Surface Correspondence in Reduplication

Overview This paper argues that Surface Correspondence, first proposed for long-distance assimilation (Rose and Walker 2004, among others), also plays a role in reduplication. The data and analysis of Huozhou diminutive formation will show that the observed ‘backcopying’ case in this language can be treated as long-distance assimilation driven by Surface Correspondence, while the cyclic analysis fails to predict the observed patterns.

Data Huozhou Chinese is an understudied variety of Mandarin Chinese, and there are three patterns observed in its diminutive formation, i.e. full reduplication, compensatory lengthening, and partial reduplication, shown in (1) (X.Tian 1992, J.Tian 2009). Note that only [j, w, ŋ] are allowed in coda position in this language. When a noun is an open syllable, full reduplication is used, as in (1a); when a noun ends with [j] or [ŋ], the diminutive form variably exhibits as compensatory lengthening or partial reduplication, as in (1b-c). However, when a noun ends with [w], backcopying is observed in partial reduplication, i.e. identity is enforced in the base in relation to the copied string, as in (2) ([po:.po:] not *[pɑw.pɑ:] or *[pɑw.po:]).

In general, this paper assumes that the underlying representation of the diminutive morpheme is a mora (µ), which can give rise to variable surface forms such as reduplication and compensatory lengthening, following the proposals in previous literature (Saba Kirchner 2010; Trommer and Zimmermann 2014, etc.). The analytical details of compensatory lengthening are pursued in other work, and this abstract focuses on the pattern of partial reduplication in (2). The main puzzle in question is what leads to the backcopying character.

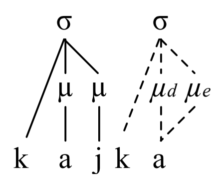
(1)

	noun	***gloss***	***diminutive***
a.	[ŋə:^{35}]	‘moth’	[ŋə:^{35}.ŋə:^{55}]
b.	[kaj^{55}]	‘lid’	[ka:^{55}] ~ [kaj^{55}.ka:^{332}]
c.	[pʰɑŋ^{35}]	‘plate’	[pʰɑ:^{35}] ~ [pʰɑŋ^{35}.pʰa:^{55}]

(2)

	noun	***gloss***	***diminutive***
a.	[pɑw^{21}]	‘bun’	[po:^{21}] ~ [po:^{21}.po:^{332}]
b.	[tʰow^{51}]	‘bean’	[tʰu:^{51}] ~ [tʰu:^{51}.tʰu:^{21}]
c.	[tɕʰjɑw^{51}]	‘strip’	[tɕʰɥo:^{35}] ~ [tɕʰɥo:^{35} tɕʰɥo:^{35}]
d.	[ŋ̥jow^{35}]	‘longhorn beetle’	[ŋ̥y:^{35}] ~ [ŋ̥y:^{35}.ŋ̥y:^{55}]

(3)



/kaj+μ_d/→ [kaj.ka:]

Proposal This paper proposes that Surface Correspondence, which has been supported by various phenomena, is not blind to reduplication (cf. Inkelas and Zoll 2005; Inkelas 2008). From this perspective, GEN is able to supply with Surface Correspondence between segments that share certain features, indicated by subscript letters (e.g. [po:$_x$.po:$_x$]) and the interaction between CORR and IDENT constraints evaluates the corresponding segments and gives rise to long-distance assimilation. Thus, [po:$_x$.po:$_x$] can be viewed as the assimilation between [-cons] segments, and the change of vowel quality results from the pressure of IDENT-SS[-cons] that requires all the corresponding [-cons] segments within a certain domain to be identical.

Formal Analysis Since the the diminutive morpheme is viewed as an affixal mora (μ_d), one way to flesh out the template is reduplication, illustrated in (3). Note that μ_d in (3) denotes the diminutive affix while μ_e is an epenthetic mora, since the reduplicated string still possesses a full tone which demands bimoraicity. The detailed analysis of mora affixation (e.g. the copying of onset) is not the main focus of the current analysis due to space limit.

Given the proposal above, two demonstrative tableaux are shown in (4) and (5), where the subscript letters indicate Surface Correspondence relation and the digits denote input-output correspondence (not tones as in (1) and (2)). In this case, Surface Correspondence is established between [-cons] segments within the *stem* domain (the reduplicant is viewed as an affix, and therefore: $[_{\text{STEM}}$ pɑw + DIMINUTIVE]). Thus, the candidates (4a-c) and (5a-c) satisfy CORR-SS[-cons]$_{\text{STEM}}$ which requires all the [-cons] segments within a stem domain be in correspondence, while (4d) $[\text{pɑ}_x\text{w}_y.\text{pɑ}_x]$ violates CORR-SS[-cons]$_{\text{STEM}}$ twice $(\text{ɑ}_x\sim\text{w}_y, \text{w}_y\sim\text{ɑ}_x)$.

