A Correspondence-theoretic Account of Fixed Segmentism Reduplication

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Goal
In (morphological) fixed-Segmentism reduplication (FSR), reduplication is accompanied by addition of an affix which partially overwrites the reduplicant. I will argue, that FSR is best captured by a correspondence-theoretic analysis without facing any of the problems pointed out by Nevins (2005).

1 Fixed-segmentism reduplication

1.1 Introduction

(1) *English /schm/-reduplication*

a.	table	table-schmable
b.	plan	plan-schman
c.	string	string-schming
d.	apple	apple-schmapple

A standard analysis for fixed segmentism reduplication is the OT-approach based on correspondence theory presented in Alderete et al. (1999). Nevins (2005) claims that this analysis of FSR faces three serious problems:

1. it predicts the existence of unattested FSR systems where the FSR affix is backcopied to the base
2. it predicts unattested FSR systems where the realization of the FSR affix depends on its relative size with respect to the parts of the reduplicant it seeks to overwrite
3. it cannot account for cases where the FSR affix overwrites parts of reduplicants although non-overwriting would result in a phonologically licit structure

Claim
FSR is captured best by a correspondence-theoretic analysis:

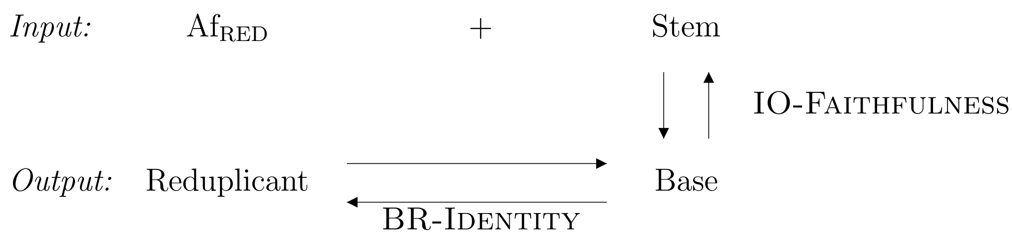
⇨ 1. FSR patterns involving backcopying of the FSR affix to the base is clearly a possibility in the languages of the world

⇨ 2. unattested segment-counting FSR is excluded by correspondence theory using independently motivated parametrization of optimality-theoretic constraints

⇨ 3. the concept of comparative markedness (McCarthy: 2003) finally solves the problem of phonologically unmotivated overwriting

1.2 Alderete et al.: 1999

(2) *Correspondence Theory (McCarthy and Prince: 1995)*



The input for the OT-grammar consists of the root, the affix /schm/ and the abstract formant RED which consists of no phonological material of its own but whose "content [...] is determined by the base" (Nelson, 2002:321).
Combining the affix /schm/ and consonant-initial bases leads to clusters such as */ʃmt/ which are excluded in English. Either /schm/ or the onset of the reduplicant must be deleted, and hence compete for realization – a competition which is resolved by Max$_{\text{IO}}$ and Max$_{\text{BR}}$.

(3) *English:* Max$_{\text{IO}}$ $\gg$ Max$_{\text{BR}}$

$t_1a_2b_3l_4e_5$-sch_6m_7-RED	Max$_{\text{IO}}$	Max$_{\text{BR}}$
☞ a. $t_1a_2b_3l_4e_5$- $sch_6m_7a_2b_3l_4e_5$		*
b. $sch_6m_7a_2b_3l_4e_5$- $sch_6m_7a_2b_3l_4e_5$	*!	
c. $sch_6m_7a_2b_3l_4e_5$-$t_1a_2b_3l_4e_5$	*!	**
d. $t_1a_2b_3l_4e_5$-$t_1a_2b_3l_4e_5$	*!*	

2 Backcopying

2.1 Morphological Backcopying as typological misprediction?

The system predicts cases of *morphological backcopying* – the FSR affix "backcopies" from the reduplicant to the base (cf. (4)). Since it is one of the foundational tenets of Optimality Theory that constraints can be freely reranked, this combination of FSR and backcopying should be attested in some language.

