Right Anchor, Aweigh [*]

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§ 0 Introduction

This paper closely examines the role and formulation of anchoring constraints in the grammar. Since their introduction by McCarthy and Prince (1993a), anchoring constraints have been used to capture the special degree of faithfulness accorded to edges, both in the IO domain, (as with the preservation of root-final gutturals is Tiberian Hebrew e.g., Benua (1998)), as well as in BR relations, where we see that the reduplicant is almost always composed of material taken from at least one edge of the base, (cf. McCarthy & Prince 1993 *et seq*.). The focus here will be only on the latter type of relation, with the addition of cases of truncation. These two processes are related in that both are concerned with filling segmentally empty morphemes by a process defined by the constraint ranking itself. Thus closely related, unifying them for discussion proves useful. I make no claims as to whether or not right anchoring exists for IO relations; extending the proposal would be a logical move, but also one worthy of its own paper. However, all cases of IO edge anchoring in this paper (i.e. (47), (67), (68)) are consistent with such an extension, so I tentatively incorporate them in the system developed here

The investigation involves particular scrutiny of the nature of the constraint requiring right anchoring. There are many cases in the literature where ANCHOR RIGHT is important. These involve suffixing reduplication, (e.g. Mangap-Mbula (Spaelti 1997:206)), and partial prefixing reduplication where the reduplicant anchors to the right edge of the base (e.g. Semai (Hendricks 1998)). A similar constraint is also used in McCarthy (to appear) to account for the preservation of the foot-final C in reduplication in Yidiɲ, as well as the stem-final C in the formation of the habilitative in Cupeño. All of these cases are consistent with my hypothesis.

In truncation, anchoring seems to be an obvious force in the grammar; most often the forms resulting from truncation anchor to one edge of the base form[1]. In the large majority of cases, it is the left side of the base that is the subject of anchoring. But cases with consistent apparent right anchoring can be found, for example child truncations in Kiche' (Demuth 1996), as well as Catalan hypocoristics (Cabre & Kenstowicz 1996). To account for these types of phenomena, equal-powered constraints have previously been assumed to be available to the grammar: one demanding left anchoring, the other preferring right anchoring. However, I challenge this assumption, for the following reasons:

- Cross-linguistically, a large majority of reduplicants and truncated forms are left-anchored[2].
- Assuming an independent constraint for right anchoring makes pathological typological predictions.

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[1] If not an edge, then they anchor to the stressed syllable, as with some English nicknames, e.g. *Elizabeth* → *Liz* (cf. section 4.2).

[2] A preliminary list yields the following language examples: Ilokano, Diyari, Yidiɲ, and Nootka (McCarthy and Prince 1993a and references therein), as well as Boumaa Fijian, Sawai, Klamath, Doka Timur, Nakanai, Oykangand, (Spaelti 1997 and references therein). Examples of left anchoring in truncation are: Japanese rustic girls' names and geisha-house discretionary names (Mester 1990), German nicknames (Itô and Mester 1997), Tswana, "contemporary vocatives", Kinyambo vocatives, Yapese vocatives, Swedish nicknames, French nicknames and argot, and Thai parent names (Weeda 1992).

• The effects formerly attributed to ANCHOR RIGHT can be accounted for by the interaction of other independently motivated constraints; descriptive "Anchor Right" implies that left anchoring and/or anchoring to the prosodic head of the base also occurs.

This paper will proceed as follows. In section 1, I offer a definition of anchoring. Section 2 outlines the proposal; I suggest that the reason for the dominance of left anchoring of reduplicants is that a stringency relation exists between left anchoring and *edge* anchoring (i.e. anchoring to either the left or right edge), a move which also eliminates the pathological predictions made by positing an independent ANCHOR RIGHT constraint. This pathology is exposed and discussed in section 3. In section 4, I analyze specific cases of edge anchoring, with particular attention given to cases of apparent right anchoring. I include a detailed case study of French, in which we see evidence of an interaction between conflicting ANCHOR-LEFT and a constraint demanding anchoring to the prosodic head of the base, ANCHOR-σ́. The typology resulting from the assumptions made about the available constraints is also presented in this section. In the conclusion, section 5, I offer a summary of the merits of the proposal.

§ 1 What is anchoring?

As formulated in McCarthy and Prince (1993a:63), anchoring forced reduplicative prefixing to involve initial substring copying, and suffixing to involve final substring copying. Generally, anchoring constraints capture the tendency of reduplicants to contain material from one or both edges of the base (McCarthy & Prince 1995):

(1) a. L-ANCHOR: Anchor L(RED, Base). The left edge of the reduplicant must correspond to the left edge of the base.

(R-ANCHOR, ANCHOR L/R (TRUNC, Base) *mutadis mutandis*).

As for edge anchoring, this constraint requires anchoring of both edges of the reduplicant to the base. Violations are reckoned categorically; a candidate will incur one violation for each edge to which it fails to anchor:

(2) a. E-ANCHOR: Anchor E(RED, Base). The left edge of the reduplicant must correspond to the left edge of the base, and the right edge of the reduplicant must correspond to the right edge of the base. (Violations are categorical; candidate receives one violation for each edge to which anchoring fails to occur).

This formulation looks suspiciously like constraint conjunction of left anchoring and right anchoring, but in fact, the constraint behaves differently. Like standard constraint conjunction, this constraint combines the effects of two "independent" constraints. But the argument here is that ANCHOR RIGHT does not exist in the grammar, thus it would not be available to participate in the act of conjunction. Also, the violation patterns are distinct:

(3)

Side(s) anchored:	ANCHOR EDGE	ANCHOR LEFT & ANCHOR RIGHT
LR	✓	✓
L	*	✓
R	*	✓
∅	**	*

What is needed to tell the constraints apart is a case where just left anchoring is worse than anchoring to both edges. We see aggressive edge anchoring in Semai (section 4.2.1), and in Malay(section 4.2.2); in these languages, anchoring to the edges occurs in spite of subsequent CONTIGUITY violations; thus as constraint conjunction cannot handle these cases, we see that positing an ANCHOR EDGE constraint is motivated.

In sum, rather than independent left and right constraints, I propose that the family of anchoring constraints consists only of ANCHOR LEFT and ANCHOR EDGE. The latter constraint offers the only opportunity to expressly demand that anchoring to the right edge occur. This definition will suffice for my discussion of edge anchoring, however anchoring of syllable heads will be discussed in detail in section 3.

§ 2 Left and Edge anchoring: a stringency relation

As noted in the introduction, left anchoring of reduplicants is widely favored over right anchoring. One solution to this asymmetry would be to assume a universal ranking, L-ANCHOR >> R-ANCHOR. The proposal here, which is the stronger hypothesis, is that no universal ranking needs to be assumed. Rather, B/R and B/T anchoring can be viewed in terms of a Paninian inclusion hierarchy (Prince 1997).

Using notions of positional prominence discussed in Beckman (1998), I take it to be given that the left edge is more prominent than the right:

(4) Left $\succ$ Right

Given the prominence of the left edge then, we would also assume that ANCHOR LEFT >> ANCHOR RIGHT, which leads to the Paninian hierarchy of inclusion, of which the rankings can then be unfixed[3]:

(5) a. L-ANCHOR >>R-ANCHOR — Fixed ranking
b. L-ANCHOR >> {L-ANCHOR, R-ANCHOR} ≈ E(dge)-ANCHOR — Inclusion hierarchy
c. L-ANCHOR, E-ANCHOR — Unfixed ranking

In all of the cases that I will look at, we will see that such an assumption is not only compatible with the data, but also has several benefits. Not only do we then explain the prominence of left anchoring,

[3] This step leads us to the further possibility of an Anti-Paninian ranking, in which the general constraint (in this case, E-Anchor), can be proven to be crucially ranked above the special constrain (L-Anchor). This happens when a third constraint can be ranked between them, yielding: (General >> T >> Special) by transitivity. I have not yet isolated such a case, but it seems to be a reasonable possibility.

but we also eliminate the pathological predictions made by assuming an independent R-ANCHOR . It is to these pathologies that I now turn.

