

Revisiting the Lookahead Effect in Mbe Reduplication

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1 Introduction

Due to its inherent nature of gradualness, Serial Template Satisfaction (STS, McCarthy et al. 2012) does not predict the existence of derivational lookahead, which is admitted by Base-Reduplicant (BR) Correspondence Theory (McCarthy & Prince 1995). In this regard, Wei & Walker (2020) show that STS cannot tackle the lookahead pattern in Mbe reduplication, where the amount of material copied is predetermined by a subsequent phonological change. This paper, however, offers an STS solution to resolve the derivational lookahead problem in Mbe.

2 The lookahead effect in Mbe reduplication

Unlike Parallel-OT (P-OT, Prince & Smolensky 1993/2004), which evaluates the effects of phonological operations in one fell swoop, STS, couched within Harmonic Serialism (HS, McCarthy 2000, 2010), with its built-in property of *gradualness*, ensures that only one operation can apply at each step of the derivation. Therefore, in STS the amount of material copied should not refer to its subsequent phonological operations. In other words, STS does not predict lookahead effects. However, Wei & Walker (2020) show that the reduplicative imperative affixation in Mbe (1), spoken by the Mbube people of the Ogoja, Cross River State region of Nigeria, identifies a lookahead effect that is unresolvable in STS.

(1) Mbe reduplicative imperative affixation (Wei & Walker 2020)

a.	rû	rû -rû	'pull'
b.	jú.bò	jû -jú.bò	'go out'
c.	só.rò	sə -só.rò	'descend'
d.	tá.rò	tə -tá.rò	'throw'
e.	tâŋ	tən -tâŋ	'teach'
f.	gbé.nò	gbəŋm -gbé.nò	'collide'
g.	púò.ní	pûm -púò.ní	'mix'
h.	dzûòŋ	dzûn -dzûòŋ	'be higher'
i.	lúò.ní	lûn -lúò.ní	'repair'
j.	jíò.ní	jîp -jíò.ní	'forget'

As shown in (1), the reduplicant shape is CV when the stem has only oral consonants. However, (1) shows that the stem's second syllable's postvocalic nasal is copied into the reduplicant's coda position that is homorganic to the following onset. Note also that there are two vocalic simplifications. One is that the reduplicant's vowel is a schwa when the correspondent in the stem is nonhigh (1); the other is that when the stem contains a diphthong, only the first vowel is reduplicated (1). Of particular interest here is that examples in (1) appear to require, *in one single step*, copying and assimilation of the postvocalic nasal from the stem, while only the first vowel of the diphthong in the stem is copied; that is, (1) presents a lookahead effect. Whereas a P-OT analysis, given its nature of global evaluation, faces no problem in capturing the pattern (Walker 2000), Wei & Walker (2020) point out that due to STS's inherent property of *gradualness*, the lookahead effect is underivable *without stipulated affix allomorphy and weight conditions*.¹ They

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¹ See Wei & Walker (2020) for an analytical illustration and their detailed arguments against analyses that assume allomorphic templates and weight conditions.

demonstrate further that an alternative that assumes $AFFIX \leq \sigma$ (2), adapted from McCarthy & Prince (1994), and FT-BIN(σ), and a syllable-level version of FT-BIN (McCarthy & Prince 1986/1996), unavoidably leads to inconsistent readings of and a ranking paradox between the two constraints.

- (2) $AFFIX \leq \sigma$
Assign one violation mark to any affix whose phonological exponent is larger than a syllable.

3 Resolving the lookahead problem in STS

Lin (2016) demonstrates that, without stipulative weight conditions and allomorphic templates, a foot template can result in variable reduplication or invariable heavy syllable reduplication, depending on language-specific constraint rankings and under the traditional reading of FT-BIN (to be respected at either the syllabic or the moraic level). I propose that the same analysis can apply to Mbe reduplication. Specifically, the seeming lookahead effect can be resolved if FT-BIN is obeyed at the moraic level, rather than at the syllabic level. That is, the derivation starts with a foot template where $HD(\hat{f})$ is satisfied, in three steps of the derivation, by a syllable insertion and FT-BIN by two consecutive instances of mora insertion that also meet $HD(\sigma)$.² As tableaux (3)-(4) show, in later steps of the derivation, $*CORAL]_{\sigma}$, which as in Walker (2000) restricts oral consonants in coda position, dominates $HD(\mu)$, ensuring that the reduplicant is CV when the stem has only oral consonants (3). Moreover, $HD(\mu)$ is also sacrificed in favor of $NO LONG-V$ to rule out the reduplicant with a long vowel (i.e., a vowel bearing two moras). The derivations ultimately converge at step 6.