(4) *English':* Max$_{\text{BR}}$ $\gg$ Max$_{\text{IO}}$

$t_1a_2b_3l_4e_5$-sch_6m_7-RED	Max$_{\text{BR}}$	Max$_{\text{IO}}$
a. $t_1a_2b_3l_4e_5$-$sch_6m_7a_2b_3l_4e_5$	*!	
☞ b. $sch_6m_7a_2b_3l_4e_5$-$sch_6m_7a_2b_3l_4e_5$		*
c. $sch_6m_7a_2b_3l_4e_5$-$t_1a_2b_3l_4e_5$	*!*	*
d. $t_1a_2b_3l_4e_5$-$t_1a_2b_3l_4e_5$		**!

➤ **Nevins classifies these patterns as generally unattested**

2.2 Morphological backcopying in Siroi

In FSR in Siroi, the fixed segmentism /g/ replaces the onset of the second syllable in disyllabic words (5-a,b) and is infixed in monosyllabic words (5-c).
This fixed segment does not only appear in the reduplicant, but *also in the base:*

(5) *Reduplication in Siroi (Wells: 1979)*

a.	maye	ma**g**e-ma**g**e	'good'
b.	sungo	su**g**o-su**g**o	'big'
c.	kuen	ku**g**en-ku**g**en	'tall'

2.3 Morphological backcopying in Seereer-Siin

In Seerer, noun class prefixes trigger mutation of the initial consonant.

1. voicing mutation (changing a voiced into a voiceless stop (6-a,b))
2. continuancy mutation (changing a continuant into a stop, (6-c,d))

(6) *Consonant mutation in Seerer-Siin (McLaughlin: 2000)*

	Sg	Pl		
a.	o-**c**ir	**ɟ**ir	'sick person'	*Voicing mutation*
b.	o-**k**awul	**g**awul	'griot'	
c.	o-**p**ad	**f**ad	'slave'	*Continuancy mutation*
d.	o-**t**ew	**r**ew	'woman'	

Consonant mutation interacts with a second process, derivation of agent nouns through reduplication where the reduplicative prefix is truncated to a CV: template (7). In contrast to voicing mutation, continuancy mutation affects the initial consonant of the root and applies optionally also to the reduplicant

(7) *Reduplication in Seerer-Siin: No featural transfer*

a.	bind	'write'	o-pii-bind	'writer'
b.	dap	'launder'	o-taa-dap	'launderer'
c.	gim	'sing'	o-kii-gim	'singer'

(8) *Reduplication in Seerer-Siin: Optional featural transfer*

d.	xoox	'cultivate'	o-qoo-xoox	o-qoo-**q**oox	'farmer'
e.	fec	'dance'	o-pee-fec	o-pee-**p**ec	'dancer'
f.	war	'kill'	o-baa-war	o-baa-**b**ar	'killer'
g.	riw	'weave'	o-tii-riw	o-tii-**t**iw	'weaver'

Mutation in Seerer is analysed as featural affixation of the features [–cont] and [–voice]. In the continuancy mutation, this (featural) affix overwrites the feature specification of the reduplicant *and* this change optionally is copied back to the base.

➤ **morphological backcopying (in FSR and more generally) is attested.**

3 Segment-counting Fixed-Segment Reduplication

> "Faithfulness constraints that are evaluated on the basis of segment counting predict a typology of languages in which (a) optimization dictates that the relative *size* of the affixal material determines whether it will win out and "overwrite" the base[.]" (Nevins, 2005: 275)

3.1 Another typological misprediction?

Varying the size of the root onset could yield different FSR patterns since MAX$_{IO}$ prefers realization of more input segments and therefore it effectively compares whether root onset or the affix (fixed segment) is longer. Therefore, the analysis of Alderete et al. (1999) predicts inconsistent patterns depending on the size of the base onset[1]:

(9) *Wrong prediction for English*

$a_1pp_2l_3e_4$-sch_5m_6-RED	MAX$_{IO}$	MAX$_{BR}$
☞ a. $a_1pp_2l_3e_4$-$sch_5m_6a_1pp_2l_3e_4$		
☞ b. $sch_5m_6a_1pp_2l_3e_4$-$sch_5m_6a_1pp_2l_3e_4$		
c. $sch_5m_6a_1pp_2l_3e_4$-$a_1pp_2l_3e_4$		*!*
d. $a_1pp_2l_3e_4$-$a_1pp_2l_3e_4$	*!*	