§ 3 Pathology of Anchor Right

3.1 French hypocoristics

As mentioned in the introduction, assuming a freestanding R-ANCHOR in the grammar causes problems for typological predictions. I will illustrate this below with an example from hypocoristic formation in French (Scullen 1993, Nelson 1998).

French hypocoristics truncate to disyllabic size, and anchor to the left by default:

(6) a. dominik → domi
b. karolin → karo
c. dorote → doro

Abstracting away from all other interactions, I illustrate the ranking with respect to L-ANCHOR and R-ANCHOR below[4]:

(7)

[dominik]	L-ANCHOR	R-ANCHOR
a. ☞domi		*
b. minik	*!	

When the base name does not contain an initial onset however, left anchoring is sacrificed, to the satisfaction of R-ANCHOR:

(8) a. elizabet → zabet
b. ameli → meli
c. ernestin → nestin

(9)

[elizabet]	ONSET	L-ANCHOR	R-ANCHOR
a. eli	*!		*
b. liza		*	*!
c. ☞ zabet		*	

An important observation however was made by Alan Prince (p.c.); given that stress in French is word-final, it is unclear whether the relevant anchoring is sensitive to the right edge or rather to the stressed syllable, i.e. ANCHOR-σ́ [5]. This is with ANCHOR-σ́ being defined as follows:

(10) ANCHOR-σ́: A segment in the head of the syllable bearing main stress in S_1 has a correspondent in S_2[6].

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[4] An important candidate, *donik*, although perfectly anchored, is out because it violates CONTIGUITY. See section 4.1.3 for an argument in support of the high-ranking of CONTIGUITY.

[5] This constraint might be better named MAX/σ́. However, to highlight its similarities with the edge anchoring constraints, I will continue to classify it as ANCHOR-σ́.

Beckman (1998:212) defines the constraint differently, as she is concerned with the input-output dimension, in which the input is not taken to have prosodic structure. She notes however that formulation along the lines of the above is certainly reasonable where prosodic structure has already been assigned, as I assume to be the case for the base forms used in truncation.

Faced with this alternative analysis, how do we decide the true identity of the constraint involved? We can tease the correct constraint from the mix only indirectly, through exploration of the different typologies predicted by free re-ranking of each constraint: ANCHOR-σ́ and ANCHOR RIGHT.

3.2 ANCHOR-ś vs. ANCHOR RIGHT

Starting with ANCHOR-σ́, which calls for preservation of the head syllable, we need go no further than English to see that this constraint can appear at the top of a hierarchy for a system of hypocoristic formation. I assume that emergence of foot binarity at the moraic level plus a size restrictor, (such as ALL-FEET-LEFT plus PARSE-σ) yields the templatic effects of truncating to the size of a minimal prosodic word. This minimal word is often accompanied by the suffixation of [-i].

(11) Size Restrictors >> ANCHOR-σ́ >> EDGE-ANCHOR, MAX-BT

Nickname ≈σ_1/ σ́

a. Bénjamen	→	Ben, Benji
b. Nícolas	→	Nick, Nicky
c. Jénnifer	→	Jen, Jenny
d. Pámela	→	Pam, Pammy

Nickname ≈σ́, ≠σ_1

e. Amánda	→	Mandy
f. Virgínia	→	Ginnie
g. Elízabeth	→	Liz, Lizzy
h. Rebécca	→	Becky

Stress has been marked (' ´') on the base names to show that it is the stressed syllable being preserved, in fact regardless of whether the base name has an onset or not. For many names, we see an [-i] suffix, optional in some cases (*Lizzy*, e.g.), obligatory in others (*Ginnie*, **Gin*). I set this fact aside. Along the lines of Itô and Mester's (1997) analysis of German nicknames, the English system also involves

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[6]This formulation, ruling out the option of the onset counting positively towards the satisfaction of the constraint, turns out to be crucial in two ways. An alternative formulation which requires that the entire head syllable must have correspondents runs into problems. One revealing such case is illustrated in the following tableau, counting each segment of the stressed syllable as satisfying ANCHOR-σ́.

(i) ANCHOR LEFT>>ANCHOR-σ́>> NO CODA

karo**lin**	ANCHOR LEFT	ANCHOR-σ́	NO CODA
a. ☞karo		lin!	
b. ❽ karol		in	*
c. roli	*!	n	
d. rolin	*!		

Making the apparently false assumption that ANCHOR-σ́ is sensitive to the presence of the onset of the head syllable, we make the wrong prediction that (b) is more harmonic than (a). If we adjust the domain of ANCHOR-σ́ as in (10) so that it only evaluates faithfulness to the rime of the stressed syllable, then we no longer make this prediction. This formulation is also superior to account for reduplication in Nancowry, as we will see (section (4.4)), and also English poetic rhyme, in which the onset must also be left out of the relevant faithfulness constraint, targeting only the stressed rime. Hubert Truckenbrodt (p.c.) notes that this suggests that perhaps then the head of a foot is not the stressed syllable, but rather the moras in it.

maximizing the syllable selected by the hierarchy to be the one to form the heart of the nickname[7]. The purpose of this case is not to provide a full account of English hypocoristic formation, but rather to raise it, if only anecdotally, as evidence for the reasonability of positing an ANCHOR-σ́ constraint in the grammar. We see from these examples that a system with ANCHOR-σ́ ranked at the top is not only reasonable, but also familiar.

Now, what about if ANCHOR RIGHT were to be highest-ranked? Given the independent need for ANCHOR-σ́, this situation immediately poses a problem. The typological prediction is that a language may have non-final stress, and yet anchor its hypocoristics to the right. For example, if we consider a language with initial stress, undominated ANCHOR RIGHT would assert the following pattern:

R-ANCHOR >> L-ANCHOR

(12) Schematized hypothetical base name: $(\acute{\sigma}_1\sigma_2)(\sigma_3\sigma_4)$

Pathological predicted nickname: $(\sigma_3\sigma_4)$

This illustrates a prediction that we would like to eliminate: a system that anchors to the right edge of the base rather than to the stressed syllable, when the two qualities are not compatible. We can do this by proclaiming ANCHOR-σ́ to be the operative force in French, and by then questioning other examples which may seem to exhibit effects of right anchoring on the surface.

§ 4 Edge anchoring in truncation and reduplication

The remaining discussion will involve various cases of edge anchoring in reduplication. What is of particular interest here, in light of the proposal about the stringency relation that holds between left and edge anchoring, are cases which appear to involve right anchoring.

4.1 Truncation: a case study on French hypocoristics

In section 3.1, I briefly discussed the relevance of the French data to illustrating the pathology of allowing an ANCHOR RIGHT constraint in the grammar. Here, I will offer a detailed account of French hypocoristic formation, exploring a special configuration of constraints first discussed by Samek-Lodovici (1997) by which the effects of both ANCHOR LEFT and ANCHOR-σ́ can be witnessed in a single system.

4.1.1 Data

The data divide into two different categories: one of simple truncation to the size of a disyllabic foot, and the other, although the same size, involving reduplication. Examples of the data are given below. Notice that the hypocoristic is always C-initial, with loss of the initial vowel in the cases involving a V-initial base name:

(13) 3σs and more: Truncation

C-initial			**V-initial**		
H-form	*Name*		*H-form*	*Name*	
ka.ro	ka.ro.lin	‘Caroline’	lo.di	e.lo.di	‘Elodie’
do.ro	do.ro.te	‘Dorothée’	za.bet	e.li.za.bet	‘Elizabeth’
do.mi	do.mi.nik	‘Dominique’	me.li	a.me.li	‘Amélie’

[7] In German, it is the initial syllable that is retained.

