Avoidance of the Marked

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1. Introduction[1]

Recent approaches to reduplication have eschewed prosodic templaticism (defining invariant shape by positing prosodic templates) in favour of a-templaticism, where there are no templates *per se* (see McCarthy and Prince *to appear*, Urbanczyk 1996, Spaelti 1997, Gafos 1998 for example). This paper adds to this growing body of research by illustrating a new type of a-templatic reduplicative phenomenon in Halq'eméylem (Central Coast Salish). The 'continuative' morpheme is expressed in a variety of ways, as can be seen by the data in (1).

(1) Halq'eméylem 'continuative' (Galloway 1993)

a.	wíq´s	wiw´q´s	'yawn/ yawning'
b.	m´q'´t	h´mq'´t	'swallow s.t./ swallowing s.t.'
c.	¬´xW´¬tsE	¬´xW´¬tsE	'spit/ spitting'
d.	/ím´x	/í:m´x	'walk/ walking'

Galloway (1993) observes that the 'continuative' can be formed by reduplication (1a), h´-prefixation (1b), stress shift (1c) or vowel lengthening (1d).[2] This paper proposes that the morpheme is essentially reduplicative in nature (RED^{cont}), and that the non-copied forms of the morpheme emerge in order to avoid a marked reduplicant. This pattern of reduplicative allomorphy is termed 'avoidance of the marked' to highlight the parallels with 'emergence of the unmarked' (McCarthy and Prince 1994) where marked structure is eliminated in the reduplicant. However, rather than having unmarked structure emerge in the reduplicant, in the 'continuative', reduplication is avoided altogether. The driving force behind the non-reduplicative allomorphy is to produce a phonologically distinct 'continuative' stem. No other input specifications are necessary.

The paper begins by outlining the theoretical assumptions (§2). The analysis of Halq'eméylem allomorphy is presented next (§3). This is followed by a summary and discussion of the conditions necessary for a language to exhibit 'avoidance of the marked' (§4). Finally, a comparison of the analysis presented in Urbanczyk (1998a) is presented (§5).

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[1] This is a longer version of a paper to appear in the proceedings of WCCFL 17 'A-templatic reduplication in Halq'eméylem'. I would like to thank everyone at the Stó:lo Shxwelí for generously sharing their knowledge and insights about Halq'eméylem with me. I would also like to thank Laura Benua, Strang Burton, Laura Downing, Ewa Czaykowska-Higgins, Kimary Shahin, John McCarthy, Doug Pulleyblank, Lisa Selkirk, Pat Shaw, Bernard Tranel and Moira Yip as well as audiences at the University of Calgary, UC Irvine and WCCFL 17 for helpful feedback as this research has evolved over the past year. All errors are mine.

[2] All data cited here are of the Upriver (or Stó:lo) dialect of Halq'eméylem. The sources are Galloway's (1993) *Grammar of Upriver Halkomelem* and the classified wordlist contained in *Tó:lméls ye Siyelyólexwa.* All data are phonemicized consistently with the grammar.

2. Optimality Theory and Correspondence

The analysis is set within Optimality Theory, where constraints on phonological well-formedness are ranked and violable (henceforth OT: Prince and Smolensky 1993). In OT, alternations occur when some high ranking constraint on well-formedness compels violation of some lower ranked constraint on identity. Correspondence Theory defines the identity relations that exist between related strings (McCarthy and Prince 1995, *to appear*).

(2) Correspondence

Given two strings, S_1 and S_2, **correspondence** is a function from the elements of S_1 to the elements of S_2. Elements $\alpha \in S_1$ and $\beta \in S_2$ are referred to as **correspondents** of one another when $\alpha \Re \beta$.

Correspondence relations have been shown to hold between input and output (IO), base and reduplicant (BR), and output words (OO). All three will be referred to in the analysis and will be illustrated as needed below.

3. Halq'emeylem 'continuative' Allomorphy

Halq'eméylem, like other Salish languages, has a rich system of reduplicative and non-concatenative morphology. This section presents an abbreviated analysis of the four basic patterns of 'continuative' formation. For the most part, the choice of allomorphs is predictable, based on the phonological shape of the base. The central goal here is to show the rankings necessary to derive 'avoidance of the marked'.

3.1 Reduplicative Allomorph

If the 'non-continuative' begins with a single consonant and a stressed full vowel, the 'continuative' is formed by CV- reduplication (3).