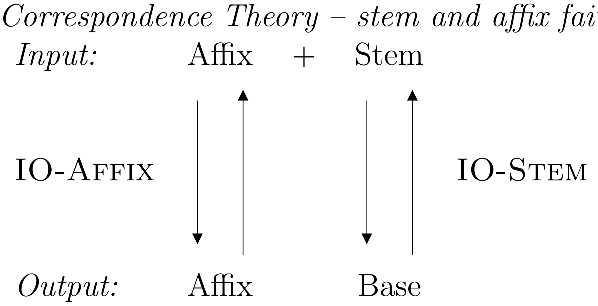
(10) *Inconsistent prediction for English'*

$s_1t_2r_3i_4ng_5$-sch_6m_7-RED	MAX$_{BR}$	MAX$_{IO}$
a. $s_1t_2r_3i_4ng_5$-$sch_6m_7i_4ng_5$	*!**	
b. $sch_6m_7i_4ng_5$-$sch_6m_7i_4ng_5$		***!
☞ c. $s_1t_2r_3i_4ng_5$-$s_1t_2r_3i_4ng_5$		**

3.2 Parametrization of faithfulness constraints

This does not point to any fundamental problem of OT or CC and those patterns are excluded by standard means of parametrizing faithfulness constraints to the domains affix and stem.

(11) *Correspondence Theory – stem and affix faithfulness*



[1]Cf. the Appendix (22) for more tables.

(12)
a. Max$_{S}$: Every segment of the stem in the input has a correspondent in the base in the output.
b. Dep$_{S}$: Every segment of the root in the output has a correspondent in the base in the input.
c. Max$_{AF}$: Every segment of an affix in the input has a correspondent in an affix in the output.
d. Dep$_{AF}$: Every segment of an affix in the output has a correspondent in an affix in the input
e. Max$_{BR}$: Every segment in the base has a correspondent in the reduplicant.
f. Dep$_{BR}$: Every segment in the reduplicant has a correspondent in the base.

(13) *English FSR under Constraint Paramatrisation*

	Max$_{AF}$	Max$_{S}$	Dep$_{S}$	Max$_{BR}$	Dep$_{BR}$
1: $a_1pp_2l_3e_4$-sch_5m_6-RED					
☞ a. $a_1pp_2l_3e_4$-$sch_5m_6a_1pp_2l_3e_4$					**
b. $sch_5m_6a_1pp_2l_3e_4$-$sch_5m_6a_1pp_2l_3e_4$			*!*		
c. $a_1pp_2l_3e_4$-$a_1pp_2l_3e_4$	*!*				
2: $t_1a_2b_3l_4e_5$-sch_6m_7-RED					
☞ a. $t_1a_2b_3l_4e_5$-$sch_6m_7a_2b_3l_4e_5$				*	**
b. $sch_6m_7a_2b_3l_4e_5$-$sch_6m_7a_2b_3l_4e_5$		*!	**		
c. $t_1a_2b_3l_4e_5$-$t_1a_2b_3l_4e_5$	*!*				
3: $p_1l_2a_3n_4$-sch_5m_6-RED					
☞ a. $p_1l_2a_3n_4$-$sch_5m_6a_3n_4$				**	**
b. $sch_5m_6a_3n_4$-$sch_5m_6a_3n_4$		*!*	**		
c. $p_1l_2a_3n_4$-$p_1l_2a_3n_4$	*!*				
4: $s_1t_2r_3i_4ng_5$-sch_6m_7-RED					
☞ a. $s_1t_2r_3i_4ng_5$-$sch_6m_7i_4ng_5$				***	**
b. $sch_1m_2i_3ng_4$-$sch_1m_2i_3ng_4$		*!**	**		
c. $s_1t_2r_3i_4ng_5$-$s_1t_2r_3i_4ng_5$	*!*				

There are two important observations: First, the analysis violates the RAFM.

(14) *Root-Affix Faithfulness Metaconstraint (McCarthy and Prince: 1995)*
RootFaith $\gg$ AffixFaith

Second, the Max and Dep constraints relativized to specific morphological domains seem to be ranked "in blocks", i.e. all constraints relativized to affix and stem material are ranked above all constraints relativized to BR faithfulness.

➤ The RAFM might be replaced by the metacondition (15)

(15) MAX-DEP *Adjacency:*
Let α and β be different morphological domains (e.g root, affix, base-reduplicant), and $\{C_1, \ldots, C_n\}$ the set of MAX and DEP constraints, then either $\{C_1\alpha \ldots C_n\alpha\} \gg \{C_1\beta \ldots C_n\beta\}$ or $\{C_1\beta \ldots C_n\beta\} \gg \{C_1\alpha \ldots C_n\alpha\}$.

