

Logoori Hiatus Resolution: A New Analysis¹

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I. Background and Leung's Rules Analysis

- Logoori (Bantu, Kenya, JE 41) has 7 vowels: /i e ε a o u/
 - /i e o u/ are [+high]
- It uses various repairs to resolve hiatus:
 - Gliding: /mu-ana/ 'CL1-child' → [mwaana] *child*
 - Vowel Deletion: /ma-ino/ 'CL6-tooth' → [miino] *teeth*
 (Both types of repairs trigger compensatory lengthening, but gliding-induced compensatory lengthening is blocked word-finally)
- Leung's (1991) rules-based analysis of hiatus resolution includes, in this order:

/i/-Deletion: $i \rightarrow \emptyset / V _$

Non-High Vowel Deletion: $\left[\begin{array}{l} +\text{syll} \\ -\text{high} \end{array} \right] \rightarrow \emptyset / _ V$

Glide Formation: $\left[\begin{array}{l} +\text{syll} \\ +\text{high} \end{array} \right] \rightarrow [-\text{syll}] / _ V$

II. Two Rule Ordering Paradoxes

#1: /i/-Deletion and Non-High Vowel Deletion

	/ko- tε -i/ '1PL-bury-HOD.PFV'	/ma- ino / 'CL6-tooth'
/i/-Deletion	ko- tε	ma- no
Non-High Vowel Deletion	—	—
	[kot εε] <i>we buried</i>	*[ma no] <i>teeth</i>

	/ko- tε -i/ '1PL-bury-HOD.PFV'	/ma- ino / 'CL6-tooth'
Non-High Vowel Deletion	ko- t-i	m- ino
/i/-Deletion	—	—
	*[kot ii] <i>we buried</i>	[m iino] <i>teeth</i>

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#2: /i/-Deletion and Glide Formation

	/ko- re -i/ ‘1PL-eat-HOD.PFV’	/ko- it ² -a/ ‘CL15-kill-FV’
/i/-Deletion	ko- re	ko- t -a
Glide Formation	—	—
	[k oree] <i>we ate</i>	*[k oota] <i>to kill</i>

	/ko- re -i/ ‘1PL-eat-HOD.PFV’	/ko- it ² -a/ ‘CL15-kill-FV’
Glide Formation	ko- rj -i	kw- it -a
/i/-Deletion	—	—
	*[k orji] <i>we ate</i>	[kw iita] <i>to kill</i>

II bis. A Modified Rules Analysis

- One way to resolve Paradox #1 is to split Non-High Vowel Deletion into two rules:

/a/-Deletion: $a \rightarrow \emptyset / _ V$

Mid Vowel Deletion: $\left[\begin{array}{l} +\text{syll} \\ -\text{high} \\ -\text{low} \end{array} \right] \rightarrow \emptyset / _ V$

and order the rules as follows: /a/-Deletion > /i/-Deletion > Mid Vowel Deletion

	/ko- tɛ -i/ ‘1PL-bury-HOD.PFV’	/ma- ino / ‘CL6-tooth’	/ko- tɛ -a/ ‘CL15-bury-FV’
/a/-Deletion	—	m- ino	—
/i/-Deletion	ko- tɛ	—	—
Mid Vowel Deletion	—	—	ko- t -a
	[kot ɛɛ] <i>we buried</i>	[m iino] <i>teeth</i>	[kot aa] <i>to bury</i>

- This solution misses the generalization that it’s always the root vowel rather than the affix vowel that’s preserved ([kotaa] is a special case)
- It does not capture the insight that the rules are conspiring to eliminate a single marked structure, namely, hiatus
- It also doesn’t resolve Paradox #2

² The underlying form of ‘kill’ is actually /jit/; I abstract away from this here and in the tableaux below. I assume an earlier rule or high-ranking constraints take care of deleting the initial consonant of this verb root.

III. An OT Solution with Root Faithfulness

*HIATUS: Don't have a [-cons] [-cons] sequence.



MAX(V): Don't delete a V from the CV tier.

MAX([-cons]): Don't delete a [-cons].

MAX([-cons])-ROOT: Don't delete a root [-cons].

ID(SYLL): Don't change a segment's [\pm syll] value.

ID(SYLL)-ROOT: Don't change a root segment's [\pm syll] value.

/ko- tɛ -i/	*HIATUS	MAX(V)	MAX([-cons])-ROOT	MAX([-cons])
a. ☞ kot ɛɛ				*
b. kot ii			*!	*
c. kot ɛ		*!		*
d. kot i		*!	*	*
e. kot ɛi	*!			

/ma- ino /	*HIATUS	MAX(V)	MAX([-cons])-ROOT	MAX([-cons])
a. ☞ mi ino				*
b. ma ano			*!	*
c. m ino		*!		*
d. ma no		*!	*	*
e. ma ino	*!			

- What about /ko-**tɛ**-a/ \rightarrow [kot**aa**] *to bury*, where the affix vowel is preserved?
 - Perhaps the infinitive is [kot**aa**] to prevent homophony with [kot**ɛɛ**]
 - [kot**aa**] can be derived with morpheme-specific MAX(INF[a]) ranked above MAX([-cons])-ROOT

/ko-re-i/	*HIATUS	MAX (V)	ID(SYLL)-ROOT	MAX([-cons])-ROOT	MAX ([-cons])	ID (SYLL)
a. <i>koree</i>					*	
b. <i>korii</i>				*!	*	
c. <i>korji</i>			*!			*
d. <i>kore</i>		*!			*	
e. <i>kori</i>		*!		*	*	
f. <i>korei</i>	*!					

/ko-it-a/	*HIATUS	MAX (V)	ID(SYLL)-ROOT	MAX([-cons])-ROOT	MAX ([-cons])	ID (SYLL)
a. <i>kwiita</i>						*
b. <i>kiita</i>					*!	
c. <i>koota</i>				*!	*	
d. <i>kita</i>		*!			*	
e. <i>kota</i>		*!		*	*	
f. <i>koita</i>	*!					

IV. Further Correct Predictions

- The three grammars presented here (Leung's rules analysis, the modified rules analysis, and the OT analysis) sometimes make different predictions for forms unaffected by the ordering paradoxes
- Preliminary data suggests the OT analysis makes correct predictions where the rules analyses do not:

	/N-hɛ-er-aa / '1SG-give-APPL-PRES'	/o-vɛ-aa / '2SG-be-PRES'
Leung's Rules	✗ [mbeeraa]	✗ [ovaa]
Modified Rules	✗ [mbeeraa]	✗ [ovaa]
OT Analysis	✓ [mbɛɛraa]	✓ [ovɛɛ]
Attested	[mbɛɛraa] <i>I'm giving for</i>	[ovɛɛ] <i>you are</i>

References

Leung, E. Y.-W. (1991). The Tonal Phonology of Llogoori: A Study of Llogoori Verbs. *Working Papers of the Cornell Phonetics Laboratory*, 6.