Eva Zimmermann
Eva.Zimmermann@uni-leipzig.de
University of Leipzig

ConSOLE XVIII
Barcelona
18. December 2009

Foot affixation in Upriver Halkomelem
Non-concatenative allomorphy as templatic morphology

Non-concatenative allomorphy: one morpheme is realized through different non-concatenative strategies:

(1) *Upriver continuative allomorphy* Kurisu (2001, 143) Galloway (1993)

a. *Reduplication*

wíqəs	“yawn”	wíwəqəs	“yawning”
t’íləm	“sing”	t’ítələm	“singing”
ɬɛ́·w	“run away”	ɬɛ́ɬəw	“running away”

b. */hə/-prefix*

məqət	“swallow”	həmqət	“swallowing”
wəq’^{w}	“drown”	həwq’^{w}	“drowning”
məq’	“get full”	həmq’	“getting full”

c. *Vowel Lengthening*

ʔíməx	“walk”	ʔí:məx	“walking”
hɛ́wə	“hunt”	hɛ:wə	“hunting”
háqwət	“smell”	há:qwət	“smelling”

d. *Stress Shift*

ɬɛlqí	“soak”	ɬɛ́lqi	“soaking”
c’ɛtɛ́:m	“crawl”	c’ɛ́təm	“crawling”
cà:lɑ́x̣^{w}əm	“bleed”	cá:l(ə)x̣^{w}əm	“bleeding”

Non-concatenative allomorphy is taken as one strong argument for approaches using some concept of REALIZE MORPHEME (e.g. Kurisu, 2001) – a morpheme must not have of any phonological representation but a constraint forces every morpheme to have some phonological effect.

Main Claim:
I argue that instances of non-concatenative allomorphy in Upriver Halkomelem are an instance of templatic morphology, i.e. strategies to integrate an affix foot into the structure.
Independently motivated mechanisms about phonological well-formedness in Upriver, its stress system and templatic morphology in general derive all allomorphs naturally in a containment-based model of Optimality theory.

1 Non-concatenative allomorphy in Upriver

Upriver Halkomelem is one of three dialects of Upriver, a Coast Salishan language spoken in the south-eastern end of Vancouver island and in British Columbia, there are "currently two speakers remaining" (Brown, 2004, 1).

- as in all Salishan languages, Upriver makes extensive use of non-concatenative allomorphy, especially reduplication
- a central grammatical category in Salishan languages is aspect and the central aspectual distinction is "between imperfective/continuative/actual/habitual aspect and perfective/noncontinuative/nonactual aspect" (Czaykowski-Higgins and Kinkade, 1998, 28)
- the continuative aspect in Upriver is marked by reduplication (1-a), prefixing of epenthetic /hə/ (1-b), lengthening of the first stem vowel (1-c) or stress shift from the second to the first syllable (1-d)

Generalization about the continuative forms:

- only the first syllable is stressed, regardless of the stress pattern in the non-continuative form

Generalizations about the context for these different allomorphs:

(2) *Context for Continuative allomorphs: Upriver Halkomelem*
Urbanczyk (1998), Kurisu (2001)

NON-CONTINUATIVE	CONTINUATIVE
#CV	Reduplication
#[+son]ə	/hə/-prefix
#Laryngal	Vowel Lengthening
stress on non-initial σ	Stress Shift

➽ The phonological content of the continuative morpheme is a prosodic foot.

❶ This morphological foot is integrated into the prosodic structure of the continuative form and "overwrites" all the prosodic structure of the non-continuative base.

❷ This has some phonological effect since the foot must dominate some, but strives to dominate as few as possible segments of the base and must still be big enough to be a good (binary) foot.

❸ The choice between the allomorphs follows from the interaction of faithfulness constraints penalizing the realization of any of the allomorphs and markedness constraints penalizing the realization of certain allomorphs in certain contexts.

