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Author(s): Mary Niepokuj
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Mary Niepokuj

University of California, Berkeley

The processes by which reduplication can arise in a language generally have not been considered interesting enough to deserve much comment. Linguists assume that since the formal process often is iconically related to the meaning conveyed, then the process must have arisen spontaneously. Speaker A would say something like 'That's a big, big dog' or 'I walked and walked yesterday,' and Hearer B would immediately understand what 'big, big' or 'walked and walked' meant. As such syntactic combinations catch on, reduplication becomes grammaticalized; the doubled words fuse and are stressed as a single word, one of the two morphemes may be reduced in ways common to the process of grammaticalization, and so on. Under this analysis, all instances of partial reduplication historically first entered the world via full reduplication and then were gradually eroded phonologically. Similarly, if the meaning expressed by reduplication in a given language is not clearly iconic, it must have been so at an earlier stage, and the meaning must have shifted.

This generally accepted view is inadequate in a number of respects. First of all, typological comparisons of partial reduplication in a large number of unrelated languages permit a number of generalizations about the phonological shape of the affix. An example of such a generalization is the claim in Steriade (1988), following McCarthy and Prince (1986), that affixes created via partial reduplication must consist either of a light syllable or of a single metrical foot, with the exact composition of the foot varying from language to language. Steriade states,

> To review then, prosodic weight requirements fall into two major classes: the requirement that the affix be a foot-sized domain and the requirement that the affixal unit not be independently footed. The second class may only correspond to a light syllable. The first case gives rise to various other options, corresponding to different foot types: the monosyllabic and disyllabic foot, the bimoraic and the polymoraic foot (p. 80).

Assuming that Steriade at least describes a strong tendency in the world's languages to form reduplicative affixes of this shape, the questions to be addressed from the standpoint of historical linguistics are what constraints on historical change would achieve such a consistent result and why the creation of reduplicated affixes would differ from the creation of other grammatical affixes in this respect. After discussing some patterns of change which result in partial reduplication, I will

discuss several cases where partial reduplication is not the descendent of original full reduplication. The fact that such cases exist points to the need for caution in assuming that partial reduplication is always the descendent of full reduplication.

The following forms are examples from languages which permit the reduplicative affix to be a single foot. When the base is itself a single foot, it is copied entirely. When it is longer, however, the copy is truncated so that only a foot remains.

1a) **Makassarese** (McCarthy & Prince (1986:31))

ballak	ballak-ballak	'house'
tau	tau-tau	'person'
kaluarak	kaluk-kaluarak[1]	'ant'
balao	balak-balao	'rat'

1b) **Manam**

la?o	la?o-la?o	'go'
?ulan	ulan-lan	'desire'
salaga	salaga-laga	'long'
moita	moita-ita	'knife'

Note that in Manam the foot is bimoraic rather than bisyllabic.

The forms in (2) come from Tarok, a Benue-Congo language, in which stems reduplicate to express third person singular possession.

2)**Tarok** (Robinson 1976).

ǹdàkál	ǹdàkál-dākāl	'his mat'
āfinī	āfinī-finī	'his thread'

Robinson cites the forms above and adds, '...if the stem has three or more syllables, reduplication may be optionally abbreviated so as to apply to the last two stem syllables only' (p. 207). This stage of optional truncation clearly provides a transition between a period of full reduplication and a subsequent stage of partial reduplication. When and if the optional truncation rule becomes obligatory, Tarok will exhibit the same kind of reduplicative process as the languages seen in (1).

This kind of truncation is different from the kind of phonological reduction seen in more familiar examples of grammaticalization (see Givón (1971) for examples). The questions are, then, what factors constrain the historical development of these affixes so that the final result is so consistent cross-linguistically, and why do reduplicative affixes differ from other affixes in this respect? Examining other examples of truncation suggests an answer to these questions.

Truncation is commonly found in two other areas cross-linguistically: formation of hypocoristics and vocatives, and compounding. Data from Zuni and Madurese showing compound truncation are seen in (3).

