Vowel Fission in Jaqaru

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1. Introduction

- Jaqaru is an Aymaran language spoken in the Yauyos Province, Department of Lima, in the central coastal area of Peru. There are estimated to be about 750 speakers (Lewis 2009).
- The data presented here owe to Rodolfo Cerrón-Palomino (2000 and p.c.).
- *Jaqaru exhibits two patterns of vowel copy harmony under consideration.*

(1) A. Copy harmony that affects stressed syllables
- The stressed vowel manifests copy harmony with a following suffix vowel.
  a. apí-ší ‘to take along’        apa- ‘to take’
  b. ajší-ru ‘to overflow’        ajši- ‘to boil’
  c. tʃuşq-ja ‘to make someone pull’ tʃuş- ‘to pull’

- This has been analyzed as driven by a constraint that requires features of post-tonic suffix vowels to be affiliated with the stressed syllable (Cerrón-Palomino López 2003).

(2) B. Copy harmony that affects ‘epenthetic’ vowels
- In loans, an ‘epenthetic’ final vowel is added to avoid a consonant-final root.
- In unsuffixed forms, the added vowel usually copies the preceding vowel.
  a. lúnisí < lunes (Spanish)        ‘Monday’
  b. áxusuí < ajos (Spanish)         ‘garlic’
  c. púsaqá < pusaq (Quechua)        ‘eight’

- Note: because there is no suffix in the above examples, copy harmony in the stressed syllable is not expected.

(3) Focus of this talk: Interaction of the copy harmonies
- Under suffixation, stress in loan words shifts to the penult. Two alternate forms are then available.
  a. The complete base of affixation is retained, and the stressed vowel shows harmony with the suffix:

      *Non-contracted affixed form:* axusí-ni ‘garlic’ POSS.

  b. The base contracts, deleting the second vowel, and the base-final vowel displays the quality of the original vowel in the root-final syllable:

      *Contracted affixed form:* axsú-ni ‘garlic’ POSS.
A possible solution: Counter-bleeding opacity?

- Harmony of the ‘epenthetic’ vowel with the root vowel must precede deletion, as in (a); otherwise deletion would bleed harmony with the appropriate vowel, as in (b).

(a) Counterbleeding rule interaction in contracted forms

Underlying representation /axus-ni/
Epenthesis axusV-ni
Harmony with root vowel axusu-ni
Deletion axs-u-ni
Surface representation [axsú-ni]

(b) Bleeding rule interaction in contracted forms

Underlying representation /axus-ni/
Epenthesis axusV-ni
Deletion axsV-ni
Harmony with root vowel axsa-ni
Surface representation *[axsá-ni]

Two drawbacks

- To obtain the quality of the stressed vowel in the contracted form, the analysis must appeal to some device to achieve the effect of counterbleeding opacity.
- Even with this complexity in the analysis, blocking of harmony with the suffix vowel in the contracted form only is not predicted.

Proposal: Non-canonical correspondence – vowel fission and CV metathesis

- Apparent vowel copy epenthesis in non-contracted roots is analyzed as vowel fission (Struijke 2000), where a vowel has multiple correspondents in the output, as in (a).
- Apparent epenthesis, harmony, and deletion in contracted forms are analyzed as CV metathesis, as in (b).

Fission

<table>
<thead>
<tr>
<th>a. /a x ú₁ s₂/</th>
<th>b. /a x ú₁ s – n i/</th>
</tr>
</thead>
<tbody>
<tr>
<td>[axú₁s₂ú₁]</td>
<td>[axs₂ú₁ – ní]</td>
</tr>
</tbody>
</table>

- Resultingly, neither deletion nor epenthesis actually occur. ‘Harmony’ is the product of non-canonical correspondence configurations, i.e. involving fission or metathesis.
- Existential faithfulness will be invoked to obtain blocking of harmony in the stressed vowel from the suffix in contracted forms only.

Organization

- §2. Stressed vowel copy harmony: Data and analysis
- §3. Interaction with ‘epenthetic’ vowels: Data
- §4. Analysis: Non-canonical correspondence and harmony blocking in contracted forms
- §5. Conclusion
2. Stressed vowel copy harmony

(8)  Jaqaru vowels: /i, a, u/
    • Jaqaru is a suffixing language; no prefixes occur (Hardman 1966).
    • Stress in Jaqaru is usually assigned to the penultimate syllable.

(9)  Stressed vowels show copy harmony with a following suffix vowel

   a.  i-final
       tfimí-ni ‘with belly’
       paki-ḫi-ji ‘to break oneself’
       was-mi-Ĝī ‘hey, be careful’

   b.  a-final
       nuná-ja ‘to cause to rinse’
       tjuqá-ja ‘to make someone pull’

   c.  u-final
       im-kū-ju ‘sewing’
       ajū-ru ‘to introduce the hand’
       ajū-ru ‘to overflow’

   1 Stressed vowel copy harmony is only triggered by particular suffixes. See the appendix.

(10)  The role of positional markedness
    • Harmony patterns with a weak trigger and strong target have been analyzed as driven by licensing constraints that penalize weak structure that is not affiliated with a prominent position (Walker 2005).
    • Cerrón-Palomino López (2003) analyzes stressed vowel copy harmony as driven by a constraint that requires features of a post-tonic vowel to have an association with a stressed syllable, as in (11). (Constraint formulation specifics differ to some extent from that of Cerrón-Palomino López, but achieve the same effect.)
    • “Vowel-feature” refers to the set of features characterizing vowel quality, e.g., [back], [round], [high], etc. (Not every feature in the set is needed for the Jaqaru’s three vowels.)