2 Theoretical assumptions

2.1 Coloured containment van Oostendorp (2006*b*))

- two central theoretical assumptions:

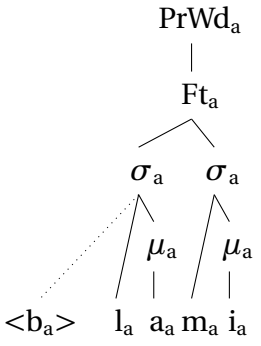
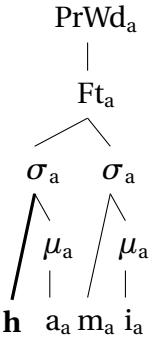
(3) *Morphological Colours*
e.g. van Oostendorp (2006*b*), van Oostendorp (2006*c*)
Every morpheme has its own specific colour[1] that allows to identify all elements belonging to this morpheme.

[1] Indices in the following.

(4) *Containment*[2] Prince and Smolensky (1993)
Every element of the phonological input representation is contained in the output.

- nothing can be literally deleted in containment – but it can be marked as phonetically "invisible", i.e. not integrated under the highest prosodic node (5-a)
- inserted elements lack any morphological colour since they do not belong to any morpheme (5-b)

(5) *Deletion and insertion in containment*[3]

a. deleted = phonetically invisible	*b. inserted = colourless*
/blami/ → [lami]	/ami/ → [hami]
	

- in van Oostendorp's "Coloured Containment", the original containment-faithfulness constraints FILL and PARSE are replaced by constraints referring to morphological affiliation (=colour): PARSE$_\mu$ and PARSE$_\phi$

(6) *Parse constraints in coloured containment*
(van Oostendorp, 2006*b*, 40)

a. PARSE$_{\phi(\alpha)}$ ⇒MAX
The morphological element α must be incorporated into the phonological structure.

[2]The assumption of containment may not be striking for the analysis proposed here – it may as well be implemented into a correspondence-theoretic system adopting morphological colours.

[3]Boldfaced = inserted, i.e. colourless. Dotted association lines = phonetically invisible.

= Assign a violation mark for every morphologically coloured element that is not phonetically realized.

b. PARSE$_{\mu(\alpha)}$ ⇒DEP
The phonological element α must be incorporated into the morphological structure.
= Assign a violation mark for every colourless element.

2.2 Empty prosodic categories as morphemes

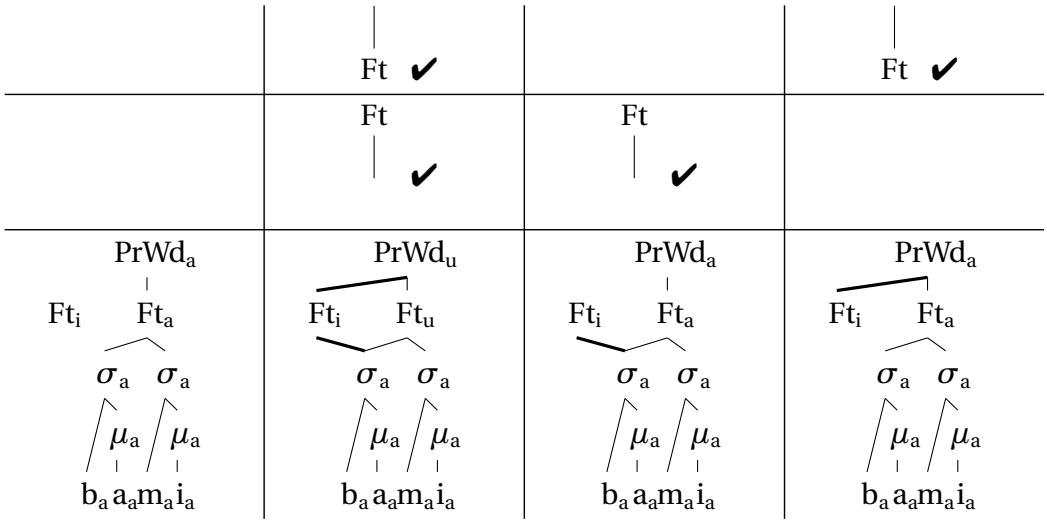
- morphology referring to elements of prosodic structure, such as morae, syllables and feet, e.g. infixation or reduplication: Prosodic Morphology (Mc Carthy and Prince, 1998)
- affixation of a mora resulting in e.g. lengthening or insertion (e.g. Davis and Ueda (2002), Grimes (2002), Davis and Ueda (2006), Haugen and Kennard (2008)) or shortening effects (Seiler, 2008)
- affixation of a foot in Modern Greek (van Oostendorp, 2006*a*)
- a prosodic category is "realized" in the output if it
  - dominates at least one segment, ensured by (7-a)
  - is dominated by the highest prosodic category, ensured by (7-b)

