Reduplication as Alliteration and Rhyme

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The prevailing view of reduplication (Marantz 1982, McCarthy and Prince 1986, 1995) analyses it as an abstract affix whose segmental content is copied from the base in accordance with certain principles or constraints. Among these are stipulative constraints (such as ANCHOR in OT), that ensure that prefixal reduplicants take their segmental material from the beginning of the word, and suffixal reduplicants take their material from the end of the word. Cross-linguistically this is a robust generalization: we find data such as these simplified samples: (Data from McCarthy and Prince 1986, 1993)

(1) Prefixing systems:

Tagalog:	lākad	(pag) *la*-lākad	'walking'
	takboh	(um) *tā*-takboh	'will run'
Diyari:	ku⌊kuŋa	*ku⌊ku*-ku⌊kuŋa	'to jump'
	tʲilparku	*tʲilpa*-tʲilparku	'bird sp.'

(2) Suffixing systems:

Kamaiura**:**	o-huka	o-huka-*huka*	'he kept laughing'
	je-umirik	je-umiri-*miri*-k	'I tie up repeatedly*'*
Chamorro:	dankolo	dankolo-*lo*	'really big'
	bunita	bunita-*ta*	'very pretty'

(3) Not found: *(um) *bo*takboh
                     *bunita-*bu*

The standard analysis misses one obvious generalization: the reduplicant and the copy are always adjacent, resulting in rhyming sequences. I suggest that the real core of reduplication is an attempt to produce sequences that rhyme and alliterate, and that rather than involving an abstract affix, reduplication is *caused* by RHYME and ALLITERATE constraints:[1]

(4)   ALLITERATE: Output must contain at least one pair of adjacent syllables with identical onsets
        RHYME: Output must contain at least one pair of adjacent syllables with identical rhymes

Input segments may have two output correspondents (violating INTEGRITY); there is no base or affix in the familiar sense. For an input /pati/ there will be two outputs which fully satisfy this: [pa-pati] and [pati-ti], analogous to Tagalog and Chamorro respectively.Note crucially that this does *not* mean that reduplication necessarily copies syllables, something known to be untrue since Moravcsik 1978, Marantz 1982. Firstly, markedness considerations such as *COMPLEXONSET or NOCODA can result in "undercopying", as in Tagalog [ta-trabaho] or Ponapean [ke-kens] 'ulcerate'. Secondly, if the rhyming portion precedes the alliterating

portion, we get VC copy as in Tzeltal, Oyakangand, or Mangarayi (see below). Below I elaborate on this and other consequences of this approach.

It is well known that some languages show VC copy, and this has posed a problem for prosodic morphology, since VC is not a prosodic unit. I show that my proposal predicts systems of this type. Typical data are given below:

(5) Tzeltal: nit   nit*it*an   'push
                   haš   haš*aš*an   'feel with palm'
                   čol   čol*ol*an   'make rows'
(6) Oykangand: eder   *ed*-eder   'rain'
                   algal *alg*-algal   'straight'
                   igu   *ig*- igu 'go'

Just like CV reduplication, these outputs satisfy ALLITERATE and RHYME, but in the reverse order. In the examples like Tagalog *la-lākad* in (1-2), the reduplicant segment that alliterates *precedes* the segment that rhymes, but in (5-6) the reverse is true. Subscripts A, R show segments that alliterate or rhyme respectively. The reduplicants in both cases contain an alliterating onset and a rhyming rhyme, but only in the first case do they compose a syllable of their own.

(7)   Tagalog   *Oykangand*
     σ   σ   σ   σ   σ   σ
    38   38   3g8   g   38   38
    l$_A$ a$_R$ - l$_A$ ā$_R$ k a d   i$_R$ g$_A$ - i$_R$ g$_A$ u

Often there is no clear way to tell if reduplication is prefixing or suffixing, posing problems for an affixation account. Consider these Mangarayi facts:

(8) Mangarayi: gabuji   g-*ab*-abuji/gab-*ab*-uji   'old person'
                   jimgan   j-*img*-imgan/jimg-*img*-an   'knowledgeable person'

Conveniently, there is no need in the approach proposed here to commit to which is base, which is reduplicant; each relevant input segment simply has two output correspondents. Note also that like the VC-reduplicants above, the rhyming segment precedes the alliterating one.

Some languages use unmarked segments in reduplication (Alderete et al 1998). In the approach advocated here, if MARKEDNESS >> ALLITERATE, onsets will become unmarked, and if MARKEDNESS >> RHYME, rhymes will become unmarked. Chaoyang (Yip 1998, to appear) shows a whole collection of patterns illustrating these interactions: in some patterns, unmarked oral onsets become [l], while in others unmarked rhymes become [i] ([i?] for stop-final inputs). Again, no commitment to a base/affix distinction is needed. A hypothetical syllable /hop/ is used to illustrate the patterns.

/hop/	Rankings
Pattern 1 hop hop	ALLITERATE, RHYME >> MARKEDNESS
Pattern 2 hop lop (+ suffix)	RHYME >> MARKEDNESS >> ALLITERATE
Pattern 3 hiʔ hop (kio)	ALLITERATE >> MARKEDNESS >> RHYME
Pattern 4 hiʔ hop lop (kio)	ALLITERATE, RHYME >> MARKEDNESS

The units which rhyme or alliterate may need additional specification, since they can be feet as well as syllables. Foot reduplication was seen in (1) Diyari and (2) Kamaiura. A simple extension of the RHYME and ALLITERATE constraints will deal with this. *FOOT-RHYME /ALLITERATE: Output must contain two adjacent feet that rhyme/alliterate.* They may need even further refinement: the relevant unit may be not just any syllable, but the head or stressed syllable. Samoan can be viewed in this way: a-*lo*-lófa 'love', fa-*na*-náu 'be born, give birth'. Again, a simple extension zeroing in on stressed syllable rhymes and onsets will work here:*STRESS-RHYME/ALLITERATE: Output must contain a syllable that rhymes/alliterates with the stressed syllable*.Interestingly, the syllable/foot/head are also the units that may rhyme in poetry, a point to which I return.

