

Tone in Arapaho

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Arapaho

- a Plains Algonquian language spoken almost entirely by elders in Wyoming, and to a much lesser extent in Oklahoma (Salzmann 1963, Cowell & Moss 2008)
- remarkable inside the Algonquian family for being a tone language (Mithun 1999, Yip 2002)
- its tone 'has resisted attempts at explanation up to the present' (Cowell & Moss 2008)

Contrastive tone

tecénoo 'door' vs. tēcenoos 'roll it out'

- high or normal tone
- long vowels and diphthongs: only a high-low sequence is possible

(1) The μ as TBU in Arapaho

σ_{μ}		$\sigma_{\mu\mu}$		
High	Low	High	'Falling'	Low
σ	σ	σ	σ	σ
μ	μ	μ	μ	μ
H		H	H	

My Aim

I. Tone in Arapaho: Analysis in a nutshell

- floating tones
- the OCP

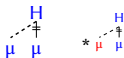
II. Xenophobia vs. xenophilia

In some contexts, association of a tone with a TBU belonging to the same morpheme is impossible – in other contexts, this is preferred.

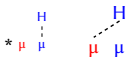
- a generalized version of van Oostendorp's ALTERNATION
- the constraint MONOT

Xenophobia vs. xenophilia: A paradox?

- tones that mark their underlying association as invisible can only associate to a new TBU that is affiliated with the same morpheme



- a floating tone can only associate to a TBU affiliated with another morpheme



In containment, **MONOT** and **ALT^G** easily predict such a state of affairs

Avant: Theoretical Background

- Morphological Colours** (van Oostendorp 2006)
 - every morpheme \approx one specific 'colour', present on all phonological elements affiliated with this morpheme
- Containment** (Prince & Smolensky 1993)
 - Containment for Elements (segments, features, ...)
 - Containment for Association Lines (Goldrick 2001, Revithiadou 2007)

(2) *Marking conventions for different types of association lines*

Morphological association relations phonetically visible:	phonetically invisible:	Epenthetic association relations phonetically visible:
X Y	X † Y	X : : : Y

Morphemes demanding tone on the preceding syllable

(Cowell & Moss 2008)

- floating tones in the representation of a morpheme
- this floating tone is forced to associate to another morpheme
- it cannot be realized 'too far away' from its segmental content but it always associates with an adjacent TBU
 - \approx bounded shifting, e.g. in Bantu languages (Yip 2002, Myers 1997, Kisseberth 1998)
- (the direction of association follows since no situation ever arise where a tone-demanding morpheme is followed by a potential TBU)

Tone-demanding morphemes: constraints

- Assign a violation mark for every H that is not phonetically associated to a TBU.
- Assign a violation mark for every element not associated a tone T of colour α between elements associated with a tone T of colour α and elements of colour α on the same tier.
- Assign a violation mark for every morpheme of colour α where at least one element of colour α is linked with an element of colour α .

Tone-demanding morphemes: analysis

- (6) e.g.
- $bii?in-owu-Hno?$
-
- $benii?inowúno?$
- 'We (incl) find it'

	H μ μ μ	H * : : . . .	ALT ^C	H ↓ μ	H Dep I μ
a.	H μ μ μ			*!	
b.	H μ μ μ		*!		*
c.	H μ μ μ	*!			*
≠ d.	H μ μ μ				*

Tone-demanding morphemes: long syllables

- (7) *RISE-σ Assign a violation mark for every syllable where the first TBU is not phonetically associated with an H but the second TBU is.

Tone-demanding morphemes: long syllables

- (8) e.g.
- $nóóhob-ce-Ht$
-
- $nonóóhobéét$
- 'We (excl) see it'

	H μ μ μ	*RISE-σ σ	ALT ^C	H ↓ μ	H Dep I μ
a.	H μ μ μ	*!			*
≠ b.	H μ μ μ				**

Floating tone and the OCP

- (9)
- $bééne-Hno?$
- $beenéno?$
- 'We (excl) are drinking'
-
- $téi?éihi-Hnee$
- $téi?eihínee$
- 'You (pl) are strong'
-
- $nííhi?kóókúu-Ht$
- $nííhi?kookúút$
- 'act of running'
-
- $betééee-Hθi?$
- $betecééθi?$
- 'They are dancing'
-
- $nóóhow-éθe-Hnee$
- $nonóóhobéθénee$
- 'I see you (pl)'

The floating tone is realized and the underlying tone remains unrealized to avoid an OCP violation.

OCP-effects: constraints

- (10) OCP (Odden 1986) Assign a violation mark to every distinct pair of adjacent TBUs which are associated to different Hs.
- (11) $\begin{matrix} H \\ \downarrow \\ \mu \end{matrix}$ Assign a violation mark for every H that is not phonetically associated to a TBU.
- (12) $\begin{matrix} H \\ \downarrow \\ \mu \end{matrix}$ Assign a violation mark for every H that is not (phonetically or morphologically) associated to a TBU.

