

Vowel Coalescence in Tigrinya

According to Buckley (1994)

The Tigrinya Vowel Inventory

i

ɨ

u


e

ɤ

o

a

Vowel Features – Underspecification

A dark blue, curved, triangular shape that starts from the bottom left and extends diagonally upwards towards the right, filling the bottom half of the slide.

Fully Specified Features

(2) *Fully specified features*

	<u>i</u>	e	<u>ɨ</u>	<u>ʌ</u>	a	o	<u>u</u>
high	+	-	+	-	-	-	+
low	-	-	-	-	+	-	-
back	-	-	+	+	+	+	+
round	-	-	-	-	-	+	+

This chart uses the features [high], [low], [back], and [round] to distinguish the 7 vowels in Tigrinya. Notice the amount of redundancy.

Contrastive Specification

Step 1: find minimally contrasting vowel pairs

high: i, e; u, o; ɪ, ʌ

low: a, ʌ

back: i, ɪ; e, ʌ

round: u, ɪ; o, ʌ

Step 2: make a feature chart that excludes redundant features

(4) *Features under Contrastive Specification*

	<u>i</u>	<u>e</u>	<u>ɪ</u>	<u>ʌ</u>	<u>a</u>	<u>o</u>	<u>u</u>
high	+	-	+	-		-	+
low				-	+		
back	-	-	+	+			
round			-	-		+	+

Combinatorial Specification

(5) *Features under Combinatorial Specification*

	i	e	ɪ	ʌ	a	o	u
high							
low		-		-	+	-	
back	-	-					
round						+	+

In this table, features are assigned only if they differ from the fully underspecified vowel (/i/). The features for /i/ are [+high], [-low], [+back], and [-round], so the only features associated with the other vowels are Not Those.

Redundancy Rules

(6) *Redundancy rules*

\emptyset	\rightarrow	[+high]
\emptyset	\rightarrow	[-low]
\emptyset	\rightarrow	[+back]
\emptyset	\rightarrow	[-round]

One of the core ideas of Combinatorial Specification is that there are no underlying phonemes, and instead, underlying features are combined and applied based on the above rules.

Feature Co-occurrence Constraints

YOU CANT SIT WITH US



In Tigrinya, the underlying features are [-high], [+low], [-back], and [+round] (opposite of /i/). If these features were allowed to combine at will, they would overgenerate and create vowels that are not allowed in Tigrinya. To combat this, there are certain restraints in place that disallow for the illegal sounds.

(7) *Feature cooccurrence constraints*

*[+low, -back]	rules out	[æ]
*[+low, +round]		[ɒ]
*[+round, -back]		[ü, ö]

Epenthesis

A dark blue, solid-colored shape that starts from the bottom-left corner and extends diagonally upwards towards the right, ending near the top-right corner. It has a smooth, linear gradient and serves as a decorative background element.

Syllable Structure

Tigrinya allows for CV and CVC syllables.

That's it.

Moraic Theory

Mora = C or V

μ

More Syllable Structure

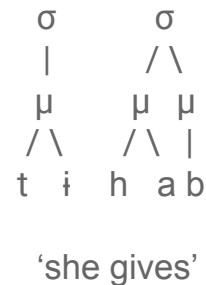
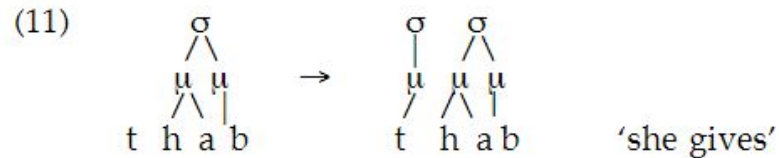
Allowed Syllables: CV, CVC

Additional Rules:

- Vowels with the feature [-high] can only appear in the nucleus
- True consonants can only appear in either the onset or coda
- Non-consonantal segments without a [high] specification can either appear in the nucleus, where they surface as a high vowel, or in either the onset or coda, where they surface as a glide

When to Epenthesize

“Whenever a consonant cannot be syllabified a mora is inserted, and the consonant becomes the onset to the new syllable.”