(14) fewer than 3σs: Truncation plus Reduplication

C-initial			**V-initial**		
H-form	*Name*		*H-form*	*Name*	
ni.ni	ni.kol	'Nicole'	to.to	o.to	'Otto'
mi.mi	mi.ʃel	'Michelle'	mi.mil	e.mil	'Emile'
to.to	to.ma	'Thomas'	be.ber	y.ber	'Hubert'

In both cases, the hypocoristic maps to a disyllabic foot, which is an Emergence of the Unmarked effect (McCarthy & Prince 1994). This target can be characterized by the following ranking, based on Benua (1995):

(15) MAX IO » PARSE-σ, ALL-FEET RIGHT » MAX BT

This shows that although words in the language at large may contain any number of syllables, in order to best satisfy the emergent templatic requirements in the domain of truncation, they will be no longer (or shorter) than a disyllabic foot.

The next section shows that whereas left anchoring is the default, it is not undominated. Once it is decapacitated by a higher-ranked constraint, ANCHOR-σ́ becomes a visible force in the grammar.

4.1.2 Default vs. deactivated left anchoring

Samek-Lodovici (1997) draws attention to the following prediction of an Optimality Theoretic analysis of anchoring: given the appropriate configuration, compulsion to satisfy a high-ranking constraint could hypothetically force violation of the higher ranking of opposing anchor constraints, allowing evidence of the lower one to surface. The general schema is as follows (crucially assuming categorical reckoning of ANCHOR LEFT violations[8])

(16) Schema for default to, and deactivation of left anchoring (Samek-Lodovici 1997)

Winner: left-anchored

For some input *i*	D	$Anch_L$	$Anch_{σ́}$
$cand_1$		*!	*
$cand_2$		*!	
☞ $cand_3$			*

Winner: head-anchored

For some input *i*	D	$Anch_L$	$Anch_{σ́}$
$cand_1$		*	*!
☞ $cand_2$		*	
$cand_3$	*!		*

The following example illustrates the need for categorical reckoning of ANCHOR LEFT violations, as gradient reckoning yields the wrong winner[9]:

[8] There are clear instances in the literature where violations of Anchor/Alignment to an edge must be reckoned gradiently, (cf. Makassarese McCarthy 1997). However, the analysis of epenthesis in Axininca Campa (McCarthy & Prince 1993) requires categorical calculation of violations.

[9] Calculation of ANCHOR-σ́ violations is crucially gradient in the case of Lillooet (see (67) section 4.5). However, in the case French, its gradience is not important.

(17) ANCHOR LEFT(gradient ANCHOR LEFT) » ANCHOR-σ́

Input: e.li.za.bet	ONSET	ANCHOR LEFT	ANCHOR-σ́
a. zabet		**!*	
b. ☟ wrong winner liza		*	**
c. eli	*!		**

Hypocoristics in French will anchor left by default, as illustrated in the examples in (17) (≈6 from above):

(18)	a.	ka.ro.lin	→	ka.ro	'Caroline'
	b.	do.mi.nik	→	do.mi	'Dominique'
	c.	do.ro.te	→	do.ro	'Dorothée'

In all of these cases, the hypocoristic anchors left, and shortens to disyllabic size.

Below is a simplified tableau using the form *dorote*, which shows the interaction of the opposing anchoring constraints. As no violation of ONSET is at issue, the higher-ranked ANCHOR LEFT is free to exert its effects:

(19) ANCHOR LEFT (categorical) » ANCHOR-σ́

Input: do.ro.te	ANCHOR LEFT	ANCHOR-σ́
a. ☞ doro		*
b. rote	*!	

However, onsets have a high priority in the hypocoristic system[10]. Thus in the case where the base (name) begins with a vowel, left anchoring must be sacrificed. ONSET is then shown to act just as the high-ranked constraint *D* in the schema above, capable of de-activating ANCHOR LEFT.

Examples of this interaction are given below:

(20)	a.	er.nes.tin	→	nes.tin	'Ernestine'
	b.	e.li.za.bet	→	za.bet	'Elizabeth'
	c.	e.lo.di	→	lo.di	'Elodie'

(21) ONSET » ANCHOR LEFT

Input: e.li.za.bet	ONSET	ANCHOR LEFT	ANCHOR-σ́
a. ☞ zabet		*	
b. liza		*	*!*
c. eli	*!		**

[10] This is in striking contrast with other truncations in the language generally. Outside the realm of hypocoristics, when words are truncated, they are uniformly left-anchored, with no regard for ONSET cf. *agreg* / *agregation* 'a type of test'; *alloc/ allocation* 'allowance', etc.

In (21), we see the winning candidate (a) is preferable to one that is left anchored, but fatally violates ONSET (c), or one that does not anchor at all, even though it incurs no violations of ONSET (b).

4.1.3 The operation of truncation

I take truncation to be the operation responsible for the reduction in size. The constraints relevant to the analysis thus far are the following:

(22) a. ANCHOR L: Anchor L(Trunc, Base). The left edge of the truncatum must correspond to the left edge of the base.

b. ANCHOR -σ́: Anchor-σ́(Trunc, Base). A segment in the head of the syllable bearing main stress in the base must have a correspondent in the truncatum.

c. CONTIGUITY: The portion of the base standing in correspondence forms a contiguous string, as does the correspondent portion of the truncated form. (McCarthy & Prince 1994)

d. ONSET: $*_{\sigma}[V$ (Itô 1989)

e. NO CODA: $*\ldots C]_{\sigma}$

f. MAX : Every segment of the base form must correspond to a member of the truncated form.

The ranking given below has been/will be established:

(23) CONTIGUITY » ONSET » ANCHOR LEFT » ANCHOR-σ́ » NO CODA » MAX
|_ (29b) _| |_(21c)_| |_(19b) _| |_(27b,c)_| |_(26b)_|

I take the relation between base and truncatum to result from OO correspondence, as illustrated in Benua (1995):

(24) *BT-Identity*

	Base	←→	Truncatum
	↑		
IO-Faith	↓		
	Input		

This relation is demonstrated below, using the name *Dorothée*:

(25) *BT-Identity*

	[do.ro.te]	←→	[do.ro]
	↑		
IO-Faith	↓		
	/dorote/		

(26) NOCODA » MAX

Input: do.ro.te	ANCHOR-σ́	NO CODA	MAX
a. ☞ doro	*		te
b. dorot	*	*!	e

Candidate (a) is the best-faring candidate with no violations of ONSET; (b) shows the necessary subordination of MAX to NO CODA

The following tableau illustrates more fully that the high ranking of ONSET is crucial:

(27) ANCHOR-σ́ » NO CODA

Input: e.li.za.bet	ANCHOR LEFT	ANCHOR-σ́	NO CODA
a. ☞ zabet	*		*
b. zabe	*	*!	
c. liza	*	*!*	

Here we see that once ANCHOR LEFT is sacrificed to ONSET, we have to consider ANCHOR-σ́ , and thus the possibility of having a final C. The dependency between the presence of an onset in the base versus presence of a coda in the hypocoristic is schematized in (28):

(28) a. C-initial Name→ V-final hypocoristic
b. V-initial name → possibly C-final hypocoristic

Below we see evidence that although ONSET is high ranked in this system, it is not undominated. When given the choice to violate CONTIGUITY or to violate ONSET when confronted with a tri-syllabic name with a medial onsetless syllable, the ranking opts to do the latter:

(29) CONTIGUITY » ONSET

Input: be.a.tris	CONTIG	ONSET
a. ☞ bea		*
b. betris	*!	

Another mapping predicted by the ranking is one where, given onsetless syllables at both edges and enough inner syllables to satisfy the prosodic requirements, the hypocoristic will anchor at neither edge, in order to satisfy ONSET. This mapping is attested, with the form *emanuel*:

(30) Violation of both anchoring constraints

Input: e.ma.nu.el	ONSET	ANCHOR LEFT	ANCHOR-σ́
a. ☞manu		*	**
b. nuel	*!	*	

The winning candidate (a) anchors to neither the left edge nor the rime of the head syllable; rather, the second and third syllables contiguously form the hypocoristic, with both these syllables bearing onsets.

4.1.4 Truncation plus reduplication

What about names that are already the requisite size, namely disyllabic? Under the current ranking, C-initial names are predicted to be non-distinct from their inputs. For example:

(31) ni.kol → ni.kol 'Nicole'

(32) Vacuous hypocoristic formation

Input: ni.kol	ANCHOR LEFT	ANCHOR-σ́	NO CODA
a. ☞nikol			*
b. niko		*!	

