A phonological account of Length-Manipulation in the Morphology
The case of Aymara

Jochen Trommer & Eva Zimmermann (University of Leipzig)

mfm 21

May 24, 2013
Length Manipulation in the Morphology (=LMM)

Segment lengthening, shortening, deletion, or insertion that is triggered by morphology not by phonology.

not by phonology.
Possible analyses

Transderivational Antifaitfulness (Alderete 2001)

The output of a derived form and the output of its base differ for a specific phonological dimension, triggered by Antifaitfulness constraints.
Possible analyses

Transderivational Antifaithfulness (Alderete 2001)

The output of a derived form and the output of its base differ for a specific phonological dimension, triggered by Antifaithfulness constraints.

Realize Morpheme (Kurisu 2001)

RM requires phonological distinctivity of output forms, the type of change is determined by ranking morphologically indexed faithfulness constraints.
Possible analyses

Transderivational Antifaitfulness (Alderete 2001)
The output of a derived form and the output of its base differ for a specific phonological dimension, triggered by Antifaitfulness constraints.

Realize Morpheme (Kurisu 2001)
RM requires phonological distinctivity of output forms, the type of change is determined by ranking morphologically indexed faithfulness constraints.

Cophonology Theory (Inkelas&Zoll 2005)
Different morphological constructions may be associated with different constraint rankings.
Another possible analysis

Generalized Nonlinear Affixation

‘reduce the role of morphology in all instances of apparently nonconcatenative exponence to the insertion of pieces of nonlinear phonological representation whose existence is independently motivated: [...] fully or partially bare prosodic nodes.’

(Bermúdez-Otero 2012:49)

Main claim

- propose an analysis for Aymara where **four different LMM patterns exist and interact**
Main claim

- propose an analysis for Aymara where four different LMM patterns exist and interact

- argue that the GNA approach is superior to the alternative accounts relying on cophonologies or paradigmatic distinctness
1. Introduction

2. La Paz Aymara
   2.1 The LMM patterns
   2.2 An analysis in terms of GNA
   2.3 And the alternative accounts?

3. The Muylaque dialect of Aymara
   3.1 The LMM patterns in Muylaque Aymara
   3.2 An account assuming GNA
   3.3 And the alternative accounts?

4. Conclusion
La Paz Aymara
The LMM patterns


(1)

Aymaran

Southern

Aymara

Northern

Jaqaru

Cauqui

La Paz Aymara

Explanatory note on language names indicated by numbers:

1 Awa Pit
2 Cha’palaachi
3 Tsafiki
4 Mochica
5 Pacaros Quechua
6 Jaqaru and Cauqui
7 Callahuaya
8 Uchumataku
9 Chipaya
10 Atacameño
11 Quechua dialects of Catamarca and La Rioja

Map showing the location of La Paz and the Aymara language in relation to other South American languages.
(La Paz) Aymara

- highly agglutinating language, only suffixes
(La Paz) Aymara

- highly agglutinating language, only suffixes
- underlying length contrast for vowels
(La Paz) Aymara

- highly agglutinating language, only suffixes
- underlying length contrast for vowels
- a syntactically motivated vowel deletion rule: every word-final vowel that is not phrase-final is deleted
Aymara: LMM+

(2) **Morphological lengthening**

a. warmi ‘women’ warmiː ‘be a women’
b. wawa ‘baby’ wawaŋa ‘to be a baby’

(Beesley 2000, Kim 2003)
Aymara: Affix & LMM+

(3) **Suffixes triggering lengthening**

a. sara-ːta
   
go-2->3.Fut
   
saraːta
   
‘(you) will go’

b. naya-ḍa aymara-ø  yatiča-t’a-raki-ːma
   
INV-Top  Aymara-Acc teach-MOM-ADD-1->2.Fut
   
nayax aymar yatičt’arakiːma
   
‘I shall also teach you Aymara’

(Hardman 2001, Adelaar&Muysken 2004)
La Paz Aymara  
The LMM patterns

Aymara: LEX-

- final vowel deletion to mark the accusative or geographic goal, the ‘zero complement’ (Briggs 1976:188)