(7) *A morphemic foot must be integrated into the prosodic structure*

a. Ft (BE DOMINATED!)
Assign a violation mark for every coloured foot that is not dominated by the highest prosodic node in the output.

b. Ft (DOMINATE SOMETHING!)
Assign a violation mark for every foot that does not dominate (phonetically or morphologically) any segment.

(8) *Realization of a morphemic foot*



- on the other hand, it is preferred that morphologically coloured elements dominate segmental material with either the same or no colour at all (9)

(9) X$_i$ / *Y$_k$ (NO COLOUR MIXING!)

Assign a violation mark for every coloured segment that is dominated by a prosodic category of a different colour.

- in certain blend constructions: two words are integrated under a single prosodic word node (*recursive prosodic words)

- segmental material of both source words is integrated under the prosodic structure of one of the source words, the prosodic structure of the other word remains unrealized
  ⇒ such overwriting pattern provides evidence for a constraint as in (10)

(10) *PrWd (Y$_k$ X$_i$) (ONE COLOUR IN PRWD!)

Assign a violation mark for every instance of a prosodic word that dominates prosodic categories of different morphological colour[4]

[4] ≠ colourless material.

- together with the constraints ensuring the realization of the foot, ONE COLOUR! predicts a situation where a morphologically coloured foot "overwrites" all feet which were present underlyingly (11)

(11) *Morphological foot overwrites underlying prosodic structure*

$(_i) + (_a m_a \acute{ə}_a q_a ə_a t_a)$	Ft	Ft	*PrWd (Y_k X_i)
a. $(_i)\ (_a m_a \acute{ə}_a q_a ə_a t_a)$	*!	*	
b. $(_i m \acute{ə})(_a q_a ə_a t_a)$			*!
c. $(_i m_a \acute{ə}_a q_a ə_a t_a)\ (_a)$			

2.3 Stress in Upriver Halkomelem

- lexical stress
- tendency to penultimate stress in Upriver (RHT: T) and stress is subject to morphological factors[5]
- unstressed vowels are reduced to [ə]
- affixes are main-stressed, middle-stressed or not stressed at all
- if unstressed or mid-stressed affixes attach to a stem, the stems stress pattern remain unchanged
- high-stressed prefixes attract the stress of the stem, i.e. stressed syllables in the stem become unstressed and only the affix bears stress
- this is exactly what happens in the continuative: the initial syllable is stressed and the stress pattern of the stem is overwritten, e.g. secondary stress is lost in (12) ⇒ exactly the derivation in (11)

(12) cà:lə́x̣^{w}əm "bleed" ⇒ cá:l(ə)x̣^{w}əm "bleeding"

(Galloway, 1993, 56)

- the input into the continuative formation is identical to the bare stem of a word – since stress is lexical, every stem is marked for stress underlyingly (associated with a foot)

[5]For discussion of (the four) stress patterns in Salishan languages, cf. (Dyck, 2004, 10), (Czaykowski-Higgins and Kinkade, 1998, 15+16).

- it is assumed that optimization applies at two ordered levels, namely the stem and the word level (Stratal Optimality Theory: (Bermudez-Otero, in preperation)) – a well-formed stem is associated with complete prosodic structure
- although the stress pattern of the input word is overridden in the continuative, there is a weak stress-faithfulness constraint (13) active in the language[6]
- this constraint demands that at least one segment that is part of the head foot underlyingly must be integrated under the head foot in the output

(13) $\acute{\text{F}}\text{T}_\text{M} \cap \acute{\text{F}}\text{T}_\text{P}$ (HEAD FEET OVERLAP!)
Assign a violation mark for every head foot in the output that does not dominate any phonological segment that is morphologically associated with the head foot.