The crucial mechanism that drives backcopying and the change of vowel quality *only in reduplication* is the ranking IDENT-SS[high]$_{\text{STEM}}^2$ >> IDENT-IO[high], IDENT-IO[low] >> IDENT-SS[high], where IDENT-SS[high]$_{\text{STEM}}^2$ is a locally self-conjoined constraint in the stem domain (Itô and Mester 2003; Smolensky 2006). In a stem domain, the multiple violations of IDENT-SS[high] result in a cumulative markedness effect (IDENT-SS is a markedness constraint, see Bennett 2013), and IDENT-SS[high] will be satisfied at the expense of IDENT-IO[high]/[low] ([o] is specified as [-high, -low]). The simplified tableaux only demonstrate the core proposals, while some other analytical details, such as the one-step vowel raising and the analyses for (2c-d) where there are three [-cons] segments, are omitted below. Again, the full analysis is able to generate either compensatory lengthening ([pɑw]→[po:]) or reduplication ([pɑw]→[po:.po:]), depending on the position of INTEGRITY and other mechanisms. Only the reduplicated candidates are shown here.

In (4), (4a) incurs three violations of ID-IO[high]/[low] (two for ID-IO[low]; one for ID-IO[high]). For (4b) and (4c), both of them incur multiple violations of IDENT-SS[hi] $(\text{ɑ}_x\sim\text{w}_x\sim\text{ɑ}_x;\ \text{o}_x\sim\text{w}_x\sim\text{o}_x)$, which triggers the violation of the higher-ranked ID-SS[hi]^2. Thus, the proposed grammar requires all the corresponding segments be identical in height, resulting in segment merge (referring to the superscript digits; violating UNIFORMITY), but this effect only presents in reduplication, not in a bare noun root such as (5). The input in (5) remains faithful on the surface since it only violates ID-SS[hi] once and does not trigger the cumulative markedness effect. Note that j-ending nouns such as [kaj] and [paj] do not exhibit such a pattern since the potential output forms (e.g. *[ke:.ke:]; *[pe:.pe:]) do not follow the general phonotactic rules of this language.

			CORR	ID-SS[hi]^2	ID-IO[hi/lo]	ID-SS[hi]	UNIF	INTEG
(4)		$\text{p}^1\text{ɑ}^2\text{w}^3+\mu_x$						
	☞	*a.* $\text{p}^1\text{o:}_x{}^{2,3}.\text{p}^1\text{o:}_x{}^2$			***		*	**
		b. $\text{p}^1\text{ɑ}_x{}^2\text{w}_x{}^3.\text{p}^1\text{ɑ:}_x{}^2$		*!		**		**
		c. $\text{p}^1\text{o}_x{}^2\text{w}_x{}^3.\text{p}^1\text{o:}_x{}^2$		*!	**	**		**
		d. $\text{p}^1\text{ɑ}_x{}^2\text{w}_y{}^3.\text{p}^1\text{ɑ:}_x{}^2$	*!*					**
(5)		$\text{p}^1\text{ɑ}^2\text{w}^3$	CORR	ID-SS[hi]^2	ID-IO[hi/lo]	ID-SS[hi]	UNIF	INTEG
	☞	*a.* $\text{p}^1\text{ɑ}_x{}^2\text{w}_x{}^3$				*		
		b. $\text{p}^1\text{o}_x{}^2\text{w}_x{}^3$			*!	*		
		c. $\text{p}^1\text{o:}^{2,3}$			*!*		*	

Alternative Analysis If [po:.po:] results from the cyclic application of compensatory lengthening and reduplication, i.e. [pɑw]→[po:]→[po:.po:], there will be *[ka:.ka:] and *[pʰa:.pʰa:] generated for (1b) [kaj] and (1c) [pʰaj], and extra stipulative mechanism may be needed to analyze this pattern.

Summary In sum, Surface Correspondence is responsible for the backcopying pattern observed in (2). Since Surface Correspondence has been supported by various phenomena such as harmony and dissimilation, it is an inevitable part of grammar, and the incorporation of Surface Correspondence into the analysis of reduplication is not stipulative.