Introduction

**Phonologically conditioned suppletive allomorphy (PCSA)**

(1) **PCSA** (cf., for example, Pastel 2006)
The surface representation/effect of one morpheme M is different depending on the phonological context and this difference cannot be attributed to phonological changes independently expected in this context.

(2) **Segmental PCSA in Moroccan Arabic** (Mascaro 2007)

<table>
<thead>
<tr>
<th>BASE</th>
<th>3.SG.MASC</th>
<th>Possible analysis:</th>
</tr>
</thead>
</table>

→ poly-representational analysis

**Non-concatenative PCSA**

- non-concatenative ‘PCSA’: in (3), different operations (gemination, vowel lengthening) apply
- both operations can be analysed in autosegmental phonology as addition of a μ

(3) **Non-concatenative ‘PCSA’ in Asante Twi** (Dolphyne 1996, Pastel 2010)

<table>
<thead>
<tr>
<th>BASE</th>
<th>PAST (+OBJ)</th>
<th>Possible analysis:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>тɔ</td>
<td>тɔ:</td>
</tr>
<tr>
<td>dane</td>
<td>‘to turn’</td>
<td>dane:</td>
</tr>
<tr>
<td>b.</td>
<td>nom</td>
<td>nom:</td>
</tr>
<tr>
<td>ɔpame</td>
<td>‘s/he sewed (it’)</td>
<td>ɔpam:</td>
</tr>
</tbody>
</table>

→ mono-representational analysis

**Main Claim**

- propose an analysis for a phonologically predictable allomorphy in Yucunany Mixtepec Mixtec (=YM)
  - a morphological low tone with different surface effects, or
  - the realization of additional segments
- an argument for contrastive prosodic specification in the underlying form:
  different underlying syllable structure = different surface effects
  → a prediction of OT and Richness of the Base
Mixtec languages

- indigenous languages, spoken in southern Mexico (Otomanguean)
- most communities have less than 50,000 speakers (McKendry 2013)

(4) State of Oaxaca

1. Sg formation in YM

- a low tone is added and creates a contour on the final σ (5-a)
- a low tone overwrites M on final σ (5-b)
- a segmental allomorph /–yù/ surfaces (5-c)

(5) Tonal allomorphy in Yucunany Mixtepec (Paster & Beam 2004:3-4)

a. nàmá ‘soap’ nàmáà ‘my soap’ L H → L HL
b. tìtzi ‘stomach’ tìtziì ‘my stomach’ L M → L ML
c. xà’nú ‘cigarette’ xà’nú ‘my cigarette’ H M → H L
d. sòkò ‘shoulder’ sòkòyù ‘my shoulder’ L L → L L yù
   tutù ‘paper’ tutùyù ‘my paper’ M L → M L yù
1. Sg formation in YM: context generalizations

A. a low tone is added and creates a contour for H-final stems

(6) námá 'soap' námá 'my soap' L H → L HL
xínii 'hat' xínii 'my hat' H LH → H LHL

B. a low tone overwrites M on final σ

(7) la'la 'mucus' la'la 'my mucus' M M → M L
xá'n 'cigarette' xá'n 'my cigarette' H M → H L

→ if this would not create an LH L

(8) yúútì 'sand' yúútì 'my sand' LH M → LH ML
yóóso 'metate' yóóso 'my metate' LH M → LH ML

→ or an L L

(9) titzi 'stomach' titzi 'my stomach' L M → L ML
kwá'a 'man's sister' kwá'a 'my man's sister' L M → LML

C. a segmental allomorph /–yü/ surfaces if the stem ends in a L-toned σ

(10) sòkò 'shoulder' sòkò yü 'my shoulder' L L → L L yü
tutù 'paper' tutù yü 'my paper' M L → M L yü

Analysis in Paster & Beam (2004)

- 1 Sg is 'marked by a floating L tone that associates to the end of the root' (p. 71)
- a different allomorph /yü/ for bases ending in L
  ← homophony avoidance

A monorepresentational analysis for YM

Is a monorepresentational analysis possible?

- Why does an additional low tone sometimes create a new contour tone and sometimes overwrites an underlying base tone?
- How can the addition of a tone and the realization of a segmental string follow from a single underlying representation?
Main claim

A monorepresentational analysis:
A segmental /yu/ + L; the former only realized as last resort

\[
\text{L} \quad \text{yu} /\#_{\_}\_
\]

(11) Preference for not realizing the /yu/ but realization of the L-tone ➔ (6)

