Exocentric mutation

Eva Zimmermann & Jochen Trommer (Leipzig University)

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(1)

V Quality: \textit{Bruder} ‘brother’ \sim \textit{Brüder} ‘brothers’ (German)

C Quality: \textit{dastah} ‘to dig’ \sim \textit{nastah} ‘I dig’ (Texistepec Popoluca)

V Length: \textit{gudù} ‘walk’ \sim \textit{gudùː} ‘walking’ (Hausa)

C Length: \textit{katai} ‘hard’ \sim \textit{katai} ‘hard!’ (Shizuoka Japanese)

Tone: \textit{gwè} ‘swam’ (Sg) \sim \textit{gwé} ‘swam’ (PL) (Ngbandi)
Two Major Models of Mutation

A. Cyclic Feature Transformation: Mutation is triggered by morphological rules (constraints) which execute (require) feature changes

<table>
<thead>
<tr>
<th>Morphology</th>
<th>Phonology</th>
</tr>
</thead>
<tbody>
<tr>
<td>V [N +plural] → [–back]</td>
<td>—</td>
</tr>
<tr>
<td>Brüder</td>
<td></td>
</tr>
</tbody>
</table>

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Exocentric mutation

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Two Major Models of Mutation

A. Cyclic Feature Transformation: Mutation is triggered by morphological rules (constraints) which execute (require) feature changes

<table>
<thead>
<tr>
<th>Morphology</th>
<th>Phonology</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\acute{V}$ [N +plural] $\rightarrow$ [-back]</td>
<td>$-$</td>
</tr>
<tr>
<td>Brüder</td>
<td></td>
</tr>
</tbody>
</table>

B. Cyclic Feature Concatenation: Mutation is an effect of feature affixation + association of the feature affix to base material

<table>
<thead>
<tr>
<th>Morphology</th>
<th>Phonology</th>
</tr>
</thead>
<tbody>
<tr>
<td>$[\acute{V}]_N$ + [-back][+plural]</td>
<td>$\acute{V}$[+back]+[-back] $\rightarrow$ $\acute{V}$[-back]</td>
</tr>
<tr>
<td>Bruder+[-back]</td>
<td>$\Rightarrow$ Brüder</td>
</tr>
</tbody>
</table>

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Exocentric mutation
OCP 12
(2)

**V Quality:** Buch  ‘book’  ~ Büch-er  ‘books’  (German)

**C Quality:** famar-be  ‘small’ (C2)  ~ pamar-o  ‘small’ (C1)  (Fula)

**V Length:** to  ‘take’  ~ to:-ru  ‘take’ (Pass.)  (Tarahumara)

**C Length:** cam  ‘eat’ (tr.)  ~ camm-o  ‘eat’ (intr.)  (Päri)

**Tone:** tádà  ‘boy’  ~ tàdà-wa  ‘boys’  (Kanuri)
Cyclicity in Morphology

\[
\text{[Stem]}
\]

\[
\text{[Prf}_1\text{– [Stem] –Suf}_1\text{]}
\]

\[
\text{[Prf}_2\text{– [Prf}_1\text{– [Stem] –Suf}_1\text{] –Suf}_2\text{]}
\]
Directionality of Morphonological Processes

Endocentric:

\[ \text{[Prf}_2 \text{]} \rightarrow \text{[Prf}_1 \text{]} \rightarrow \text{[Stem]} \rightarrow \text{[Suf}_1 \text{]} \rightarrow \text{[Suf}_2 \text{]} \]

\[=\text{def}\]

A morphophonological process on a morphological constituent \(C\) is triggered by a constituent \(C'\) that is morphologically more peripheral than \(C\).
Directionality of Morphonological Processes

**Endocentric:**

=_{\text{def}} A morphophonological process on a morphological constituent $C$ is triggered by a constituent $C'$ that is morphologically more peripheral than $C$.

**Exocentric:**

=_{\text{def}} A morphophonological process on a morphological constituent $C$ is triggered by a constituent $C'$ that is morphologically less peripheral than $C$. 