The constraint system in (12) systematically excludes FSR systems where realization of the FSR affix varies with the phonological size of the base and it predicts only attested patterns:

(16) *Predictions*

$\{$FAITH$_{S}$, FAITH$_{AF}\} \gg \ldots$	the English pattern (cf. Appendix: (23))
$\{$FAITH$_{AF}$, FAITH$_{BR}\} \gg \ldots$	Backcopying (cf. Appendix: (24))
$\{$FAITH$_{S}$, FAITH$_{BR}\} \gg \ldots$	complete suppression of the FSR affix (cf. Appendix: (25))

4 Phonologically Unmotivated Overwriting

4.1 Hindi

The FSR affix overwrites in Hindi although non-overwriting would result in a phonotactically licit structure:

(17) *FSR in Hindi (Nevins: 2005)*

a. roti	roti-voti	'bread and the like'
b. mez	mez-vez	'tables and the like'
c. tras	tras-vras	'grief and the like'
d. aam	aam-vaam	'mangoes and the like'

Overwriting of the reduplicants onset in /roti-voti/ cannot be forced by a high ranked markedess constraint banning a cluster like /vr/ since this very same onset can be found in a reduplicated form: /tras-vras/.

(18) *FSR in Hindi with* $*[_\sigma$CC *dominating* FAITH$_{BR}$

	FAITH$_{AF}$	FAITH$_{S}$	$*[_\sigma$CC	FAITH$_{BR}$
$r_1o_2t_3i_4$-v_5-RED				
☞ a. $r_1o_2t_3i_4$-$v_5o_2t_3i_4$				md
b. $v_5o_2t_3i_4$-$v_5o_2t_3i_4$		md!		
c. $r_1o_2t_3i_4$-$r_1o_2t_3i_4$	m!			
d. $r_1o_2t_3i_4$-$v_5r_1o_2t_3i_4$			*!	d
e. $v_5r_1o_2t_3i_4$-$v_5r_1o_2t_3i_4$		d!	**	
$t_1r_2a_3s_4$-v_5-RED				
☛ a. $t_1r_2a_3s_4$-$v_5r_2a_3s_4$			*!*	md
b. $v_5a_3s_4$-$v_5a_3s_4$		mmd!		
☞ c. $t_1r_2a_3s_4$-$v_5a_3s_4$			*	mmd
d. $t_1r_2a_3s_4$-$t_1r_2a_3s_4$	m!		**	

(19) *FSR in Hindi with* FAITH$_{BR}$ *dominating* *[$_\sigma$CC

	FAITH$_{AF}$	FAIT$_S$	FAITH$_{BR}$	*[$_\sigma$CC
$r_1o_2t_3i_4$-v_5-RED				
☛ a. $r_1o_2t_3i_4$-$v_5o_2t_3i_4$			md!	
b. $v_5o_2t_3i_4$-$v_5o_2t_3i_4$		md!		
c. $r_1o_2t_3i_4$-$r_1o_2t_3i_4$	m!			
☞ d. $r_1o_2t_3i_4$-$v_5r_1o_2t_3i_4$			d	*
e. $v_5r_1o_2t_3i_4$-$v_5r_1o_2t_3i_4$		d!		**
$t_1r_2a_3s_4$-v_5-RED				
☞ a. $t_1r_2a_3s_4$-$v_5r_2a_3s_4$			md	**
b. $v_5a_3s_4$-$v_5a_3s_4$		mmd!		
c. $t_1r_2a_3s_4$-$v_5a_3s_4$			mmd!	*
d. $t_1r_2a_3s_4$-$t_1r_2a_3s_4$	m!			**

4.2 Comparative Markedness

Hindi does not prohibit complex onsets in general but a complex onset in the reduplicant not being present in the base. The comparison with the markedness violations of the base therefore decides whether the reduplicant violates a markedness constraint or not. This can be captured by the concept of Comparative Markedness (McCarthy: 2003).
In Comparative Markedness, all standard markedness constraints are replaced by two constraints $_OM$ and $_NM$:

- $_O$M assigns violation-marks to "old" marked structures: those being present in the FFC
- $_N$M penalizes "new" marked structures: those not being present in the FFC

"Fully faithful candidate" (FFC) = the candidate which is maximally faithful to the input structure

4.3 Extension of Comparative Markedness

> "Comparative Markedness is rooted in the theory of correspondence [...]. Therefore, if correspondence is extended to base-reduplicant or output-output relations, comparative markedness is also extended to these relations."
> (McCarthy, 2003:26)

➤ it extends from IO-relation to OO-relations to capture derived enviroment effects
➤ it naturally extends to the BR-relation as well

(20) *Extension to base-reduplicant correspondence*

a. BR$_N$*[$_\sigma$ CC: Avoid complex onsets in the reduplicant which do not have a counterpart in the base.

b. BR$_O$*[$_\sigma$ CC: Avoid complex onsets in the reduplicant which have a counterpart in the base.

