

The Syllable as Delimitation of the Base for Reduplication

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CUNY Conference on the Syllable
New York, NY January 19, 2008

- (1) **Claim:** The syllable can serve as a delimitation on the base for reduplicative copying. Thus, the syllable must be a legitimate prosodic unit.

The idea that the “base” for reduplicative copying can be delimited is not new:

- (2) Yidin^y (Pama-Nyungan) – McCarthy and Prince (1986)

a. mulari	>	mula -mulari	* mular -mulari	[mu.la].ri
b. kintalpa	>	kintal -kintalpa	* kinta -kintalpa	[kin.tal].pa

- (3) The Constituent Base Hypothesis: Definition of the Base (Shaw 2005: 167 [6])

The Base in a Reduplicant-Base correspondence relation is a constituent, i.e.

a. MCat:	Word, Stem, Root
b. PCat:	Prosodic Word, Foot, Syllable , Nucleus, Mora
c. PHead:	HeadFoot, $\acute{\sigma}$ = FootHead, Nuc = σ Head, Head μ
d. CanonicalCat:	Canonical Root = [CVC] Canonical Stem = [CVCV]

- (4) “Whereas the Adjacent String Hypothesis places no restrictions on the size or grammatical coherence of an ‘adjacent string’ Base, the Constituent Base Hypothesis significantly delimits the range of potential Bases to a narrow, finite set of independently motivated categories” (Shaw 2005: 197)

- (5) Shaw 2005

Morphological Constituent

Base = Root Nisga’a, N \acute{e} ?kepmxcin (distributive), Lillooet (distributive)

Prosodic Constituent

Base = HeadFoot N \acute{e} ?kepmxcin (diminutive), Lillooet (diminutive)
Base = ProsodicStem Nuxalk

- (6) I will support Shaw’s proposal by showing that one of the prosodic constituents predicted to be able to serve as a base for reduplication, i.e. the syllable, in fact does so in certain languages.

Outline:

1. Introduction
2. Syllable Copy Reduplication
3. Base = Syllable
4. Other cases of failure to copy into the second syllable
5. Opacity in Base assignment
6. Conclusion

2. Syllable Copy Reduplication

- (7) “On the face of it, the idea that reduplication involves affixing a template may seem surprising, since a natural, naïve expectation is that reduplication involves an operation like "copy the first syllable", as illustrated in [7]:

[7] "Copy first syllable," hypothetically

ta.ka → ta-ta.ka
 tra.pa → tra-tra.pa
 tak.pa → tak-tak.pa

Moravcsik (1978) and Marantz (1982) observe that syllable copying, in this sense, does not occur. Rather, reduplication always specifies a *templatic target* which is affixed to the base, and is satisfied by copying elements of the base.

(McCarthy and Prince 1998: 286, emphasis in original)

- (8) Moravcsik (1978) and Marantz (1982): “CV-skeleton”-approach to reduplication

C	V	C	V	— reduplicate →	C	V		C	V	C	V
t	a	k	a		t	a	k—a	t	a	k	a

- (9) Moravcsik’s Generalization – based on her typological survey, there is no “syllable copy” reduplication:

- i. An empirical claim about the attested patterns of reduplication.
- ii. A theoretical claim about the mechanisms involved in reduplicative morphology.

- (10) **Yaqui** (Hiaki, Yoeme) – A Southern Uto-Aztecan language indigenous to Northwestern Mexico and also spoken in Southern Arizona.

- (11) Yaqui has multiple patterns of reduplication, with a lack of consistent pairings of form and function: Escalante 1985; Demers, Escalante and Jelinek 1999; Harley and Amarillas 2003; Haugen 2003;

These include:

- * CVCV- reduplication (in words of at least three syllables);
 - * Geminating heavy syllable reduplication (more below);
 - * Morphological gemination (mora affixation; mora augmentation).
- * (Light) syllabic reduplication.

Which reduplicant goes with which stem is not predictable from the phonological make-up of the stem, and must be somehow lexically-stipulated (Haugen 2003).