Given the opportunity to anchor to the entire head syllable, (a) does so at no additional cost, whereas (b) fatally fails on this constraint. However, this result seems to escape the purpose of forming a hypocoristic, that is, of altering the base name somehow. In order to account for these names, I will propose that a second input is also available. Support for this claim also comes from the fact that in most names that contain more than two syllables, the input will derive a grammatical hypocoristic; this will be addressed below. The relevant input for these cases includes a reduplicative morpheme, RED.

When present, RED will inevitably be one syllable in size. This is guaranteed by the ranking in (15); in order to satisfy the size requirement and to maximally satisfy MAX_{BR}, one syllable from the base name will reduplicate. "Base" in MAX_{BR} refers to the truncated portion of the name which the reduplicant copies; the underlined portion in (32) corresponds to RED[11]:

(33) a. ni.kol → <u>ni</u>.ni 'Nicole'
b. mi.ʃel → <u>mi</u>.mi 'Michelle'
c. to.ma → <u>to</u>.to 'Thomas'

High-ranked REALIZE RED forces the realization of the reduplicant. Thus, when RED is present in the input, both it and the truncated portion of the name will be reduced to a monosyllable; in the truncatum, we have the added possibility of keeping a word-final coda in order to satisfy ANCHOR-σ́.

With this new input, we can now illustrate the effects of the ranking established earlier, which yields the correct output:

[11] The status of the reduplicant as a prefix is determined based on cases of vowel-initial names with word-final codas, e.g. *emil, <u>mi</u>mil* (see 35).

(34) REALIZE RED » ANCHOR-σ́.

Input: RED+ni.kol	RLZ RED	ANCHOR-σ́	NO CODA
a. ☞ <u>ni</u>ni		*	
b. <u>ni</u>nik		*	*!
c. <u>nik</u>nik		*	*!*
d. nikol	*!		*

Realization of the reduplicant is more important than anchoring of both edges of the truncatum as shown with the failure of candidate (d), which satisfies the anchoring constraints. RLZ RED must dominate at least one of the anchoring constraints, (ANCHOR-σ́, as it is the lower-ranked). The codas in (b) and (c) are gratuitous, leaving (a) as the optimal candidate.

Similarly, the ranking will yield the optimal form of a hypocoristic derived from a V-initial name:

(35) a. e.mil → <u>mi</u>.mil 'Emile'
b. o.to → <u>to</u>.to 'Otto'
c. e.len → <u>le</u>.len 'Hélène'

Like the V-initial names above, these hypocoristics will end in a C if the name does, in contrast to the forms corresponding to C-initial names. Below we see again how compulsion to satisfy ANCHOR-σ́. will lead to violation of NOCODA in this special case:

(36) NO CODA» MAX BR

Input: RED+e.mil	ANCHOR-σ́	NO CODA	MAX_{BR}
a. ☞ <u>mi</u>mil		*	l
b. <u>mil</u>mil		**!	
c. <u>mi</u>mi	*!		

The optimal candidate (a) has one and only one coda: that which anchors the truncatum to the entire head rime of the base name. Interestingly, *RED* in the input can apply equally effectively to base names of more than three syllables, e.g. *dorote, ernestin* from above, yielding a (different) but possible hypocoristic:

(37) a. do.ro.te → <u>do</u>.do 'Dorothée'
b. er.nes.tin → <u>ti</u>.tin 'Ernestine'

(38) Reduplication with bases > 2σs

Input: RED+do.ro.te	ANCHOR LEFT	NO CODA
a. ☞ <u>do</u>do		
b. <u>do</u>dor		*!
c. <u>dor</u>dor		*!*

(39)

Input: RED+er.nes.tin	ANCHOR-σ́	NO CODA
a. ☞ titin		*
b. titi	*!	
c. nene	*!*	

I suggest then that the morpheme RED is of course available to any name in the input of an optimization to create a hypocoristic. As we see here, in the case of disyllabic base names, only inputs bearing RED will produce a grammatical result for the names, assuming that an extra-grammatical force deems hypocoristics which are homophonous with the base names unacceptable.

4.1.5 Reduplication only

What does the ranking predict for an input of a V-initial monosyllable?

(40) a. an → na.na 'Anne'
b. iv → vi.vi 'Yves'
c. yg → gy.gy 'Hugues'

The resulting nickname is again disyllabic, and satisfies ONSET.

(41) ONSET >> LINEARITY

Input: RED+a_1n_2	ONSET	LINEARITY
a. ☞ na-n_2a_1		*
b. an- a_1n_2	*!*	

With this tableau, we see that potential violation of ONSET will be avoided by violating LINEARITY (a), in that the precedence relation from S_1 to S_2 is not respected. Worth noting is that a different candidate, na-$n_2a_1n_2$, is perfectly right-anchored with respect to the base name, but is harmonically bound by the winning candidate in that it additionally violates INTEGRITY. This merely shows though that INTEGRITY >> ANCHOR-σ́ in this system. Conceivably, reranking these constraints would allow such a candidate to surface as optimal.

4.1.6 Conclusion

The analysis presented here undergenerates, which is in contrast to the overgeneration of previous analyses (Plenat 1982, Weeda 1992, Scullen 1993). However, using the framework of OT, characteristics of these hypocoristics which were elusive before now receive a principled explanation. The near obligatoriness of onsets results from the high ranking of the constraint requiring them, ONSET[12]. We can also explain the appearance of codas only when the form is right anchored, since

[12] See (17) for a case where Onset is violated in *Bea*.

only then will having a coda be beneficial in that it is crucial to the satisfaction of the anchoring constraint.

The analysis maximally predicts two hypocoristics for a given name, whereas Scullen reports up to 16 forms for a name, *Dominique*[13]. But the predictions of the analysis are robustly attested, with exceptions often being due to homophony with another (unpleasant, or else very common) word, e.g. **kaka* 'Caroline', **mama* 'Marie', etc. Also, the analysis provides another illustration of the prediction of Samek-Lodovici's schema, by which the lower ranked of opposing constraints can have its effects witnessed in a language if the higher of these constraints is decapacitated by a conflicting, dominating constraint.

In summary, the analysis proposed here provides not only an explanation of the mandatoriness of onsets and the criteria by which a given French hypocoristic will opt to surface with or sans coda, but it also more generally explores the nature of opposing anchoring constraints, with rather dramatic examples of how the force of each can be apparent in a single system.

4.2 Edge anchoring and reduplication

I now turn to several cases of reduplication in which anchoring to the right side of the base seems to occur, either along with left anchoring (as in Semai and Ula Muar Malay), or to the exclusion of left anchoring (as in Nancowry and Lillooet). An examination of Lillooet will also lead us to further explore the behavior of the ANCHOR-σ́ constraint.

4.2.1 Semai

I will begin my investigation of anchoring in reduplication by looking at expressive minor reduplication in Semai, working off the analysis of Hendricks (1998). This kind of reduplication involves copying of the initial and final segments of the root, as can be seen in the following examples:

(42a)	cʔɛːt	<u>ct</u>- cʔɛːt	*sweet*
	dŋɔh	<u>dh</u>- dŋɔh	*appearance of nodding constantly*
	cfaːl	<u>cl</u>- cfaːl	*appearance of flickering red object*
(42b)	payaɲ	<u>pɲ</u>- payaɲ	*appearance of being disheveled*
	cayɛm	<u>cm</u>- cayɛm	*contracted fingers of human animal, not moving*
	cruhaːw	<u>cw</u>- cruhaːw	*sound of waterfall, monsoon rain*

Hendricks proposes a minimizing constraint, ALIGN-ROOT-L, which dominates MAX-BR and CONTIGUITY, preventing full reduplication. With anchoring constraints appealing to each edge in turn dominating ALIGN-ROOT-L, the reduplicant contains the first and last segments of the base:

[13] Namely, *Bic, Dédé, Do, Dodo, Dom, Domi, Domini, Minou, Domino, Doni, Mimi, Mimique, Mini, Minique, Nanou,* and *Nini* (Scullen 1993:156).

