

## Length effects in Bari tonal overwriting as Shared Activity

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**OVERVIEW:** A number of languages seem to impose restrictions on combination of tone and amount of syllables in derived environment (cf. Suma (Bradshaw 1999), Tiv (Goldsmith 1976), *inter alia*). Their application of tonal processes or tonal affixation is dependent on the word length, differentiating between mono- and disyllabic words on the one hand and longer polysyllables on the other. Analyses of such data typically resort to postulating idiosyncratic rules or constraints to account for the behavior of shorter words. In this talk, I show that apparent length effects can instead emerge from the distribution of phonological activity, offering a further application for the Shared Activity account (Tebay 2024, 2025). The case study comes from Bari (Eastern Nilotic, Yokwe 1987), where the outcome of L-tone epenthesis is sensitive to word length. I demonstrate that this pattern can be captured in Harmonic Grammar (Legendre et al. 1990) with Gradience (Goldrick & Smolensky 2016; Rosen 2016). I build on Zimmermann's (2021) proposal that copying leads to redistribution of underlying activity and in particular on Tebay's (2025) claim that tone spreading results in activity reduction of TBUs to which the tone is linked. The difference in length is thus captured with the resulting disparity in activation on the TBUs. Following Tebay's (2024) analysis of Gua harmony, I assume that faithfulness can be sensitive to shared activity. This provides a unified account of words of different length, without requiring explicit counting.

**DATA:** In Bari, L-epenthesis serves as an OCP repair strategy between two Hs across words. The inserted L docks to the right, replacing a singly-linked H, and spreading rightward when possible. Though, the last association line of the underlying H is normally preserved, ensuring that the H surfaces. This pattern is illustrated by associative constructions where a head noun is followed by an associative marker (AM) and a dependent noun. The AM agrees with the head noun. When a H-toned AM is followed by a H-initial noun, L-insertion applies as a repair.

- (1) a.  $H = + H.L.H \rightarrow H = L.L.H$ : *mónyè ló títòtót* 'the owner of the property' (cf. *títòtót*)  
b.  $H = + H.H.H \rightarrow H = L.L.H$ : *mónyè ló pílílí* 'the owner of the knife' (cf. *pílílí*)  
c.  $H = + H.H.L \rightarrow H = L.H.L$ : *swá tí líkító* 'the ears of the rabbit' (cf. *líkító*)

Given the generalization above, in disyllabic words we would expect \*L.H and \*L.HL as surface realizations of underlying H.H and H.HL, respectively. However, what is actually attested is complete overwriting: the H on both syllables is replaced by the inserted L-tone. Thus, we observe a contrast between longer and shorter words, where shorter ones behave exceptionally.

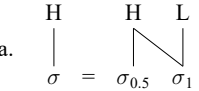
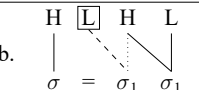
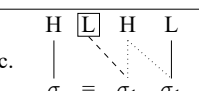
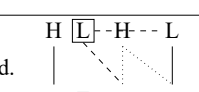
- (2) a.  $H = + H.H \rightarrow H = L.L$  (\*H=L.H): *díèt ná kèrè* 'the plug of the gourd' (cf. *kéré*)  
b.  $H = + H.HL \rightarrow H = L.L$  (\*H=L.HL): *kápútà ló yàwà* 'the foam of the beer' (cf. *yàwà*)

**ANALYSIS:** Following Tebay (2025), I assume that the activity of TBUs is dependent on the activity of the tones to which they are associated. By default, a tone has an activity value of 1, which is distributed equally across the TBUs it links to. I further assume an upper bound on activity: the activity of a TBU associated with multiple tones cannot exceed 1. Another assumption required for the analysis is that adjacent L tones fuse (treated as a remedy of the OCP).

