

Mora Maraudage in Piro

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The Aim

- a morpheme-specific process of vowel syncope in Piro
 - ➡ it is predicted from the underlying representation of morphemes and their moraic specification
 - ➡ rather than from indexing certain morphemes to specific rules in an arbitrary fashion
(Kisseberth 1970, Lin 1997, Pater 2007)

Piro (today: Yine)

- Arawakan language spoken in Peru
- The following data is taken from Matteson (1965), Lin (1997) and Pater (2007)

mSuffixes trigger vowel deletion

- before certain suffixes, a preceding vowel is deleted (= ‘mSuffixes’, underlined in the following)

(1) *mSuffixes trigger deletion*

a. *of a stem vowel*

neta+ <u>ya</u>	netya	‘I see there’
kama+ <u>lu</u>	kamlu	‘handicraft’
pawata+ <u>maka</u>	pawatmaka	‘I would have made a fire’
hata+ <u>nu</u>	hatnu	‘light, shining’

b. *of an affix vowel*

meyi+wa+ <u>lu</u>	meyiwlu	‘celebration’
neta+nu+ <u>lu</u>	netanru	‘I am going to see him’

mSuffixes: Main Claim

- vowel length in Piro is phonemic: vowels are underlyingly specified for one/two moras

$$\mu$$

$$/ \text{ l } \quad \text{ u } /$$

- the mSuffixes have an underlyingly floating mora in their structure that is not associated with a vowel

Main Assumptions

- Morphological Colours
- Containment
- Containment for Association Lines

I. Morphological Colours (Oostendorp 2006a+b)

- every morpheme = one specific ‘colour’ that is present on all phonological elements that are affiliated with this morpheme
- epenthetic elements = colourless
- this e.g. allows an easy implementation of a constraint deriving Derived Environment Effects
(Lubowicz 2002, Anttila 2005, Oostendorp 2008)

- (2) ALTERNATION (=ALT) Oostendorp 2006b
If an association line links two elements of colour α , the line should also have colour α .

Ila. Containment (Prince & Smolensky 1993)

(3) *Containment*

Every element of the phonological input representation is contained in the output.

- all input elements must still be present in the output but can be marked as phonetically invisible
- elements that are invisible for the phonetics = elements that are not properly integrated into the prosodic structure, i.e. not dominated by the highest prosodic word node

IIb. Containment (Prince & Smolensky 1993)

- realization of segments is therefore a consequence of proper integration ensured by e.g. (4) and (5)

(4) $\begin{array}{c} \mu \\ \uparrow \\ \downarrow \\ V \end{array}$ Assign a violation mark for every vowel that is not dominated phonetically by a mora.

(5) $\begin{array}{c} \mu \\ \uparrow \\ \downarrow \\ V \end{array}$ Assign a violation mark for every vowel that is not dominated (phonetically or morphologically) by a mora.

- the latter one is a less restrictive version demanding only *any* association (a phonetically invisible one as well)

III. Containment for Association Lines

(Goldrick 2001, Revithiadou 2007)

- all association relations that were present underlyingly must be kept in the structure although they can be marked as phonetically invisible

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

Morphological association relations		Epenthetic association relations
phonetically visible:	phonetically invisible:	phonetically visible:
X Y	X ‡ Y	X ⋮ Y

Markedness for 1-many association

- moras cannot be (phonetically) associated with more than one vowel due to the markedness constraint in (7)

(7) ν^{μ}_{ν}

Assign a violation mark for every mora that is phonetically associated to more than one vowel.

Mora Maraudage

μ

/ l u /

- the mSuffixes have an underlyingly floating mora in their structure that is not associated with a vowel
 - ➔ since the affix vowel must be dominated by a mora but cannot associate to its own, it ‘maraudes’ the mora of the preceding vowel

mSuffix maraudes (stem) mora

	μ_s μ_s μ_1 $k_s a_s m_s a_s$ $l_1 u_1$	μ \uparrow V	$V^{\mu} V$	DEP- μ	ALT	MAX-V
a.	μ_s μ_s μ_1 $k_s a_s m_s a_s$ $l_1 u_1$	*!				*
b.	μ_s μ_s μ_1 $k_s a_s m_s a_s$ $l_1 u_1$		*!			
d.	μ_s μ_s $\mu_1 \mu$ $k_s a_s m_s a_s$ $l_1 u_1$			*!		
c.	μ_s μ_s μ_1 : $k_s a_s m_s a_s$ $l_1 u_1$				*!	
e.	μ_s μ_s μ_1 f $k_s a_s m_s a_s$ $l_1 u_1$					*