OCP-effects: analysis

- (13) e.g. $nóóhów-é\theta e^{H}nee \rightarrow nonóóhóbe\theta énee$ 'I see you (pl)'

	$\begin{matrix} H & H \\ & \\ \mu & \mu & \mu \end{matrix}$	OCP	ALT ^G	$\begin{matrix} H \\ \downarrow \\ \mu \end{matrix}$	$\begin{matrix} H \\ \downarrow \\ \mu \end{matrix}$	$\begin{matrix} H \\ \downarrow \\ \mu \end{matrix}$ Dep
a.	$\begin{matrix} H & H \\ & \\ \mu & \mu & \mu \end{matrix}$			*!	*	
b.	$\begin{matrix} H & & H \\ & & \\ \mu & \mu & \mu \end{matrix}$		*!			*
c.	$\begin{matrix} H & H \\ & \\ \mu & \mu & \mu \end{matrix}$		*!			*
d.	$\begin{matrix} H & H \\ & \\ \mu & \mu & \mu \end{matrix}$				*	

And the phonetically invisible tone...?

- (14) ... is realized on a TBU further left.

	surface	
$bii\gamma in -ee^{-H}be$	$héihowbii\gamma inéébe$	'you are not finding something'
$isétee^{-H}\gamma-i$	$heníisetéí\gamma i$	'they are ripe'
$be\gamma ise^{-H}\gamma-i$	$béé\gamma iséí\gamma i$	'they are rusty'
$ciinén-owu^{-H}\gamma-i$	$ceníinenóú\gamma u$	'they are putting it down'

But what about...?

- (15) ... the phonetically invisible tone remains invisible.

	surface	
$nii\gamma eneb -é\theta e^{-H}nee$	$nii\gamma enebe\theta énee$	'I like you'
	$*nii\gamma enébe\theta énee$	

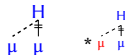
Tones can only 'rescue' themselves unto a TBU that is affiliated to the same morpheme

The 'dissociated' tone: constraint

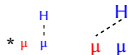
- (16) **MONOCHROME TONE** Assign a violation mark for every tone that is associated to TBUs of different morphological colour (phonetically or morphologically).
(=MONOT)

Xenophobia vs. xenophilia: A paradox?

- tones that mark their underlying association as invisible can only associate to a new TBU that is affiliated with the same morpheme



- a floating tone can only associate to a TBU affiliated with another morpheme



The 'dissociated' tone: constraints

- (17) **ALT^C** Assign a violation mark for every morpheme of colour α where at least one element of colour α is linked with an element of colour α .

- in Containment: if two segments of the same morphological colour are associated underlyingly, a violation of ALT^C can never be avoided for this morpheme

Analysis: Escape on a TBU of the same colour

- (18) **heniisétée**-H₂-i → **heniisétéeé?i**

'they are ripe'

	MONOT	OCP	ALT ^C	H ↓ μ	H ↓ μ
a.			*	*!	**
≠ b.			*		***

Analysis: Escape on a TBU of another colour is impossible

(19) e.g. $nii^?ene^w-é\theta e^H-nee \rightarrow nii^?enebe\theta énee$ 'I like you (pl)'

	H μ μ μ	MONOT	OCP	ALT ^G	H ↓ μ	H μ
a.	H H μ μ μ μ		*!	*		**
≠ b.	H H † μ μ μ μ			*	*	**
c.	H H † μ μ μ μ	*!		*		**

Summary

- floating tones that are part of a morphemes must associate but cannot associate with a TBU that belongs to the same morpheme
- the OCP
- a generalized ALT^G and MONOT solve the apparent paradox for the obligatory/impossible association of tones with TBUs of the same morphological colour

One morpheme and two surface tones?

(20)

	1pe
2s	nonóóhob-éi?-ee-n
2pl	nonóóhob-éi?-éé-nee



➔ a floating tone must associate with the preceding morpheme

Tone shifting vs. Tone augmentation for different stems?

(21)

	2s	2p
1sg	nii?eneb-é\theta e-n nonóóhob-é\theta e-n	nii?en?eb-e\theta é-nee nonóóhob-e\theta é-nee
1pe	nii?enéb-ee-n nonoohób-ee-n	nii?enéb-ee-nee nonoohób-ee-nee

H Augmentation
H Shifting



➔ a floating tone and the OCP

A tone-demanding morpheme triggers no additional tone?

(22)

	1pe	2s	2p
2s	nonóóhob-éí?-ee-n		
2pl	nonóóhob-éí?-éé-nee		
3pl		nonóóhob-éí-n	nonóóhob-éí-nee

Tone Augmentation

No Change



► a floating tone 'overwrites' an underlying tone: no surface effect

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