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Exocentric mutation
- all examples so far ((1) and (2)) are **endocentric**:

**German:** 
- Stem → [-back] → -PL

**Päri:** 
- Stem → Lengthening → -O_{INT}

**Kanuri:** 
- Stem → L-tone → -wa_{PL}

...
Where the Models Differ in Their Predictions

Cyclic Feature Transformation

⇒ All mutation is endocentric

- Transformations are inherently cyclic base modifications
Where the Models Differ in Their Predictions

Cyclic Feature Transformation

$\rightarrow$ All mutation is endocentric

- Transformations are inherently cyclic base modifications

Cyclic Feature Concatenation

$\rightarrow$ Mutation may be endocentric, exocentric, or mixed

- Morphology: Every morpheme can introduce floating features
  Phonology: Floating features may attach to any phonological object
All mutation is endocentric.
Show that SBM is empirically untenable (cf. Wolf 2009).
Goal of this talk

- Show that SBM is empirically untenable (cf. Wolf 2009).

- Provide examples of exocentric mutation for different types of features (length, tone, segmental features).
Goal of this talk

- Show that SBM is empirically untenable (cf. Wolf 2009).
- Provide examples of exocentric mutation for different types of features (length, tone, segmental features).
- Present new formal types of counterexamples to the SBM.
Exocentric Mutation: Data
Kpelle
Exocentric stem-to-affix mutation in Kpelle

- tones: H, M, L, HL; TBU=σ
- 5 classes of nouns; class 2 and 5 have same surface tone pattern but affect following morpheme (affix/word) differently

(3)

<table>
<thead>
<tr>
<th>Base</th>
<th>Pl</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. H.H</td>
<td>wúlú</td>
<td>wúlú-ɔáà</td>
</tr>
<tr>
<td>2. L.L</td>
<td>yàlà</td>
<td>yàlà-ɔáà</td>
</tr>
<tr>
<td>3. L.HL</td>
<td>yòwɔ̀</td>
<td>yòwɔ̀-ɔáà</td>
</tr>
<tr>
<td>4. H.HL</td>
<td>yílè</td>
<td>yílè-ɔáà</td>
</tr>
<tr>
<td>5. L.L</td>
<td>gbònò</td>
<td>gbònò-ɔáà</td>
</tr>
</tbody>
</table>

(Konoshenko 2008:24)
Exocentric stem-to-affix mutation in Kpelle

**Analysis**

- plural affix is underlyingly low: /-ɔàà/; e.g. gbònò-ɔàà (cl.5)
- final HL-contour on N is simplified and L shifts to affix: yílé-ɔàà (cl.3+4)
- final H of N spreads to this affix: wúlú-ɔàà (cl.1)
- class 2 has a final floating H: gyàlà-ɔàà

![Diagram of exocentric mutation]

**Diagram**

- H
  - Stem
  - –Sfx
Gã (Paster 2000, 2003)

- Tense-Aspect is structurally inside of subject agreement

(4)

\[
\begin{align*}
mí-n\text{-}cha & \quad \text{‘I’m digging’} & \quad mí\text{-}cha-a & \quad \text{‘I dig habitually’} \\
1\text{Sg-Prog-dig} & & 1\text{Sg-dig-Hab} & \\
e-baá\text{-}cha & \quad \text{‘I will dig’} & \quad é-lá & \quad \text{‘he has sung’} \\
3\text{Sg-Fut-dig} & & 3\text{Sg-Perf-sing} & \\
\end{align*}
\]

(Paster 2000:8, Paster 2003:32)
Exocentric affix-to-affix mutation in Gã

- tonal overwriting of TAM on AGR

(5)

<table>
<thead>
<tr>
<th>Habitual (Underlying H/L-Tone)</th>
<th>Perfective (Grammatical H)</th>
<th>Simple Past (Grammatical L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Sg mí-cha-a</td>
<td>mí-cha</td>
<td>mi-dú</td>
</tr>
<tr>
<td>2Sg o-cha-a</td>
<td>ó-cha</td>
<td>o-dú</td>
</tr>
<tr>
<td>(‘dig’)</td>
<td>(‘dig’)</td>
<td>(‘cultivate’)</td>
</tr>
</tbody>
</table>