(3)	CV- prefix		
a.	t'í:l´m	t'it'´l´m	'sing/ singing'
b.	xAkʷ'´m	xAx´kʷ'´m	'bathe/ bathing'
c.	p'Etᵀ'	p'Ep'´tᵀ'	'sew/ sewing'
d.	p'Etᵀ'´t	p'Ep'´tᵀ'´t	'sew it/ sewing it'
e.	yíq	yíy´q	'fall (snow)/ snowing'
f.	yAqᵂ'´m	yAy´qᵂ'´m	'perspire/ perspiring'
g.	wíq´s	wiw´q´s	'yawn/ yawning'

Reduplicative morphemes are segmentally empty in the input, acquiring their phonological exponence via a BR-relation present only in the output. The stem to which RED^{cont} is attached achieves its exponence via an IO-relation, all of which is exemplified below. The reduplicant is underlined.

(4) Basic Model of Reduplication (McCarthy & Prince *to appear*)

Input: /RED^{cont} - wiq´s/

⇳ *Stem I-O Faithfulness*

Output: <u>wí</u> ⟺ w´q´s

B-R Identity

Faithfulness constraints are formulated in a general way, to evaluate the identity between S_1 and S_2. In the model above, S_1 is the input or the base, while S_2 is the output or the reduplicant. Each relation has a distinct set of constraints evaluating identity. Total identity satisfies all faithfulness constraints. Partial reduplication and deletion violate Max, which requires every element of S_1 (base or input) to be in S_2 (reduplicant or output).

The CV- shape can be derived without reference to templates, by assuming that shape is an emergent property of the reduplicant. These 'emergence of the unmarked' or TETU effects, as they are known, are achieved by having phono-constraints intervening between high-ranking IO-Faith and low-ranking BR-Ident (5).

(5) Emergence of the Unmarked (McCarthy and Prince *to appear*)
IO-Faith >> Phono-constraint >> BR-Ident

Mono-syllabism can be derived by any constraint which penalizes syllables or segments. Following Urbanczyk (1998b), the relevant constraint is proposed to be *Struc-Syll, which penalizes all syllables in the output (a specific version of the more general *Struc, which penalizes all structure - Zoll p.c., cited in Prince and Smolensky 1993: §3.1). A violation is incurred by each syllable in the output. The output allows more syllables because IO-Max is high-ranking. The reduplicant minimizes the number of syllables because BR-Max is low-ranking. CV- shape is achieved by minimizing NoCoda violations. The fact that the reduplicant has any exponence at all follows because the 'continuative' must be phonologically distinct from the 'non-continuative' (this point is discussed further below). The following tableau verifies the effect of the TETU ranking in achieving CV- shape.[3]

(6) IO-Max >> *Struc-Syll, NoCoda >> BR-Max

RED^{cont} wiq´s	IO-Max	*Struc-Syll	NoCoda	BR-Max
a ☞ wí-w´q´s		σσσ	*	q´s
b wíq´-w´q´s		σσσσ!	*	s
c wiq-w´q´s		σσσ	**!	´s
d wíq-w´q	*!*	σσ	**	
e wí-w´q´	*!	σσσ		q´

The optimal candidate (6a) fares the best on the phono-constraints (cf. 6b and 6c) and IO-Max (cf. 6d and 6e). CV- shape is derived as an emergent property of the reduplicant without reference to templatic constraints. These effects are obtained because BR-Max is ranked lowest. The low-ranking of BR-Max will turn out to be crucial in explaining the other forms of 'continuative'. When there is no reduplicative exponent at all BR-Max is maximally violated (as in Gafos 1998).

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[3] The base virtually always has a reduced vowel in Halq'eméylem, leading one to question how the reduplicant obtains its vocalic quality. There are several devices available to ensure that the base vowel is contained in the reduplicant including an Input-Reduplicant-relation (McCarthy and Prince *to appear*), having the base be the related 'non-continuative' stem (Downing *to appear*.a, Steriade 1997), proposing a sympathetic candidate (McCarthy 1997), or by having the feature(s) parsed in the reduplicant satisfy IO-MAX-[F] (Pulleyblank 1998; Struijke 1998). I leave this interesting question for further research, noting that the basic analysis is not affected.