(4)  Zero complements  (Adelaar&Muysken 2004:272+273)

a.  uka-ø  sara-ta
    that.place-Acc  go-1S
    uk  sarta
    ‘I went there’

b.  kuna-ta  huk’ampi-ø-raki  quł’yqi-ø  muna-xa-ta-sti
    what-ABL  more-Acc-ADD  money-Acc  want-Compl-2S-Top.Change
    kunat  huk’amprak  quł’yq  munxtasti
    ‘And how much money will you need?’
(5) **No vowel loss for subjects**

a. \( k^h_i t_i-\emptyset-sa\) suya-pača

\begin{align*}
\text{who-Acc-Irr} & \text{ wait-3S.DedPst} \\
\text{\textit{khi}ts} & \text{ suyapača} \\
\end{align*}

‘He must be waiting for someone?’

b. \( k^h_i t_i-sa\) uta-ru sara-ni

\begin{align*}
\text{who-Irr} & \text{ house-All go-3S.Fut} \\
\text{\textit{khi}ts} & \text{ utar sarani} \\
\end{align*}

‘Who will go to the house?’

(Adelaar&Muysken 2004)
Aymara: Affix & LMM-


(6) Deletion-triggering suffixes

<table>
<thead>
<tr>
<th>Suffixes</th>
<th>Case</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. apa -xata -ŋa</td>
<td>all</td>
<td>‘carry’ ‘put sthg. on top’ K3</td>
</tr>
<tr>
<td>b. sara -naqa -ŋa</td>
<td>diffusive</td>
<td>‘go’ ‘wander’ K3</td>
</tr>
<tr>
<td>c. uma -ta -wa</td>
<td>2&gt;3 S</td>
<td>‘to drink’ ‘you drink’ H34</td>
</tr>
<tr>
<td>d. uma -ta -ta</td>
<td>2&gt;3 S</td>
<td>‘to drink’ ‘up’ ‘you drank fast’ H35</td>
</tr>
<tr>
<td>e. sara -qa -xa -ŋa</td>
<td>completive</td>
<td>‘go’ ‘downward’ ‘go down/away’ K1</td>
</tr>
</tbody>
</table>
### Four LMM patterns in Aymara

<table>
<thead>
<tr>
<th>Base</th>
<th>Derived Form</th>
<th>Annotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CV#</td>
<td>CVː</td>
<td>LMM+</td>
</tr>
<tr>
<td>CV#</td>
<td>CVːCV_{affix}</td>
<td>Affix &amp; LMM+</td>
</tr>
<tr>
<td>CV#</td>
<td>C</td>
<td>LMM-</td>
</tr>
<tr>
<td>CV#</td>
<td>CCV_{affix}</td>
<td>Affix &amp; LMM-</td>
</tr>
</tbody>
</table>
## Analyses

<table>
<thead>
<tr>
<th></th>
<th>LMM+</th>
<th>Affix &amp; LMM+</th>
<th>Complete μ integration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LMM+</strong></td>
<td>[ \mu_s \mu_s \mu_1 \mu_1 ]</td>
<td>[ \mu_s \mu_s \mu_1 \mu_1 ]</td>
<td>[ \mu_s \mu_s \mu_1 \mu_1 ]</td>
</tr>
<tr>
<td></td>
<td>[ w_s \alpha_s w_s \alpha_s ]</td>
<td>[ w_s \alpha_s w_s \alpha_s ]</td>
<td>[ w_s \alpha_s w_s \alpha_s ]</td>
</tr>
<tr>
<td><strong>Affix &amp; LMM+</strong></td>
<td>[ \sigma \sigma \sigma_1 ]</td>
<td>[ \sigma \sigma \sigma_1 ]</td>
<td>[ \sigma \sigma \sigma_1 ]</td>
</tr>
<tr>
<td><strong>LMM-</strong></td>
<td>[ \mu_s \mu_s ]</td>
<td>[ \mu_s \mu_s ]</td>
<td>[ \mu_s \mu_s ]</td>
</tr>
<tr>
<td></td>
<td>[ w_s \alpha_s w_s \alpha_s ]</td>
<td>[ w_s \alpha_s w_s \alpha_s ]</td>
<td>[ w_s \alpha_s w_s \alpha_s ]</td>
</tr>
<tr>
<td><strong>Affix &amp; LMM-</strong></td>
<td>[ \mu_s \mu_s ]</td>
<td>[ \mu_s \mu_s ]</td>
<td>[ \mu_s \mu_s ]</td>
</tr>
<tr>
<td></td>
<td>[ u_s m_s \alpha_s ]</td>
<td>[ u_s m_s \alpha_s ]</td>
<td>[ u_s m_s \alpha_s ]</td>
</tr>
</tbody>
</table>