(Paster 2003:28–30)
Exocentric affix-to-affix mutation in Gã

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<th>Simple Past (Grammatical L)</th>
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</thead>
<tbody>
<tr>
<td>1Sg  mí-cha-a</td>
<td>mí-cha</td>
<td>mi-dú</td>
</tr>
<tr>
<td>2Sg  o-cha-a</td>
<td>ó-cha</td>
<td>o-dú</td>
</tr>
<tr>
<td>('dig')</td>
<td>('dig')</td>
<td>('cultivate')</td>
</tr>
</tbody>
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(Paster 2003:28–30)
Interim summary
Interim summary: Simple cases of exocentric mutation

- Kpelle: stem triggers mutation on more outwards affix
- Gã: affix triggers mutation on more outwards affix
## Interim summary: Simple cases of exocentric mutation

- **Kpelle**: stem triggers mutation on more outwards affix
- **Gâ**: affix triggers mutation on more outwards affix

### Simple exocentric mutation: overview

<table>
<thead>
<tr>
<th>Stem</th>
<th>(-\text{Afx}_i)</th>
<th>(-\text{Afx}_o)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chukchee (vow.F)</td>
<td><strong>Gâ</strong> (tone)</td>
<td><strong>Gaahmg</strong> (tone)</td>
</tr>
<tr>
<td>Fula (cons.F)</td>
<td><strong>Chaha</strong> (cons.F.)</td>
<td></td>
</tr>
<tr>
<td>Modern Greek (stress)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shoshone (length, cons.F (nas, gl))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kpelle (tone)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Awa (tone)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fore (tone)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(6) **Simple exocentric mutation**: overview
Dhaasanac
## Endo- vs. autocentric mutation in Dhaasanac

- various morphological lengthenings (gemination/V-lengthening)
- plural for certain nouns formed by suffixation of /-an/ and gemination of a preceding stem consonant (7-a)
- restriction: no gemination in polysyllabic words
- if gemination is blocked for polysyllabic nouns, the affix surfaces with a long V (7-b)

(7)  
<table>
<thead>
<tr>
<th>Base</th>
<th>Pl</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. kur</td>
<td>kur:a:m</td>
<td>‘knee’</td>
</tr>
<tr>
<td>kór</td>
<td>kor:a:m</td>
<td>‘double-pointed fork’</td>
</tr>
<tr>
<td>ṣar</td>
<td>ṣar:a:m</td>
<td>‘a kind of stick’</td>
</tr>
<tr>
<td>b. ṭar:ôŋod</td>
<td>ṭar:ôŋod:a:m</td>
<td>‘clearing-stick’</td>
</tr>
<tr>
<td>ṭôŋor</td>
<td>ṭôŋor:a:m</td>
<td>‘black’</td>
</tr>
<tr>
<td>deger</td>
<td>deger:a:m</td>
<td>‘barren’</td>
</tr>
</tbody>
</table>

(Tosco 2001:87)
Endo- vs. autocentric mutation in Dhaasanac

Analysis

- morphological lengthening strives to be realized on the stem
- if this is blocked, it is realized on the affix itself
Endo- vs. autocentric mutation in Dhaasanac

Analysis

- morphological lengthening strives to be realized on the stem
- if this is blocked, it is realized on the affix itself

\[ \text{Lengthening: } \mu \]

\[ \text{Stem} \rightarrow \text{–an} \]

→ Alternation between endocentric and autocentric mutation
Tamil
**Exocentric Mutation: Data**

**Exo- vs. Eno-centric mutation in Tamil**

- **intransitivization marked by gemination of a stem-final C**
  → **endocentric mutation**

(8)