(43) L-ANCHOR, R-ANCHOR >> ALIGN-ROOT-L >> MAX BR

This is of course no challenge to the proposal with respect to edge anchoring, in that E-ANCHOR will yield the same results[14]:

(44) E-ANCHOR >> ALIGN-ROOT-L >> MAX-BR

/RED,cʔɛːt/	E-ANCHOR	ALIGN-ROOT-L	MAX-BR
a. ☞ct- cʔɛːt		**	**
b. cʔɛːt- cʔɛːt		***!*	
c. c- cʔɛːt	*! (R)	*	***

Given the constraint on edge anchoring, the ranking of L-ANCHOR is no longer crucial.
The optimal candidate violates contiguity, but this constraint is supposedly dominated by the constraint requiring left alignment of the root. Semai is one case which clearly supports having EDGE-ANCHOR in the grammar.

4.2.2 Ulu Muar Malay

Another case of edge anchoring can be seen in Ulu Muar Malay reduplication (Kroeger 1989)[15]:

(45)
	a. sieʔ	siʔ-sieʔ	*is torn repeatedly*
	b. laŋit	laʔ- laŋit	*palate*
	c. dayaŋ	dan-dayaŋ	*friend*

Right-anchored consonants are neutralized to *ʔ* or a nasal. The Coda Condition yields place assimilation, however, *ʔ* is taken to be placeless and thus not a violation. Malay has penultimate stress, so whereas the maintenance of the initial vowel may very well be due to its heightened prominence along the dimension of stress, the final coda's only virtue is its position at the right edge of the base:

(46) E-ANCHOR (RED, Base), ANCHOR-σ́ >> ALIGN L(Root, PrWd)

/RED + láŋit/	E-Anchor (RED,Base)	ANCHOR-σ́	ALIGN L(Root, PrWd)
a. laŋ$_3$ laŋ$_3$it	*! (R)		laŋ
b. laŋiʔ$_5$-laŋit$_5$			laŋi!t
c. ☞ laʔ$_5$laŋit$_5$			laʔ
d. lʔ$_5$ laŋit$_5$		*!	lʔ
e. liʔ$_5$laŋit$_5$		*!	liʔ

[14] It is interesting to note that both in the case of Semai, as well as Ulu Muar Malay (4.2.2), root size seems to be restricted to a single foot. Quite possibly, this is a prerequisite for edge anchoring, (c.f. the unlikelihood of hypothetical mep$_8$-metgodup$_8$), although this restriction is not predicted by the analysis.
[15] I thank Alan Prince for this reference.

Anchoring of the edges and head of the base are required of the reduplicant; however, copying of any additional material is foregone in order to minimally violate left-alignment of the root. Candidate (a) fails to anchor the reduplicant to the right. Although perfectly edge aligned, the total reduplication showed in (b) results in excessive mis-alignment of the root to the left edge of the prosodic word. Both (d) and (e) fail on the grounds that they do not anchor to the head of the base; (e) shows that it is not a matter of syllable structure, but an explicit demand that the head be copied, as this candidate copies the non-head vowel in the reduplicant. In fact, (e) is harmonically bounded by the winner, (c).

4.2.3 Typological predictions of the analysis

What kind of typology do we allow for reduplication if there is in fact no right anchoring? The following table is meant to help explore this issue:

(47)	A	B	C	D	E	
	MG	E-Anchor (RED,B)	Align L (Root, PrWd)	L-Anchor (RED,B)	Align-E (Root, PrWd)	Pattern Exemplified
a. ba-badupi		* (R)	**		**	prefixing from beginning
b.✗ pi-badupi	*	* (L)	**	*	**	prefixing from end
c. badupi-ba[16]	*	* (R)			**	suffixing from beginning
d. badupi-pi[17]		* (L)		*	**	suffixing from end
e. ba-du-dupi[18]		** (L,R)		*		infixing from middle
f .✗ badupi-badupi			******		******	total reduplication, prefixing
g.badupi-badupi					******	total reduplication, suffixing

In this hierarchy, MG = "Marantz's Generalization", i.e. prefixing reduplication copies material from the left, suffixing reduplication copies material from the right[19] (Marantz 1982). It is necessary to express the generalization as a violable constraint to avoid the form (c) from harmonically binding (d).

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[16] A possible explanation for the scarcity of this pattern is that Marantz's Generalization is in fact a universal truth, with "exceptions" receiving alternative analyses, (see section 5.2.4 on Nancowry for one such case).

[17] Manam (McCarthy and Prince 1993a) is such a language. Chomorro (McCarthy and Prince 1993a) also comes close:

(i) a. dánkolo — dánkolo-lo — *big/really big*

b. buníta — buníta-ta — *pretty/ very pretty*

But it has the important exceptions:

c. ɲálaŋ — ɲála-la-ŋ — *hungry/very hungry*

d. métgot — métgo-go-t — *strong/very strong*

M&P explain these forms with the ranking P>>M, (NoCoda >> Rightmost). Ultimately, I would like to claim that constraints such as their Rightmost (RED is a suffix) do not exist, and the placement of the reduplicant falls out from the interaction of other constraints in the grammar. For instance, for (ia):

Align L(Root, PrWd) >> E-Anchor

/dankolo, RED/	Align L(Root, PrWd)	E-Anchor
a. ☞dankololo		*
b. dadankolo	*!*	*
c. dankokolo		**!

However, (ic-d) pose quite a problem. With my definitions of Anchor (E,L,σ́), the anchoring of the reduplicants in these forms is quite mysterious, as it effectively anchors to nothing. We could temporarily remedy this by adding NoCoda to the hierarchy:

NoCoda >> E-Anchor

/metgot, RED/	Align L (Root, PrWd)	No Coda	E-Anchor
a. metgotot		*!	*
b. memetgot	*!*		*
c. ☞metgogot			**

However, this solution is admittedly precarious, given that a hypothetical tri-syllabic root, *métgodup* would be lost in the grammar, with *metgogodup* and *metgodudup* tying on all these constraints; this was not the case for McCarthy & Prince's analysis, in which gradient Rightmost would decide the winner.

[18] It should be noted that this kind of pattern results when the stressed syllable is the target of reduplication, i.e. Anchor-σ́ is high-ranked. Samoan (McCarthy & Prince 1993a) is an example with such a system of stressed syllable infixing reduplication, e.g. *alófa* → *alolofa*

All are attested patterns of reduplication. However, two of the forms (b&f), are harmonically bounded (indicated '✗') by the others. The form in (b) is a challenge; although marked, cases like it do exist, (cf. Chuckchee (Marantz 1982), Madurese, (Stevens 1968)). Either the analysis is missing something, or these forms are remnants of an earlier stage of the language in which full reduplication occurred. Further investigation determining how productive these patterns are would be required to determine the status of this rare pattern in the grammar. We see from (f) versus (g) that, short of an additional constraint which would rule in favor of (f), the analysis predicts that all total reduplication is suffixal. It remains to be seen whether this is in fact true.

In order to achieve the other patterns, we require minimally the following rankings:

(47') a. {A,D} >> {C,E} >> B
b. *no possible ranking*
c. {C,D} >> {A, B,E}
d.{A,C} >> B >> {D,E}
e. {A,C,E} >> {B,D}
f. *no possible ranking*
g. {A,B,C,D} >> E

At first glance, we might assume that some of the patterns here show evidence of a constraint that requires right anchoring. However, upon further scrutiny, it appears that no such constraint is needed. Right anchoring is simply the result when violation of left anchoring is compelled by other forces in the grammar. One of the interesting interactions is the push-pull between ANCHOR EDGE(RED, Base) and ANCHOR L(Root, PrWd). The former is fully satisfied by total reduplication; the latter compels suffixation. The compromise which is often reached is that the left-edge BR anchoring requirement is satisfied, but reduplication is partial, thus incurring one violation of E-ANCHOR, but resulting in only minimal violation of ALIGN L(Root,PrWd).