3.2 /h´- hE-/ Allomorph

If the 'non-continuative' begins with a sonorant-stressed schwa sequence, the 'continuative' is formed by /h´-/ prefixation, as exemplified by the data below.[4] Note also the loss of the base schwa.

(7) h´- prefix

	'non-contin'	'continuative'	
a.	m´q'´t	h´mq'´t	'swallow s.t./ swallowing s.t.'
b.	l´p'´x	hElp'´x	'eat s.t/ eating s.t.'
c.	l´q´m	hElq´m	'dive/ diving'
d.	y´T´t	hEyT´t	'talk about st/ talking about st'
e.	y´T´st	hEyT´st	'tell it/ telling it'
f.	y´q'´s	hEyq'´s	'file/ filing'

A reduplicative allomorph is marked in these stems for two reasons. First, it is marked to have stressed schwa in the reduplicant. Second, it is marked to have a sonorant onset.[5] The analysis of these sonorant-schwa stems is contrasted with the sonorant-full vowel stems.

Bianco (1996) shows that stress and vowel quality interact in interesting ways in Cowichan (Island Hul'qumi'num'), where stress prefers to fall on /a/, and resists falling on schwa. In order to explain interactions of this sort, Kenstowicz (1996) proposes the following set of harmonically ranked constraints where vocalic sonority and stress are linked. Because /a/ is the most sonorous vowel, it makes the best peak. This translates to *P/a being ranked the lowest. Schwa is the least sonorous vowel and is the worst peak, hence highest ranked *P/´ (8a). The reverse ranking is made for unstressed vowels in margin (M) position, where schwa makes the best margin (8b).

(8) Sonority-Driven Stress (Kenstowicz 1996)

a.	*P/´	>>	*P/i, u	>>	*P/e, o	>>	*P/a
b.	*M/a	>>	*M/e, o	>>	*M/i, u	>>	*M/´

Tableau (9) shows that for full-vowelled stems, regardless of the ranking of the *P and *M constraints, reduplication is prefered to h´...prefixation. Candidates with non-initial stress are ruled out because, with relatively few exceptions, 'continuatives' have initial stress.

(9) RV... Stems

RED^{cont} wiq´s	*P / ´	*M/i,u
a ☞ wíw´q´s		
b h´wiq´s	*!	*!

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4 There are actually two vowels: [´ E]. Thanks to Catalina Renteria and Helen Joe for pointing out a strong tendency for the front vowel to occur before coronals.

5 Evidence that this the correct avenue of explanation comes from the following form, which is the only case in the corpus which begins with an obstruent-stressed schwa sequence. Here reduplication occurs, and stress stays on the base vowel.

i. X´ylt X´X´ylt 'write it/writing it'

A third candidate, not indicated, is *[hiw´q´s], which also obeys these constraints. It is ruled out by either IO-Linearity ([i] and [w] are reversed) or BR-Anchor (the initial segment of the base is not initial in the reduplicant). If we look at schwa-vowelled stems, it is clear that they fare they same on the *P and *M constraints as can be seen by the following tableau. Some other constraint must be active to rule out candidate (10b).

(10) R´- Stems

RED^{cont} mq'´t	*P/´	*M/i,u
a. h´mq'´t	*	
b. m´mq'´t	*	

As mentioned above, it is proposed that a constraint against sonorant onsets is active in choosing between candidates (cf. Itô & Mester *to appear*).

(11) *SonOnset: Supralaryngeally articulated sonorants are marked in the Onset.

There are two types of evidence that this constraint is active in Coast Salish. First, syllable contact effects can be explained by appeal to this constraint. Urbanczyk (1996) notes that syncope is blocked in Lushootseed if the result would be a cluster of rising sonority. Second, some glides in Mainland Comox (Northern Coast Salish) alternate with obstruents. The conditioning factor is syllabic position: obstruents are found in the onset and glides in the coda (Blake 1992).[6] The relevant segments are underlined. Note also that the cognate 'progressive' is given in (12a).