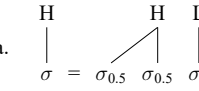
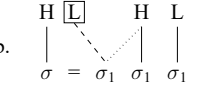
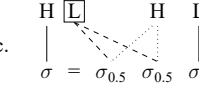
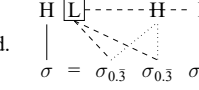
The crucial gradient constraint is  $\text{IDENT}(H)_g$ , which assigns  $1 - x$  violation for a TBU with output activity  $x$  that is linked to an H in the input and not to an H in the output. Other relevant constraints are categorical. L is epenthesized to resolve OCP(H). The constraint triggering the epenthetic L-spreading is ALIGN-R, which assigns a violation for every TBU intervening between the last association line of the epenthetic L and the right edge of the word. Epenthetic Ls

dock due to high-weighted  $\tau$  ( $\infty$ ). MINBIN demands for an epenthetic L to be at least doubly linked.

(3)  $H= + H.HL \rightarrow H=L.L$

Input: = a. $\mathcal{W} =$	OCP(L)	OCP(H)	Id(H) <sub>g</sub>	MINBIN	ALIGN-R	$\mathcal{H}$
a. 		-1				-100
b. 				-1	-1	-26
c. 	-1			-1	-1	-126
d. 			-1			-25

(4)  $H= + H.H.L \rightarrow H=L.H.L$

Input: = a. $\mathcal{W} =$	OCP(L)	OCP(H)	Id(H) <sub>g</sub>	MINBIN	ALIGN-R	$\mathcal{H}$
a. 		-1				-100
b. 				-1	-2	-32
c. 	-1		-1		-1	-131
d. 			-1.3			-33.3

The tableaux in (3) and (4) illustrate the crucial contrast between disyllabic and trisyllabic words. In the disyllabic case (3), the fully overwriting candidate (3d.) is selected as optimal because the combined violations of MINBIN and ALIGN-R incurred by (b.) and (c.) outweigh the  $-1$  ( $-0.5-0.5$ ) penalty assigned by IDENT(H)<sub>g</sub>. The winning candidate additionally involves fusion of adjacent L tones, since otherwise two non-fused Ls would incur a fatal violation of OCP(L) (3c.).

In contrast, the trisyllabic case (4) shows that full overwriting is no longer optimal. Here, the corresponding candidate (4d.) incurs a larger IDENT(H)<sub>g</sub> violation of  $-1.3$  ( $-0.6-0.6$ ), reflecting the more extensive redistribution of activity across a larger domain. This penalty outweighs the combined MINBIN and ALIGN-R violations incurred by the non-spreading candidate (4b.), which therefore surfaces as optimal. A spreading candidate with no fusion (4c.) is excluded, as it would violate OCP(L).

**DISCUSSION:** As shown, apparent length effects in Bari can emerge from the distribution of phonological activity. Crucially, any Standard OT

analysis of the pattern would run into a ranking paradox.

This analysis contributes to a body of work that treats phonological patterns as emergent from gradient representations. It demonstrates how apparent counting effects can arise without explicit counting mechanisms, which is in accordance with the claims that phonology cannot count (McCarthy & Prince 1986, see also Paster 2019). Distinct behavior of di- and longer polysyllabic words in Bari follows from a single grammar. If the proposed analysis is correct, other instances of length sensitivity can as well be derived as following from gradient markedness and faithfulness constraints sensitive to Shared Activity.

**SELECTED REFERENCES:** \* Goldrick, M. & Smolensky, P. 2016. Gradient symbolic representations in grammar: The case of French liaison. *Rutgers Optimality Archive 1552*, 1–37. \* Tebay, S. E. 2025. Phrase-level Opacity as Shared Activity in Kere, ms. \* Tebay, S. E. 2024. Opaque Interactions as Gradience in Phonology, invited talk at Phonologie-Kolloquium, Frankfurt. \* Yokwe, E. M. 1987. *The Tonal Grammar of Bari*. University of Illinois at Urbana-Champaign. \* Zimmermann, Eva. 2021. Faded copies: Reduplication as distribution of activity. *Glossa: a journal of general linguistics* 6(1).