(21) *Hindi FSR with Comparative Markedness Constraints*

	FAITH_{AF}	FAITH_{S}	BR_{N}*[$_\sigma$CC	FAITH_{BR}	BR_{O}*[$_\sigma$CC
$r_1o_2t_3i_4$-v_5-RED					
☞ a. $r_1o_2t_3i_4$-$v_5o_2t_3i_4$				md	
b. $v_5o_2t_3i_4$-$v_1o_2t_3i_4$		md!			
c. $r_1o_2t_3i_4$-$r_1o_2t_3i_4$	m!				
d. $r_1o_2t_3i_4$-$v_5r_1o_2t_3i_4$			*!	d	
e. $v_5r_1o_2t_3i_4$-$v_5r_1o_2t_3i_4$		d!			*
$t_1r_2a_3s_4$-v_5-RED					
☞ a. $t_1r_2a_3s_4$-$v_5r_2a_3s_4$				md	*
b. $v_5a_3s_4$-$v_5a_3s_4$		mmd!			
c. $t_1r_2a_3s_4$-$v_5a_3s_4$				mmd!	
d. $t_1r_2a_3s_4$-$t_1r_2a_3s_4$	m!			md	*

5 Conclusion

FSR involving backcopying of the FSR affix is clearly a formal possibility employed in human language, while segment-counting FSR is so far unattested.
A correspondence-theoretic account of reduplication captures these facts and the problems Nevins (2005) pointed out for the analysis in Alderete et al. (1999) are either empirically flawed or find a straightforward solution in independently motivated parametrization for faithfulness constraints.

Outlook: the approach Nevins favors:

- predicts the very same unattested cases of segment counting FSR
- is actually less restrictive than the OT approach in Alderete and is clearly capable to capture specific types of segment-counting FSR (cf. ZimmermannTrommer: 2007)

6 Appendix

(22) *Inconsistent FSR in English'*

		MAX$_{BR}$	MAX$_{IO}$
	1: $a_1pp_2l_3e_4$-sch_5m_6-RED		
☞	a. $a_1pp_2l_3e_4$-$sch_5m_6a_1pp_2l_3e_4$		
☞	b. $sch_5m_6a_1pp_2l_3e_4$-$sch_5m_6a_1pp_2l_3e_4$		
	c. $a_1pp_2l_3e_4$-$a_1pp_2l_3e_4$		*!*
	2:$t_1a_2b_3l_4e_5$-sch_6m_7-RED		
	a. $t_1a_2b_3l_4e_5$-$sch_6m_7a_2b_3l_4e_5$	*!	
☞	b. $sch_6m_7a_2b_3l_4e_5$-$sch_6m_7a_2b_3l_4e_5$		*
	c. $t_1a_2b_3l_4e_5$-$t_1a_2b_3l_4e_5$		**!
	3: $p_1l_2a_3n_4$-sch_5m_6-RED		
	a. $p_1l_2a_3n_4$-$sch_5m_6a_3n_4$	*!*	
☞	b. $sch_5m_6a_3n_4$-$sch_5m_6a_3n_4$		**
☞	c. $p_1l_2a_3n_4$-$p_1l_2a_3n_4$		**
	4: $s_1t_2r_3i_4ng_5$-sch_6m_7-RED		
	a. $s_1t_2r_3i_4ng_5$-$sch_6m_7i_4ng_5$	*!**	
	b.$sch_1m_2i_3ng_4$-$sch_1m_2i_3ng_4$		***!
☞	c. $s_1t_2r_3i_4ng_5$-$s_1t_2r_3i_4ng_5$		**

(23) *Possible Rankings for English*[2]