(12) Mainland Comox (Blake 1992)

a.	d̲ʒ̲uTUt	dʒu-j̲Tot´s	'to push/ pushing it'
b.	qeg´T	qe<u>w</u>	'deer/ Deer (mythical name)'

*SonOnset must be ranked higher than BR-Max, in order to compel maximal violation with schwa-vowelled stems (no reduplicative exponence), but lower than *P and *M because it is violated with sonorant-V stems. The following tableau verifies that this is the case, and that both patterns can be successfully derived. Note that lack of a reduplicant results in maximal violation of BR-Max

6 Not all glides alternate, leaving some analysts to posit that the voiced obstruent is basic. Many of the non-alternating palatal glides are derived historically from /l/.

(13) *P/´, *M/i,u >>*SonOnset >> BR-Max

RED^{cont} wiq´s	*P/´	*M/i,u	*SonOn	BR-Max
☞ wíw´q´s			**	q´s
h´wiq´s	*!	*!		h´wiq´s
RED^{cont} m´q'´t				
☞ h´mq'´t	*			h´mq'´t
m´m´q'´t	*		*!*	q'´t
m´mq'´t	*		*!	q'´t

The analysis proposes that schwa and /h/ are epenthetic and are inserted in order to make the 'continuative' distinct from its non-continuative counterpart.[7] The existence of epenthetic schwa in Salish is non-controversial (Kinkade 1992). Vowel insertion violates Dep-V and /h/-insertion violates Dep-C (Dep says every element in S_2 has a correspondent in S_1). /h/-insertion satisfies high-ranking ONSET, which is unviolated in Salish in general. The question arises as to why the more faithful [m´q'´t] is not optimal. Briefly, it is not phonologically distinct from the non-continuative form.[8] Thus, a constraint requiring stems to be phonologically distinct - DistinctStem - must be active in Halq'eméylem.[9] Distinctness or Identity of stems is checked via an OO relation between the 'continuative' and the 'non-continuative', as illustrated below, where it is obeyed in (14a) and violated in (14b).

(14) OO-Identity Checking for DistinctStem

O: 'non-continuative'	a.	m´q'´t	b.	m´q'´t
		\ \ \\		| | ||
O: 'continuative'		h´mq'´t		m´q'´t

The tableau in (15) verifies the ranking of Onset and DistinctStem above IO-Dep-C.[10]

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[7] Compare Hukari's (1977) analysis of Cowichan (Island Hul'q̓umi'num') where the /h/ is derived by a type of debuccalization rule affecting reduplicative sonorants. If this turns out to be correct for Upriver Halq'eméylem as well, then this allomorph is reduplicative too. The debuccalization would still be triggered by *SonOnset.

[8] Note that the relevant constraint must be something like DistinctStem (c.f. Rose 1997) and not MorpReal (cf. Gafos 1998; Walker 1998). The 'continuative' has only a single input; when there is no reduplicant, there is no exponence, violating MorphReal.

[9] See Alderete (in prep) for a formal and fully developed Anti-Faithfulness approach to obtaining phonologically distinct stems, relying on OO-Correspondence.

[10] This proposal is necessary below and so is introduced now. However, one will note that *SonOnset will also be active in eliminating [m´q'´t] for 'swallowing s.t.'. The question then is how to ensure that the correct form for 'continuative' is [h´mq'´t] and for 'non-continuative' is [m´q'´t]. Briefly, the unaffixed form ('non-continuative') must have the root aligned with the edge of the stem, violating *SonOnset, but the affixed form ('continuative') need

(15) ONSET , DistinctStem >> IO-Dep-C

RED^{cont} m´q'´t	ONSET	Distinct	IO-Dep-C
☞ h´mq'´t			*
m´q'´t		*!	
´mq'´t	*!		

A point that will be crucial to the analysis later is that it is necessary to calculate IO-Dep-C violations as incurred by the reduplicant as well.

Evidence that /h/ is in fact epenthetic comes from an /h/ ~ ø alternation that occurs between 'continuative' and 'resultative' stems. The data in (16ab) and (17a) show that resultatives are formed by adding the /s-/ 'stative' prefix to intransitive 'continuative' forms in both Upriver and Island dialects. If a root begins with a sonorant-schwa sequence, only /s-/ occurs, the /h/ is lost, as can be seen in (16c) and (17bc).