(9) Some near minimal pairs for the Yaqui habitual (Molina et al. 1999)

a. ívakta	→	i. 'i.vak.ta	'hug someone'
b. kínakte	→	ki.na. ki.nak.te	'squint'
c. máveta	→	mav. ve.ta	'receive'

The most common pattern of reduplication in Yaqui: Light Syllable (Syllable Copy)

(12) Syllable Copy Reduplication in Yaqui (Uto-Aztecan) (Haugen 2003)

a. CV.CV-initial stems

i. vu.sa	vu. vu.sa	*vus. vusa	'awaken'
ii. chi.ke	chi. chi.ke	*chik. chike	'comb one's hair'
iii. he.wi.te	he. he.wi.te	*hew. hewite	'agree'
iv. ko.'a.rek	ko. ko.'a.rek	*ko.' ko'arek	'wear a skirt'

b. CVC.CV-initial stems

i. vam.se	vam. vam.se	*va. vamse	'hurry'
ii. chep.ta	chep. chep.ta	*che. chepta	'jump over'
iii. chuk.ta	chuk. chuk.ta	*chu. chukta	'cut with a knife or saw'
iv. bwalkote	bwal. bwal.ko.te	*bwa. bwalkote	'soften, smooth'

(13) Syllable Copy Reduplication in Yapese (Oceanic) (Ballantyne 1999)

a. CV- initial stems

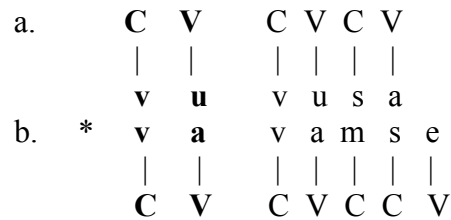
i. tsu.ŋu:r	tsu. tsu.ŋu:r	*tsuŋ. tsu. ŋu:r
'to slap'	'to slap hard'	
ii. ðɪ.ʔaβ	ðɪ. ðɪ.ʔaβ	*ðɪʔ. ðɪ.ʔaβ
'to cut'	'to slice'	

b. CVC- initial stems

i. te:j	te: j.te:j	*te-/te: .tej
'to stare'	'to stare repeatedly'	
ii. suɣ.ʔa:l	suɣ. suɣ.ʔa:l	*su. suɣ.ʔa:l
'to be slow'	'to be very slow'	

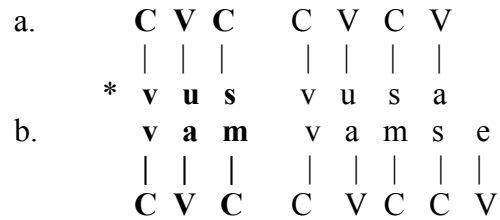
The Moravcsik / Marantz CV skeleton approach predicts:

(14) CV: **vu**-vu.sa (***vam**-vam.se)
 va-vam.se



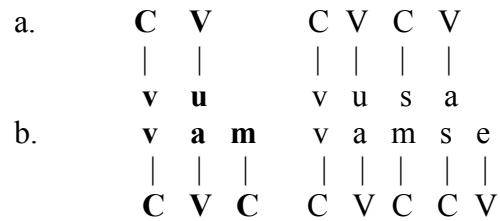
or

(15) CVC: **vus**-vu.sa (***vu**-vu.sa)
 vam-vam.se



The actual attested pattern is:

(16) **vu**-vu.sa (***vus**-vu.sa)
 vam-vam.se



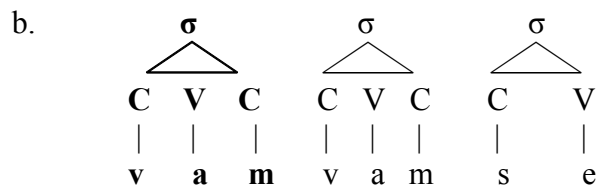
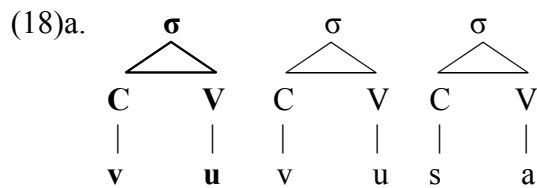
The Prosodic Approach – Recognizes syllable structure

