplication. In the case of Kinnauri fixed-vowel reduplication, it was seen that linearization had to be granted look-ahead for Link Priority to constrain link traversal correctly, while in the case of Limbu fixed-syllable reduplication, it was seen that Link Maximization had to be ranked above Link Priority for linearization to operate as expected. Both of these additional conditions were necessary to account for the variation in English /ʃm/-reduplication as well. Finally, in the case of Kannada affix reduplication, the representationally more insightful structure could not linearize according to principles that were independently motivated.

Unfortunately, the allowance of both look-ahead and principle ranking in PT, a move that eliminates a "blind" process of linearization, essentially turns linearization into a parallel processing mechanism. For a precedence structure to linearize correctly, several possible paths through its precedence links need to be compared before the one that is maximizing and most economical is chosen. However, this sort of linearization is much more like candidate comparison on the basis of ranked, violable constraints in OT than the rule-based derivation that PT consists of elsewhere. In conclusion, the formal problems of PT outweigh any advantage it may have in empirical coverage. Ultimately, it is impossible for PT to account for much of reduplication without OT-like provisions that run counter to the central spirit of the theory.

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