(16) Upriver Halq'eméylem 'resultatives' (Galloway 1993)

a.	p'íw	sp'íp'´w	'freeze/ frozen'
b.	t'Ěl	st'Et'´l	'go out of sight/ shade'
c.	l´c'´t	s´líc'	'fill it/ filled'

(17) Cowichan 'resultatives' (Hukari 1978)

a.	yákʷ'´t	syay'´kʷ'	'break it/ broken'
b.	n´q´m	s´n'q´m'	'dive/ dived & still under'
c.	sn´xʷ´¬	s´nxWi¬	'canoe/ arrived by canoe'

If /h/ is epenthetic, then there is a ready explanation for the /h/ ~ ø alternation: /h/ is inserted only when necessary. When the 'stative' prefix supplies an onset, there's no need to insert /h/.[11]

3.3 Vowel Lengthening Allomorph

If the 'non-continuative' stem begins with a glottal, then 'continuative' words are formed by lenthening the first vowel of the stem. If the vowel is schwa, there is a change in quality (18d).

(18) V lengthening

a.	/im´x	/iˇm´x	'walk/ walking'
b.	/it´t	/iˇt´t	'sleep/ sleeping'
c.	/iw´st	/iˇw´st	'teach/ teaching'
d.	/´m´t	/Aˇm´t	'to sit up, down/ sitting'
e.	hEw´	hEˇw´	'hunt/ hunting'
f.	hEkW'´l´s	hEˇkW'´l´s	'remember st/ remembering st'
g.	hAqW´t	hAˇqW´t	'smell s.t./ smelling s.t.'

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not be. This makes intuitive sense - in morphologically complex forms, the root cannot be edgemost in the stem. If it were, there woud be no place for the affix to go. The formal details of this proposal are yet to be worked out.

[11] While rare, some [s-h] initial words have been observed, suggesting that the alternation is not sequentially motivated.

The analytic task is to determine why reduplication is marked with glottal-initial stems. The general tack is to examine Halq'eméylem glottal phonology/phonotactics more closely. In the following discussion / refers to glottal stop and /h/, C is any supralaryngeally articulated consonant, V is any non-schwa vowel. Interestingly, glottal-schwa sequences are extremely rare in Halq'eméylem. An examination of the over 2,000 words contained in *Tó:lméls ye Siyelyólexwa* reveals thousands of C´ and C´C syllables. Only twenty /´ syllables were found, all of which are prosodic-word initial. There were only six /´C syllables, half of which are derived from C´C reduplication.[12] On the other hand, there are over a hundred /V syllables, initially and internally. Thus it appears that the only time schwa is found after a glottal is when the root is glottal-initial. The relative rarity of /´ syllables, and their restriction to initial position can be explained if we assume that they are glottal-initial stems. There are no /C initial stems in the corpus, so schwa must be epenthetic in this context. The lack of /´ stems internally is explained if there is a constraint against them. Internal epenthesis would result in a glottal coda instead (which is also marked). The fact that about half of the /´C syllables are inherently reduplicated also receives explanation if the glottal is present underlyingly, and schwa is epenthetic.

Furthermore, if one examines diminutive stems, it turns out that of the 21 diminutive stems with full vowels, six don't reduce the base vowel to schwa. (Diminutives are also accompanied by initial stress.) Lack of vowel reduction is unexpected, because reduplication virtually always occurs with vowel reduction. For diminutives (CV-), its the stem vowel that's reduced, for plurals (CVC-), its the reduplicant vowel that reduces. Of these exceptional diminutives, two are the only glottal-initial diminutive stems found (19ab). This is significant because it means that there are no CV- reduplicants which allow vowel reduction when the first consonant is a glottal. Of the remaining exceptions, one has an irregular vowel (19c) and the rest maintain pitch accent (19d) or stress (19ef) on the base vowel.

(19) Non-Reduced Diminutives

a.	/AX´T	/i/AXiT	'lie down/ baby lying down'
b.	hEwt	hihEwt	'rat/ little rat'
c.	yilAw	yAyilAw	'after/ a little after'
d.	XEˇm	XiXEˇm	'cry/ to sob'
e.	¬í:m	¬i¬í:m	'pick berries/ picking a little'
f.	sqE:q	kikEk	'younger sibling/ little sister'

Thus it seems that glottal-schwa syllables are marked in general, making reduction of the base vowel to schwa marked when C_1 is a glottal. Candidates with glottal codas are not an option either because historically, glottal codas have been lost in Upriver Halq'eméylem compared to Downriver (Musqueam) and Island (Cowichan) Halq'eméylem where they are retained (Elmendorf and Suttles 1960).[13] The survey of the wordlist is consistent with the comparative data. There were no glottal codas.