4.2.4 Nancowry

In this section, I will review the case of Nancowry[20], a language which has previously been analyzed (Alderete et al. 1997) as exhibiting right anchoring in the absence of left anchoring. The relevant data involve reduplication, and the process is restricted to monosyllabic roots (Radhakrishnan 1981:51).

(48)	a. cɯt$_3$	<u>ʔit</u>$_3$-cɯt$_3$	*go or come/to go, to come*
	b. rom$_3$	<u>ʔum</u>$_3$-rom$_3$	*flesh of fruit/to eat pandanus fruit*
	c. ɲiak$_4$	<u>ʔuk</u>$_4$-ɲiak$_4$	*binding/to bind*

Alderete et al. argue that the reduplicant-initial consonant as well as the nucleus are default segments arising by TETU; the glottal stop satisfies the ONSET requirement with minimal violation of markedness constraints on segments. The vowel is *i* or *u*, depending on the place of articulation of the coda consonant. An undominated constraint requiring right anchoring of the final root consonant

[19] Ideally of course, this constraint could be stated in more general terms, a challenge as of yet unrealized, although see Spaelti (1997) for a suggestion.
[20] I would like to thank John McCarthy for bringing this instance of apparent right anchoring to my attention.

insures copying of the coda C. Place assimilation is evident between the reduplicant's V and its coda. They assume that Place markedness is emergent in reduplication; violation is thus minimal when the reduplicant's V and coda C agree in place[21]. The ranking they argue for is the following:

(49) R-ANCHOR >> Place Markedness >> MAX.

I however will take a different line of attack to account for this data. Obviously, explicit right anchoring is not allowed under the proposal detailed in this paper; and what is interesting is that an alternative analysis in line with the proposal, which necessarily attributes the apparent right anchoring to a different source, is entirely possible. Below, I illustrate my account, which suggests that ANCHOR-σ́ rather than ANCHOR-R is responsible for the maintenance of the final C. Also necessary under this account is the notion of faithfulness to "C-place" vs. faithfulness to "V-place". These terms are defined as they become relevant to the discussion.

An interesting theoretical difference between Alderete et al.'s account and my own involves the repercussions with respect to Marantz's Generalization. Marantz observed that prefixing reduplication usually involves copying material from the left portion of the base, whereas suffixing reduplication usually copies material from the right. Alderete et al. note that Nancowry would be an exception to this generalization, citing Madurese and Ulu Muar Malay as examples of languages in which prefixing reduplication involves high-ranking right anchoring, (see section 5.2.2 for my account of Ulu Muar Malay). However, if we identify the relevant anchoring constraint rather as ANCHOR-σ́, we get the following encouraging results: the Nancowry example no longer constitutes an exception to this generalization[22], and furthermore, we potentially get an explanation as to why this reduplicative process is limited to monosyllabic roots. Under Alderete et al.'s account, there is no obvious reason why the process should be limited in this way. But given the appeal to ANCHOR-σ́, we see the potential conflict. If the reduplicative morpheme is to be a prefix consistently, given that the language always has word-final stress, this would require violation of Marantz's generalization, separating the reduplicant from the stressed syllable of the word. And if the generalization is to be maintained, with infixation of the reduplicant before the stressed syllable in words with roots larger than a syllable, it would have to be at the price of an IO-CONTIGUITY violation. If CONTIGUITY is undominated, then the process is straightforwardly restricted to apply to monosyllabic roots: CONTIGUITY >> MORPH REAL, ANCHOR-σ́.

Returning now to the data in (48), we see obvious correspondence of the root-final consonant, whether the place feature involved is acute (a), or grave (b,c). Things get interesting, however, when we consider other types of codas. If the root coda is anything except a stop, then no coda is allowed in the reduplicant; RED is either *ʔi*, or *ʔu* (data from Alderete et al. and Radhakrishnan 1981):

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[21] The terms that Alderete et al. use for place features are *acute* (coronal), and *grave* (labial or dorsal). They apply these terms to both vowels and consonants; I will adopt this habit.

[22] I make this claim under the assumption that the correct extension of the generalization to head-anchoring would be that reduplicants which anchored to the prosodic head were adjacent to the prosodic head, cf. Samoan, e.g. alófa / a-<u>lo</u>-lófa 'love' (McCarthy & Prince 1993).

(50) Nancowry Reduplication data

a. Root-final acute continuant: RED = *ʔi*

tus	ʔi-tus	*to fall off [bird's feather]/ to pluck out*
ruay	ʔi-ruay	*moving backwards and forwards/ to beckon*

b. Root-final grave continuant: RED = *ʔu*

hɔw	ʔu-hɔw-a	*empty/ cave*
tuaɬ	ʔu-tuaɬ	*round/ a knot*

c. Root-final *ʔ*: RED = *ʔu*

yaʔ	ʔu-yaʔ	*to leave something/ to lay an egg*

d. Root-final *h*: RED = *ʔi* or *ʔu*

kõh	ʔu-kõh	*downward curve/ round, spherical*
fah	ʔi-fah	*to sweep/ to sweep*

e. Root-final vowel: RED = *ʔi* or *ʔu*

mũa	ʔi-mũa	*twisted/ to wring*
lúa	ʔu-lúa	*covered/to wrap up*

Two things must be explained: the loss of the non-stop coda consonants, and also the choice of *i* vs. *u* as the vowel of the reduplicant. With respect to the coda consonant loss, there are two possible explanations, both outlined by Alderete et al.

The first possibility is that the familiar constraint NO CODA emerges in these contexts. This is the approach taken by Alderete et. al. In order to make this analysis work, they must appeal to ternary scales of stricture (Gnanadesikan 1997), claiming that violation of adjacent degrees of stricture is tolerated, but not violation of non-adjacent degrees; in other words, vocalization is desired, but unattainable in the case of non-adjacent stricture specification between the coda C and a vowel. Only in the case of stops is vocalization then denied:

(51) Consonant Stricture Scale

Stop	≻	Fricative/Liquid	≻	Vocoid/Laryngeal
CS1		CS2		CS3

(52) Ranking which forces vocalization of non-stops:

IDENT Adjacent BR (stricture) >> NO CODA >> IDENT BR (stricture)

This is illustrated in the following tableaux, which are taken directly from Alderete et al., (≈ their (33) and (34)).

(53)

/RED+tus/	IDENT ADJ BR (Stricture)	NO CODA	IDENT BR (Stricture)
a. ☞ʔi$_3$-tus$_3$		*	*
b. ʔis$_3$-tus$_3$		*!*	

The IDENTITY violation incurred by the vocalization of *s* in (a) is tolerated, as the violation is of degrees which are adjacent on the stricture scale. This faithfulness violation is preferred to an additional NO CODA violation as with candidate (b).

(54)

/RED+cat/	IDENT ADJ BR (Stricture)	NO CODA	IDENT BR (Stricture)
a. ☞ $ʔit_3$-cat_3		**	
b. $ʔi_3$-cat_3	*!	*	*

Here, vocalization of the reduplicant's coda would be at the price of a costlier IDENT violation, the special IDENT constraint which requires faithfulness at least to the adjacent level of stricture specified for the corresponding input segment. To avoid violation of this constraint, maintenance of the coda occurs instead.