Vowel Fronting

$V \rightarrow [-\text{back}] / __]_w$

- (12)
- | | | | | |
|----|--------------------------------|---------------|------------------------------|------------------------|
| a. | $k_{\Delta}lbi$ | \rightarrow | $k_{\Delta}lbi$ | 'dog' |
| | $k_{\Delta}lbi-na$ | \rightarrow | $k_{\Delta}lbina$ | 'our dog' |
| b. | $nigis-ti$ | \rightarrow | $nigisti$ | 'queen' |
| | $nigis-ti-kum$ | \rightarrow | $nigistikum$ | 'your (m.pl.) queen' |
| c. | $si^?li$ | \rightarrow | $si^?li$ | 'picture' |
| | $si^?li-tat$ | \rightarrow | $si^?litat$ | 'pictures' |
| d. | $r_{\Delta}k_{\Delta}b-ki$ | \rightarrow | $r_{\Delta}k_{\Delta}bki$ | 'you (f.sg.) found' |
| | $r_{\Delta}k_{\Delta}b-ki-nna$ | \rightarrow | $r_{\Delta}k_{\Delta}bkinna$ | 'you (f.sg.) found us' |
- (13)
- | | | | | |
|----|-------------------------------|---------------|-----------------------------|-------------------------|
| a. | $d_{\Delta}mb_{\Delta}$ | \rightarrow | $d_{\Delta}mbe$ | 'pen' |
| | $d_{\Delta}mb_{\Delta}-na$ | \rightarrow | $d_{\Delta}mb_{\Delta}na$ | 'our pen' |
| b. | $haz-_{\Delta}$ | \rightarrow | $haze$ | 'he caught' |
| | $haz-_{\Delta}-kka$ | \rightarrow | $haz_{\Delta}kka$ | 'he caught you (m.sg.)' |
| c. | $bar_{\Delta}k-_{\Delta}$ | \rightarrow | $bar_{\Delta}ke$ | 'he blessed' |
| | $bar_{\Delta}k-_{\Delta}-nni$ | \rightarrow | $bar_{\Delta}k_{\Delta}nni$ | 'he blessed me' |

- (14) $?itu\ kali^? k_{\Delta}lbi=n$ 'and the other dog'
- * $?itu\ kali^? k_{\Delta}lbi=n$

Vowel Coalescence

A large, dark blue, abstract shape that starts as a thin line on the left and expands diagonally upwards to the right, filling the bottom half of the slide.

Predicting Outputs

(5) *Features under Combinatorial Specification*

	i	e	ɪ	ʌ	a	o	u
high							
low		-		-		-	
back					+		
round	-	-				+	+

(36)

i	+	u	→	u
i	+	i	→	i
ʌ	+	u	→	o
ʌ	+	o	→	o
ʌ	+	i	→	e
ʌ	+	e	→	e
ʌ	+	a	→	a

(37) *Coalescence with high vowels*

	<u>ɪ</u>	<u>+</u>	<u>u</u>	<u>→</u>	<u>o</u>
high					
low	-				-
back					
round			+		+

(38) *Coalescence with nonhigh vowels*

	<u>$\check{v} + e \rightarrow e$</u>	<u>$\check{v} + o \rightarrow o$</u>	<u>$\check{v} + a \rightarrow a$</u>
high	- - -	- - -	- - -
low			+ +
back	- -		
round		+ +	

Predicting Outputs

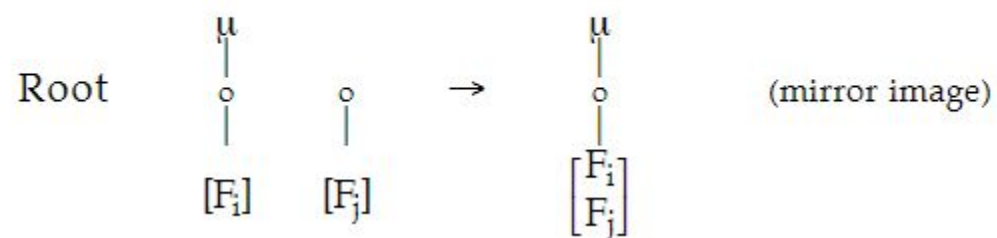
(5) *Features under Combinatorial Specification*

	i	e	i	Λ	a	o	u
high		-		-		-	
low					+		
back	-	-					
round						+	+

(36)

i	+	u	→	u
i	+	i	→	i
Λ	+	u	→	o
Λ	+	o	→	o
Λ	+	i	→	e
Λ	+	e	→	e
Λ	+	a	→	a

(39) *Vowel Coalescence*



Coalescence Under Contrastive Feature Specification

(4) *Features under Contrastive Specification*

	i	e	ɪ	ʌ	a	o	u
high	+			-		-	+
low				-	+		
back				+			
round				-		+	+

$\sqrt{\text{ } + \text{ } \rightarrow ?$
high
- + -+
- -
+ +
- + -+

Coalescence Within Suffixes

(41)	THIRD-PERSON	masculine singular	-u
		feminine singular	-a
		masculine plural	-(at)om
		feminine plural	-(at)an
	FIRST-PERSON	singular	-ay

