A Correspondence-theoretic Account of Fixed-Segmentism Reduplication

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January 10, 2008

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2. Backcopying
   - Morphological Backcopying as typological misprediction?
   - Morphological backcopying in Siroi
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Fixed segmentism reduplication

In (morphological) FSR, reduplication is accompanied by addition of an affix which partially overwrites the reduplicant.

(1) English /schm/-reduplication

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

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Analyses

- Optimality theory: **Correspondence theory** (Alderete et al.: 1999)
- arguments against such an OT-approach (Nevins: 2004):
  - it predicts unattested cases of morphological backcopying
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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

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Outline

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

Input:	Af_{RED}	+	Stem
			IO-FAITHFULNESS
Output:	Reduplicant		Base
		BR-IDENTITY	

Input

- the FSR affix (/schm/)
- the stem
- the abstract formant RED which consists of no phonological material of its own but whose "content [. . .] is determined by the base" (Nelson2002:321)

Combining the affix **schm** and consonant-initial bases leads to clusters such as */ʃmt/ which are excluded in English by high-ranked markedness constraints.

➤ /schm/ and the reduplicants onset compete for realisation and this competition is resolved by $\textsc{Max}_{IO}$ and $\textsc{Max}_{BR}$.

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➤ /schm/ and the reduplicants onset compete for realisation and this competition is resolved by $\textsc{Max}_{IO}$ and $\textsc{Max}_{BR}$.

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

$t_1a_2b_3l_4e_5$-sch_6m_7-RED		MAX_{IO}	MAX_{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. $t_1a_2b_3l_4e_5$-$t_1a_2b_3l_4e_5$	*!*	

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The system predicts cases of **morphological backcopying** –
The FSR affix "backcopies" from the reduplicant to the base:

(4) English': MAX$_{BR}$ ≫ MAX$_{IO}$

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⇨ **a typological misprediction of the system?**

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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	mage-mage	'good'
b.	sungo	sugo-sugo	'big'
c.	kuen	kugen-kugen	'tall'

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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'	

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Agent nouns in Seerer-Siin are derived through reduplication – the reduplicant has the shape CV:

(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'

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(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.

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Nevins sees a fundamental problem with the implementation of overwriting through constraint evaluation.
He extends his critique to another case of nonconcatenatve morphology: the analysis proposed by Ussishkin for overwriting in Hebrew denominal verb formation.

The affixal melody /i – e/ has to be realized inside the base, but since the size of the resulting structure is restricted to bisyllabicity, not all vowels can be parsed and competition arises.

(9) Hebrew Denominal Verb Formation (Ussishkin (1999))

a.	dam	'blood'	dimem	'to bleed'
b.	xam	'hot'	ximem	'to heat'
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Two separate faithfulness constraints for stem and affix vowels – MAX-VOWEL-AF and MAX-VOWEL-STEM – implement this preference for the realization of affix vowels.

(10) Correspondence Theory – stem and affix faithfulness

Input: Affix + Stem

IO-AFFIX IO-STEM

Output: Affix Base

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Input:	Affix	+	Stem
IO-AFFIX			IO-STEM
Output:	Affix		Base

(11) Denominal Verb Formation from Biconsonantal Base (Ussishkin (1999))

$d_1a_2m_3 + i_4$ - e_5	MinWd	Max-V_{Af}	Max-V_S	Integrity
a. $d_1a_2m_3e_5m_3$		*!		*
b. $d_1i_4m_3a_2m_3$		*!		*
c. $d_1a_2m_3i_4m_3e_5$	*!			*
☞ d. $d_1i_4m_3e_5m_3$			*	*

(12) Denominal Verb Formation from Glide-medial Base (Ussishkin (1999))

$t_1i_2k_3$ + i_4 - e_5	MinWd	Max-V_{Af}	Max-V_S	Integrity
a. $t_1i_2i_4e_5k_3$	*!			
b. $t_1i_4k_3e_5k_3$			*!	*
☞ c. $t_1i_4j_2e_5k_3$				

Outline

⇨ This solution should be available for /dam/ as well!