The alternative to having NO CODA emerge as the relevant constraint is to posit a different constraint which specifically bans continuants from codas. This type of account comes at the cost of adding a constraint to the grammar; but is does eliminate the need to appeal to ternary scales. The constraint has independent motivation (cf. Kiowa, Zec 1995, as Alderete et al. note, as well as Korean (Cho 1990)), so this is the option I will pursue. My coda constraint will be formulated as follows:

(55) CODA COND II: $*C]_\sigma$ Continuants are not allowed in the coda.
|
[+continuant]

Making this move will bring us close to the desired result, but with further details missing:

(56)

/RED, tus/	ANCHOR-σ́	CODA COND II	IDENT BR
a. ☞$ʔi_{2,3}$-tu_2s_3			*
b. $ʔi_2s_3$-tu_2s_3		*!	*
c. $ʔi_3$-tu_2s_3	*!		
d. ☞$ʔu_{2,3}$-tu_2s_3			*

Note that a more faithful candidate, $ʔu_2s_3$-$t_1u_2s_3$, fares worse than any of the candidates considered, since it violates the high-ranked phonotactic constraint which requires the reduplicant's vowel to agree in place with the coda (if present). Candidate (c), the winner under a right anchoring account, is out by having no correspondent for the stressed vowel. This is a crucial difference between the two analyses; by my account, the correspondence with the stressed vowel of the base is crucial. The coda condition, as stated in (54), is violated by candidate (b). However, (a) and (d) tie on all of the relevant constraints thus far. Both have correspondents for the stressed vowel of the base, and both obey CODA COND II. Violation of Ident BR is compelled by the need for the head of the syllable to be in correspondence (ANCHOR-σ́), plus the phonotactic constraint which says that these two segments must agree in place. Nothing determines whether it is the place of the vowel or the coda consonant which is preserved. This is why I propose the following refinement of IDENT BR:

(57) a. IDENT$_{BR}$ C-Place: If a segment α in the Reduplicant has a corresponding segment β in the Base and β is consonant, then α must be faithful to β's place specification.

b. IDENT$_{BR}$ V-Place: If a segment α in the Reduplicant has a corresponding segment β in the Base and β is vowel, then α must be faithful to β's place specification.

The plausibility of such a distinction is unclear and in need of further investigation. But with this one concession, the analysis is able to account for the Nancowry reduplication without ternary scales, and without violating Marantz's Generalization. Moreover, it supplies further support for the proposal. Recasting the anchoring in this case of reduplication in terms of anchoring to the head of the stressed syllable leads to not only the respect of Marantz's Generalization, but also to a likely explanation of the size restriction on the roots that undergo this type of reduplication.

More remains to be said about the other cases of reduplication involving the active coda condition; namely, the types with a base coda *ʔ*or V, (types (50) c and e). Happily, *h*- final bases (50d) are no longer mysterious: the coda condition forces deletion of the *h* in the reduplicant, and if *h* is taken to be placeless, then faithful copying of the base vowel would emerge, a result which is supported by the data[23].

As for the ʔ-final bases, I suggest that they also disappear by virtue of the coda condition. The coda condition proposed by Zec actually has three components. Besides ruling out continuants, it also disallows laryngeal features in the coda, as well as dorsals. Codas in Nancowry do lack a voicing contrast; in fact no voicing contrast in consonants is observed in the language generally (Radhakrishnan p.31). The constraint against dorsals in the coda would correctly rule out *ʔ* (and *h*, redundantly). However, Nancowry does permit velars, which prevents the constraint from applying seamlessly to both languages. Whatever the force that disallows *ʔ* in the coda (and I merely suggest that Zec' coda condition may be viable as such an influence), IDENT$_{BR}$-C place then insures that the reduplicant vowel will be *u*, which is faithful to *ʔ*'s backness.

With the few vowel-final bases, given no apparent C-place to be faithful to in the base, we would expect unencumbered faithfulness to the stressed base vowel. This may very well be the case; the appearance of *i* in ʔi-mũa is initially surprising, but perhaps the nasality of the root V inhibits faithful copying.

Alderete et al.'s explanation for the identity of the reduplicative vowel as either *i* or *u* is explained by the ranking in (49), repeated here:

(49) ANCHOR R >> Place Markedness Hierarchy >> MAX BR.

Given this ranking, faithfulness to the final C of the root is required by the highest-ranked constraint. Place markedness determines that the vowel of the reduplicant will agree in place with the coda C; this way, no additional place specification will be allowed for a differing vowel, even if this vowel is faithful to the base vowel, as it would incur an additional markedness violation. (Presumably, undominated syllable structure constraints require that a nucleus be present). Alternatively, I assume that although this phonotactic constraint outranks identity of the vowel features, the vowel of the reduplicant nonetheless stands in correspondence with that of the root, as can be seen most vividly in

[23] Incidentally, this is another point on which I differ from Alderete et al., who characterize the choice of the vowel in the reduplicant as "inconsistent" (p.35).

the cases of *h*-final roots, where the lack of place specification for *h* allows for perfect copying of the root V.

As illustrated above in section 3.1, onsets are exempt from the effects of the ANCHOR-σ́ constraint. The exclusion of onsets is crucial in this case as well, since by positional faithfulness to onsets, we would expect that the faithfulness to the coda witnessed here (in other words, satisfaction of the general faithfulness constraint), would imply satisfaction of the special constraint, faithfulness to onsets. According to the current proposal, explicit right anchoring of the reduplicant to the root is not an option. And since L-ANCHOR and E-ANCHOR stand in a stringency relation, the only possible power in these terms would be E-ANCHOR, which is clearly not in evidence with respect to the left edge. Nothing seems to compel violation of the left edge requirement of E-ANCHOR. The reduplicant is C-initial, but rather than copying the onset of the base, it consistently inserts epenthetic ʔ. Given that Positional Faithfulness predicts preservation of contrasts in onsets and not in codas, it is safe to conclude that the left edges are not in correspondence. Rather, *ʔ* is inserted as a repair in order to satisfy ONSET, and only the stressed head of the base stands in correspondence in the reduplicant[24].

To summarize, the differences between my analysis and that of Alderete et al. are these:

(58) I assume:	They assume:
• ANCHOR-σ́ characterizes RED	• ANCHOR-R characterizes RED
• Multiple correspondence between segments in the Base and RED is possible	• Multiple correspondence between segments in Base and RED not permitted
• No ternary scales of stricture needed	• Ternary stricture scales are crucial
• Ident C-Place and Ident V-Place is a necessary distinction	• No need to distinguish Ident C-Place from Ident V-Place
• Alternative Coda Condition compels vocalization of non-stop coda Cs.	• NO CODA emerges to force vocalization of non-stop coda Cs.
• analysis invites a plausible explanation for the monosyllabic size restriction on reduplication	• the restriction to monosyllabic roots is unexplained
➔ need for ANCHOR-R effectively eliminated	➔ ANCHOR-R crucial to the analysis

Candidates which are not entertained in their analysis are those in which INTEGRITY is violated; that is, when a segment in the reduplicant has more than one correspondent in the base:

(59) INTEGRITY_{BR}: Any element of S_1 may have no more than one correspondent in S_2

Allowing such a constraint to be violated changes the landscape of possibilities, as we will see in (60).

An important accomplishment of their analysis is that they account for the forms while maintaining parallelism. That is, no derivational step of erasure of the final C is necessary in the cases where the final C is deleted. Rather, that the final C's acuteness/gravity is reflected in the quality of the epenthetic vowel is a result of the constraint ranking.

In my alternative analysis, parallelism is also maintained. However, identity to place specification is divided, with IDENT C-place crucially ranked above IDENT-V place. I also assume the

[24] Given that Nancowry requires onsets in the language generally (Radhakrishnan p.13), epenthesis is an expected repair.

existence of a CODA CONDITION which differs from the standard one, as stated in (55). This emergent CODA CONDITION, which is not in effect in the language generally, forces the violation of faithfulness to Integrity and to V-place, as shown in the following tableau:

(60) CODA COND II>> INTEGRITY; IDENT C-PLACE >> IDENT V-PLACE;

/RED, tus/	ANCHOR-σ́	IDENT-C PLACE	CODA COND II	INTEGRITY	IDENT-V PLACE
a.☞ ʔi$_{2,3}$-tu$_2$s$_3$				*	*
b. ʔi$_2$s$_3$-tus$_3$			*!		*
c. ʔu$_{2,3}$-tus$_3$		*!		*	
d. ʔu$_2$s$_3$-tus$_3$			*!		

The most important difference between my analysis and theirs is my assumption that the vowel of the reduplicant is in correspondence with that of the root, per ANCHOR-σ́. It is this requirement which rules out any candidate without corresponding vowels between base and reduplicant. Candidates (b) and (d) in the above tableau are out because they violate CODA COND II. The copying of the V of the reduplicant is necessarily unfaithful; the emergent phonotactic constraint compels place assimilation, and the ranking of identity to C-Place over that of V-Place determines that it is the place of the base's coda C that is preserved. The vowel of the reduplicant is thus *i* in (a), taking the coronality of the *s* in the root, and not the gravity of the base vowel *u*.