<table>
<thead>
<tr>
<th>L₁</th>
<th>H₂</th>
<th>L₃</th>
<th>Max L</th>
<th>Dep σ</th>
<th>Max S</th>
</tr>
</thead>
<tbody>
<tr>
<td>σ₁</td>
<td>σᵶ</td>
<td>σᵶ</td>
<td>na</td>
<td>ma</td>
<td>yu</td>
</tr>
</tbody>
</table>

a. L₁ | H₂ | L₃ | * | ** |
| σᵶ | σᵶ | σᵶ | na | ma | yu |

b. L₁ | H₂ | L₃ | * |
| σ₁  | σᵶ | σᵶ | na | ma | yu |

c. L₁ | H₂ | L₃ | ** |
| σ₁  | σᵶ | σᵶ | na | ma | yu |

1. Non-realization of /yu/

- the /yu/ underlyingly lacks a σ node and since \text{Dep}·σ (11-a) is higher ranked than \text{Max}·S (11-b), the morpheme is preferably not realized (➔ morphemes that are realized in all contexts have an underlying σ)
- the L must be realized due to undominated \text{Max}·L (11-c)

(12) Contour creation vs. overwriting

- contour tones are penalized by *\text{Contour}_{σ} (=*\text{Cnt}_{σ}) (13-a)
- a contour is created with base-final H’s since \text{Max}·H (13-b) and \text{Max}·L dominate *\text{Cnt}_{σ}
- overwriting is predicted since *\text{Cnt}_{σ} dominates \text{Max}·M (13-c)

(13) a. *\text{Cnt}_{σ} Assign a violation mark for every σ that is associated to more than one tone. (Yip 2002:80)

b. \text{Max}·H Assign a violation mark for every input H-tone without an output correspondent.

c. \text{Max}·M Assign a violation mark for every input M-tone without an output correspondent.
A monorepresentational analysis for YM

(14) Floating L creates a contour with base-final H \(^{(6)}\)

<table>
<thead>
<tr>
<th>L(_1)</th>
<th>H(_2)</th>
<th>L(_a)</th>
<th>Max L</th>
<th>Max H</th>
<th>Dep (\sigma)</th>
<th>*CNT(\sigma)</th>
<th>Max M</th>
<th>Max S</th>
</tr>
</thead>
<tbody>
<tr>
<td>na</td>
<td>ma</td>
<td>L(_a)</td>
<td>yi</td>
<td>i</td>
<td>(\sigma)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(\varepsilon\) a. L\(_1\) H\(_2\) L\(_a\) | na \(\sigma\) |

b. L\(_1\) L\(_a\) | na \(\sigma\) |

(15) Floating L overwrites a base-final M \(^{(7)}\)

<table>
<thead>
<tr>
<th>L(_1)</th>
<th>H(_2)</th>
<th>M(_a)</th>
<th>Max L</th>
<th>Max H</th>
<th>Dep (\sigma)</th>
<th>*CNT(\sigma)</th>
<th>Max M</th>
<th>Max S</th>
</tr>
</thead>
<tbody>
<tr>
<td>la'</td>
<td>i</td>
<td>la'</td>
<td>la' (\sigma)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(\varepsilon\) a. M\(_1\) M\(_2\) L\(_a\) | la' |

b. M\(_1\) L\(_a\) | la' |

(16) No adjacent L-initial syllables

- No overwriting of M if two adjacent \(\sigma\)'s both associated with an L at their left edge would result
- A positional, non-local OCP \(^{(16)}\) banning two adjacent \(\sigma\)'s starting both with an L

(17) No adjacent L-initial \(\sigma\): Contour creation for M-final bases \(^{(8)}\)

<table>
<thead>
<tr>
<th>L(_1)</th>
<th>H(_2)</th>
<th>M(_3)</th>
<th>L(_a)</th>
<th>Max L</th>
<th>*L(_\sigma) (\sigma)</th>
<th>*CNT(\sigma)</th>
<th>Max M</th>
<th>Max S</th>
</tr>
</thead>
<tbody>
<tr>
<td>yu</td>
<td>ti</td>
<td>yu</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(\varepsilon\) a. L\(_1\) H\(_2\) M\(_3\) L\(_a\) | yu \(\sigma\) |

b. L\(_1\) H\(_2\) L\(_a\) | yu \(\sigma\) |

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A monorepresentational analysis for YM

(18) **No adjacent L-initial σ:** Contour creation for M-final bases

<table>
<thead>
<tr>
<th>L₁</th>
<th>M₂</th>
<th>Lₐ</th>
<th>Max L</th>
<th>*L₀L⁻σ</th>
<th>*CNTσ</th>
<th>Max M</th>
<th>Max S</th>
</tr>
</thead>
<tbody>
<tr>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
</tr>
</tbody>
</table>

**a.**

<table>
<thead>
<tr>
<th>L₁</th>
<th>M₂</th>
<th>Lₐ</th>
<th>Max L</th>
<th>*L₀L⁻σ</th>
<th>*CNTσ</th>
<th>Max M</th>
<th>Max S</th>
</tr>
</thead>
<tbody>
<tr>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
</tr>
</tbody>
</table>

**b.**

<table>
<thead>
<tr>
<th>L₁</th>
<th>Lₐ</th>
<th>M₃</th>
<th>Max L</th>
<th>*L₀L⁻σ</th>
<th>*CNTσ</th>
<th>Max M</th>
<th>Max S</th>
</tr>
</thead>
<tbody>
<tr>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
<td>ti</td>
</tr>
</tbody>
</table>

Realization of /–yù/ as last resort

- association of L to bases ending in an L is excluded by *[TT]: contour tones (adjacent tones associated to the same TBU) must be different
- realization of /–yù/ as last resort to satisfy Max-L becomes optimal

(19) *[TT]

Assign a violation mark for every pair of adjacent identical tones that are associated to one TBU.