(13) Problematic Candidate with Biconsonantal Base (Nevins (2005))

$d_1a_2m_3$ + i_4 - e_5	MinWd	Max-V$_{Af}$	Max-V$_S$	Integrity
a. $d_1a_2m_3e_5m_3$		*!		*
b. $d_1i_4m_3a_2m_3$		*!		*
c. $d_1a_2m_3i_4m_3e_5$	*!			*
☛ d. $d_1i_4m_3e_5m_3$			*!	*
☞ e. $d_1a_2j_4e_5m_3$				

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c. $d_1a_2m_3i_4m_3e_5$	*!			*
☛ d. $d_1i_4m_3e_5m_3$			*!	*
☞ e. $d_1a_2j_4e_5m_3$				

Outline

1. replacing /i/ with /j/ implies deletion of a mora
2. parametrisation of faithfulness constraints is applied to all faithfulness constraints, namely MAX-μ

(14) MAX-μ: Input moras should have correspondent moras in the output.

(15) Analysis of Glide-medial Base under Constraint Parametrization

$t_1 i_2 k_3$ + i_4 - e_5	MAX-V_{Af}	INT$_{Af}$	MAX-μ_{Af}	MAX-V_S	INT$_S$	MAX-μ_S
a. $t_1 i_4 e_5 k_3$				*!		*
b. $t_1 i_4 k_3 e_5 k_3$					*!	
☞ c. $t_1 i_4 j_2 e_5 k_3$						*

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☞ c. $t_1i_4j_2e_5k_3$						*

(16) Analysis of Biconsonantal Base under Constraint Parametrization

$d_1a_2m_3 + i_4$ - e_5	MAX-V_{Af}	INT$_{Af}$	MAX-μ_{Af}	MAX-V_S	INT$_S$	MAX-μ_S
a. $d_1a_2m_3e_5m_3$	*!		*		*	
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Consequences a

The analysis systematically violates the RAFM.

(17) *Root-Affix Faithfulness Metaconstraint, RAFM (McCarthy and Prince (1995)*

$$\text{RootFaith} \gg \text{AffixFaith}$$

Consequences b

The MAX constraints relativized to specific morphological domains seem to be ranked "in blocks", i.e. all constraints relativized to affix material are ranked above the corresponding constraints relativized to stems

The RAFM might be replaced by the metacondition (18)

(18) MAX-DEP *Adjacency:*

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

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MAX-DEP Adjacency licenses the ranking in a. (cf. the analysis of Hebrew) but systematically excludes rankings where stem and affix MAX constraints alternate in their ranking:

a. MAX-V_{Af} $\gg \ldots \gg$ MAX-μ_{Af} $\gg \ldots \gg$ MAX-V_S $\gg \ldots \gg$ MAX-μ_S
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b. MAX-V_{Af} $\gg \ldots \gg$ MAX-μ_S $\gg \ldots \gg$ MAX-V_S $\gg \ldots \gg$ MAX-μ_{Af}

Outline

Varying the size of the root onset could yield different FSR patterns since $\textsc{Max}_{IO}$ prefers realization of more input segments and therefore it effectively compares whether root onset or the affix (fixed segment) is longer.

(19) Wrong prediction for English

apple-schm-RED		MAX$_{IO}$	MAX$_{BR}$
☞	a. $a_1pp_2l_3e_4$-$schma_1pp_2l_3e_4$		
☞	b. $sch_1m_2a_3pp_4l_5e_6$-$sch_1m_2a_3pp_4l_5e_6$		
	c. $schma_1pp_2l_3e_4$-$a_1pp_2l_3e_4$		*!*
	d. $a_1pp_2l_3e_4$-$a_1pp_2l_3e_4$	*!*	

(20) Inconsistent prediction for English'

		MAX$_{BR}$	MAX$_{IO}$
string-schm-RED			
	a. $stri_1ng_2$-$schmi_1ng_2$	*!**	
	b. $sch_1m_2i_3ng_4$-$sch_1m_2i_3ng_4$		***!
☞	c. $s_1t_2r_3i_4ng_5$-$s_1t_2r_3i_4ng_5$		**