		FAITH$_S$	FAITH$_{AF}$	...
	1: $a_1pp_2l_3e_4$-sch_5m_6-RED			
☞	a. $a_1pp_2l_3e_4$-$sch_5m_6a_1pp_2l_3e_4$			
	b. $sch_5m_6a_1pp_2l_3e_4$-$sch_5m_6a_1pp_2l_3e_4$	dd!		
	c. $a_1pp_2l_3e_4$-$a_1pp_2l_3e_4$		mm!	
	2: $t_1a_2b_3l_4e_5$-sch_6m_7-RED			
☞	a. $t_1a_2b_3l_4e_5$-$sch_6m_7a_2b_3l_4e_5$			
	b. $sch_6m_7a_2b_3l_4e_5$-$sch_6m_7a_2b_3l_4e_5$	mdd!		
	c. $t_1a_2b_3l_4e_5$-$t_1a_2b_3l_4e_5$		mm!	
	3: $p_1l_2a_3n_4$-sch_5m_6-RED			
☞	a. $p_1l_2a_3n_4$-$sch_5m_6a_3n_4$			
	b. $sch_5m_6a_3n_4$-$sch_5m_6a_3n_4$	mmdd!		
	c. $p_1l_2a_3n_4$-$p_1l_2a_3n_4$		mm!	
	4: $s_1t_2r_3i_4ng_5$-sch_6m_7-RED			
☞	a. $s_1t_2r_3i_4ng_5$-$sch_6m_7i_4ng_5$			
	b. $sch_6m_7i_4ng_5$-$sch_6m_7i_4ng_5$	mmmdd!		
	c. $s_1t_2r_3i_4ng_5$-$s_1t_2r_3i_4ng_5$		mm!	

[2]The corresponding pairs of MAX and DEP violations are summarized as FAITH-S, FAITH-AF, and FAITH-BR, while the single MAX and DEP violations are indicated by "m" and "d" respectively.

(24) *Backcopying*

		FAITH$_{AF}$	FAITH$_{BR}$	...
1: $a_1pp_2l_3e_4$-sch_5m_6-RED				
	a. $a_1pp_2l_3e_4$-$sch_5m_6a_1pp_2l_3e_4$		dd!	
☞	b. $sch_5m_6a_1pp_2l_3e_4$-$sch_5m_6a_1pp_2l_3e_4$			
	c. $a_1pp_2l_3e_4$-$a_1pp_2l_3e_4$	dd!		
2: $t_1a_2b_3l_4e_5$-sch_6m_7-RED				
	a. $t_1a_2b_3l_4e_5$-$sch_6m_7a_2b_3l_4e_5$		mdd!	
☞	b. $sch_6m_7a_2b_3l_4e_5$-$sch_6m_7a_2b_3l_4e_5$			
	c. $t_1a_2b_3l_4e_5$-$t_1a_2b_3l_4e_5$	mm!		
3: $p_1l_2a_3n_4$-sch_5m_6-RED				
	a. $p_1l_2a_3n_4$-$sch_5m_6a_3n_4$		mmdd!	
☞	b. $sch_5m_6a_3n_4$-$sch_5m_6a_3n_4$			
	c. $p_1l_2a_3n_4$-$p_1l_2a_3n_4$	mm!		
4: $s_1t_2r_3i_4ng_5$-sch_6m_7-RED				
	a. $s_1t_2r_3i_4ng_5$-$sch_6m_7i_4ng_5$		mmmdd!	
☞	b. $sch_6m_7i_4ng_5$-$sch_6m_7i_4ng_5$			
	c. $s_1t_2r_3i_4ng_5$-$s_1t_2r_3i_4ng_5$	mm!		