[6] A weaker version of e.g. FAITHFOOT: The head (mora) of a foot in the input should be the head (mora) of a foot in the output (van Oostendorp, 2006*a*, 52).

3 Analysis

So far:

- the morphological continuative foot overwrites the prosodic structure of the base
- the constraints $\begin{matrix} X_i \\ | \\ *Y_k \end{matrix}$ and $\acute{F}_{TM} \cap \acute{F}_{TP}$ ensure that this foot wants to dominate as few base-segments as possible but at least one segment of the morphological main-stressed foot
- material is added (through vowel lengthening, reduplication, epenthesis) to ensure that the foot is binary

Now: The choice between the different strategies to realize the affix foot.

- realization of every continuative allomorph violates some constraint:

(14) *Faithfulness constraints penalizing realization of cont.-allomorphs*

vs. vowel-lengthening	DEP-μ: Assign a violation mark for every colourless mora.
vs. /hə/-insertion	DEP-S: Assign a violation mark for every colourless segment.
vs. reduplication	$*S_r$: Assign a violation mark for every element with index $_r$ in the output

Reduplication in containment:

- copying of a *whole* segmental string that is dominated under one PrWd is a possible operation
- this copied material is colourless, but recognizable as reduplicated: X_r – the presence of such copied material is penalized by (15)– ensuring that realization of copied material is not always to be preferred over epenthesis): $*S_r$

3.1 Stress shift

- note that a candidate ɬə(ᵢxʷə́ɬcɛ) is impossible given that the morphemes are ordered in the input and the affix foot is a prefix that must precede the stem (a constraint like (15) is undominated):

(15) *Ordering of morphemes*:
If morpheme$_1$ precedes morpheme$_2$ in the input
a. all elements bearing morphological colour$_1$ must precede all elements bearing morphological colour$_2$
b. and no element dominated by an element with colour$_1$ may follow an element that is dominated by an element with colour$_2$.

(16) *Stress shifting if the noncontinuative base has stress on a non-initial syllable*[7]

(ᵢ) + ɬə(xʷə́ɬcɛ)	FTBIN	ÍT$_M$∩ÍT$_P$	X_i | *Y_k	DEP-S	DEP-μ	*S$_r$
a. (ᵢɬə́xʷəɬcɛ)	*!		*******			
☞ b. (ᵢɬə́xʷəɬ)cɛ			*****			
c. (ᵢɬᵣə́ᵣɬə)xʷəɬcɛ		*!	**			**
d. (ᵢɬə́ː)xʷəɬcɛ		*!	**		*	
e. (ᵢhə́ɬ)xʷəɬcɛ		*!	*	**		

3.2 Vowel lengthening

- reduplication is excluded for stems starting with a glottal sound since this would result in a syllable that has no place feature at all (assuming that [ə] as well as glottal sounds lack any place specification) (17-d)[8]

(17) *ʔə: Kurisu (2001), Urbanczyk (1998)
Placeless syllables are not permitted.

[7] Extended tableaux with more candidates and relevant constraints are given in the appendix.

[8] This markedness constraint is empirically supported by a statistical examination about stem shapes in Upriver discussed in Urbanczyk (1998).

(18) *Vowel lengthening if the non-continuative base starts with a glottal sound*

(ᵢ) + (ʔíməx)	FTBIN	$\acute{F}T_M \cap \acute{F}T_P$	X_i | $*Y_k$	*ʔə	DEP-S	DEP-μ	$*S_r$
a. (ᵢʔíməx)			***!**				
b. (ᵢʔᵣíᵣʔə)məx			**	*!			**
☞ c. (ᵢʔí:)məx			**			*	
d. (ᵢhə́)ʔiməx	*!	*		*	**		

3.3 Epenthesis

- [h] and [ə] are true epenthetic sounds in Upriver, e.g. insertion to avoid vowel merger (19)

(19) *Epenthesis of glottal consonants in Upriver* (Galloway, 1993, 118)

c'ak'^{w}ə+ é·ləs	c'ak'^{w}əʔé·ləs	"skunk cabbage leaf"
x^{w}əq'^{w}ələ+ éltəl	x^{w}əq'^{w}ələʔéltəl	"hangover medicine"