(19) Wrong prediction for English

apple-schm-RED	MAX-IO	MAX-BR
☞ a. $a_1pp_2l_3e_4$-schm$a_1pp_2l_3e_4$		
☞ b. $sch_1m_2a_3pp_4l_5e_6$-$sch_1m_2a_3pp_4l_5e_6$		
c. schm$a_1pp_2l_3e_4$-$a_1pp_2l_3e_4$		*!*
d. $a_1pp_2l_3e_4$-$a_1pp_2l_3e_4$	*!*	

(20) Inconsistent prediction for English'

	MAX-BR	MAX-IO
string-schm-RED		
a. stri_1ng_2-schmi_1ng_2	*!**	
b. $sch_1m_2i_3ng_4$-$sch_1m_2i_3ng_4$		***!
☞ c. $s_1t_2r_3i_4ng_5$-$s_1t_2r_3i_4ng_5$		**

Outline

Those patterns are excluded by standard means of parametrizing faithfulness constraints to the domains affix and stem:

Constraint Parametrization

$$\text{Max}_{\text{S}} - \text{Dep}_{\text{S}}$$
$$\text{Max}_{\text{AF}} - \text{Dep}_{\text{AF}}$$
$$\text{Max}_{\text{BR}} - \text{Dep}_{\text{BR}}$$

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Constraint Parametrization

$$\textsc{Max}_{\textsc{S}} - \textsc{Dep}_{\textsc{S}}$$
$$\textsc{Max}_{\textsc{Af}} - \textsc{Dep}_{\textsc{Af}}$$
$$\textsc{Max}_{\textsc{BR}} - \textsc{Dep}_{\textsc{BR}}$$

(21) Possible Rankings for English

		FAITH$_S$	FAITH-A	...
1: apple-schm-RED				
☞	a. $a_1pp_2l_3e_4$-$schma_1pp_2l_3e_4$			
	b. $sch_1m_2a_3pp_4l_5e_6$-$sch_1m_2a_3pp_4l_5e_6$	dd!		
	c. $a_1pp_2l_3e_4$-$a_1pp_2l_3e_4$		mm!	
2: table-schm-RED				
☞	a. $ta_1b_2l_3e_4$-$schma_1b_2l_3e_4$			
	b. $sch_1m_2a_3b_4l_5e_6$-$sch_1m_2a_3b_4l_5e_6$	mdd!		
	c. $t_1a_2b_3l_4e_5$-$t_1a_2b_3l_4e_5$		mm!	
3: plan-schm-RED				
☞	a. pla_1n_2-$schma_1n_2$			
	b. $sch_1m_2a_3n_4$-$sch_1m_2a_3n_4$	mmdd!		
	c. $p_1l_2a_3n_4$-$p_1l_2a_3n_4$		mm!	
4: string-schm-RED				
☞	a. $stri_1ng_2$-$schmi_1ng_2$			
	b. $sch_1m_2i_3ng_4$-$sch_1m_2i_3ng_4$	mmmdd!		
	c. $s_1t_2r_3i_4ng_5$-$s_1t_2r_3i_4ng_5$		mm!	

Predictions

$\{\textsc{Faith}_{\text{S}}, \textsc{Faith}_{\text{AF}}\} \gg \ldots$	the English pattern
$\{\textsc{Faith}_{\text{AF}}, \textsc{Faith}_{\text{BR}}\} \gg \ldots$	Backcopying
$\{\textsc{Faith}_{\text{S}}, \textsc{Faith}_{\text{BR}}\} \gg \ldots$	complete suppression of the FSR affix

Outlook

1. the concept of comparative markedness (McCarthy: 2003) solves the final problem: forcing overwriting in languages where realisation of FSR affix and reduplicants onset does not violate any high ranked markedness constraint
2. 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

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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 without facing any of the problems Nevins (2005) pointed out for the analysis in Alderete et al. (1999) which are either empirically flawed or find a straightforward solution in independently motivated parametrization for faithfulness constraints.