(McCarthy and Prince 1986: Prosodic Morphology; also – Marantz 1982)

(17)a. [vu][sa] → [**vu**] – [vu][sa]

 b. [vam][se] → [**vam**] – [vam][se]

What is being copied seems to be a prosodic unit, not just a random string of consonants and vowels:



Different ways to account for these facts:

(A) Define the Base by Constraint

(19) Base = First Syllable (σ_1) (Informal)

- Alignment – Haugen, Hicks Kennard, & Kennedy (2002)
- Anchor + Alignment – Shaw (2005)

(20)

/ RED1 + vusa /	BASE = σ_1	DEP _{BR}	MAX _{BR}
a vu [vu.sa]	*!		sa
b. ☺ vu [vu]sa			
c. vusa [vu]sa		s!a	
d. vusa [vu.sa]	*!		

(21)

/ RED1 + vamse /	BASE = σ_1	DEP _{BR}	MAX _{BR}
a vam [vam.se]	*!		
b. va [vam]se			*!
c. ☺ vam [vam]se			
d. vamse [vam.se]	*!		
e. vamse [vam]se		s!e	

This is not quite enough to account for cases of incomplete syllable copying (see below).

(B) Positional Faithfulness

(22) STRUC-ROLE_{BR}: The structural role of segments in the reduplicant are identical to the structural roles of segments in the base (McCarthy and Prince 1993).

(23) RED1 = σ_μ >> STRUC-ROLE_{BR} >> MAX_{BR}

/ RED1 + vusa /	RED1 = σ_μ	STRUC-ROLE _{BR}	MAX _{BR}
a ☺ vu vu.sa			sa
b. vus vu.sa		*!	a
c. vusa vu.sa	*!		

(24) RED1 = σ_μ >> STRUC-ROLE_{BR} >> MAX_{BR}

/ RED1 + vamse /	RED1 = σ_μ	STRUC-ROLE _{BR}	MAX _{BR}
a va vam.se			mse!
b. ☺ vam vam.se			se
c. vam.se vam.se	*!		

But: There are certainly cases of violations of structural role in Yaqui reduplication, e.g. gemination of the stem onset into coda position of heavy syllable reduplicants:

(25) Yaqui marked heavy syllable reduplication (RED2) (Molina et al. 1999)

a. bwii.ka	‘sing’	bwib .bwika
b. tee.ka	‘lay it across’	tet .teka
c. va.hu.me	‘swim’	vav .vahume
d. ye.na	‘smoke (tobacco)’	yey .yena
e. ’om.te	‘get angry’	o’ .’om.te

RED2 = ‘iterative’ or idiosyncratic meaning

Also:

The analysis of the base being limited to σ_1 of the stem is supported by variable reduplication patterns that appear in dialectal or idiolectal variants of Yaqui:

(26) Dialectal and/or Idiolectal Variation in Yaqui Syllable Reduplication (Haugen 2003)

<u>Stem</u>	<u>Reduplicated Form in Sonora Yaqui</u>	<u>Reduplicated Form in Arizona Yaqui</u>	<u>Gloss</u>
a. hak.ta	hak .hak.ta	hak .hak.ta	‘inhale’
b. huk.te	huk .huk.te	hu .huk.te	‘choke on liquids’
c. b ^w ak.ta	b^wa .b ^w ak.ta	b^wak .b ^w ak.ta	‘take out of’

Reduplicated words sometimes omit a coda consonant from CVC initial stems (as above), but they NEVER allow a coda consonant in CV initial stems. That is, copying only takes place within σ_1 , and never σ_2 (see 12a).