**Defective σ integration**

**μ usurpation**
(8) Complete $\mu$-integration: LMM+

\[
\begin{array}{cccc|cccc}
\mu & \mu & \mu & 1 & \mu & \sigma & \mu & \sigma \\
\downarrow & \uparrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\
\wedge & \wedge & \wedge & \wedge & \wedge & \wedge & \wedge & \wedge \\
\end{array}
\]

\begin{align*}
a. & \quad \mu \quad \mu \quad \mu \quad 1 \\
& \quad \wedge \quad \wedge \quad \wedge \quad \wedge \\
\end{align*}

\begin{align*}
b. & \quad \mu \quad \mu \quad \mu \quad 1 \\
& \quad \wedge \quad \wedge \quad \wedge \quad \wedge \\
\end{align*}

\begin{align*}
c. & \quad \mu \quad \mu \quad \mu \quad 1 \\
& \quad \wedge \quad \wedge \quad \wedge \quad \wedge \\
\end{align*}

\begin{align*}
d. & \quad \mu \quad \mu \quad \mu \quad 1 \\
& \quad \wedge \quad \wedge \quad \wedge \quad \wedge \\
\end{align*}
### Defective syllable integration: LMM–

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>μs</td>
<td>μs</td>
<td></td>
<td></td>
<td>σ1</td>
</tr>
<tr>
<td>wS</td>
<td>aS</td>
<td>wS</td>
<td>aS</td>
<td>σ</td>
</tr>
<tr>
<td>μ/C</td>
<td>DEPμ</td>
<td>ONERT</td>
<td>Ft</td>
<td>Ft</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MAXS</td>
</tr>
</tbody>
</table>

#### a.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>μs</td>
<td>μs</td>
<td></td>
<td></td>
<td>σ1</td>
</tr>
<tr>
<td>wS</td>
<td>aS</td>
<td>wS</td>
<td>aS</td>
<td>σ</td>
</tr>
<tr>
<td>μ/C</td>
<td>DEPμ</td>
<td>ONERT</td>
<td>Ft</td>
<td>Ft</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MAXS</td>
</tr>
</tbody>
</table>

#### b.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>μs</td>
<td>μs</td>
<td>μ</td>
<td></td>
<td>σ1</td>
</tr>
<tr>
<td>wS</td>
<td>aS</td>
<td>wS</td>
<td>aS</td>
<td>σ</td>
</tr>
<tr>
<td>μ/C</td>
<td>DEPμ</td>
<td>ONERT</td>
<td>Ft</td>
<td>Ft</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MAXS</td>
</tr>
</tbody>
</table>

Trommer & Zimmermann (U Leipzig)  
The case of Aymara  
La Paz Aymara  
An analysis in terms of GNA
(10) 

**Defective syllable integration: LMM−, contd.**

<table>
<thead>
<tr>
<th></th>
<th>σ₁</th>
<th></th>
<th></th>
<th>σ₁</th>
<th></th>
<th></th>
<th>Ft</th>
<th>Ft</th>
<th>MAXS</th>
</tr>
</thead>
<tbody>
<tr>
<td>μs</td>
<td>μs</td>
<td>+</td>
<td></td>
<td>σ</td>
<td></td>
<td>DEPμ</td>
<td>ONERT</td>
<td>*</td>
<td>σAf</td>
</tr>
<tr>
<td>wS</td>
<td>aS</td>
<td>wS</td>
<td>aS</td>
<td>μ/C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**b.**

<table>
<thead>
<tr>
<th></th>
<th>Ft</th>
<th>σ</th>
<th>σ₁</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>*</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>μs</td>
<td>μs</td>
<td></td>
<td></td>
<td>wS</td>
<td>aS</td>
<td>wS</td>
<td>aS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**c.**

<table>
<thead>
<tr>
<th></th>
<th>Ft</th>
<th></th>
<th>σ₁</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>μs</td>
<td>μs</td>
<td></td>
<td></td>
<td>wS</td>
<td>aS</td>
<td>wS</td>
<td>aS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ Trometer & Zimmermann (U Leipzig) \]
Mora usurpation: Affix & LMM–

<table>
<thead>
<tr>
<th></th>
<th>Depμ</th>
<th>μ</th>
<th>* (V)μ</th>
<th>* (S)</th>
<th>* (\hat{S})</th>
<th>MaxS</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td>μs</td>
<td>σ</td>
<td>*!</td>
<td></td>
<td>**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>μs</td>
<td>σ</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>μs</td>
<td>σ</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td>μs</td>
<td>σ</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>μs</td>
<td>σ</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td>μs</td>
<td>σ</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td>μs</td>
<td>σ</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Deletion~Shortening
Deletion~Shortening

An important empirical observation

- the suffixes triggering vowel deletion actually trigger deletion of a μ
Deletion~Shortening

An important empirical observation

- the suffixes triggering vowel deletion actually trigger deletion of a \( \mu \)

(12) \textbf{warmi-x-ta} \quad \text{(Briggs 1976:171)}

women-V-1->3.NPst

\textbf{warnita}

‘I am a woman’
(13) ‘Shortening’ as usurpation: Affix & LMM—

<table>
<thead>
<tr>
<th>μs μs μ1</th>
<th>Depμ</th>
<th>μ V</th>
<th>*VμV</th>
<th>*S</th>
<th>*S</th>
<th>MaxS</th>
</tr>
</thead>
<tbody>
<tr>
<td>t2 a2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>a.</th>
<th>μs μs μ1</th>
<th>*!</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>t2 a2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b.</th>
<th>μs μs μ1</th>
<th>*!</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>μ</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>d.</th>
<th>μs μs μ1</th>
<th>*!</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>t2 a2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>g.</th>
<th>μs μs μ1</th>
<th>*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>t2 a2</td>
<td></td>
</tr>
</tbody>
</table>

Trommer & Zimmermann (U Leipzig) The case of Aymara
## Analyses, extended

<table>
<thead>
<tr>
<th></th>
<th>$\mu_s \mu_s \mu_1$</th>
<th>$\mu_s \mu_s \mu_1$</th>
<th>$\mu_1$</th>
<th>$\mu_1$</th>
<th>$\mu_1$</th>
<th>$\mu_1$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LMM+</strong></td>
<td>$w_s a_s w_s a_s$</td>
<td>$w_s a_s w_s a_s$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Affix &amp; LMM+</strong></td>
<td>$s_s a_s r_s a_s t_1 a_1$</td>
<td>$s_s a_s r_s a_s t_1 a_1$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Complete $\mu$ integration**

<table>
<thead>
<tr>
<th></th>
<th>$\sigma \sigma + \sigma_1$</th>
<th>$\sigma \sigma \sigma_1$</th>
<th>$F_t$</th>
<th>$F_t$</th>
<th>$F_t$</th>
<th>$F_t$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LMM-</strong></td>
<td>$w_s a_s w_s a_s$</td>
<td>$w_s a_s w_s a_s$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Defective $\sigma$ integration**

<table>
<thead>
<tr>
<th></th>
<th>$\mu_s \mu_s + u_s m_s a_s t_1 a_1$</th>
<th>$\mu_s \mu_s + u_s m_s a_s t_1 a_1$</th>
<th>$\mu_s \mu_s + u_s m_s a_s t_1 a_1$</th>
<th>$\mu_s \mu_s + u_s m_s a_s t_1 a_1$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Affix &amp; LMM-</strong></td>
<td>$u_s m_s a_s t_2 a_2$</td>
<td>$u_s m_s a_s t_2 a_2$</td>
<td>$u_s m_s a_s t_2 a_2$</td>
<td>$u_s m_s a_s t_2 a_2$</td>
</tr>
</tbody>
</table>

**$\mu$ usurpation**
And the alternative accounts?

Cophonology Theory

(14)  a.  Cophonology for Lengthening: $V:\# \gg D E P-\mu$
And the alternative accounts?

Cophonology Theory

(14) a. Cophonology for Lengthening: $V:\# \gg \text{DEP-\mu}$

b. **A cophonology for Deletion/Shortening?**

⇒ Which ranking could trigger shortening of long vowels and deletion of short vowels at the same time?
And the alternative accounts?

Cophonology Theory

(14)  
  a. Cophonology for Lengthening: \( V:\# \gg \text{DEP-} \mu \)  
  b. **A cophonology for Deletion/Shortening?**  

**Which ranking could trigger shortening of long vowels and deletion of short vowels at the same time?**

Transderivational Antifaithfulness

(15)  
  a. Lengthening: \( \neg \text{DEP-} \mu V \gg \text{DEP-} \mu \)  
  b. Deletion/Shortening: \( \neg \text{MAX-} \mu \text{TA} \gg \text{MAX-} \mu \)
And the alternative accounts?

Cophonology Theory

(14) a. Cophonology for Lengthening: \( V: # \gg D_{E P-\mu} \)
b. A cophonology for Deletion/Shortening?

\[ \rightarrow \] Which ranking could trigger shortening of long vowels and deletion of short vowels at the same time?

Transderivational Antifaitfulness

(15) a. Lengthening: \( \neg D_{E P-\mu_V} \gg D_{E P-\mu} \)
b. Deletion/Shortening: \( \neg M_{A X-\mu_{TA}} \gg M_{A X-\mu} \)

Realize Morpheme

(16) a. Lengthening: \( R_{M} \gg D_{E P-\mu_V} \)
b. Deletion/Shortening: \( R_{M} \gg M_{A X-\mu_{TA}} \)
The Muylaque dialect of Aymara
The Muylaque dialect of Aymara

Muylaque Aymara

- described in Coler (2010)
- spoken in the village of Muylaque, located on the Peruvian altiplano (district of San Christobal de Calacoa)
The Muylaque dialect of Aymara

Muylaque Aymara

- described in Coler (2010)
- spoken in the village of Muylaque, located on the Peruvian altiplano (district of San Christobal de Calacoa)

The big difference to La Paz Aymara

- there are no long vowels
  (Coler 2010:59)
LMM- patterns are identical to those in La Paz Aymara

(17)  Affix & LMM—

kuna-ø  muna-\textit{ta-sti}
what-Acc  want-2s-IRR
kun mu\textit{n}tast
‘What do you want?’
LMM in Muylaque Aymara II

(18) ‘Rescuer’ morpheme

a. taxa-???-ta-wa
   thin-Cop.VERB-2s-Aff
taxatawa
   ‘you are thin’

b. kuntinawu-???-ta-wa
   ghost-Cop.VERB-2s-Aff
   kuntinawutwa
   ‘I am the ghost’

c. mara-ni-???-ta-wa
   year-have-Cop.VERB-1s-Aff
   maranitwa
   ‘I am ... years old’

(Coler 2010:359+361)
A ‘rescuer’ morpheme in Muylaque Aymara

- The morpheme that ‘rescues’ a vowel from deletion, is a lengthening morpheme in La Paz Aymara!
A ‘rescuer’ morpheme in Muylaque Aymara

■ the morpheme that ‘rescues’ a vowel from deletion, is a lengthening morpheme in La Paz Aymara!

(19)  
Copulative verbalizer in La Paz Aymara  
(Adelaar & Muysken 2004:275)

a. hanq’u-\dag\n\nwhite-COP.VERB-INF
\n[hanq’u:n\a]  
‘to be white’

b. huma-\dag\xa k\dag\hi ti-\dag\-ta-sa
you-TOP who-COP.V-2S-IRR
\nhum\dag\xa k\dag\hi ti:tasa]&  
‘Who are you?’
## Analyses for Muylaque Aymara

<table>
<thead>
<tr>
<th>(LMM+)</th>
<th>( \mu S \mu S \mu_1 )</th>
<th>( \mu S \mu S \mu_1 )</th>
<th>no ( \mu ) integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>( l_s ) as ws as</td>
<td>( l_s ) as ws as</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LMM-</th>
<th>( \sigma ) ( \sigma ) ( \sigma_1 )</th>
<th>( \sigma ) ( \sigma ) ( \sigma_1 )</th>
<th>defective ( \sigma ) integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>( l_s ) as ws as</td>
<td>( l_s ) as ws as</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Affix &amp;</th>
<th>( \mu S \mu S )</th>
<th>( \mu S \mu S )</th>
<th>( \mu ) usurpation</th>
</tr>
</thead>
<tbody>
<tr>
<td>( m_S u_s n_s a_s ) t_1 a_1</td>
<td>( m_S u_s n_s a_s ) t_1 a_1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LMM-</th>
<th>( \mu S \mu S \mu_1 )</th>
<th>( \mu S \mu S \mu_1 )</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>( t_s ) as xs as t_2 a_2</td>
<td>( t_s ) as xs as t_2 a_2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TAF and the ‘rescuer’ morpheme

(20) *The verbaliser in Muylaque Aymara: no surface effect*

<table>
<thead>
<tr>
<th>/xata/ + V</th>
<th>Max</th>
<th>Dep-μ</th>
<th>*VV</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. xata</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. xat</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. xataː</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
</tbody>
</table>
TAF and the ‘rescuer’ morpheme

(20) *The verbaliser in Muylaque Aymara: no surface effect*

<table>
<thead>
<tr>
<th>/xata/ + V</th>
<th>Max</th>
<th>Dep-μ</th>
<th>*VV</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. xata</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. xat</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
<tr>
<td>c. xataː</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
</tbody>
</table>

(21) *‘Shortening’ in Muylaque Aymara*

<table>
<thead>
<tr>
<th>/xata/ + /ta/₁-&gt;3.Npst</th>
<th>¬Max-μ_TA</th>
<th>Max-μ</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. xatata</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>c. xatta</td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>
TAF and the ‘rescuer’ morpheme

(20) *The verbaliser in Muylaque Aymara: no surface effect*

<table>
<thead>
<tr>
<th>/xata/ + V</th>
<th>Max</th>
<th>Dep-μ</th>
<th>*VV</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. xata</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. xat</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>c. xata:</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
</tbody>
</table>

(21) ‘Shortening’ in Muylaque Aymara

<table>
<thead>
<tr>
<th>/xata/ + /ta/1→3.Npst</th>
<th>¬Max-μTA</th>
<th>Max-μ</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. xatata</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>c. xatta</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

→ An analysis of the ‘rescuer morpheme’ is apparently impossible
RM and the ‘rescuer morpheme’

Recall:

(22) The RM-rankings for La Paz Aymara

a. Lengthening: RM $\gg$ DEP-$\mu_V$
b. Deletion/Shortening: RM $\gg$ MAX-$\mu_{TA}$
RM and the ‘rescuer morpheme’

Recall:

(22) The RM-rankings for La Paz Aymara
   a. Lengthening: RM ≫ Dep-μ_V
   b. Deletion/Shortening: RM ≫ Max-μ_TA

(23) The RM-ranking for Muylaque Aymara
   a. Deletion/Shortening: RM ≫ Max-μ_TA
   b. The ‘rescuer morpheme’: Faith ≫ RM

This will always result in deletion, never in shortening: there is no existing (or ‘possible’) output form with a long vowel

(24) a. */taxa
    b. /taxa/ → *taxta

An analysis of the ‘rescuer morpheme’ is apparently impossible
**RM and the ‘rescuer morpheme’**

Recall:

(22) *The RM-rankings for La Paz Aymara*

a. Lengthening: \( \text{RM} \gg \text{DEP- } \mu_V \)
b. Deletion/Shortening: \( \text{RM} \gg \text{MAX- } \mu_{TA} \)

(23) *The RM-ranking for Muylaque Aymara*

a. Deletion/Shortening: \( \text{RM} \gg \text{MAX- } \mu_{TA} \)
b. The ‘rescuer morpheme’: \( \text{FAITH} \gg \text{RM} \)

This will always result in deletion, never in shortening:

**there is no existing (or ‘possible’) output form with a long vowel**

(24)  

a. \(*/\text{taxa}/:* \rightarrow \text{taxata}\

b. \(/\text{taxa}/: \rightarrow *\text{taxta}\

RM and the ‘rescuer morpheme’

Recall:

(22) The RM-rankings for La Paz Aymara
   a. Lengthening: RM \(\gg\) DEP-\(\mu_V\)
   b. Deletion/Shortening: RM \(\gg\) MAX-\(\mu_{TA}\)

(23) The RM-ranking for Muylaque Aymara
   a. Deletion/Shortening: RM \(\gg\) MAX-\(\mu_{TA}\)
   b. The ‘rescuer morpheme’: FAITH \(\gg\) RM

This will always result in deletion, never in shortening:

there is no existing (or ‘possible’) output form with a long vowel

(24) a. */taxa:/ \(\rightarrow\) taxata
    b. /taxa/ \(\rightarrow\) *taxta

→ An analysis of the ‘rescuer morpheme’ is apparently impossible
The Muylaque dialect of Aymara

And the alternative accounts?

Cophonologies and the ‘rescuer morpheme’

- the ‘rescuing’ cophonology (do not delete!) comes too late or too early to avoid vowel deletion

(25) taxa-???-ta-wa
thin-Cop.VERB-2s-AF
taxatawa
‘you are thin’
Cophonologies and the ‘rescuer morpheme’

- the ‘rescuing’ cophonology (do not delete!) comes too late or too early to avoid vowel deletion

(25) \text{taxa-???-ta-wa} \\
\text{thin-Cop.VERB-2s-AF} \\
\text{taxatawa} \\
‘you are thin’

→ An analysis of the ‘rescuer morpheme’ is apparently impossible
Conclusion
in Aymara, four different LMM patterns coexist and interact
Wrap up

- in Aymara, four different LMM patterns coexist and interact
- the interaction of different patterns result in a Duke of York-effect: Lengthening + Deletion/Shortening = no surface effect
Wrap up

- in Aymara, four different LMM patterns coexist and interact

- the interaction of different patterns result in a Duke of York-effect: Lengthening + Deletion/Shortening = no surface effect

<table>
<thead>
<tr>
<th></th>
<th>TAF</th>
<th>RM</th>
<th>Cophonologies</th>
<th>GNA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lengthening</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Segment deletion</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>μ deletion</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
<td>✓</td>
</tr>
<tr>
<td>the ‘rescuer morpheme’ in MA</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>✓</td>
</tr>
</tbody>
</table>
Cerrón-Palomino, Rodolfo (2008), Quechuanama: estructuras paralelas del Quechua y del Aimara, Plural Editores: PROEIB Andes, La Paz, Bolivia.
Davis, Stuart and Isao Ueda (2006), ‘Prosodic vs. morphological mora augmentation’, Lexicon Forum 2, 121-143.
Hardman, Martha J. (2001), Aymara, LINCOM.
Inkelas, Sharon and Cheryl Zoll (2005), Reduplication: Doubling in Morphology, Cambridge: Cambridge University Press.