Multiple Mora Maraudage

- (8) *More mSuffixes*
nika+ya+waka+lu nikyawaklu ‘to eat it there’

- three mSuffixes are added and two vowels are deleted

Analysis: more mSuffixes

$$\begin{array}{cccccc}
 \mu_s & \mu_s & & \mu_1 & \mu_2 & \mu_2 & \mu_3 \\
 | & | & & & & | & \\
 n_s & i_s & k_s & a_s & + & y_1 & a_1 & + & w_2 & a_2 & k_2 & a_2 & + & l_3 & u_3
 \end{array}$$

	μ \uparrow V	DEP- μ	ALT	MAX- V	
a.	$ \begin{array}{cccccc} \mu_s & \mu_s & \mu_1 & \mu_2 & \mu_2 & \mu_3 \\ & \ddagger & \dots & \dots & & \\ n_s & i_s & k_s & a_s & y_1 & a_1 & w_2 & a_2 & k_2 & a_2 & l_3 & u_3 \end{array} $	*!			**
b.	$ \begin{array}{cccccc} \mu_s & \mu_s & \mu_1 & \mu_2 & \mu_2 & \mu_3 \\ & \ddagger & \dots & \dots & & \vdots \\ n_s & i_s & k_s & a_s & y_1 & a_1 & w_2 & a_2 & k_2 & a_2 & l_3 & u_3 \end{array} $		*!		*
c.	$ \begin{array}{cccccc} \mu_s & \mu_s & \mu_1 & \mu_2 & \mu_2 & \mu_3 \\ & \ddagger & \dots & \dots & \ddagger & \dots \\ n_s & i_s & k_s & a_s & y_1 & a_1 & w_2 & a_2 & k_2 & a_2 & l_3 & u_3 \end{array} $				**

Blocking of vowel deletion

- 3-C-cluster are generally prohibited in Piro
- if the mSuffix-triggered vowel deletion would result in such a structure, the vowel is retained

(9) *The expected vowel deletion is blocked*

terka+lu

terkalu

‘she washes it’

*terklu

koko+yma+ru+ne

kokoymarune

‘those with uncles’

*kokymrone

Blocking: ALT might be violated to avoid a 3-C-cluster

$$\begin{array}{ccc} \mu_s & \mu_s & \mu_1 \\ | & | & \\ t_s & e_s & r_s & k_s & a_s & + & l_1 & u_1 \end{array}$$

	*CCC	μ \uparrow V	ALT	MAX-V
a. $\begin{array}{ccc} \mu_s & \mu_s & \mu_1 \\ & & \\ t_s & e_s & r_s & k_s & a_s & + & l_1 & u_1 \end{array}$		*!		*
b. $\begin{array}{ccc} \mu_s & \mu_s & \mu_1 \\ & & \\ t_s & e_s & r_s & k_s & a_s & + & l_1 & u_1 \end{array}$ <i>(Note: a dotted line connects the μ_s above a_s to the μ_1 above u_1)</i>	*!			*
c. $\begin{array}{ccc} \mu_s & \mu_s & \mu_1 \\ & & \vdots \\ t_s & e_s & r_s & k_s & a_s & + & l_1 & u_1 \end{array}$			*	

Blocking: Even more ALT-violations

$$\begin{array}{ccccc}
 \mu_s & \mu_s & & \mu_1 & \mu_2 & \mu_3 \\
 | & | & & & & \\
 k_s o_s & k_s o_s & + & y_1 m_1 a_1 & + & r_2 u_2 & + & n_2 e_2
 \end{array}$$

	*CCC	μ ↑ V	ALT	MAX-V
a. $ \begin{array}{cccccc} \mu_s & \mu_s & & \mu_1 & \mu_2 & \mu_3 \\ & & & \dots & \dots & \\ k_s o_s & k_s o_s & + & y_1 m_1 a_1 & + & r_2 u_2 & + & n_3 e_3 \end{array} $	*!	*		*
b. $ \begin{array}{cccccc} \mu_s & \mu_s & & \mu_1 & \mu_2 & \mu_3 \\ & \ddagger & & \dots & \dots & \\ k_s o_s & k_s o_s & + & y_1 m_1 a_1 & + & r_2 u_2 & + & n_3 e_3 \end{array} $	*!			*
c. $ \begin{array}{cccccc} \mu_s & \mu_s & & \mu_1 & \mu_2 & \mu_3 \\ & & & \vdots & \vdots & \vdots \\ k_s o_s & k_s o_s & + & y_1 m_1 a_1 & + & r_2 u_2 & + & n_3 e_3 \end{array} $			***	