- after prefixation of epenthetic [hə], the stem-vowel is deleted, e.g. /məqət/ → [hə́mqət]
- this deletion takes place to avoid a sonorant in onset position: $*[_{\sigma}$SON
- a tendency to avoid sonorant onsets can be found in almost all Coast Salishan languages (e.g. Urbanczyk (2001) on Lushotseed)
- but only the deletion of [ə] is possible, full vowels (V with a place feature) cannot be deleted to avoid a sonorous onset:

$$\text{MAX-V}_{\text{PL}} \gg *[_{\sigma}\text{SON} \gg \text{MAX-ə}$$

(20) *[hə] epenthesis if the non-continuative base starts with a sonorant+[ə]*

(ᵢ) + (méqət)	FTBIN	*[$_\sigma$SON$_{ST}$	MAX-ə	X_i | *Y_k	DEP-S	*S_r
a. (ᵢméqət)		*!		*****		
b. (ᵢmé)qət	*!	*		**		
c. (ᵢm$_r$é$_r$mə)qət		*!		**		**
d. (ᵢmé:)qət		*!		**		
☞ e. (ᵢhém)qət			*	*	**	

3.4 Reduplication

- an apparent complication: stems starting with an sonorant followed by a full vowel
- since MAX-V_{PL} is high-ranked, deletion of the full vowel to avoid a sonorant in onset-position is impossible
- but a general *[$_\sigma$SON would nevertheless mispredict that reduplication is blocked since reduplication creates another sonorant in onset-position: an additional violation of high-ranked *[$_\sigma$SON
- the assumption of Comparative Markedness[9] allows a parametrization of *[$_\sigma$SON that solves this apparent problem – the (simplified) effect is a constraint *[$_\sigma$SON that is only sensitive to stem-material and one that penalizes affix-sonorants in onset position

(21) *Reduplication I: stems starting with a sonorant + V*

(ᵢ) + (wíqəs)	*[$_\sigma$SON$_{ST}$	X_i | *Y_k	DEP-S	DEP-μ	*[$_\sigma$SON$_{AF}$	*S_r
a. (ᵢwíqəs)	*	***!**				
☞ b. (ᵢw$_r$í$_r$wə)qəs	*	**			*	**
c. (ᵢwí:)qəs	*	**		*!		
d. (ᵢhéw'i)qəs	*	**	*!*			

[9] Mc Carthy (2002), see the appendix for details.

(22) *Reduplication II: stems starting with an obstruent + V*

($_i$) + (t'íləm)	X_i | *Y_k	DEP-S	DEP-μ	*S_r
a. ($_i$t'íləm)	***!**			
☞ b. ($_i$t$_r$í$_r$tə)ləm	**			**
c. ($_i$t'í:)ləm	**		*!	
d. ($_i$hə́t'i)ləm	**	*!*		

4 An Alternative: Realize Morpheme

- the original concept of REALIZE MORPHEME (RM) demands the mapping of each morpheme to some phonological element in the output (e.g. Samek-Lodovici (1992), Walker (2000))
- RM as defined in Kurisu (2001) is satisfied if the output is phonologically different from its base: A morpheme could be realized by any conceivable operation the languages phonology provides
- not a REALIZE MORPHEME approach in the strict sense but an analysis with a similar logic is given in Urbanczyk (1998): the continuative morpheme is assumed to be reduplicative in nature (abstract RED) and in case reduplication is blocked for phonological reasons, other phonological operations apply in order to satisfy DISTINCT STEM, a constraint that demands non-identity of two surface forms (here: the output of the continuative and the non-continuative), (Urbanczyk, 1998, 662)

➽ the additional machinery of REALIZE MORPHEME and the assumption of morphemes without any phonological representation is completely unnecessary:

- unwanted results like morpheme-specific faithfulness constraints in e.g. Kurisu's analysis become necessary
- the independent motivated assumption of templatic morphemes derives the non-concatanative allomorphy in Upriver[10] without any addi-