YM: complete ranking

(20) **No adjacent L’s:** realization of /–yù/ **(10)**

<table>
<thead>
<tr>
<th>M₁</th>
<th>L₂</th>
<th>Lₐ</th>
<th>Max L</th>
<th>DEPσ</th>
<th>*L₀L⁻σ</th>
<th>Max S</th>
</tr>
</thead>
<tbody>
<tr>
<td>tu</td>
<td>tu</td>
<td>tu</td>
<td>tu</td>
<td>tu</td>
<td>tu</td>
<td>tu</td>
</tr>
</tbody>
</table>

**a.**

<table>
<thead>
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<th>M₁</th>
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<th>Lₐ</th>
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<td>tu</td>
<td>tu</td>
<td>tu</td>
<td>tu</td>
<td>tu</td>
<td>tu</td>
<td>tu</td>
</tr>
</tbody>
</table>

**b.**

<table>
<thead>
<tr>
<th>M₁</th>
<th>L₂</th>
<th>Lₐ</th>
<th>Max L</th>
<th>DEPσ</th>
<th>*L₀L⁻σ</th>
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<tbody>
<tr>
<td>tu</td>
<td>tu</td>
<td>tu</td>
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<td>tu</td>
<td>tu</td>
<td>tu</td>
</tr>
</tbody>
</table>

**c.**

<table>
<thead>
<tr>
<th>M₁</th>
<th>L₂</th>
<th>Lₐ</th>
<th>Max L</th>
<th>DEPσ</th>
<th>*L₀L⁻σ</th>
<th>Max S</th>
</tr>
</thead>
<tbody>
<tr>
<td>tu</td>
<td>tu</td>
<td>tu</td>
<td>tu</td>
<td>tu</td>
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</tr>
</tbody>
</table>

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Summary

- A monorepresentational analysis:
  - a floating tone and
  - a segmental string that is only realized as last resort

- the learner is faced with an instance of incomplete neutralization: in 4 of 5 possible (phonological) contexts, she is only provided with a subset of evidence for the complete representation (only the tone, not the segmental content)

Implications and further prediction

Richness of the base and underlying contrast

- (22-a) and (22-b) are both possible input representations in OT

(22)  

\[ \sigma \yù \]  
\[ \yù \]

- realized in all contexts  
- realized as a last resort

- the analysis based on Dep-σ implies that this difference between underlying forms has crucial surface effect

- independent arguments for contrastive syllabification in, for example, Elfner (2006), Iosad (2013), or Vaux (2013)

- an economy argument: a lexical contrast is reduced to a difference in underlying prosodic structure

More allomorphy involving defective segmental morphemes: Aymara

- morphemes triggering lengthening of a preceding vowel in La Paz Aymara (Andes, spoken in Bolivia and Peru)

(23)  

Vowel lengthening in the future (Briggs 1976, Hardman 2001)

| BASE    | FUTURE |  |  |
|---------|--------|  |  |
| a. sara | sara:  | 'go' | B265+266 |
| b. apa  | apatam | 'bring, have' | H211 |
| c. alja | alja:ma| 'sell' | 'I will sell' | H211 |
More allomorphy involving defective segmental morphemes: Aymara

- whenever double-lengthening is expected, /-ja/ surfaces
- no superlong vowels: alternative repair to realize both 'lengthenings'

(24) Allomorphy between : and ja (Beesley 2000)

a. warmi-:::
   women-Vb-1>3.Fut
   ‘I will be a women’
   warnija: *warmi::

b. qulqi-ni-:::ta
   money-possessor-Vb-1>3.Fut-FS
   ‘You will have money’
   qulqinijata: *qulqini::ta

Aymara: monorepresentational analysis

- /-ja/ underlyingly lacks a σ and is not realized if lengthening possible
  - realization of /ja/ implies a violation of Dep-σ and is dispreferred
  - MAX-μ demands that its μ must be realized: lengthening of preceding V

→ realization of /-ja/ as last resort to realize the μ

(25) Autosegmental analysis of Aymara

Underlying: Allomorph 1: V-lengthening
Input: ...
Output: ...

Allomorph 2: Realization of /ja/
Input: ...
Output: ...

DEP-σ ≫ "V:, MAX-S
MAX-μ, "V:: ≫ DEP-σ

Summary and Conclusion

A monorepresentational account of allomorphy

- for an account of allomorphy in YM where realization of only an additional tone alternates with realization of segments
  - crucial assumption: prosodically defective segments are only realized as a last resort
- extension of this account to Aymara where a non-concatenative allomorph alternates with a segmental allomorph as well
- prosodically defective morphemes are independently predicted in OT: an economy argument if they can account for apparently lexical contrasts/allomorphy pattern
References


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