3a) **Zuni** (McCarthy & Prince (1986:61-2))

tukni	tu-mok^{w}k^{w}'anne	'toe-shoe = stocking'
melika	me-k^{w}'isso	'Anglo-negro = black man'
pacu	pa-lokk'a-ak^{w}e	'Navajo-be:gray = Ramah Navajo'

3b) **Madurese**

usap	sap-lati	'wipe-lip = handkerchief'
urin	rin-tua	'person-old = parents'

Compounds in general are strikingly similar to fully reduplicated forms in that both cases involve conjoining two stems rather than conjoining a stem and an affix. This similarity surely accounts for the fact that both of these formations may acquire a rule of truncation, and that grammatical affixes in general do not.

The question of why truncation is constrained in so many languages to leave a single foot is somewhat more complex. The answer may lie in the recoverability of the underlying form: a foot may be the minimum amount which can still permit recovery of the underlying stem. Examining the third set of forms which permit truncation, hypocoristics and vocatives, provides evidence in support of this analysis. The forms in (4) are hypocoristics: (4a) contains forms from French, and (4b) contains forms from Japanese.

4a) **French hypocoristics** (Steriade (1988:75))

Isabelle	i.za.bel	iza, zabel, zabe
Dominique	do.mi.nik	domi, minik, mini
Marie-Claude	ma.ri.klod	mako
Marie-Alice	ma.ri.a.lis	mali, malis
Laure-Lise	lor.liz	loli

4b) **Japanese hypocoristics** (Poser (1984))

hanako	hana-tyaN
akira	aki-tyaN
taroo	taro-tyaN
syuusuke	syuu-tyaN
ti	tii-tyaN

Note that in (4a) all forms are a single foot. Furthermore, as Steriade (1988:148) notes, if the name is a compound, the hypocoristic must preserve a syllable from both members, probably to aid recoverability. The forms in (4b) are also foot-based: if a name originally is shorter than a foot, it is lengthened to fit the foot template. In this case, the constraint on recoverability has become rigidified into a templatic requirement which can lengthen as well as truncate forms.

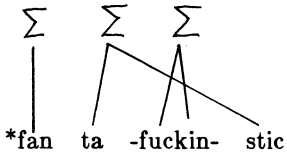
A second piece of evidence concerning the role of feet in recoverability may be found in the English rule of expletive insertion seen in

forms like *abso-bloomin-lutely.* Attested examples,[2] as well as ungrammatical forms, are seen in (5).

5) **Expletive Infixation**
amalga-bloody-mated
emanci-motherfuckin-pator
Su-fuckin-matra
e-bloody-nough
*fanta-fuckin-stic
*ca-fuckin-terwaul

As McCarthy (1982) noted, the constraint on Expletive Infixation may be stated as follows: the expletive may be inserted between feet, but not inside of a foot. McCarthy explained the constraint as the result of the autosegmental principle that association lines may not cross; (6) shows the prosodic structure of an ungrammatical example.

6)



A more functionally-oriented explanation is that the maintenance of foot structure makes the recovery of the underlying lexical item easier.

Similarly, in languages which have polysyllabic forms which undergo reduplication, constraining truncation to leave a foot behind is a way of guaranteeing recoverability. Of course, given that the truncated affix is attached to a full version of the stem in question what is recovered is not so much the stem itself as it is the underlying structure of a pair of conjoined stems.

Another very common form of partial reduplication is that in which the affix contains a copy of the initial consonant or cluster of the stem, and a prespecified vowel. The vowel is usually but not always high. Some examples are given in (7).

7a) **Akan**

High tone	Low-High tone	
ba	biba	'come'
so?	suso?	'light'
don	dunnon	'soak'
haw	hihaw	'trouble'

7b) **Yoruba** (Pulleyblank (1988:256))

gbóná	gbígbóná	'be warm'
dùn	dídùn	'be sweet'
tóbi	títóbi	'be big'

7c) **Salish** (Haeberlin (1918))

> The vowel of the reduplicating-syllable of the diminutive may either be the same in quality as the stem vowel of the simplex or it may show a shift. The most common shift of this kind is that to an *i*-vowel. This diminutive reduplication with *i*-shift is a very persistent feature in the Salishan dialects and seems to be common to most of them... The most frequent vowel-shift in the diminutive of Clallum is that to /a/.