[10]Quite similar: mora affixation to derive non-concatenative allomorphy in Saanich, another Salishan language, cf. Stonham (2007), Zimmermann (2009)).

tional assumption

- and in addition, empirical problems of the less restrictive REALIZE MORPHEME model are avoided: illegal combinations of non-concatenative allomorphs are predicted and unattested non-concatenative allomorphs cannot be excluded in some contexts: there are simply too many ways "to do anything" to realize a morpheme

5 Appendix

Appendix I: list of constraints

(23) *Parse constraints* van Oostendorp (2006*b*)

a. MAX-ə:
Assign a violation mark for every morphologically coloured ə that is not phonetically realized.

b. MAX-V_{PL}:
Assign a violation mark for every full vowel that does not dominate (phonetically or morphologically) any segment.

c. DEP-S:
Assign a violation mark for every colourless segment.

d. DEP-μ:
Assign a violation mark for every colourless mora.

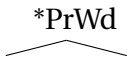
(24) *Realization of a foot*

a. Ft (BE DOMINATED!)
Assign a violation mark for every coloured foot that is not dominated by the highest prosodic node in the output.

b. Ft (DOMINATE SOMETHING!)
Assign a violation mark for every foot that does not dominate (phonetically or morphologically) any segment.

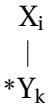
(25) $\acute{F}T_M \cap \acute{F}T_P$ (HEAD FEET OVERLAP!)
Assign a violation mark for every head foot in the output that does not

dominate any phonological segment that is morphologically associated with the head foot.

(26) 

(ONE COLOUR IN PRWD!)

Assign a violation mark for every instance of a prosodic word that dominates prosodic categories of different morphological colour[11]

(27) 

(NO COLOUR MIXING!)

Assign a violation mark for every x segment that is dominated by a prosodic category of a different colour.

(28) FTBIN: (Mc Carthy, 2008, 226), Mc Carthy and Prince (1998)

Assign a violation mark for every foot that does not contain at least two moras or syllables.

(29) *ə́:

Assign a violation mark for every [ə] bearing main stress.
(vs. /hə/-insertion)

(30) *S_r:

Assign a violation mark for every element with index $_r$ in the output
vs. reduplication

(31) *ʔə: Kurisu (2001), Urbanczyk (1998)

Assign a violation mark for every placeless syllable.

(32) *[$_\sigma$SON$_{ST}$: Ito and Mester (1999)

Assign a violation mark for every instance where a stem-syllable has a sonorant in onset position.

(33) *[$_\sigma$SON$_{AF}$: Ito and Mester (1999)

Assign a violation mark for every instance where an affix-syllable has a sonorant in onset position.

[11] ≠ colourless material.

Appendix II: Detailled tableux

(34) *Stress shifting if the noncontinuative base has stress on a non-initial syllable*

(ᵢ) + ɬə(xʷə́ɬcɛ)	FtBin	Ft$_M$∩Ft$_P$	Max-ə	X_i | *Y_k	Dep-S	*S_r
a. (ᵢɬə́xʷəɬcɛ)	*!			*******		
☞ b. (ᵢɬə́xʷəɬ)cɛ				*****		
c. (ᵢɬə́)xʷəɬcɛ	*!	*		**		
d. (ᵢɬᵣə́ᵣɬə)xʷəɬcɛ		*!		**		**
e. (ᵢɬə́:)xʷəɬcɛ		*!		**		
f. (ᵢhə́ɬ)xʷəɬcɛ		*!	*	*	**	
g. (ᵢhəhə)ɬəxʷəɬcɛ		*!		**	****	
h. (ᵢhə́ɬxʷəɬ)cɛ			*!	***	**	
i. (ᵢɬə́xʷ)ɬcɛ			*!	***		

(35) *Vowel lengthening if the non-continuative base starts with a glottal sound*