<table>
<thead>
<tr>
<th>Trans.Stem</th>
<th>Pst</th>
<th>Intr.Stem</th>
<th>Pst</th>
</tr>
</thead>
<tbody>
<tr>
<td>uud(u)_{epenth}</td>
<td>uud-in-</td>
<td>uut(u)_{epenth}</td>
<td>uut-in</td>
</tr>
<tr>
<td>tirum b(u)_{epenth}</td>
<td>tirum b-in-</td>
<td>tirupp(u)_{epenth}</td>
<td>tirupp-in-</td>
</tr>
<tr>
<td>suru ng(u)_{epenth}</td>
<td>suru ng-in-</td>
<td>surukk(u)_{epenth}</td>
<td>surukk-in-</td>
</tr>
<tr>
<td>uur(u)_{epenth}</td>
<td>uur-in-</td>
<td>uur(u)_{epenth}</td>
<td>uur-in-</td>
</tr>
</tbody>
</table>

(Sundaresan & McFadden 2014:2+3)
Endo- vs. Exo-centric mutation in Tamil

- a different allomorph for the past tense /ndʒ/ for stems in (9) and
gemination now affects the past tense suffix (or any suffix in this
position)

→ exocentric mutation

(Sundaresan & McFadden 2014:2+3)
Endo- vs. Exo-centric mutation in Tamil

\[ \text{Stem} \rightarrow \neg \mu_{\text{Intr}} \rightarrow \neg N_{\text{Past}} \]

\[ \text{Stem} \rightarrow \neg \mu_{\text{Intr}} \rightarrow \neg i n_{\text{Past}} \]

→ Alternation between endo- and exocentric mutation
Alternate between endo- and exocentric mutation

**Analysis**

- the intransitive lengthening strives to be realized as gemination of the following suffix
- for the V-initial Pst-allomorph, gemination of a suffix-C is impossible: gemination of a stem consonant
Interim summary
Interim summary: Complex cases of exocentric mutation

(10)  *Complex mutation: overview*

<table>
<thead>
<tr>
<th>Alternation</th>
<th>endo- vs. exo-</th>
<th>endo- vs. auto-</th>
<th>exocentric blocking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamil (length)</td>
<td>Dhaasanac (length)</td>
<td>Aymara (length)</td>
<td></td>
</tr>
</tbody>
</table>
Cyclic accounts restricted by SBM
Cyclic Transformational Approaches to Morphophonology

1. Word and Paradigm Morphology (Anderson 1992)

2. Transderivational Antifaitfulness Theory (Alderete 1999)

3. Realize Morpheme (Kurisu 2001)
Cyclic Featural Transformations are Inherently Endocentric
Featural Concatenation may have Endocentric Effects...

\[
\text{[Stem]}
\]

\[
\begin{align*}
\text{[Prf}_1^{[+F]} & \quad \quad \text{[Stem]} \quad \quad \neg[+F]\text{Suf}_1 \]
\end{align*}
\]

\[
\begin{align*}
\text{[Prf}_2^{[+F]} & \quad \quad \text{[Prf}_1^- & \quad \quad \text{[Stem]} \quad \quad -\text{Suf}_1 \quad \quad \neg[+F]\text{Suf}_2 \]
\end{align*}
\]
...or Exocentric Effects

\[[\text{Prf}_1^-] \text{Stem} \] \[\text{Prf}_2^- \]

\[[\text{Prf}_1^-] \text{Stem} \] \[\text{Suf}_1^- \]

\[[\text{Prf}_1^-] \text{Stem} \] \[\text{Suf}_1^- \[\text{Prf}_2^- \]

\[[\text{Prf}_1^-] \text{Stem} \] \[\text{Suf}_1^- \ [\text{Prf}_2^- \]

\[[\text{Prf}_1^-] \text{Stem} \] \[\text{Suf}_1^- \ [\text{Prf}_2^- \]

\[[\text{Prf}_1^-] \text{Stem} \] \[\text{Suf}_1^- \ [\text{Prf}_2^- \]

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Exocentric mutation

OCP 12
Antifaithfulness (Alderete 1999)