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[12] A notable exception is /h/-epenthesis which occurs with continuatives. There was a correlation between vowel quality and glottal type, where high vowels are only followed by a glottal stop and low vowels prefer to be preceded by the glottal fricative. This may explain why the epenthetic glottal is the fricative and not the stop with schwa.

[13] Of related interest, the markedness and rarity of ´/] sequences is not restricted to Halq'eméylem as has been noted for in Interior Salish by Bessel and Czaykowska-Higgins (1991) and Shaw (1998).

These observations can be translated into the following constraints and interactions. First, the phono-constraints. If glottals and schwa are placeless, then these types of syllables are marked because they do not have a head (or articulatory target). The lack of a featural head also entails a lack of prominence. The example in (18d) above is particularly interesting, because the initial [/´] resists being stressed altogether - stress falls on the second syllable instead. The usual situation is for stress to fall on the first schwa in schwa-only stems. Further research on Halq'eméylem glottals is needed to verify these proposals regarding glottal-schwa interactions, but we will use them in the analysis for now. The anti-lengthening IO-Identity constraints Ident-μ, Dep-μ, and *VV, defined informally below.

(20) */´] Placeless syllables are not permitted.
*/]$_\sigma$ Glottals are not allowed syllable-finally.
Ident-μ Moraic specification of vowels is identical.
Dep-μ Every μ in S_2 is in S_1.
*VV Long vowels are not permitted.

The following tableau illustrates that the glottal phono-constraints must dominate anti-lengthening IO-Faith and BR-Max. The optimal candidate (21a) violates a number of constraints. However, other candidates are worse.

(21) Glottal-initial stems

RED^{cont} /im´x	*/´]	*/]$_\sigma$	Ident-μ	Dep-μ	*VV	BR-Max
a. ☞ /í:m´x			*	*	*	/im´x
b. /í/m´x		*!				m´x
c. /i/´m´x	*!					m´x

3.4 Stress Shift Allomorph

The final set of stems show that if the 'non-continuative' stem has non-initial stress, the 'continuative' is formed by shifting stress word-intially.[14]

(22) Non-Initial Stress

a.	¬´xW´¬t^{s}E	¬´xW´¬t^{s}E	'spit/ spitting'
b.	t^s'´t¬'´m	t^s'´t¬'´m	'jump/ jumping'
c.	t^{s}sETA:m	t^s´s´t´m	'you were told/ being told'
d.	t^T'´XWAs´m	t^T'´XW´s´m	'wash face/ washing one's face'
e.	s´q'Et	s´q'´t	'split s.t./ splitting s.t.'
f.	p´tE˘m´t	p´tm´t	'ask s.o./ asking s.o.'
g.	k^w'´xE:t	k^w'Ext´s	'count s.t./ he's counting'

An analysis of the stress patterns of these forms would take us too far afield, so lets jump straight to the chase - to understand why reduplication does not occur.

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14 The following exception was found, which takes a reduplicative prefix. Note that the stressed syllable is followed by a glide, suggesting that it might not be formed by stress-shift because reduction of the stressed vowel would lead to glide vocalization.

i. XW´la˘yst´m XW´XW´la˘yst´m 'to stagger/ staggering'

Recall that (with a few exceptions) 'continuative' stems have primary stress. So, one aspect of any analysis is to have an account of initial stress. This could be accomplished by having a separate stress requirement. Interestingly, the effect of initial stress can be achieved without requiring an input specification. Using the constraints already motivated - and the idea that 'continuative' stems are formed in the most harmonic way - the best way to make the 'continuative' distinct from the 'non-continuative' is to shift stress to the initial position. Actually, stressed schwas aside, this happens to be the default position for stress in Coast Salish in general (Lushootseed - Hess 1977, Urbanczyk 1996; Cowichan - Bianco 1996; Squamish - Bar-El and Watt 1998, Dyck 1998; Mainland Comox - Blake 1998). Unable to avoid stressing a schwa, the 'continuative' stems avoid having the marked stress pattern, by having initial stress.