(ᵢ) + (ʔíməx)	FtBin	Ft$_M$∩Ft$_P$	X_i | *Y_k	*ʔə	Dep-S	Dep-μ	*S_r
a. (ᵢʔíməx)			***!**				
b. (ᵢʔí)məx	*!		**				
c. (ᵢʔᵣíᵣʔə)məx			**	*!			**
☞ d. (ᵢʔí:)məx			**			*	
e. (ᵢhəʔi)məx			**	*!	**		
f. (ᵢhə́)ʔiməx	*!	*		*	**		
g. (ᵢhəhə)ʔməx		*!		**	****		

(36) *[hə] epenthesis if the non-continuative base starts with a sonorant+[ə]*

(ᵢ) + (méqət)	FtBin	Ft$_M$∩Ft$_P$	*[$_\sigma$Son$_{ST}$	Max-ə	X_i | *Y_k	Dep-S	*S$_r$
a. (ᵢméqət)			*!		*****		
b. (ᵢmé)qət	*!		*		**		
c. (ᵢm$_r$ér$_r$mə)qət			*!		**		**
d. (ᵢm$_r$ér$_r$m)qət			*!		*		**
e. (ᵢmé:)qət			*!		**		
☞ f. (ᵢhém)qət				*	*	**	
g. (ᵢhé)məqət	*!		*			**	
h. (ᵢhémə)qət			*!		**	**	
i. (ᵢhé:)məqət		*!	*			**	

(37) *Reduplication I: stems starting with a sonorant + V*

(ᵢ) + (wíqəs)	Ft$_M$∩Ft$_P$	*[$_\sigma$Son$_{ST}$	X_i | *Y_k	Dep-S	Dep-μ	*[$_\sigma$Son$_{AF}$	*S$_r$
a. (ᵢwíqəs)		*	***!**				
☞ b. (ᵢw$_r$í$_r$wə)qəs		*	**			*	**
c. (ᵢhé)wiqəs	*!	*		**			
d. (ᵢwí:)qəs		*	**		*!		
e. (ᵢhéw'i)qəs		*	**	*!*			

(38) *Reduplication II: stems starting with an obstruent + V*

(ᵢ) + (t'íləm)	FtBin	Ft$_M$∩Ft$_P$	X_i | *Y_k	Dep-S	Dep-μ	*S$_r$
a. (ᵢt'íləm)			***!**			
☞ b. (ᵢt$_r$í$_r$tə)ləm			**			**
c. (ᵢhé)t'iləm	*!	*		**		
d. (ᵢt'í:)ləm			**		*!	
e. (ᵢhét'i)ləm			**	*!*		

Appendix III: Comparative Markedness

Mc Carthy (2002): "Comparative Markedness":

- markedness constraints are parametrized with respect to a "fully faithful candidate" (FFC) = the candidate which is maximally faithful to the input structure for a given constraint evaluation
- every standard markedness constraint M is replaced by two constraints M_{old} and M_{new}
- M_{old} assigns violation marks to "old" marked structures, i.e. those being present in the FFC
- M_{new} penalizes "new" marked structures, i.e. those not being present in the FFC – it compares candidates in the output assigning violation marks only if it does not assign a violation mark to the corresponding phonological material in the designated candidate
- an implementation into containment is very well possible: the input (and all its markedness violations) is still visible in the output (without the FFC): "old material has a different colour from new material. Technically, we could give every element in the phonological representation a subscript 'o' or 'n' denoting its status." ((van Oostendorp, 2003, 7))

- e.g. a structure like $[m^{o}ə^{o}q^{o}ə^{o}t^{o}$ violates only $*[_{\sigma}\text{SON}_{\text{ST}}$, whereas a reduplicating structure $[w^{n}í^{n}wʃ^{o}q^{o}ə^{o}s^{o}]$ violates $*[_{\sigma}\text{SON}_{\text{ST}}$ as well as $*[_{\sigma}\text{SON}_{\text{AF}}$
- the ranking in (39) avoids that a reduplicating structure like $[w^{n}í^{n}wʃ^{o}q^{o}ə^{o}s^{o}]$ is blocked – creation of a new marked onset is possible if there was already s sonorant onset underlyingly

(39) $*[_{\sigma}\text{SON}_{\text{ST}} \gg *[_{\sigma}\text{SON}_{\text{AF}}$

Anti-DEE-effect

References

Bermudez-Otero, Ricardo (in preperation), *Stratal Optimality Theory*, Oxford University Press, Oxford.

