Logoori Hiatus Resolution: A New Analysis

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I. Background and Leung's Rules Analysis

- Logoori (Bantu, Kenya, JE41) has 7 vowels: /i e ɛ a ɔ o u/
- 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 repair trigger compensatory lengthening, but gliding-induced compensatory lengthening is blocked word-finally)

+hi	-lo	i u
		e o
		ɛ ɔ
-hi	+lo	a

- Leung's (1991) rules-based analysis of hiatus resolution includes, in this order:

/i/-Deletion: i → ∅ / V__

Non-High Vowel Deletion: $\begin{bmatrix} +\text{syll} \\ -\text{high} \end{bmatrix}$ → ∅ / __V

Glide Formation: $\begin{bmatrix} +\text{syll} \\ +\text{high} \end{bmatrix}$ → [-syll] / __V

II. Two Rule Ordering Paradoxes

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

	/ko-**tɛ**-i/ '1PL-bury-HOD.PFV'	/ma-**ino**/ 'CL6-tooth'
/i/-Deletion	ko-**tɛ**	ma-**no**
Non-High Vowel Deletion	—	—
	[ko**tɛɛ**] *we buried*	*[maa**no**] *teeth*

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

#2: /i/-Deletion and Glide Formation

	/ko-**re**-i/ '1PL-eat-HOD.PFV'	/ko-**it**-a/ 'CL15-kill-FV'
/i/-Deletion	ko-**re**	ko-**t**-a
Glide Formation	—	—
	[ko**ree**] *we ate*	*[koo**t**a] *to kill*

	/ko-**re**-i/ '1PL-eat-HOD.PFV'	/ko-**it**-a/ 'CL15-kill-FV'
Glide Formation	ko-**rj**-i	kw-**it**-a
/i/-Deletion	—	—
	*[ko**rj**i] *we ate*	[kw**iit**a] *to kill*

III. An OT Solution with Root Faithfulness

- Leung's rules analysis does not work, and it fails to capture two key generalizations:
  - The various rules are conspiring to eliminate a single marked structure, namely, hiatus
  - It is always the root vowel, rather than the affix vowel, that is preserved

CONSTRAINTS

*HIATUS: Do not have a [-cons] [-cons] sequence.
| |
V V

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 [±syll] value.

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

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

/ko-**re**-i/	*HIATUS	MAX(V)	ID(SYLL)-ROOT	MAX([-cons])-ROOT	MAX([-cons])	ID(SYLL)
a. ☞ko**ree**					*	
b. ko**r**ii				*!	*	
c. ko**rj**i			*!			*
d. ko**re**		*!			*	
e. ko**r**i		*!		*	*	
f. ko**re**i	*!					

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

/ko-**it**-a/	*HIATUS	MAX(V)	ID(SYLL)-ROOT	MAX([-cons])-ROOT	MAX([-cons])	ID(SYLL)
a. ☞kw**iit**a						*
b. k**iit**a					*!	
c. koo**t**a				*!	*	
d. k**it**a		*!			*	
e. ko**t**a		*!		*	*	
f. ko**it**a	*!					

IV. Further Correct Predictions and Conclusions

- Leung's rules analysis and the OT analysis also sometimes make different predictions for forms unaffected by the ordering paradoxes
- Preliminary data suggests the OT analysis makes correct predictions where Leung's rules analysis does not

	/N-**hɛ**-er-aa / '1SG-give-APPL-PRES'	/o-**vɛ**-aa / '2SG-be-PRES'
Leung's Rules	✗ [m**b**eeraa]	✗ [o**v**aa]
OT Analysis	✓ [m**bɛɛ**raa]	✓ [o**vɛɛ**]
Attested	[mbɛɛraa] *I'm giving for*	[ovɛɛ] *you are*

- Logoori hiatus resolution is another case that demonstrates the advantages of OT over rules-based analysis
  - In particular, OT allows markedness and faithfulness generalizations to be stated directly
- Root faithfulness can guide multiple repairs in a language
  - In Logoori, it governs both vowel deletion and gliding

References

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

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