- (3) Step 4 and 5

$(\sigma_{\mu\mu})/\hat{f}$ -STEM	$*CORAL]_{\sigma}$	ONSET	NO-DIPH	NO LONG-V	$HD(\mu)$	COPY-LOC(seg)	$*COPY(seg)$	$*C-P/L/X$
a. $(\sigma_{\mu\mu})/\hat{f}$ -rû								
Step 4: $\text{EAF } r\hat{u}^{\mu}\text{-rû}$					1		1	
$(\sigma_{\mu\mu})/\hat{f}$ -rû					2W		L	
$r\hat{u}^{\mu\mu}\text{-rû}$				1W	L		1	
Step 5: $\text{EAF } r\hat{u}^{\mu}\text{-rû}$					1			
$r\hat{u}^{\mu}r^{\mu}\text{-rû}$	1W				L	1W	1W	
b. $(\sigma_{\mu\mu})/\hat{f}$ -jú.bô								
Step 4: $\text{EAF } j\hat{u}^{\mu}\text{-jú.bô}$					1		1	
$j\hat{u}^{\mu}b^{\mu}\text{-jú.bô}$	1W				L		1	1W
$j\hat{u}^{\mu\mu}\text{-jú.bô}$				1W	L		1	
$(\sigma_{\mu\mu})/\hat{f}$ -jú.bô					2W		L	
Step 5: $\text{EAF } j\hat{u}^{\mu}\text{-jú.bô}$					1			
$j\hat{u}^{\mu}j^{\mu}\text{-jú.bô}$	1W				L		1W	

Most crucial are the derivations in (4) because not only do they show how the stem's second syllable's postvocalic nasal is copied into the reduplicant's coda position that is homorganic to the following onset, but

² See Lin (2016) for demonstration.

they illustrate how copying and assimilation of the postvocalic nasal can be teased apart, hence resolving the lookahead problem for STS.³ As (4a) shows, in step 4 NO-DIPH outranks HD(μ), hence the vocalic simplification: when the stem contains a diphthong, only the first vowel is reduplicated. However, in step 5, HD(μ) dominates COPY-LOC(seg), forcing the application of COPY(seg) to skip the intervening vowels and copy the nasal from the stem into the coda position. In contrast, COPY-LOC(seg) is not violated in step 4 in (4b) for the nasal to be copied, since there is no intervening vowel in the stem. In step 6 in (4a) and step 5 in (4b), delinking of the nasal's place feature is triggered because *C-PL/X, forbidding consonant clusters with separate place features, outranks HAVE/PL (Padgett 1995), which penalizes segments without any place feature. Subsequently in step 7 in (4a) and step 6 in (4b), the placeless nasal assimilates to the following onset because of HAVE/PL dominating DEP-LINK (Breteler 2018), which disfavors insertion of a new association link. The derivations eventually converge at step 8 for (4a) and step 7 for (4b).