3. Base = Syllable

Consider the following data from Yaqui’s closest living linguistic relative, Mayo:

Mayo (Uto-Aztecan) (Hagberg 1993)

(27) Mayo accented words

gemination

<u>Stem</u>	<u>RED1=σ_{II}</u>	<u>RED2=σ_{III}</u>	<u>Unattested</u>	<u>Gloss</u>
a. yú.ke	yú .yu.ke	yúy .yu.ke	* yúk .yu.ke	‘rain’
b. wóm.te	wó .wom.te	wóm .wom.te	* wów .wom.te	‘be frightened’
c. nók.wa	nó .nok.wa	nók .nok.wa	* nón .nok.wa	‘known language’
d. nó.ka	nó .no.ka	nón .no.ka	* nók .no.ka	‘know a language’

(28) Mayo unaccented words

copy into σ_2 of stem

<u>Stem</u>	<u>RED1=σ_{II}</u>	<u>RED2=σ_{III}</u>	<u>Unattested</u>	<u>Gloss</u>
a. bwa.ná	bwa .bwá.na	bwan .bwá.na	* bwab .bwa.na	‘cry’
b. bwi.ká	bwi .bwí.ka	bwik .bwí.ka	* bwib .bwi.ka	‘sing’
c. om.té	o .óm.te	om .óm.te	* o’ .’om.te	‘hate’
d. no.ká	no .nó.ka	nok .nó.ka	* non .no.ka	‘speak’

Hagberg (1993): Base = σ_1 in the accented class, Base = full stem in the unaccented class

Haugen (2004): There is an opacity in the assignment of the base in the accented class. The base = the right edge of the stressed/accented syllable in the unreduplicated form.

(29) **A Derivational Account of the Mayo reduplication patterns** (Haugen 2004)

A. Assign stress:

noka_A → nó.ka
 noka_U → no.ká

B. Align Base to the right edge of the stressed syllable:

nó.ka → nó.ka
 no.ká → no.ká

C. Copy: Reduplicate a heavy syllable

nó.ka → **non.nó**.ka
no.ká → **nok.no.ká**

D. Stress-Maintenance: Make sure the accent appears in the original position within the prosodic word (i.e. Re-Apply Rule A).

non.nó.ka → **nón** . no.ka
nok.no.ká → **nok** . nó.ka

(30) **A Non-Derivational Account of the Mayo reduplication patterns** (Haugen 2004)

Separate Alignment Constraints for the Assignment of the Base and Accent:

(31) Accented Words with Base Alignment

/RED2 + nóka /	ALIGN (Red2,L,σ _{uu} ,L)	ALIGN (Base _A R,σ,R)	ALIGN (Root,L,Wd,L)	DEP-BR	MAX-BR
a. no <u>nóka</u>	*!		no		
a'. no <u>nóka</u>	*!		no		ka
b. nok <u>nóka</u>			nok	k!	
b'. nok <u>nóka</u>			nok		a!
c. no.ka <u>nóka</u>	*!		noka		ka
c'. no.ka <u>nóka</u>	*!		noka		
d. ☺ non <u>nóka</u>			non		
d'. non <u>nóka</u>			non		k!a
e. nok <u>nóka</u>		*!	nok		

(32) Unaccented Words with Base Alignment

/RED2 + noká /	ALIGN (Red2,L,σ _{uu} ,L)	ALIGN (Base R, Ft, R)	ALIGN (Root, L, Wd,L)	DEP-BR	MAX-BR
a. no <u>noká</u>	*!	*	no		
a'. no <u>noká</u>	*!		no		ka
b. nok <u>noká</u>		*!	nok	k	k
b'. ☺ nok <u>noká</u>			nok		a
c. no.ka <u>noká</u>	*!	*	noka	ka	ka
c'. no.ka <u>noká</u>	*!		noka		
d. non <u>noká</u>		*!	non		
d'. non <u>noká</u>			non		ka!
e. nok <u>noká</u>		*!	nok		

4. Other cases of failure to copy into the second syllable

This limitation on copying only within σ_1 seems to be common to the Uto-Aztec languages (Haugen 2005), and a variety of strategies to create a heavy syllable without copying into σ_2 of the stem can be employed by various languages:

(33) Strategies to realize the second mora in heavy syllable reduplication

	<u>Stem</u>	<u>Reduplicated Form</u>	<u>Example Language*</u>
(a) continue copying into second σ :	noka	nok .noka	Mayo(unaccented)
(b) gemination:	noka	non .noka	Mayo, T. O'odham, etc.
(c) vowel lengthening:	noka	noo .noka	Nahuatl, T. O'odham
(d) epenthesis of unmarked consonant:	noka	noʔ .noka	Guarijío, Nahuatl, Mono
(e) "nasal substitution":	noka	noŋ .noka	(Pohnpeian)
(f) pre-specified segment in coda:	noka	nor .noka	(Turkish)

