1 Introduction

Claim: Affix order in Washo is phonologically conditioned.

More Specifically:

- in Washo, stem-level suffixes are reordered to avoid a stem-final stressed syllable
- a Stratal OT analysis: at the stem level, the phonological constraint NONFINALITY outranks morphological alignment constraints (making this a $P \gg M$ ($Phonological \gg Morphological$) analysis, see McCarthy & Prince 1993, Paster 2006a,b, 2009)
- unstressed suffixes are later added at the word level but counterbleed the observed change in affix order

2 PCAO

- “phonologically conditioned affix order”: semantically and/or morphologically unexpected affix order triggered by phonological constraint(s), affixes may be more than one segment long
- affix order in Washo is non-transitive (cf. Ryan 2010) and opaque (cf. Stiebels 2003), but the deviations from “expected” affix order are not random, they can be explained by NONFINALITY-triggered avoidance of a stem-final stressed syllable
- Washo (isolate, North America) is polysynthetic, mostly suffixing
• today, we will look at some infinite and finite verb forms
• data from Jacobsen (1964, 1973), who also identified the pattern as phonologically conditioned

(1)  
geyúliyé:sha  
ge-yúl-i-é:s-ha  
IMP-die-NEG-CAUS  
“Don’t kill it!”

First observations and further information:
• affix order in (1) is semantically opaque
• stress behaves much like lexical stress: in particular, we will see that some affixes, such as negative -é:s and most verbal roots always bear stress independently of their position in the word
• usually in Washo, causative -ha appears close to the verbal root, while negative -é:s appears relatively late in the stem1

<table>
<thead>
<tr>
<th>slot</th>
<th>-1</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
<th>+3</th>
<th>+4</th>
<th>+5</th>
<th>+6</th>
<th>+7</th>
</tr>
</thead>
<tbody>
<tr>
<td>morphemes</td>
<td>PERS.SBJ</td>
<td>Verb</td>
<td>INCH</td>
<td>PL.INCL</td>
<td>NEAR.FUT</td>
<td>NEG</td>
<td>REC.PST</td>
<td>IND</td>
<td>SR</td>
</tr>
<tr>
<td>PERS.OBJ</td>
<td>TRANS</td>
<td>DU.INCL</td>
<td>Q</td>
<td>DIST.FUT</td>
<td>DEP</td>
<td>INT.FUT</td>
<td>REDUN</td>
<td>OPT</td>
<td></td>
</tr>
<tr>
<td>IMP</td>
<td>CAUS</td>
<td>DUR</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Table 1: Partial template of the Washo verb based on Jacobsen (1964)

(2)  
léme?huyáša?i  
le-íme?-hu-áša?-i  
1 SBJ-drink-PL.INCL-NEAR.FUT-IND  
“We (incl.) are going to drink.”

(3)  
léma?áša?é:si  
le-íme?-áša?-é:s-i  
1 SBJ-drink-NEAR.FUT-NEG-IND  
“I am not going to drink.”

• from (2)-(3) we might infer: if PL.INCL-NEAR.FUT and NEAR.FUT-PL.INCL, then PL.INCL-NEG

• instead, we find non-transitive NEG-PL.INCL

(4) lémeʔé:shuyi
le-ímeʔ-é:š-hu-i
1SBJ-drink-NEG-PL.INCL-IND
“We (incl.) are not drinking.”

More affixes in unexpected places:

(5) lémeʔé:silegi
le-ímeʔ-é:š-ši-leg-i
1SBJ-drink-NEG-DU.INCL-REC.PST-IND
“We (both of us) didn’t drink.”

(6) lémehé:šhugabi
le-ímeʔ-hé:š-hu-gab-i
1SBJ-drink-Q-PL.INCL-DIST.FUT-IND
“Are we (incl.) going to drink?”

(7) gayáhayetihé:ša-i-š
gé-yáha-etíʔ-hé:š-ha-i-š
3OBJ-hurt-INCH-Q-CAUS-IND-SR
“Perhaps it started to hurt him.”

(8) lakLášdimé:shayiŋa
le-klášdim-é:s-ha-i=ŋa
3SBJ.1OBJ²-hide-NEG-CAUS-IND=but
“But (they) don’t conceal it from me.”

(9) ?umk’uyéʔešlelhé:šuši
?um-k’uyéʔeš-lel-hé:š-uš-i
2SBJ-swim-TRANS-Q-DUR-IND
“Have you been swimming any?”

²sic
3 Washo verbs in Stratal OT

- stratal organization of Washo morphology and phonology:
- Stratum 0 “extended root”: reduplication, stress assignment (see Yu 2005)
- Stratum 1 “stem”: affixation stem-level affixes, PCAO
- Stratum 2 “word”: affixation word-level affixes
- suffixes in Washo form two classes: stem-level (cf. Jacobsen 1964 stem-formative suffixes) and word-level (cf. Jacobsen 1964 prefinal and final suffixes, slots +5 and +6 in Table 1). Only stem-level suffixes appear on infinite verb forms. Some stem-level suffixes bear inherent stress, all word-level suffixes are unstressed.