7d) **Tillamook** (Reichard (1959))

hanə́luin	'arm'	hu-hanə́luin	'little arm'
sæns	'stone'	k-su-sæns	'gravel'
t'iyə́khu	'man'	du-t'iyə́lhu	'boy'

na-	'fetch'	ni-ná-ən	'he will keep coming after'
sæc'-	'cut'	t si-sæc'-ən	'she is cutting repeatedly'

Explanations of the prespecified vowel in the Niger-Congo forms have been suggested in Hyman and Voeltz (1971) and Faraclas and Williamson (1984). Hyman and Voeltz cite data suggesting that the reduplicating vowel is a reduced vowel in Fe?fe? Bamileke, and that the fact that it is reduced accounts for the ease with which it assimilates to adjacent consonants. Faraclas and Williamson argue that the reduced reduplicated vowel assimilates to the degree of stricture of adjacent consonants as well; they suggest that the glide interface, where high vowels and glides interchange, is the unmarked value for stricture, and consequently that that is the value assigned to a reduced vowel. In their framework, high-vowel reduplication arises first in reduplicated forms of monosyllabic CV-roots, and then may spread to reduplication of longer roots as well.

While these phonological explanations of the prevalence of high-vowel reduplication undoubtedly provide some of the motivation for this development, they do not account for cases like Clallam, where the fixed vowel is *-a-*, nor for cases like Tillamook, where frequentative reduplication is characterized by *-i-* while diminutive reduplication is characterized by *-u-*. A further factor must be invoked to explain the commonly seen pattern of reduplication with a fixed vowel in the affix: the well-known historical drive in speakers to reduce allomorphy. Fixed vowel reduplication is the outcome of a kind of levelling. At first blush it seems a bit strange to talk about allomorphy when describing reduplicated affixes, since each stem would seem to have a unique allomorph of the reduplicated affix; support for this analysis comes from the fact that this sort of fixed vowel is seen in the most reduced kind of reduplication, that in which the affix is smaller than a prosodic foot and consequently does not permit the recovery of an underlying structure of two conjoined stems. Prespecifying the vowel of the reduplicative affix makes the form of the affix much more predictable. The historical drive to reduce paradigmatic alternation, along with the phonological factors others have suggested, more fully explains why so many languages develop fixed vowel reduplication.

At this point it is instructive to consider two cases where partial reduplication did not arise from original full reduplication. The first of these case is seen in (8).

8) **Nyakyusa**

-okya -okikye
-tufya -tufifye
-ibwa -ibibwe (Bastin (1983))[3]

In Nyakyusa, a Bantu language, in many cases the suffix reconstructed as **-ide* substitutes a copy of the final stem consonant for the original **-d-* of the suffix. Clearly the partial reduplication seen in this instance did not arise from originally doubling a stem. If confronted with the data in (8), however, a linguist would be tempted to assume that these forms arose originally through reduplication. The fact that the suffix expresses perfectivity is particularly cautionary, since a notion of completed action and hence possibly a durative state is well within the range of what many scholars would assume is a 'normal' semantic value for reduplication. If a form is reduplicated, so the thinking goes, then it must originally have had an iconic value such as duration of action in order for the reduplicated form to arise at all; the semantic value then must have shifted to something less clearly iconic. The Nyakyusa data strongly argue for the need for caution in positing an origin like this simply because the form looks like a case of reduplication.