As noted earlier, for the *h*-final roots, the *h* is deleted by the Coda Cond. Given vacuous satisfaction of IDENT-C Place, identity to the head vowel of the root (marked by faithfulness to roundness specification, as the reduplicant vowels are limited to *i* and *u*) is then achieved. This accounts for the quality of the vowel in each case; the reduplicative vowel is faithful to the roundness of the head vowel[25]:

(61) IDENT(round) >> IDENT-V Place

/RED, fáh/	IDENT (ROUND)	CODA COND II	INTEGRITY	IDENT-V PLACE
a.☞ ʔi$_{2,3}$-fá$_2$h$_3$			*	*
b. ʔi$_2$h$_3$-fá$_2$h$_3$		*!		*
c. ʔu$_{2,3}$-fá$_2$h$_3$	*!		*	
d. ʔu$_2$h$_3$-fá$_2$h$_3$	*!	*		

An analysis of the relevant anchoring constraint as ANCHOR-σ́ opposed to ANCHOR RIGHT allows considerable extension of the coverage of data, if we allow Zec' Coda Condition into the grammar and allow violations of INTEGRITY along the lines defined above. The *h* and *ʔ*-final cases are no longer exceptional, but rather fall out from the analysis. As Marcus Hiller (p.c.) points out, this result requires claiming that *h* and *ʔ* do not have placelessness in common; rather, only *h* is placeless, whereas *ʔ* must be taken to be dorsal. Further research is needed to support the validity of this distinction. Other

[25] We may also need Max(+round) in addition to Ident(round), since in cases of any diphthong with mixed specification for roundness, the presence of a round vowel will cause the reduplicated V to surface as *u*.

virtues of this analysis include explanation of the V-final cases, as well as a possible explanation for the restriction of the process to monosyllabic roots.

4.5 Lillooet

Lillooet shows a type of reduplication which has previously been analyzed as VC suffixing reduplication (Van Eijk 1990).

In this "ongoing process" reduplication , an interesting alternation exists in the form of the reduplicant, depending on whether the base for reduplication is mono- or disyllabic. In examining these two patterns, I will focus on the constraints that determine the content/size of the reduplicant.

In the case of monosyllabic roots, reduplication involves copying of the coda with the addition of an epenthetic vowel.

Lillooet VC “ongoing process” reduplication CVC roots (morphemic analysis that of Van Eijk):

(62) a. púɬ-ə̲ɬ̲ *to boil, boiling* (s-puɬ *boiled*)
b. x̌ʷús-ə̲s̲ *to foam* (s- x̌ʷús-um *soapberry*)
c. ɬíl-ə̲l̲ *to sprinkle, be sprinkling* (ɬíl-in t*o sprinkle [on] it*)

In light of the behavior of disyllabic roots (64), I propose that the morphemic analysis is rather as follows, with infixation of the reduplicant:

(63) a. púɬ̲əɬ
b. x̌ʷús̲əs
c. ɬíl̲əl

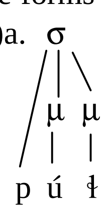
In the case of disyllabic roots, it is clearly infixation that occurs, with gemination of the medial C:

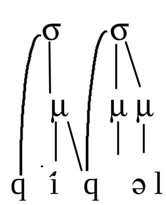
CVCVC roots:

(64) a. qíqq̲əl *to get weaker* (qíqəl *weak*)
b. ʔáll̲as *to get worse* (ʔálas *really, very much*)
c. k’ə́pp̲əx̌ *to knock constantly* (k’ə́px̌-xál *to knock, intransitive*)

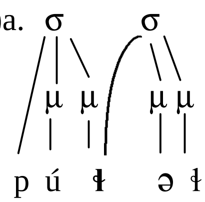
Under the infixation analysis, both monosyllabic and disyllabic roots are perfectly anchored on both edges. Assuming an ambisyllabic structure for the medial codas in (63), we can account for the reduplication with copying of the final C of the stressed syllable in each case:

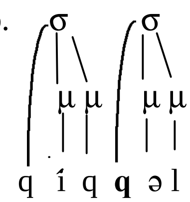
Base forms

(65)a.


b.


Reduplicated forms:

(66)a. 

b. 

I assume that codas in a stressed syllable are ambisyllabic; so the medial codas in (65b) and (66a) are ambisyllabic, but not geminate. In (66b), the extra length is due to the additional presence of the reduplicative morpheme[26].

Taking the schwa to be epenthetic, I assume that the vowel of the reduplicant is schwa due to its being the least marked in the language. The final C and not the initial one is reduplicated due to the requirement that the reduplicant anchor to the head of the root. I argue that a high ranked PARSE-σ constraint prohibits complete satisfaction of ANCHOR-σ́[27].

(67) (Assuming undominated Morph Real) PARSE-σ >> ANCHOR-σ́ >> *GEM >> DEP

/RED, qíqəl/	PARSE-σ	ANCHOR-σ́	*GEM	DEP	ALIGN L (Root, PrWd)	ALIGN E (Root, PrWd)
a. ☞(qíqqəl)		*	*			
b. (qíqləl)		**!				*
c.(qíqi)qəl	*!				*	
d. (qíqə)qəl	*!	*		*	**	

The above tableau shows that ANCHOR-σ́ is important in terms of deciding the content of the reduplicant. Candidate (d) copies the coda of the stressed syllable of the base, but as opposed to the winner (a), it epenthesizes *ə* between the coda and the reduplicant. (Epenthesis is denoted by the larger font). This extra syllable causes violation of PARSE-σ, which proves fatal. Even the candidate which anchors to the entire head (c) loses, because of the extra PARSE-σ violation it thus incurs. Candidate (b) obeys PARSE-σ, but anchors to the right edge of the base, which is not included in the head; this causes a dual violation of ANCHOR-σ́.

[26] It may be worth noting that the direction of copying is different between the two forms; in (66a), the reduplicant copies material from the right, whereas in (66b), it copies material from the left.

[27]Nothing rules out the candidate (q_1 $í_2$ q_1 i_2)(q_3 c_4 l_5 c_4 l_5), which exhibits total, if infixal, reduplication, perfect anchoring (as I define it), and no PARSE-σ violations. Infixation of long strings does seem to be universally marked, but it is unclear what exactly prohibits this candidate from winning.

(68) ALIGN E (ROOT, PrWd) >> ANCHOR-σ́

/RED, púɬ/	ALIGN E (Root, PrWd)	ANCHOR-σ́	*GEM	DEP	ALIGN L (Root, PrWd)
a. ☞(púɬ̲ əɬ)		*		*	
b. (p̲əpúɬ)		**!		*	**
c. (púɬ̲ɬ)		*	*!		
d. (p̲ púɬ)		**!	*		*
e. (pú$_2$ɬ$_3$ p̲u̲$_2$ɬ̲$_3$)	***!				
f. (p̲əɬ̲ púɬ)		*		*	*!**

From this tableau (68), we see that right alignment of the root crucially dominates ANCHOR-σ́, with alignment being more important than complete copying of the stressed rime in the reduplicant. This example helps illustrate the function of ANCHOR-σ́, showing how, under special restricting circumstances, this constraint can actively conserve part of the stressed syllable even when higher ranked constraints rule out anchoring to the entire head of the syllable.

§ 5 Conclusion

I have explored the benefits and repercussions of eliminating R-ANCHOR from the grammar in the realm of truncation and reduplication. This move was motivated by the pathology created by allowing this constraint in the grammar, as well as by the predominance of left anchoring in the two processes. Using the notion of Positional Faithfulness, I suggested that construing anchoring to the left or to the edge in terms of an inclusion hierarchy was a logical step, one which simplified the grammar in allowing for accuracy without a fixed ranking. Finally, we saw that several cases which appear to involve explicit right anchoring can be reanalyzed in other terms, providing further evidence that we are correct in doing away with ANCHOR RIGHT.

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