[*All languages in this figure are Uto-Aztec except those in parentheses]

(34) Yaqui (see 25 above)(35) Tohono O'odham heavy syllable distributives (Fitzgerald 2003)

<u>singular</u>	<u>plural</u>	<u>distributive</u>	
a. nowiu	no -nowiu	non -nowiu	'ox'
b. nahagio	na -nhagio	nan -nhagio	'earring'
c. hódai	hó -hodài	hoh -hodai	'rock, stone'
d. ʔa:g	ʔa -ʔag	ʔaʔ -ʔag	'a pair of animal horns'

(36) Tohono O'odham heavy syllable repetitives (Fitzgerald 2003)

<u>unitative</u>	<u>repetitive</u>	
a. giw	gig -giw	'hit something'
b. hihim	hih -him	'laugh'
c. huhulgat	huh -hulgat	'menstruate'
d. kow	kok -kow	'dig something out of the ground'
e. ɲia	ɲin -na	'look in a certain direction'

(37) Tümpisa Shoshone (Central Numic) number marking (Dayley 1989)

a. pa.pi	'older brother'	pa.pi.am.mü	'older bro. (pl.)'
		pap .pa.pi.nan.ku	'older bro. (dl.)'
b. pat.si	'older sister'	pap .pat.si.am.mü	'older sister (pl.)'
c. pe.tü	'daughter'	pep .pe.tüm.mü	'daughter (pl.)'
d. tangum.mü	'man'	tat .tangung.ku	'man (dl.)'
e. tokkwapü	'aunt'	tot .tok.kwapüammü	'aunt (pl.)'
f. tua	'son'	tut .tu.am.mu	'son (pl.)'

(38) Comanche number marking (Charney 1993)

a.	nam.mi	‘sister’	na .na.na.mi	‘sisters’
b.	pi.a	‘big’	pi .pi.a [pi.via]	‘big group’
c.	ta.ka	‘relative’	tah .ta.ka.nii	‘relatives’
d.	ten.sée	‘ten cents’	téh .ten.sée	‘ten cents apiece’
e.	pi.e.ti	‘elderly person’	pih .pie.ti.nii	‘group of elders’

(39) Guarijío (Taracahitic) “marked heavy syllable” = “marked plural” (Miller 1996)

	<u>Stem</u>	<u>RED w/out ?</u>	<u>RED w/ ?</u>	<u>Gloss</u>
a.	ku.ci.ta	—	ku? .ku.ci	‘son, daughter’
b.	ma.la.la	ma .ma.la.la	ma? .ma.la.la	‘daughter’
c.	se.pu.ri	se .se.pu.ri	se? .se.pu.ri	‘uncle, aunt’
d.	pa.mi.la	—	pa? .pa.mi.la	‘boss, govenor’
e.	no.la	no .no.la	no? .no.la	‘son’

(40) Xalatzala (Central Guerrero) Nahuatl distributive reduplication (Canger 1981)

a.	oh -o:me	‘two at a time’
b.	yeh -ye:yi	‘three at a time’
c.	nah -na:wi	‘four at a time’
d.	ma: -ma:k ^{wili}	‘five at a time’

These reduplicants illustrate heavy syllables being created, but typically without recourse to copying into the second syllable of the stem (thus, apparently, violating MAX_{BR}).

The base typically seems to be limited to σ_1 in Uto-Aztecan.

5. Opacity in Base assignment

We saw an opacity in Base assignment in Mayo above.

Returning now to Yaqui:

The σ_1 delimitation of the Base seems to apply to the underlying (rather than the surface) form of the stem.

In cases where certain affixes lead to stem-final vowel deletion and result in word-medial consonant clusters, the reduplicant does not copy what is in fact the first syllable of the surface form:

- I have argued here that the Base for reduplication is limited to the first syllable in Mayo (in the accented class), Yaqui, and possibly other Uto-Aztecan languages.
- The generalizations regarding what gets copied when in these languages would be difficult to make in a theory that does not recognize syllables as legitimate prosodic units.

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