(11)  LICENSE([VOWEL-FEATURE]post-tonic[\phi])
    Assign a violation to each vowel feature associated with a post-tonic suffix vowel that lacks an association to the stressed syllable.

(12)  The role of positional faithfulness
    • The word-final faithfulness constraint will dominate its counterpart for stressed syllables, IDENT-\phi(VOWEL-FEATURE) (Beckman 1998).

(13)  IDENT-\phi_{ Final}(VOWEL-FEATURE)
    Let \alpha be a segment in the final syllable in the output, \beta be a correspondent of \alpha in the input, and VF be a vowel feature. If \alpha is [γVF] then is \beta [γVF].
(14) \[ \text{LICENSE}([\text{V-FEATURE}]_{\text{post-tonicAf}, \sigma}), \text{IDENT-} \sigma_{\text{Final}}(\text{V-FEATURE}) \gg \text{IDENT-} \sigma(\text{V-FEATURE}) \]

<table>
<thead>
<tr>
<th>Harmony in ( \sigma )</th>
<th>/nuni-ja/</th>
<th>LICENSE ([\text{V-FEATURE}]_{\text{post-tonicAf}, \sigma})</th>
<th>IDENT-( \sigma_{\text{Final}} ) (V-F)</th>
<th>IDENT-( \sigma ) (V-F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. nuná-ja</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harmony in suffix</td>
<td>b. nuní-ji</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No harmony</td>
<td>c. nuní-ja</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- For simplicity, a single violation is recorded in each column for any vowel that violates the licensing constraint or an IDENT(V-FEATURE) constraint.
- An alternative candidate, [nuni-já], which shifts stress to the final syllable will be ruled out by ranking the constraints responsible for penultimate stress assignment over IDENT-\( \sigma \)(VOWEL-FEATURE).
- Note that LICENSE([V-FEATURE]_{post-tonic, \sigma}) will also dominate non-position-sensitive IDENT(VOWEL-FEATURE).

(15) **Summary**
- The stressed vowel displays copy harmony with a final suffix vowel.
- Harmony is driven by a licensing constraint that requires features of post-tonic vowels to have an association with the stressed syllable.
- Word-final faithfulness determines control of harmony by the final suffix vowel.

3. Interaction with apparent epenthetic vowels

(16) Consonant-final loans
- In loans, a final vowel is added to avoid a consonant-final root.
- The final vowel is usually a copy of the preceding one.\(^2\)
- Although stress in Jaqaru is usually penultimate, antepenultimate stress occurs in borrowings that were consonant-final and stressed on the penultimate syllable in the original word.

(17) ‘Epenthetic’ vowels show copy harmony with a preceding root vowel

\[ \begin{align*}
[u] \ &= \text{áxus}u \ < \text{ajos} \ (\text{Spanish}) \quad \text{‘garlic’} \\
[\text{r}l\text{uxu}] \ &= \text{reloj} \ (\text{Spanish}) \quad \text{‘watch’} \\
[h\text{iku}]u \ &= \text{higos} \ (\text{Spanish XVI c.}) \quad \text{‘figs’} \\
[i] \ &= \text{lúnisi}i \ < \text{lunes} \ (\text{Spanish}) \quad \text{‘Monday’} \\
[m\text{artixi}] \ &= \text{martes} \ (\text{Spanish}) \quad \text{‘Tuesday’} \\
[q\text{ántxi}j\acute{i}] \ &= \text{qañtsiʃ} \ (\text{Quechua}) \quad \text{‘seven’} \\
[a] \ &= \text{húsapà} \ < \text{uvas} \ (\text{Spanish}) \quad \text{‘grapes’} \\
[\text{pūsaxa}] \ &= \text{pusaq} \ (\text{Quechua}) \quad \text{‘eight’} \\
[q\acute{a}xaxa] \ &= \text{qaʃaj} \ (\text{Quechua}) \quad \text{‘to begin’}
\end{align*} \]

\(^2\) In borrowings that end in a nasal, the vowel added in root-final position is generally [a]. I do not have data bearing on how these forms play out under affixation.
(18) Affixed loans
• When a suffix occurs with these loans, stress shifts to the penultimate syllable, as in (19).
• Base contraction optionally occurs when the word exceeds three syllables.
• If the trisyllabic base of affixation is retained, the stressed vowel shows harmony with the suffix vowel.
• A contracted variant form is available in which the second vowel of the base is omitted. In this case, the final vowel of the base retains the quality of the original vowel of the root-final syllable rather than harmonizing to the suffix.

(19) Non-contracted form       Contracted form
axusí-ní ~ axsú-ní   ‘garlic’ POSS.
riluxí-ní ~ rilxú-ní   ‘watch’ POSS.

(20) **Key generalizations**
• The stressed ‘epenthetic’ vowel harmonizes with the following suffix vowel when the base is not contracted.
• The ‘epenthetic’ vowel resists harmony with the suffix vowel when the root base is contracted, and it is realized with the quality of the apparently deleted vowel.

4. Analysis
4.1 Vowel-final roots and non-canonical correspondence

(21) **What drives vowel-final roots?**
• In Aymaran languages, roots may not end in a consonant in general.
• **ANCHOR-R** in (22) causes roots to end in a vowel (following the formalism of McCarthy 2003).

(22) **ANCHOR(Root, V, R)**
Any element at the right edge of a root has a correspondent with some vowel.³

(23) