Polar Tone in Kanuri

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Tone Polarity

"In some languages, certain affixes have tones that are fully predictable from the tone of the foot to which they attach, but instead of receiving their tone by spreading in the usual way they show a tone that is the opposite of the neighbouring tone. Words that end in L take H affixes, and words that end in H take L affixes. This is termed 'polarity'" (Yip, 2002:159)

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Basic Claim

Tone polarity in Kanuri does not involve constraints/rules requiring tonal distinctness

Outline

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Kanuri (Cyffer, 1992)

- spoken by more than 4 million people around lake Chad (Nigeria, Niger, Chad) ▸ Map
- forms with Teda-Daza and Zaghawa
  the Saharan branch of the Nilo-Saharan family
- very complex morphophonemics and morphotactics

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An Imperfect Paradigm (*kúd*, 'bring')

	sg	**pl**
1	**kúd**əkin	**kúd**iyen
2	**kúd**əmin	**kúd**uwin
3	sú**wúd**in	só**wúd**in

Morphological Structure of the Imperfect

1sg		**kúd**	ə	k	in
		V	Ø	1SG	IMPF
2sg		**kúd**	ə	m	in
		V	Ø	2SG	IMPF
3sg	sú	**wúd**			in
	3SG	V			IMPF

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Polar Tone in the Imperfect (*kar*, 'carve')

H-Root	**kúd**	**ə**	k	in
	V	Ø	1SG	IMPF
L-Root	**kar**	**á**	k	in
	V	Ø	1SG	IMPF

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Polar Tone in 3rd Person Forms

H-Root	sú	**wúd**	**in**
	3SG	V	IMPF
L-Root	sə	**gar**	**în**
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Constant High Tone in the Perfect

L-Root	**kar**	**ə́**	k	**ə́**	na
	V	Ø	2SG	Ø	PERF
H-Root	**kúd**	**ə́**	k	**ə́**	na
	V	Ø	1SG	Ø	PERF

Constant High Tone in the Perfect

L-Root	**kar**	**ə́**	k	**ə́**	na
	V	Ø	2SG	Ø	PERF
H-Root	**kúd**	**ə́**	k	**ə́**	na
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The Imperfect affix contains . . .

segmental **-in**, a single **L** linked to in, and the floating melody **HL**:

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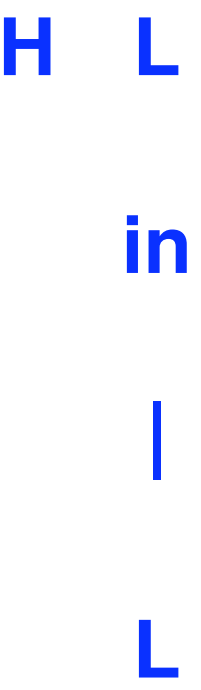
Lexical Entry:



Basic Analysis

HL links in different positions to verb forms

Floating Tones:			H	L			H	L
			|	|			|	|
Segments/Syllables:	ka	rə́	kin			kú	də	kin

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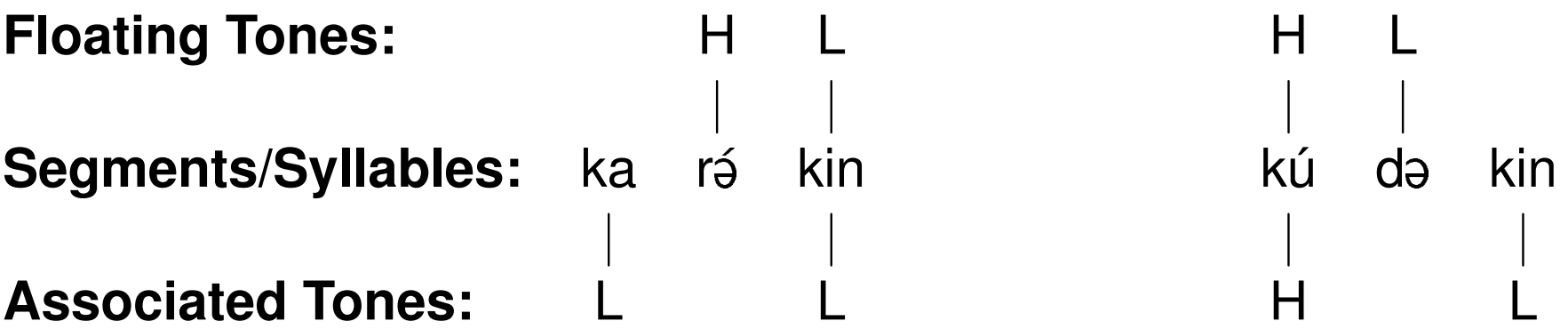

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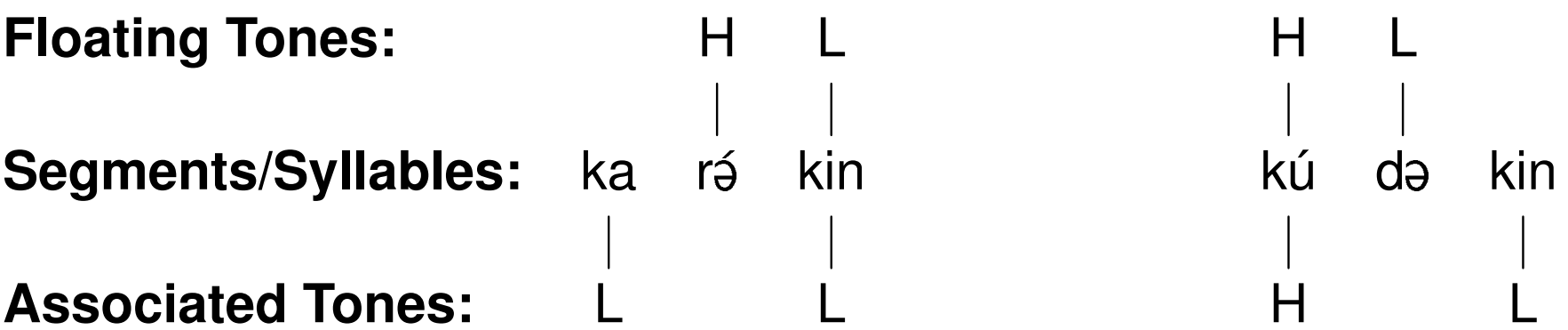

HL links to the leftmost position compatible with the underlying tones

Faithfulness Constraints on Tone (Yip, 2002)

MAX-T	For each input tone there should be a corresponding output tone
DEP-T	For each output tone there should be a corresponding input tone
IDENT-T	Corresponding input- and output tones should be identical
NO-FUSION	Output tones should bear only one index
***DISSOCIATE**	For each input association line there should be an output line such that the respective anchors of the lines correspond
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Markedness Constraints on Tone (Yip, 2002)

***FLOAT**	Each tone should be associated with at least one TBU
***SPECIFY**	Each TBU should be associated with at least one tone
***CONTOUR**	Each TBU should be associated with at most one tone
NOLONG-T	Each tone should be associated with at most one TBU

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Alignment Constraints (Zoll, 1997; Yip, 2002)

ALIGN-R(Cont): Contours are linked to the rightmost TBU

Align-L: Each tone is assigned a violation for each TBU that intervenes between the one it is associated to and the left edge of the word

Align-L (revised): Each tone **index** is assigned a violation for each TBU that intervenes between the one **its tone** is associated to and the left edge of the word

	ka	nu
a.	H_1	L_2

	ka	nu
b.	H_1	$L_{2,3}$

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Input Representations for Imperfect Forms

a.

kud			kin
H$_1$	H$_2$	L$_3$	L$_4$

b.

kar			kin
L$_1$	H$_2$	L$_3$	L$_4$

Basic Tone Realization and Linking

		*FLOAT	MAX-T	. . .
a.	ka rə kin | | | L_1 L_3 L_4		*!	
b.	ka rə kin | | | L_1 H_2 L_3 L_4	*!		

➔ In the output all input tones are realized and linked to TBUs

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High-Tone Roots

Input: kud kin — H_1 H_2 L_3 L_4

Output: ku də kin — $H_{1,2}$ L_3 L_4

	IDENT-T	ALIGN-L	NO-FUSION
☞ a. ku də kin; $H_{1,2}$ L_3 L_4		*$_3$ *$_4$ *$_4$	*
b. ku də kin; H_1 H_2 $L_{3,4}$		*$_2$ *$_3$ *$_3$ *$_4$!* $_4$	*

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Input: kud kin — H_1 H_2 L_3 L_4

Output: ku də kin — $H_{1,2}$ L_3 L_4

	IDENT-T	ALIGN-L	NO-FUSION
☞ a. ku də kin; $H_{1,2}$ L_3 L_4		$*_3$ $*_4$ $*_4$	*
b. ku də kin; H_1 H_2 $L_{3,4}$		$*_2$ $*_3$ $*_3$ $*_4$! $*_4$	*

Low-Tone Roots

Input: kar kin

		IDENT-T	ALIGN-L	NO-FUSION
	a. ka rə kin $H_{1,2}$ L_3 L_4	*!	* * * 3 4 4	*
☞	b. ka rə kin L_1 H_2 $L_{3,4}$		* * * * * 2 3 3 4 4	*

Excluding Contours: *CONTOUR

Input: kar kin

L$_1$ H$_2$ L$_3$ L$_4$

	*CONTOUR	ALIGN-L	NO-FUSION
☞ a. ka rə kin L$_1$ H$_2$ L$_{3,4}$		* * * * * 2 3 3 4 4	*
b. ka rə kin L$_1$H$_2$ L$_3$ L$_4$	*!	* * * 3 4 4	
c. ka rə kin L$_1$ H$_2$,L$_3$ L$_4$	*!	* * * * 2 3 4 4	

Attested Contours in 3rd Person Forms

H-Root	sú	**wúd**	**in**
	3SG	V	IMPF
L-Root	sə	**gar**	**în**
	3SG	V	IMPF

Deriving Contours in 3rd person Forms

		*FLT	MAX	IDT	*CONT	ALGN-L	NO-FUS
☞	a. sə ga rin | | | \ L L_1 H_2 $L_{3,4}$				*	$*_2 *_3 *_3 *_4 *_4$	*
	b. sə ga rin | | | L $L_{1,2}$ $L_{3,4}$			*!		$*_3 *_4$	*
	c. sə ga rin | | | L L_1 H_2		*!*			$*_2$	
	d. sə ga rin | | | L L_1 H_2 $L_{3,4}$	*!				$*_2 *_3 *_3 *_4 *_4$	*

Contour Placement

		ALIGN-R(CONTOUR)	ALIGN-L
☞	a. sə ga rin | | | \ L L_1 H_2 $L_{3,4}$		* * * 2 3 4
	b. sə ga rin | | \ | L L_1 H_2 $L_{3,4}$	*!	* * 3 4

Alternative Approaches to Polarity

- α-rules (Chomsky & Halle, 1968)
- Transderivational Antifaithfulness (Alderete, 2001)
- The OCP (Hyman, 1993;Antilla & Bodomo, 1996)

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α-rules (Chomsky & Halle, 1968)

$$V \rightarrow \begin{array}{c} V \\ | \\ -\alpha H \end{array} \quad / \ \alpha H$$

cf. Pulleyblank (1986)

Problems

- α-rules are ad-hoc
- α-rules are too powerful

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Transderivational Antifaithfulness (Alderete, 2001)

¬FAITH(Tone)

Problems

- Antifaithfulness is unmotivated
  (Féry, 2002; Apoussidou, 2003; van Oostendorp, 2005)

- Kanuri polar tone does not involve
  systematic transderivational faithfulness violations

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*kar	ə	k	in	*kúd	á	k	in
↓				↓			
kar	**á**	k	in	**kúd**	**ə**	k	in
V	Ø	SG	IMPF	V	Ø	SG	IMPF

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V	Ø	SG	IMPF	V	Ø	SG	IMPF

The OCP (Hyman, 1993; Antilla & Bodomo, 1996)

*T^{1} T^{1}

H yí-rì ‘house, sg.’

L wì-rí ‘horse, sg.’

(Dagaare; Antilla & Bodomo, 1996)

→ no constant melody

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Problems for an OCP-Account of Kanuri

Avoidance of HH

	kúd	**ə**	k	in
	V	Ø	1SG	IMPF
sú	**wúd**			**in**
3SG	V			IMPF

Non-Avoidance of HH

	kúd	**ə́**	k	**ə́**	na
	V	Ø	1SG	Ø	PERF
sú	**wúd**			in	
3SG	V			IMPF	

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	kúd	**ə**	k	in
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	kúd	**ə́**	k	**ə́**	na
	V	Ø	1SG	Ø	PERF

sú	**wúd**	in
3SG	V	IMPF

Problems for an OCP-Account of Kanuri

Avoidance of LL

kar	**á**	k	in
V	Ø	1SG	IMPF

sə	**gar**	**în**
3SG	V	IMPF

Non-Avoidance of LL

kúd	ə	k	in
V	Ø	1SG	IMPF

sə	gar	în
3SG	V	IMPF

Problems for an OCP-Account of Kanuri

Avoidance of LL

	kar	**ə́**	k	in
	V	Ø	1SG	IMPF
sə	**gar**			**în**
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Non-Avoidance of LL

	kúd	**ə**	k	**in**
	V	Ø	1SG	IMPF
sə	**gar**			**în**
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Summary

Kanuri Tone Polarity . . .

- . . . is not triggered by specific constraints inducing polarity (α-rules, OCP, . . .)
- . . . follows from independently motivated constraints on tone mapping

➔ Tone polarity is theoretically heterogeneous

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Class 2 Verbs

	Cyffer (1992)	**Lukas (1937)**	
H-root	bá**ŋ**gin	bâ**ŋ**gin	'I beat'
L-root	tusə́**n**gin	tusə̌**n**gîn	'I rest'

Kanuri


NIGER
CHAD
Lake Chad
Sokoto
Katsina
Maiduguri
Kano
Zaria
NIGERIA
Kaduna
BENIN
Jos
ABUJA
Yola
Ilorin
Ogbomoso
Oshogbo
Ibadan
Benin City
Makurdi
Enugu
Lagos
Warri
Port Harcourt
CAMEROON
Bight of Benin
Bakassi Peninsula
Gulf of Guinea
EQUATORIAL GUINEA

back