More technically, the 'avoidance of the marked' phenomena occurs in Halq'eméylem because IO-Dep dominates BR-Max. If we compare the stress-shift candidate (23a) with reduplicated (23b) or epenthesized (23c) candidates, stress-shift is optimal because it is most faithful to the input. Candidates (23bc) both violate IO-Dep-C. Reduplication always violates IO-Dep. For the most part, we don't count violations of IO-Dep in tableaux because we assume that for reduplication to occur BR-Max must dominate IO-Dep. Here we see that the reverse ranking is possible. Candidate (23d) is out because it is not phonologically distinct from the 'non-continuative'.

(23) *P/´, *M/i,u, Distinct >> IO-Dep-C >> BR-Max

		*P/´	*M/i,u	Distinct	IO-Dep-C	BR-Max
a ☞	¬´xW´¬tˢE	*				¬´xW´¬tˢE
b.	¬´¬xW´¬tˢE	*			*!	xW´¬tˢE
c.	h´¬xW´¬tˢE	*			*!	h´¬xW´¬tˢE
d.	¬´xW´¬tˢE	*		*!		¬´xW´¬tˢE

4. Summary

To summarize, the 'continuative' morpheme has been analyzed as an a-templatic reduplicative morpheme, whose shape is determined by the shape of the base to which it is attached. Phonotactic considerations (formalized as phono-constraints) play a role in determining whether or not the morpheme is realized as a reduplicant, or as a minimal change in the base, such as epenthesis, vowel-lengthening, or stress-shift. In the first two, the avoidance of the marked occurs under compulsion of a high-ranked phono-constraint. With sonorant-schwa stems, reduplication and epenthesis both result in a stressed schwa. Epenthesis avoids a sonorant onset. This differs from stress-shifted stems where having a stressed schwa is also unavoidable with reduplication and epenthesis. Stress shift is preferred because it is the most IO-Faithful option. Vowel-lengthening successfully avoids a glottal-schwa sequence which would occur with a reduplicative allomorph.

The analysis has led to the following constraint interactions. The central ranking that emerges to produce 'avoidance of the marked' is that some Phono-Constraint compels violation of IO-Faith and maximal violation of BR-Max.

(24) Ranking Summary

a. CV- shape
IO-Max >> *Struc-Syll, NoCoda >> BR-Max

b. Reduplication with full vowels, not with schwa
*P/´, *M/i,u >>*SonOnset >> IO-Dep-C >> BR-Max

c. Epenthesis with sonorant-stressed schwa roots
Onset, Distinct >> IO-Dep-C >> BR-Max
d. Vowel-lengthening with glottal-intial stems
Distinct, * /]$_{\sigma}$, * /´] >> IO-Ident-μ, IO-Dep-μ, *VV, BR-Max
e. Stress shift with non-initial-stressed stems
*P/´, *M/i,u, Distinct >> IO-Dep-C >> BR-Max

The ranking in (24a) is a TETU ranking as generated by the schema in (5). In terms of defining a ranking schema for 'avoidance of the marked', a pattern is found, where Phono-Constraints dominate IO-Faith, with BR-Max as the very lowest constraint. This is consistent with either one of the following rankings (where 25a is a case of 25b).

(25) Avoidance of the Marked
a. Phono-Constraint >> IO-Faith >> BR-Max
b. Phono-Constraint >> IO-Faith, BR-Max

Finally, let us compare these rankings to the typology developed in McCarthy and Prince (*to appear*). The ranking in (25a) is similar to the ranking which derives 'normal application' in reduplication, where phonological alternations are not restricted to any one domain, nor is identity forced in any one domain. Thus, a varied pattern of stem allomorphy is the result of a set of phonological conditions compelling a variety of changes to input-output pairings. The type of alternation that a stem undergoes is directly related to its phonological shape and the phonological patterns of the language.

5. Comparison with Integrity Approach

In addition to illustrating a new type of a-templatic reduplication, this analysis has the appeal of accounting for a diverse pattern of allomorphy without positing several input morphemes. Thus, it need not be considered a case of suppletive allomorphy. However, this is not the only analysis that is available. Urbanczyk (1998a) provides an account where the input is a mora, which is crucially non-reduplicative.[15] The different allomorphs were argued to be the optimal way to realize a mora, based on the phonological shape of the base. From the preceding analysis it is hoped that the argument that the morpheme is *not* reduplicative cannot convincingly be made. This section discusses the basic analytic approach to the moraic analysis, rather than the specific details.