Brown, Jason (2004), 'Some Tonogenetic Properties of Upriver Halkomelem', *Proceedings of the 7th Annual Workshop on American Indigenous Languages* .

Czaykowski-Higgins, Ewa and Marvin Dale Kinkade (1998), Salish languages and linguistics, *in* E.Czaykowski-Higgins and M.Kinkade, eds, 'Salish languages and linguistics: theoretical and descriptive perspectives', de Gruyter, Berlin, New York.

Davis, Stuart and Isao Ueda (2002), The Typology of Mora Augmentation, *in* 'Proceedings of Linguistics and Phonetics'.

Davis, Stuart and Isao Ueda (2006), 'Prosodic vs. morphological mora augmentation', *Lexicon Forum* **2**, 121–143.

Dyck, Ruth Anne (2004), Prosodic and Morphological Factors in Squamish (Skwxwú7mesh) Stress Assignment, PhD thesis, University of Victoria.

Galloway, Brent (1993), *A Grammar of Upriver Halkomelem*, University of California Press.

Grimes, Stephen (2002), 'Mora Augmentation in the Alabama Imperfective: an Optimality Theoretic Perspective', online available at: http://www.ldc.upenn.edu/ sgrimes/ling.html.

Haugen, Jason and Cathy Hicks Kennard (2008), 'Morphological Moras and Morphological Doubling Theory', LSA Annual Meeting, San Francisco.

Ito, Junko and Armin Mester (1999), Realignment, *in* 'The Prosody-Morphology Interface', Cambridge University Press, pp. 188–217.

Kurisu, Kazutaka (2001), 'The Phonology of Morpheme Realization', PhD thesis, ROA 490-0102.

Mc Carthy, John (2002), Comparative markedness (long version), *in* A.Carpenter, A.Coetzee and P.de Lacy, eds, 'Papers in Optimality Theory II [University of Massachusetts Occasional Papers in Linguistics 26]', MA: GLSA Publications, Amherst, pp. 171–246.

Mc Carthy, John (2008), *Doing OT. Applying data to theory*, Blackwell, Malden, Oxford, Carlton.

Mc Carthy, John and Alan Prince (1998), Prosodic Morphology, *in* A.Spencer and A.Zwicky, eds, 'The Handbook of Morphology', Blackwell, Oxford, pp. 283– 305.

Prince, Alan and Paul Smolensky (1993), 'Optimality theory: Constraint interaction in generative grammar', Rutgers University Center for Cognitive Science Technical Report 2.

Samek-Lodovici, Vieri (1992), A unified analysis of crosslinguistic morphological gemination, *in* 'Proceedings of CONSOLE 1'.

Seiler, Guido (2008), 'How to do things with moras: variation and change of quantity alternations across upper german dialects', talk presented at the International Morphology Meeting, Vienna.

Stonham, John (2007), 'Metathesis as prosodic repair', *Journal of Phonetics, Phonology and Morphology*, pp. 3–24.

Urbanczyk, Susanne (1998), A-Templatic Reduplication in Halq'eméylem, *in* 'WCCFL 17', pp. 655–669.

Urbanczyk, Suzanne (2001), *Patterns of reduplication in Lushootseed*, Garland, New York.

van Oostendorp, Marc (2003), 'Comparative markedness and containment', handout, available at http://www.vanoostendorp.nl/fonologie.php.

van Oostendorp, Marc (2006*a*), 'Stress as a Prefix in Modern Greek', talk given at for OCP 4.

van Oostendorp, Marc (2006*b*), 'A theory of morphosyntactic colours', Ms., Meertens Institute, Amsterdam.

van Oostendorp, Marc (2006*c*), 'Transparant morphology causes phonological opacity', Paper presented at the 2006 GLOW Workshop on Phonological Opacity.

Walker, Rachel (2000), 'Nasal reduplication in Mbe affixation', *Phonology* **17**, 65–115.

Zimmermann, Eva (2009), Metathesis without reordering, Master's thesis, University of Leipzig.