The alert reader will no doubt have realized that one quite common type of reduplication poses a problem for this approach. In some languages the reduplicant must be a heavy syllable, even when a light syllable would be a better rhyme:

(9) Ilokano: kaldiŋ   *kal*kaldiŋ   'goats'
                pusa   *pus*pusa   'cats'

The non-existent *[*pu*pusa] would better satisfy RHYME. One possibility is that this is word compounding, with a minimal word effect requiring a bimoraic reduplicant. The actual output [puspusa] still rhymes featurally, given the following constraint: *FEATRHYME: Any structurally identical positions (i.e. nuclei, off-glides, codas) in the two rhymes must match in features.* The nuclei are both /u/, and satisfy this, and the /s/ has no matching position, so it satisfies the constraint vacuously.
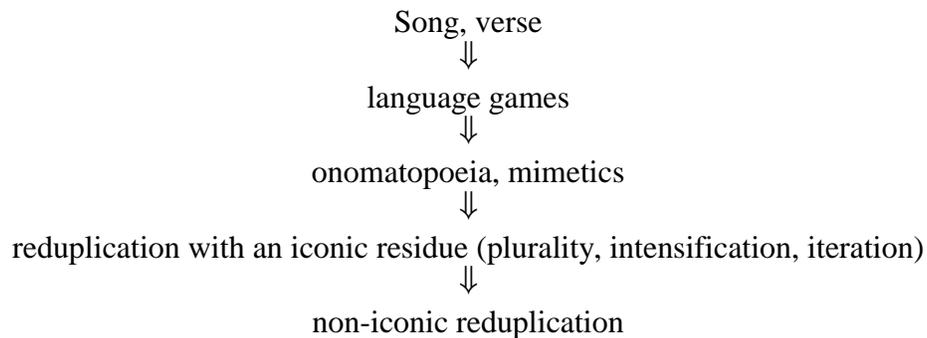
Implications
If this approach is right, reduplication and devices familiar from poetry are not so dissimilar, something noted by Kiparsky as early as 1973, and more recently by Holtman in her 1996 dissertation. Fabb (1997) gives an excellent summary of poetic rhyme and alliteration, and the parallels to reduplication are indeed striking. Both pay attention to syllable structure. Both may single out prosodically prominent syllables as the targets to copy (alliteration in Old Icelandic *dróttkvaett/* Samoan reduplication*).* Both usually copy elements at the edges of words or other constituents (Kiparsky points out that in poetry languages with final stress tend to show end-rhyme, while ones with initial stress often use alliteration). Both show matching of non-constituent CV sequences (Finnish rhyme in the Kalevala/ Ponapean light-syllable reduplication). Both may allow matching of "equivalence classes" of sounds instead of full identity (Tuareg rhyme / Chaoyang reduplication, where all codas turn into their less marked glottal or velar

equivalents, so that [ŋ] rhymes with [m] and [ʔ] rhymes with [k]). However, Fabb notes one difference between alliteration and rhyme in poetry: alliteration requires greater proximity than rhyme. There is no obvious correlate of this observation in reduplication.

I am led then to the conclusion that it may be useful to view reduplication as the most grammaticalized end of a continuum that can be diagrammed as follows:

(10)

<div align="center">

Song, verse
⇓
language games
⇓
onomatopoeia, mimetics
⇓
reduplication with an iconic residue (plurality, intensification, iteration)
⇓
non-iconic reduplication

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I do not suggest that a language can only have reduplication if it has all the phemomena above it in this continuum. The claim is more limited: humans have both an aptitude and a taste for creating repetitive sequences, and they may use this skill in a variety of ways that are more or less part of the core grammar of the language. (Of course, *au fond* grammatical knowledge is involved in *all* linguistic repetition, as can be seen by the implicit knowledge of syllable structure betrayed by these phenomena.) The mechanisms are the same, no matter what the function of the repetition. More specifically, I have claimed that the mechanisms distinguish rhyme and alliteration, and it is this that allows for repetition of either the whole or the part. These mechanisms have their grammatical incarnation as universal OT constraints, motivated here through reduplicative data, but presumably also involved in poetry if one accepts Holtman's central claim that poetic rhyme is controlled by an OT grammar.[2]

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1. For related proposals which view reduplication in non-affixal ways, see Sherrard (1997, Raimy and Idsardi (1997) and Inkelas and Zoll (1999).

2. The separation of RHYME and ALLITERATE proposed here casts doubt on Holtman's suggestion that a crucial requirement in poetic rhyme is ONSET DISSIMILARITY. Instead, one need only assume that RHYME is high-ranked, ALLITERATE is low-ranked and thus not observed, and chance occurrences of complete syllable repetition are avoided for semantic and stylistic reasons; indeed rhymes like *diverse/reverse* or *design/resign*, where the syllable repetition does not lead to word repetition, are perfectly acceptable, although they violate ONSET DISSIMILARITY.

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