**Stratum 1:** Stem-level suffixes (simplified)

<table>
<thead>
<tr>
<th>/íme?/, /hu/, /é:s/</th>
<th>NONFINALITY</th>
<th>NEG-R</th>
<th>INCL-R</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. íme?-hu-é:s</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. íme?-é:s-hu</td>
<td></td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

- morphemes are unordered in the Input, only stem-level affixes present
- NEG-R: assign * for every morpheme intervening between NEG and the right edge of PrWd (compare McCarthy & Prince 1993)
- NONFINALITY: assign * for a stressed syllable that is final in PrWd (Prince & Smolensky 2004)
- in addition, at least two further phonological constraints have to be considered:
  - MÁX: assign * for a syllable that is stressed in the Input but not in the Output (cf. Pater 2000)
  - *CLASH: assign * for a stressed syllable that is immediately followed by another stressed syllable (Kager 1999)
- morphologically preferred order (semantically transparent, transitive) encoded in morpheme alignment constraints (also see Potter 1996, who relates alignment constraints to the Mirror Principle (Baker 1985))
- **NONFINALITY** can cause violation of alignment, but alignment is violated minimally

- on Stratum 2, prefixes and word-level suffixes are added. The word-level suffixes are never stressed, so they never violate the phonological constraints active at the stem level

- if the last syllable is not stressed in the candidate with the order of affixes corresponding to the ranking of alignment constraints at the time of evaluation of Stratum 1, **NONFINALITY** will be satisfied and the order will stay as expected, as in (2)

<table>
<thead>
<tr>
<th>/imeʔ/, /lu/-šaʔ/</th>
<th>*CLASH</th>
<th>MÁX</th>
<th>NONFin</th>
<th>NEAR_FUT-R</th>
<th>INCL-R</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. imeʔ-hu-šaʔ</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. imeʔ-šaʔ-hu</td>
<td></td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **NONFINALITY**-driven reordering is blocked exactly in the cases where it would give rise to a clash, as in (3)

<table>
<thead>
<tr>
<th>/imeʔ/, šaʔ/, šaʔ/</th>
<th>*CLASH</th>
<th>MÁX</th>
<th>NONFin</th>
<th>NEG-R</th>
<th>NEAR_FUT-R</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. imeʔ-šaʔ-šaʔ</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b. imeʔ-šaʔ-šaʔ</td>
<td>*!</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>c. imeʔ-šaʔ-šaʔ</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>d. imeʔ-šaʔ-šaʔ</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

4  \( P \gg M \) and Subcategorization

- Paster (2006a,b, 2009) claims that all cases of PCAO can be reanalyzed as segmental metathesis or infixation

- claim for Washo: “[...] stressed suffixes subcategorize for a foot to their left.” (Paster 2006a:229)

<table>
<thead>
<tr>
<th>lemaʔašaʔé:shuiy</th>
<th>le-imeʔ-šaʔ-šaʔ-hu-i</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SBJ-drink-NEAR_FUT-NEG-PL.INCL-IND</td>
<td>“We (incl.) aren’t going to drink”</td>
</tr>
</tbody>
</table>

| a. le-[imeʔ]št-šaʔ-šaʔ-i |
| b. le-[imeʔ]št-hu-[šaʔ]-šaʔ-i |
| c. (i) le-[imeʔ]št-šaʔ-hu  |
| (ii) le-[imeʔ]št-[šaʔ]-št-šaʔ-šaʔ-hu-i |
• (13) is a more complex example where plural inclusive -hu is displaced to the right across two other affixes

• (14) shows that the subcategorization approach fails to predict the attested affix order

• this is not surprising considering that Paster (2009) explicitly states that subcategorization predicts only pairwise ordering effects

• in the \( P \gg M \) system, the more global reordering effects in (13) are predicted and accounted for

\[
\begin{array}{|c|c|c|c|c|c|}
\hline
 /\text{ime?}/, /\text{hu}/, /\text{aša?}/, /\text{e:s}/ & *\text{CLASH} & \text{MÁX} & \text{NONFIN} & \text{NEG-R} & \text{N.FUT-R} & \text{INCL-R} \\
\hline
\text{a. ime?-hu-aša?-e:s} & *! & & * & ** & \\
\text{b. ime?-hu-aša?-es} & *! & & * & ** & \\
\text{c. ime?-aša?-e:s-hu} & * & & ** & \\
\text{d. ime?-e:s-hu-aša?} & & & **! & * & \\
\text{e. ime?-e:s-aša?-hu} & *! & & ** & * & \\
\hline
\end{array}
\]

(15)

5 Conclusion

• PCAO exists

• a \( P \gg M \) approach in Stratal OT allows us to capture a complex interaction between morphology and phonology in a simple and transparent constraint system

• something to think about: compared to strictly parallel OT, Stratal OT makes different predictions for PCAO - it allows for opacity (such as the counterbleeding opacity I argue for above), but it restricts PCAO to a more local domain: the stratum (compare Kiparsky 2015 on the general idea that Stratal OT can be more restrictive than strictly parallel OT)

References