A further example of partial reduplication for which iconic reduplication need not be invoked as a source was presented in Niepokuj (1987). In that paper I argued that the reduplicated present-tense class found in Sanskrit and Greek arose primarily due to the presence of root-final laryngeal segments in the roots which could form a present stem in this way. In the proto-language, I argued, present-tense reduplication was very infrequent and unsystematic, as exemplified by the Hittite root *mema-* 'to speak,' where the reduplication is symbolic of the repeated movements of the mouth in speech. At some time during the prehistories of Sanskrit and Greek, however, reduplicating present tense classes were formed, and the primary determiner of membership in the class was the presence of a root-final laryngeal segment. The forms cited in the Appendix are evidence. These are all the roots for which a reduplicated present-tense form has been attested. 70% of the roots in Vedic and nearly 80% of the roots in Greek are normally reconstructed to roots which had ended in laryngeals, or roots of the sequence laryngeal-semivowel which routinely metathesized under conditions described by Winter (1965). By comparison, in the Vedic verbal class (Class 6) which consists of those roots which form a stem by suffixing a stressed thematic vowel to the root, the percentage of roots which ended in a laryngeal is slightly less than 20%. Similarly, a rough attempt to calculate the percentage of laryngeal-final verbal roots in Pokorny showed the percentage of such roots again to be around 20%.[4] I explain the preponderance of laryngeal-final roots in the reduplicating present class in the following way. When the laryngeal segments were lost during the prehistories of Sanskrit and Greek, the loss occurred on an item-by-item basis. For a given root containing a laryngeal, in certain environments the laryngeal

would be realized as zero, in other environments as a consonant, and in other environments as an unstressed vowel.[5] For each root, at some point speakers would re-analyze the underlying form so that the root no longer contained a laryngeal segment. When the first few roots were in the process of losing their laryngeals, speakers resorted to reduplication, probably because the reduplicated stem plus tense affixes strongly resembled the canonic segmental shape of the regular thematic verbs. Because of this association between laryngeal-final roots and reduplication, the laryngeal was treated as a phonological marker of roots which would use reduplication to form stems. At this point, the process spread separately in both Sanskrit and Greek. The primary motivation for reduplicating a form was thus its phonological shape; the forms need not have had any particular semantic value other than normal present tense.

One issue which remains to be addressed is the relation between historical analyses of reduplication such as this one and synchronic surveys of reduplication such as Marantz (1982), McCarthy and Prince (1986), and Steriade (1988). As I mentioned at the beginning of this article, such surveys have discovered a number of generalizations concerning the shape of reduplicative affixes; I have suggested some historical explanations to account for these recurring patterns. Historical discussions such as this one also have a bearing on recent theoretical discussions of synchronic phenomena; in particular, this paper has a bearing on the implicit assumption in Marantz (1982) that all cases of superficial reduplication can be analyzed as full melodic copy and association to a template, and on the claim made in Steriade (1988) that partial reduplication must always be analyzed as complete copying of the base plus truncation and/or segmental insertion. This assumption that superficial partial reduplication is underlyingly full reduplication plus some formal mechanism to pare down the stem is so prevalent that Pulleyblank (1988:265-266) needs to provide evidence that deverbal noun reduplication in Yoruba (see (7) above for data) is not in fact underlyingly reduplication, but instead is spreading of the stem-initial consonant. His analysis is certainly reasonable in this instance; what is striking, however, is the assumption that, in the absence of evidence to the contrary, a situation such as the Yoruba deverbal noun reduplication should be treated underlyingly as full copying of the melody plus some process of association or truncation. Given the various historical paths by which structures which look like reduplication but which never actually involved reduplication can arise, any case which can be analyzed as an instance of something other than copying of a stem should be so analyzed. An analysis which invokes spreading requires less theoretical apparatus than one which requires copying of the stem; linguists, and, presumably, speakers ought to prefer such an analysis in the absence of evidence requiring the more complex mechanism of copying.