1. transderivational faithfulness relations (Benua 1997): allow to compare (morphologically related) output forms

2. every standard faithfulness constraint exists in a negative version demanding unfaithfulness with respect to a certain phonological dimension that distinguishes two morphologically related words
Antifaithfulness (Alderete 1999)

1. transderivational faithfulness relations (Benua 1997): allow to compare (morphologically related) output forms

2. every standard faithfulness constraint exists in a negative version demanding unfaithfulness

→ transderivational antifaithfulness constraints demand unfaithfulness with respect to a certain phonological dimension that distinguishes two morphologically related words
## Antifaitfulness and endocentric mutation

(11) *Antifaitfulness analysis for endocentric mutation in Texistepec Popoluca*

<table>
<thead>
<tr>
<th></th>
<th>MaxS</th>
<th>$\neg$OO-IDENT NAS[dastah]</th>
<th>IDENT-NAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>dastah + 1.Sg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. dastah</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>b. astah</td>
<td>*!</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>c. nastah</td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>
Recall: exocentric mutation in Gã

(12) TAM overwrites tone on the subject prefix

<table>
<thead>
<tr>
<th></th>
<th>PERFECTIVE</th>
<th>SIMPLE PAST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Grammatical H)</td>
<td>(Grammatical L)</td>
</tr>
<tr>
<td>1Sg</td>
<td>mí-cha</td>
<td>mi-dú</td>
</tr>
<tr>
<td>2Sg</td>
<td>ó-cha</td>
<td>o-dú</td>
</tr>
<tr>
<td>('dig')</td>
<td>('cultivate')</td>
<td></td>
</tr>
</tbody>
</table>

Agr- TAM- Stem
(13) **Antifaitfulness analysis for Gã?**

\[ \neg \text{OO-DepH} \]

\[ \text{PERF} /\text{cha/} \quad [\text{cha}] \rightarrow \text{incorrect prediction *}[\text{chá}] \]

- no antifaiithfulness constraint indexed to \text{PERF} can ever enforce a change on a prefix (/mi–/ or /o–/)
Antifaithfulness and exocentric mutation

Mutation is not triggered by SAgR but by TAM!
Mutation cannot be triggered: change not on stem!
Antifaithfulness and exocentric mutation

Only a mutation can be demanded that distinguishes a morphologically more complex word from a less complex base
Antifaithfulness and SBM

(14) *Strict Base Mutation, illustrated (Alderete 1999:141)*

<table>
<thead>
<tr>
<th>Base</th>
<th>Derivative</th>
<th>$\sim$OO-Faith</th>
<th>OO-Faith</th>
</tr>
</thead>
<tbody>
<tr>
<td>root</td>
<td>ROOT-af</td>
<td></td>
<td></td>
</tr>
<tr>
<td>root</td>
<td>root-AF</td>
<td></td>
<td>!</td>
</tr>
</tbody>
</table>

(capitalization: change/mutation)

(15) *Thesis of Strict Base Mutation (Alderete 1999:141)*

Transderivational Anti-Faithfulness may only affect the base of affixation.
Predicting exocentric mutation in a GNA account
all mutation and non-concatenative morphology is the result of affixation (Lieber 1987, Bermúdez-Otero 2012, Trommer & Zimmermann 2015)

a (nonlinear) morpheme may in principle affect the preceding or the following morpheme

(16) \textit{Autosegmental analysis for mutation}

\[
\begin{array}{c}
\text{A} \\
\text{X} & \text{Z} \\
\text{St} & -Af_i & -Af_o
\end{array}
\]
(17) **A GNA account for Texistepec Popoluca**

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>+</td>
<td>d</td>
<td>a</td>
<td>s</td>
<td>t</td>
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</table>

| Max[+nas] | *Float | Max[–nas] |

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<td>s</td>
<td>t</td>
<td>a</td>
</tr>
</tbody>
</table>

| * |
Exocentric mutation: Gã and GNA (Simple Past)