(25) *Suppression of FSR Affix*

		FAITH$_{S}$	FAITH$_{BR}$	...
1: $a_1pp_2l_3e_4$-sch_5m_6-RED				
	a. $a_1pp_2l_3e_4$-$sch_5m_6a_1pp_2l_3e_4$		dd!	
☞	b. $sch_5m_6a_1pp_2l_3e_4$-$sch_5m_6a_1pp_2l_3e_4$	dd!		
	c. $a_1pp_2l_3e_4$-$a_1pp_2l_3e_4$			
2: $t_1a_2b_3l_4e_5$-sch_6m_7-RED				
	a. $t_1a_2b_3l_4e_5$-$sch_6m_7a_2b_3l_4e_5$		mdd!	
☞	b. $sch_6m_7a_2b_3l_4e_5$-$sch_6m_7a_2b_3l_4e_5$	mdd!		
	c. $t_1a_2b_3l_4e_5$-$t_1a_2b_3l_4e_5$			
3: $p_1l_2a_3n_4$-sch_5m_6-RED				
	a. $p_1l_2a_3n_4$-$sch_5m_6a_3n_4$		mmdd!	
☞	b. $sch_5m_6a_3n_4$-$sch_5m_6a_3n_4$	mmdd		
	c. $p_1l_2a_3n_4$-$p_1l_2a_3n_4$			
4: $s_1t_2r_3i_4ng_5$-sch_6m_7-RED				
	a. $s_1t_2r_3i_4ng_5$-$sch_6m_7i_4ng_5$		mmmdd!	
☞	b. $sch_6m_7i_4ng_5$-$sch_6m_7i_4ng_5$	mmmdd!		
	c. $s_1t_2r_3i_4ng_5$-$s_1t_2r_3i_4ng_5$			

References

Alderete, J., Beckman, J., Benua, L., Gnanadesikan, A., McCarthy, J., and Urbanczyk, S. (1999). Reduplication with fixed segmentism. *Linguistic Inquiry*, 30:327–364.

Downing, L. J. (2006). *Canonical forms in prosodic morphology.* Oxford, Oxford University Press.

Frampton, J. (2004). Distributed reduplication. Ms. Northeastern University.

Halle, M. and Marantz, A. (1993). Distributed Morphology and the pieces of inflection. In Hale, K. and Keyser, S. J., editors, *The View from Building 20*, pages 111–176. Cambridge MA: MIT Press.

Inkelas, S. and Zoll, C. (2005). *Reduplication.* Cambridge University Press, Cambridge.

Kager, R. (1999). *Optimality Theory.* Cambridge University Press, Cambridge.

Krämer, M. (2002). The root-affix metaconstraint and its reversal in vowel harmony. Handout of a talk given at the 10th Manchester Phonology Meeting, 23rd-25th May 2002.

Mc Laughlin, F. (2000). Consonant mutation and reduplication in Seereer-Siin. *Phonology 17*, pages 333–363.

McCarthy, J. and Prince, A. (1993). Prosodic Morphology. Constraint Interaction and Satisfaction. ROA 485-1201.

McCarthy, J. and Prince, A. (1995). Faithfulness and reduplicative identity. *University of Massachusetts Occasional Papers in Linguistics*, 18:249–384.

McCarthy, J. and Prince, A. (1999). Faithfulness and identity in prosodic morphology. In *The Prosody Morphology Interface*, pages 218–309. René Kager and Harry van der Hulst and Wim Zonneveld.

McCarthy, J. J. (2003). Comparative markedness. *Theoretical Linguistics*, 29:1–51.

Nelson, N. (2002). The “prefixing” preference in reduplication. *Proceedings of WCCFL*, 21:320–333.

Nevins, A. and Fitzpatrick, J. (2002). Phonological occurrences: Relations and copying. lingBuzz/000051.

Nevins, A. I. (2005). Overwriting does not optimize in nonconcatenative morphology. *Linguistic Inquiry 36*, pages 275–287.

Nevins, A. I. and Vaux, B. (2003). Metalinguistic, shmetalinguistic: the phonology of shm-reduplication. lingBuzz/000319.

Prince, A. and Smolensky, P. (2003). Optimality theory: Constraint interaction in generative grammar. *ROA 537-0802.*

Raimy, E. (2000). *The Phonology and Morphology of Reduplication.* Berlin and New York: Mouton de Gruyter.

Urbanczyk, S. (1996). Morphological templates in reduplication. *Proceedings of NELS*, 26:425–440.

Urbanczyk, S. (1999). Double reduplications in parallel. In Kager, R., van der Hulst, H., and Zonneveld, W., editors, *The Prosody Morphology Interface*, pages 390–428. Cambridge University Press.

Ussishkin, A. (1999). Head dominance in Modern Hebrew prosodic morphology. *Phonology at Santa Cruz*, 6:71–82.

Wells, M. A. (1979). *Siroi grammar.* Pacific Linguistic Series B, Nr.51, Canberra.

Willson, H. (2003). A brief introduction to Marshallese phonology. Ms., UCLA.

Zimmermann, E. and Trommer, J. (2007). Backcopying in Fixed Segmentism Reduplication. *Linguistische Arbeits Berichte*, 85:303–333.