Steriade (1988) differs from the Marantzian copy-and-association model in a number of significant ways; she argues that prosodic structure is copied along with the segmental melody, and is then subject to rules of truncation and/or segmental insertion to produce the desired affix. She argues that one flaw in the Marantzian approach is 'the artificial distinction created by this model between total and partial reduplication' (p. 88) and states, 'There is good reason to maintain the view that total and partial reduplication differ only minimally. In some cases, it can be

directly proven that what surfaces as partial reduplication begins derivationally as total reduplication...'(p. 88). While it is true that synchronic derivation need not recapitulate historical development, the fact that diverse historical paths can result in superficially similar forms suggests that theoretical frameworks which insist on a unified treatment of all instances of whole and partial reduplication make overly strong claims. Instead of claiming that all cases of partial reduplication should start out derivationally as total reduplication because this derivational path is necessary in some cases, I argue that total reduplication should be invoked only in those cases of partial reduplication which absolutely require such a mechanism.

Appendix

Sanskrit Data (3rd sing. present unless otherwise specified)

a) **No laryngeal; offer no evidence concerning present reduplication**

ninikta	'wash, purify' (2nd sing. imperative)
pipṛghdí	'mix' (2nd sing. imperative)
dídeśati	'point'
mamatsi	'to be exhilarated, exhilarate'
sasásti	'sleep'

b) **Clear evidence for final laryngeal**

jíghrāti	'smell'	*$gh^{w}reh_2$-
píbati	'drink'	*peh_3-
dádhāti	'put'	*$dheh_1$-
mímāti	'bellow'	*meh_2-
jáhāti	'leave'	*$gheh_1$-
jígāti	'go'	*$g^{w}eh_2$-
mimītas (3rd dual)	'damage'	*$meih_x$-
síśāti	'sharpen'	*keh_3-
rarāsva (2nd sing. middle)	'give'	*reh_1-
ninīthás (2nd dual)	'lead'	*$neih_x$-
dádāti	'give'	*deh_3-

mimate	'measure'	*meh$_1$-
juhūmási (1st pl.)	'call'	*gheuh$_x$-
tíṣṭhati	'stand'	*steh$_2$-
mámandhi (2nd sing. imperative)	'think'	*mneh$_2$-[6]
dīdyati (3rd pl.)	'shine'	*deih$_x$-
dīdhye (3rd sing. middle)	'think'	*dheih$_x$-
pīpihí (2nd sing. imperative)	'swell'	*peih$_x$-
tíṭarti	'cross over'	*terh$_2$-
jíghrti	'sprinkle'	*ghreh$_1$i-
píparti	'fill'	*pelh$_1$-
sísarti	'flow'	*serh$_x$-
íyarti	'go'	*h$_1$erh$_1$-
bibharti	'bear'	?*bher(-)h$_1$-

c) **Metathesized forms**

suṣvati (3rd pl.)	'press out'	*seh$_x$w-
pipīte (3rd sing. middle)	'drink'	*peh$_3$-i-
jihīte (3rd sing. middle)	'leave'	*gheh$_1$-i-
rirīhi (2nd sing. imperative)	'give'	*reh$_1$-i-
?cikéṣi	'note'	*keh$_1$i-

d) **Seṭ forms; no other evidence for laryngeal**

yáyastu (3rd sing. imperative)	'be heated'
viviktás (3rd dual)	'extend'
jiharti	'take'
vaváḳsi, vivasti	'be eager'

e) **No laryngeal**

bábhasti, bápsati	'devour'
mimikṣvá (2nd sing. imperative middle)	'mix'
vavartti	'turn'
siṣakti	'accompany'
vívakti	'speak'
vivekṣi	'sift'
juhoti	'sacrifice'
piprghdí (2nd sing. imperative)	'mix'