Conclusion

- the difference between ‘triggering’ and ‘non-triggering’ suffixes is attributed to the underlying representation of morphemes:
is the affix vowel underlyingly associated with its mora or not
- the assumption of containment and the fact that structure may never be literally deleted straightforwardly predicts such a system
=there are constraints about *all* structure irrespective of its visibility for the phonetics

Compensatory lengthening after C-loss

- 2-C-clusters are restricted (examples):
 - no adjacent identical consonants
 - a fricative is never followed by another fricative
 - a fricative is never followed by a homorganic affricate or /ts/
- non-initially, those clusters are always derived from mSuffix-triggered vowel deletion
- whenever the first member of such an illicit cluster is an obstruent, it is deleted
- in addition, the preceding vowel is deleted

C-Deletion and Lengthening

(10) *Illicit CC-Cluster is repaired*

nika+ <u>ka</u>	ni:ka	‘he is eaten’	*nikka
xitxi + ṭši	xi:ṭši	‘foot’	*xitxṭši
hira+ <u>re</u> + <u>ta</u>	hi:reta	‘to drink’	*hirreta
hitsrukate+ṭši	hitsruka:ṭši	‘chief’ (Abs)	*hitsrukatṭši

Compensatory lengthening

‘Standard explanation’

After coda-loss, a mora originally dominating the deleted consonant reassociates to a vowel ???

- when is the phonetically invisible consonant ever syllabified as coda and assigned to a mora in a parallel system?
- there is no evidence that codas are moraic: Piro has a quantity-insensitive trochaic stress system

Compensatory lengthening

An Alternative

X-slots and the assumption of timing units for every segment = compensatory lengthening is predicted after every segment deletion.

(may even exist in a combined model assuming moras and X-slots as e.g. Hume et al. 1997)

Another alternative

the lengthening mora is actually a floating mSuffix mora that is free to associate after C-deletion.

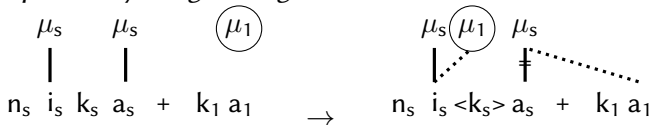
- this presupposes revision of our understanding of ordering of elements in containment theory

Mora Infixation: Assumptions

- (11) *Inviolable ordering in containment*
- a. segments are ordered to each other and this order may never be reversed.
 - b. morphologically coloured prosodic elements of the same colour are ordered to each other and this order may never be reversed.
- the segmental tier as backbone for the ordering
=prosodic nodes belonging to different morphemes are ordered if they are associated to a segment
 - morphologically coloured prosodic elements that are not associated to a segment are free to infix
(cf. infixation of moras in e.g. Shizuoka Japanese (Stuart & Davis 2001))

Mora Infixation

(12) *Compensatory Lengthening*

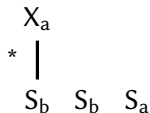


* But wouldn't we expect lengthening of the preceding vowel in the presence of every mSuffix irrespective of any C-deletion?

Mora Infixation: Assumptions II

- in addition to the assumption of the segmental backbone for ordering that something ensures morphemic contiguity – even across tiers

(13)

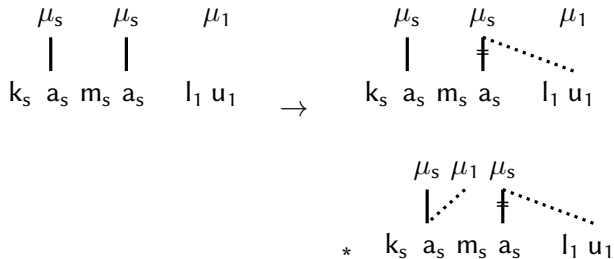


Given a morpheme with prosodic node X_a and segment(s) S_a in its representation:

Assign a violation mark for every instance where a segment of another morphological colour b that is not dominated by any X_a stands between the left(right)most segment S_a and the right(left)most segment that is dominated by X_a .

Analysis: Lengthening only after C-deletion

- the consonant that becomes phonetically invisible allows that the floating mSuffix mora associates



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