(4) Step 4, 5, 6 and 7

$(\sigma_{\mu\mu})/r$ -STEM	*CORAL _l ^e	ONSET	NO-DIPH	NO LONG-V	HD(μ)	COPY-LOC(seg)	*COPY(seg)	*C-PL/X	HAVE/PL	DEP-LINK
a. $(\sigma_{\mu\mu})/r$ -púɔ.nî										
Step 4:					1		1			
$\text{p}^{\mu}\text{ú}^{\mu}$ -púɔ.nî							1			
$\text{p}^{\mu}\text{ú}^{\mu}\text{ɔ}^{\mu}$ -púɔ.nî			1W		L		1			
$\text{ɔ}^{\mu}\text{n}^{\mu}$ -púɔ.nî		1W			L	2W	1	1W		
$\text{p}^{\mu}\text{ú}^{\mu}$ -púɔ.nî				1W	L		1			
$(\sigma_{\mu\mu})/r$ -púɔ.nî					2W		L			
Step 5:					1W					
$\text{p}^{\mu}\text{ú}^{\mu}$ -púɔ.nî										
$\text{p}^{\mu}\text{ú}^{\mu}\text{n}^{\mu}$ -púɔ.nî						3	1	1		
$\text{p}^{\mu}\text{ú}^{\mu}\text{p}^{\mu}$ -púɔ.nî	1W					L	1	L		
Step 6:								1W	L	
$\text{p}^{\mu}\text{ú}^{\mu}\text{n}^{\mu}$ -púɔ.nî									1	
Step 7:									1W	L
$\text{p}^{\mu}\text{ú}^{\mu}\text{N}^{\mu}$ -púɔ.nî										1
b. $(\sigma_{\mu\mu})/r$ -gbé.nò										
Step 4:							1	1		
$\text{gb}\text{ə}^{\mu}\text{n}^{\mu}$ -gbé.nò										
$\text{gb}\text{ə}^{\mu}$ -gbé.nò					1W		1	L		
$(\sigma_{\mu\mu})/r$ -gbé.nò					2W		L	L		
Step 5:								1W	L	
$\text{gb}\text{ə}^{\mu}\text{n}^{\mu}$ -gbé.nò										
$\text{gb}\text{ə}^{\mu}\text{N}^{\mu}$ -gbé.nò									1	
Step 6:									1W	L
$\text{gb}\text{ə}^{\mu}\text{N}^{\mu}$ -gbé.nò										
$\text{gb}\text{ə}^{\mu}\text{ŋm}^{\mu}$ -gbé.nò										1

³ When the stem vowel is nonhigh, the vowel in the reduplicant will be subsequently reduced to a schwa. Due to limited space, I am not showing such reduction here, as it is not crucial to the current analysis.

In short, the current analysis assumes neither weight condition nor allomorphic templates. The template is a foot, and the reduplicative pattern follows from constraint interactions in the language. To put it differently, the lookahead effect is only epiphenomenal at best, and derivable in STS.

4 Conclusion

In STS a foot template can respect FT-BIN under syllabic or moraic analysis. Under such traditional interpretation of FT-BIN, the lookahead effect in Mbe reduplication is epiphenomenal and can be resolved if FT-BIN is obeyed at the moraic level. Given the current STS analysis, the prima facie lookahead effect in Mbe reduplication might no longer be probative in the assessment of the P-OT and STS.

References

- Breteler, Jereon. 2018. A foot-based typology of tonal reassociation: Perspectives from synchrony and learnability, PhD thesis, Universiteit van Amsterdam.
- Lin, Kuo-Chiao. 2016. The gradual path to variable reduplication: Kavalan. In Henrison Hsieh (ed.), *Proceedings of AFLA 22*: 82-97. Canberra: Asian Pacific Linguistics.
- McCarthy, John. 2000. Harmonic serialism and parallelism. In Masako Hirotoni, Andries Coetzee, Nancy Hall, and Ji-yung Kim (eds.), *Proceedings of the North East Linguistics Society 30*: 501–524.
- McCarthy, John. 2010. An introduction to Harmonic Serialism. *Language and Linguistics Compass* 4.10: 1001–1018.
- McCarthy, John, Wendell Kimper and Kevin Mullin. 2012. Reduplication in Harmonic Serialism. *Morphology* 22: 173–232.
- McCarthy, John and Alan Prince. 1986/1996. *Prosodic Morphology 1986*. New Brunswick: Rutgers University Center for Cognitive Science.
- McCarthy, John and Alan Prince. 1994. Two lectures on prosodic morphology. Handouts of two lectures at OTS/HIL Workshop on Prosodic Morphology, Utrecht University. Available as ROA-59 from the Rutgers Optimality Archive.
- McCarthy, John and Alan Prince. 1995. Faithfulness and reduplicative identity. In J. Beckman, L. Walsh Dickey, and S. Urbanczyk (eds.), *University of Massachusetts Occasional Papers in Linguistics: Vol. 18. Papers in Optimality Theory*, 249–384. Amherst: GLSA Publications.
- Padgett, Jaye. 1995. Partial class behavior and nasal place assimilation. In *Proceedings of the Arizona Phonology Conference: Workshop on Features in Optimality Theory*, 145–183.
- Prince, Alan and Paul Smolensky. 1993/2004. *Optimality Theory: Constraint interaction in Generative Grammar*. Ms., Rutgers University.
- Walker, Rachel. 2000. Nasal reduplication in Mbe affixation. *Phonology* 17: 65–115.
- Wei, Wei, and Rachel Walker. 2020. A Lookahead effect in Mbe reduplication: implications for Harmonic Serialism. *Linguistic Inquiry* 51. 4: 845–859.