Greek Data (1st sing. pres. unless otherwise specified)

a) **Clearly laryngeal-final; athematic**

τίθημι	'place';	compare Skt. dádhāti
δίδωμι	'give';	compare Skt. dádāti

'ίστημι	'stand';	compare Skt. tíṣthati
'ίημι	'send'	?*ieh$_1$-.
δίζημι	'seek'	*dieh$_2$-
δίδημι	'bind'	*deh$_1$-
βίβᾱτι (Doric 3rd sing.)	'go';	compare Skt. jíǵāti
'ιληθι (2nd sing. imperative)	'be gracious'	?*selh$_x$-
πίμπλημι	'fill'	*pelh$_1$-
πίμπρημι	'kindle'	*perh$_1$-

b) **Thematic**

τίκτω	'beget'	*tek-
'ίζω	'sit'	*sed-
πίπτω	'fall'	*peth$_x$-
γίγνομαι	'become'	*genh$_1$-

c)***-ske/o forms**

βιβάσκω	'go'	?*g^{w}eh$_2$-.
μιμνήσκω	'remember'	*mneh$_2$-
βιβρώσκω	'drink'	*g^{w}erh$_3$-
τιτρώσκω	'wound'	*terh$_3$-
κικλήσκω	'call'	*kleh$_1$-
'ιλάσκομαι	'appease'	?*selh$_x$-
διδάσκω	'teach'	*dens-

Endnotes

1) McCarthy and Prince note that the *k* at the end of the reduplicative prefix of longer words is underlyingly *?*.
2) McCarthy notes that the attested examples are taken from McMillan (1980).
3) Bastin does not supply glosses for the cited forms.
4) The estimate was obtained by opening Pokorny at random and counting 100 consecutive verbal roots.
5) For evidence that just such a state of affairs is attested in Avestan, see Beekes (1988).
6) A root **man-* 'think' can also be reconstructed; it is possible that the Vedic reduplicated form is based on this root rather than on **mneh$_2$-*. Since the native grammarians cite the set forms *manitá-* (past passive participle) and *manitva*, and since the Greek forms *μέμνημαι* and *μιμνήσκω* clearly derive from the form of the root with the final laryngeal, I posit **mneh$_2$-* as the root from which the Vedic form is descended.

Bibliography

Bastin, Y. 1983. La finale verbale *-ide* et l'imbrication en bantou. Musee royal de l'Afrique centrale, Belgium.

Beekes, R. S. P. 1988. A grammar of Gatha-Avestan. Brill, Leiden.

Faraclas, N. and K. Williamson. 1984. Assimilation, dissimilation, and fusion: vowel quality and verbal reduplication in Lower Cross. Journal of African Languages and Linguistics 6: 1-18.

Givón, T. 1971. Historical syntax and synchronic morphology: an archaeologist's field trip. CLS 7.

Haeberlin, H. 1918. Types of reduplication in the Salish dialects. International Journal of American Linguistics 1.2:154-174.

Hyman, L. and E. Voeltz. 1971. The linguistic status of Bamileke. Papers in African linguistics, pp. 55-70, ed. by Chin-Wu Kim and Herbert Stahlke, Linguistic Research, Inc., Alberta, Canada.

Marantz, A. 1982. Re reduplication. Linguistic Inquiry 13: 435-482.

McCarthy, J. 1982. Prosodic structure and expletive infixation. Language 58.3:574-590.

McCarthy, J. and A. Prince. 1986. Prosodic morphology. Unpublished MS.

Niepokuj, M. 1987. Present-tense reduplication in (Indo-)European. Paper presented at the LSA meeting.

Poser, W. 1984. Hypocoristic formation in Japanese. Proceedings of the West Coast Conference on Formal Linguistics, vol. 3:218-229.

Pulleyblank, D. 1988. Vocalic underspecification in Yoruba. Linguistic Inquiry 19.2:233-270.

Reichard, G. 1959. A comparison of five Salish languages: V. International Journal of American Linguistics 25.4:239-253.

Robinson, J. O. 1976. His and hers morphology: the strange case of Tarok possessives. Studies in African linguistics, supplement 6, pp. 201-209, ed. by L. Hyman, L. Jacobson, and R. Schuh. Dept. of Linguistics, UCLA.

Steriade, D. 1988. Reduplication and syllable transfer in Sanskrit and elsewhere. Phonology 5:73-155.

Winter, W. 1965. Tocharian evidence. Evidence for Laryngeals, pp. 190-211. Mouton & Co., The Hague.