(42)	gaza-ay	→	gazay	'my house'
	hin-ay	→	hinay	'my vengeance'
	mihe-ay	→	mihey	'my rug' ¹⁷
	ʔabbo-ay	→	ʔabboy	'my father'
	dimmu-ay	→	dimmoy	'my cat'

(43)	šahi-ay	→	šahiay	'my tea'
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Coalescence Within Nouns

Plural: C \wedge CaCiC

Singular: C \wedge CC \wedge C

C \wedge CCiC

CiCCiC

(36)

i	+	u	→	u
i	+	i	→	i
\wedge	+	u	→	o
\wedge	+	o	→	o
\wedge	+	i	→	e
\wedge	+	e	→	e
\wedge	+	a	→	a

/i \wedge / → [u]

/i y / → [i]

/ \wedge \wedge / → [o]

/ \wedge y / → [e]

(47)

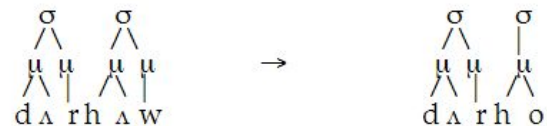
	SINGULAR	PLURAL	GLOSS	ROOT
C \wedge CC \wedge C	d \wedge r \wedge ho ko \wedge b	d \wedge r \wedge ahu k \wedge \wedge wakib-ti	'chicken' 'star'	dr \wedge hw kw \wedge b
C \wedge CCiC	m \wedge didi s \wedge ldi s \wedge llu	m \wedge d \wedge yidi s \wedge l \wedge di s \wedge lalu	'grindstone' 'money' 'young donkey'	mdyd sldy s y lw
CiCCiC	di \wedge ul di \wedge mu wihi \wedge	d \wedge s \wedge wil d \wedge mamu w \wedge hayi \wedge	'ram' 'cat' 'stream'	d \wedge wl dmw why \wedge

(7) *Feature cooccurrence constraints*

*[+low, -back]	rules out	[æ]
*[+low, +round]		[ɒ]
*[+round, -back]		[ū, ö]

Coalescence Within Nouns

(50) *Template Association* *Vowel Coalescence*



(51) *Template Association* *Vowel Coalescence/Vocalization*
(blocked)



That's.. why i'm here

Coalescence Within Nouns

(53) bet *b_Λyti, *beti 'house' {byt}
 ʕof *ʕawfi, *ʕofi 'bird' {ʕwf}

(36)

i	+	u	→	u
i	+	i	→	i
Λ	+	u	→	o
Λ	+	o	→	o
Λ	+	i	→	e
Λ	+	e	→	e
Λ	+	a	→	a

Coalescence in Verbs

- (55) *C_ΔC_ΔC-suff*
s_Δt_Δy-na → s_Δtena 'we drank'
f_Δt_Δw-na → f_Δtona 'we liked'
- (56) s_Δt_Δy-u 'they drank'
f_Δt_Δw-u 'they liked'
- (57) *C_ΔC_iC-suff*
s_Δt_iy-na → s_Δtina 'we drank'
f_Δt_iw-na (→ f_Δtina) 'we liked'
- (58) s_Δt_iy-u → s_Δtyu 'he drank'
f_Δt_iw-u (→ f_Δtyu) 'we liked'

/w/ → [y] / __ [i]

/w/ → [y] / [i] __

/_Δy_Δ/ → [_Δ]

/_Δw_Δ/ → [_Δ]

Coalescence in Verbs

$/\Lambda y\Lambda/ \rightarrow [\Lambda]$

$/\Lambda w\Lambda/ \rightarrow [\Lambda]$

(71) $\text{kon-}\Lambda, *k\Lambda w\Lambda n\text{-}\Lambda$ 'he was'

(72) $\text{mot-}\Lambda, *m\Lambda w\Lambda t\text{-}\Lambda$ 'he died'

Coalescence in Verbs

Verbs with /a/ in their vowel melody are weird.

Reference

Buckley, E. (1994). *University of Pennsylvania Working Papers in Linguistics*, 1(1), 1–33.

<https://repository.upenn.edu/entities/publication/434c8302-61dc-4f53-8bc8-dfbaab4eb4e0>

Let's Discuss