<table>
<thead>
<tr>
<th>H</th>
<th>L</th>
<th>H</th>
<th>*SPREADRIGHT</th>
<th>τ ⇒ π</th>
<th>τ ⇒ π</th>
</tr>
</thead>
<tbody>
<tr>
<td>mi+</td>
<td>+</td>
<td>d u</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>a.</th>
<th>H</th>
<th>L</th>
<th>H</th>
<th>*</th>
<th>*!</th>
</tr>
</thead>
<tbody>
<tr>
<td>mi</td>
<td>d u</td>
<td></td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>b.</th>
<th>H</th>
<th>L</th>
<th>H</th>
<th>*</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>mi</td>
<td>d u</td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>c.</th>
<th>H</th>
<th>L</th>
<th>H</th>
<th>*!</th>
<th>*</th>
</tr>
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<tbody>
<tr>
<td>mi</td>
<td>d u</td>
<td></td>
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</table>

τ ⇒ π: Each tone must be associated phonetically or morphologically to a prosodic unit

τ → π: Each tone must be associated phonetically to a prosodic unit
### (18) Tamil and GNA

<table>
<thead>
<tr>
<th>Tamil</th>
<th>GNA</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="" alt="Table and Diagram" /></td>
<td><img src="" alt="Table and Diagram" /></td>
</tr>
</tbody>
</table>

(An undominated constraint preserves underlying vowel length)
Conclusion
different types of mutation exist in the languages of the world which are not endocentric
Summary

- different types of mutation exist in the languages of the world which are not endocentric

- theories that are cyclic-transformational and hence restricted by the SBM suffer from a severe undergeneration problem
## Appendix I: languages

<table>
<thead>
<tr>
<th>Language</th>
<th>ISO639.3</th>
<th>mbranch</th>
<th>stock</th>
<th>area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chaha</td>
<td>sgw</td>
<td>West Semitic</td>
<td>Semitic</td>
<td>Greater Abyssinia</td>
</tr>
<tr>
<td>Coatzospan Mixtec</td>
<td>miz</td>
<td>Mixtecan</td>
<td>Otomanguean</td>
<td>Mesoamerica</td>
</tr>
<tr>
<td>Dhaasanac</td>
<td>dsh</td>
<td>Eastern Cushitic</td>
<td>Cushitic</td>
<td>Greater Abyssinia</td>
</tr>
<tr>
<td>Gā</td>
<td>gaa</td>
<td></td>
<td>Kwa</td>
<td>African Savannah</td>
</tr>
<tr>
<td>Kpelle</td>
<td>kpe</td>
<td>West Mande</td>
<td>Mande</td>
<td>African Savannah</td>
</tr>
<tr>
<td>Tamil</td>
<td>tam</td>
<td>South Dravidian</td>
<td>Dravidian</td>
<td>Indic</td>
</tr>
</tbody>
</table>
Appendix II: Chukchi (cited in Wolf (2007))

- [+low] dominant vowel harmony: affix- or stem-vowels alternate
  
  \[
  \begin{array}{cccc}
  \text{low} & \text{i} & \text{u} & \text{e}_1 \\
  \text{+low} & \text{e}_2 & \text{o} & \text{a} \\
  \end{array}
  \]

(19)

a. milute-nu 'rabbit'-DESIG  
  tutlik-u 'snipe'-DESIG  
  wopqa-no 'moose'-DESIG  
  orw-o 'tent'-DESIG  

b. milute-t 'rabbit'-ABS  
  ləle-t 'eye'-ABS  
  γa-melota-ma 'rabbit'-Сом  
  γa-ləla-ma 'eye'-Сом  

(Bobaljik 2009:2)
some stems trigger [+low] on affixes but are underlyingly vowel-less

(20)  
**Vowel-less stems**

a. ęe-nt-ə-lin ‘he has cut off’
    ęe-rə-lin ‘he has dug, scratched’

  [+low] on vowel-less stems

b. ęa-nm-ə-len ‘he has killed’
    ęa-tw-ə-len ‘he has said’
    ęa-rw-ə-len ‘he has split’