A crucial assumption of Urbanczyk (1998a) is that the copying that occurs with the CV-allomorph does not involve a BR-relation. Instead, copying violates IO-Integrity, where an input segment has two output correspondents.[16] The definition of Integrity is provided below.

(26) Integrity (McCarthy and Prince 1995: Appendix A)
No element of S_1 has multiple correspondents in S_2.

The formal difference between reduplication and 'doubling' can be seen in the following pairs of words, where diminutive invokes a BR-relation, while doubling violates Integrity.

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15 This analysis was inspired by Stonham's (1994) proposal that the cognate morpheme in closely related Saanich is a mora which is reduplicative.

16 Yip (to appear) and Smith (1998) have independently proposed that patterns of segment doubling found in a number Chinese languages violate IO-Integrity as well.

(27)	a. Reduplicative Copy	b. Segment Doubling
Input:	RED-stalo	µ-yiq
		µ ⇳ IO
Output:	s t <u>á</u> t ´ l o	y í y ´ q
	R↔B	

The discussion focusses on whether or not segment doubling should be handled by Integrity violations, proposing that the arguments for Integrity violations be re-examined, and if possible Integrity be excluded from the set of Faithfulness constraints and hence be excluded from Universal Grammar.

The application of Integrity violations to segment doubling is a novel use of the constraint. Integrity was originally conceived to account for cases of breaking (diphthongization) where an input segment is broken into two output segments, with some features affiliated with one segment and some affiliated with the other. (See McCarthy and Prince 1995: Appendix A). However, with the advent and necessity of Max-F and Dep-F constraints (Pulleyblank 1998), it appears that these effects can be achieved without appeal to Integrity. Breaking would satisfy Max-F, but violate Dep-Seg. Also, some cases of apparent 'doubling' have been convincingly analyzed as involving a BR-relation (Rose 1997, Gafos 1998). The central argument made by Rose is that the identity between identical segments can only be determined in the output, so there must be a BR-relation. If Integrity were violated there would be no way to ensure identity. Thus it seems that the role of Integrity in the IO-domain is highly dubious.

However, two types of arguments have been used to argue for the use of Integrity violations in the BR-domain: 1) satisfaction of some higher constraint leading to *violation* of BR-Integrity and 2) violation of a low ranked constraint in order to *obey* BR-Integrity. First, Downing (*to appear*.b) discusses a pattern of reduplication in KiNande where segments of a subminimal base are copied twice in order to satisfy a disyllabic minimum. Here the phenomena is explained by violating BR-Integrity. An alternative analysis might be to have the reduplicant achieve its exponence by correspondence with two bases: the base to which it is attached, as well as some other base form. There is some merit to this idea. Downing (*to appear*.c) presents evidence that the reduplicated word is also in correspondence with other allomorphs in KiNande. Even more striking, in KiKerewe (another Bantu language), the reduplicant achieves its exponence not from the adjacent base, but from the segments in the uninflected form (Downing *to appear*.a). Second, Rose (1997) and Buckley (1997) cite cases where a templatic target is not achieved if the base has doubled consonants. Here the phenomena is explained by obeying BR-Integrity. In this case, perhaps appeal to anti-identity constraints might serve equally well to ban triple identical sequences. This sort of dissimilatory effect is known to occur in haplology, like that found in English plural possessives. For example, the plural of Jones is Joneses. But if one wants to describe something that belongs to all of them, we don't say Joneses's. Constraints on representations like this are independently required in the IO-domain. It seems likely that they should also be active in the BR-domain.

While these last remarks require extensive research to substantiate, it is striking in the least that there should be the type of assymetry between reduplicative and non-reduplicative phonology with respect to Integrity violations. Thus, while not providing a definitive answer in this regard, the paper closes by returning to the central analytical point.

This analysis of Halq'eméylem 'continuative' allomorphy is a case of a-templatic reduplication, where realization of the morpheme is subject to 'avoidance of the marked'. The interest of the case discussed here is that it is possible to derive a diverse set of allomorphy without appeal to prosodic units, multiple morphemes, or non-reduplicative copying. The constraint DistinctStem is the driving force behind non-templatic and non-affixational morphology in producing minimal changes to the stem to make it phonologically distinct from the non-afffixed base. Avoidance of the marked is simply another way that phonological constraints affect the shape of morphemes, and in this case, the shape of a stem, in true a-templatic fashion.

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