(Bobaljik 2009:2)
Exocentric stem-to-affix mutation in Chukchi

Prfx– \rightarrow [+low] \rightarrow Stem \rightarrow [+]low \rightarrow –Sfx
Appendix III: Chaha (Rose 2007)

- Chaha suffixation template:
  
  VERB STEM– Subject – Object-Case – Object/Per-Num – Tense
Appendix III: Chaha (Rose 2007)

- Chaha suffixation template:
  
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- object suffixes are marked for case (Acc, Mal, Ben)
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- Chaha suffixation template:
  
  VERB STEM – Subject – Object-Case – Object/Per-Num – Tense

- object suffixes are marked for case (Acc, Mal, Ben)

- specific (inner) subject agreement affixes trigger consonant hardening in (outer) object agreement

(21)

\[
\text{ji-rəxǐβ-β-a} \quad \text{ji-rəxǐβ-o-p-a} \\
\text{S3-find-MAL-O3SgF} \quad \text{S3-find-S3Pl-Mal-O3SgF}
\]

‘he finds (sth) to her detriment’  ‘they find (sth) to her detriment’

(Rose 2007:40)
Exocentric affix-to-affix mutation in Chaha

- two allomorph sets for object marker:
  - ‘heavy’ forms after PL subject affixes, 2SGFEM subject affixes, and impersonal
  - ‘light’ forms after all other Sg subject affixes

(22)

<table>
<thead>
<tr>
<th></th>
<th>MALFACTIVE</th>
<th>BENEFACTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LIGHT</td>
<td>HEAVY</td>
</tr>
<tr>
<td>1Sg</td>
<td>-β-i</td>
<td>-p-i</td>
</tr>
<tr>
<td>1Pl</td>
<td>-β-ndo</td>
<td>-p-ndo</td>
</tr>
<tr>
<td>2SgF</td>
<td>-β-x&lt;sup&gt;j&lt;/sup&gt;</td>
<td>-β-k&lt;sup&gt;j&lt;/sup&gt;</td>
</tr>
<tr>
<td>2PlF</td>
<td>-β-xma</td>
<td>-β-kma</td>
</tr>
<tr>
<td>3SgF</td>
<td>-β-a</td>
<td>-p-a</td>
</tr>
<tr>
<td>3PlF</td>
<td>-β-ɔma</td>
<td>-p-ɔma</td>
</tr>
</tbody>
</table>

(Rose 2007:39)
Exocentric affix-to-affix mutation in Chaha

![Diagram showing exocentric affix-to-affix mutation in Chaha]
Appendix IV: Exocentric blocking in Muylaq’ Aymara

- a class of suffixes (arbitrary, lexically marked) triggers deletion of a preceding vowel (23-a)
- the verbalizer has no surface effect in most contexts (23-b)

(23)

a. mun**a-t-χa**  
   sara**a-ta-sti**  
   jaqi-**a-tan-wa**

b. jiwa-ta-□-wa-ʧi-χa:  
   jaqita-□-tan-wa

muntχa  
   sartast  
   jaqitanwa

‘want’-1SG-Top  
‘go’-2SG-IRR  
‘people’-VB-4.S-Af

(Coler 2010:74, 118, 165, 359)
Exocentric blocking in Muylaq’ Aymara

- If a vowel deletion-triggering suffix follows a verbalized base, vowel deletion is blocked (24)

(24) $\text{taχa-□-t-a-wa}$ $\text{taχatawa}$ $\text{thin-Vb-2sg-Aff}$
$\text{kuntinawu-□-t-wa}$ $\text{kuntinawutwa}$ $\text{ghost-Vb-1sg-Aff}$
$\text{mara-ni-□-t-wa}$ $\text{maranitwa}$ $\text{year-os-Vb-1sg-Aff}$

(Coler 2010:359-361)
An effect expected from outer affix $o$ on base $x$ is blocked by affix $i$. 

**Conclusion**

Exocentric blocking in Muylaq’ Aymara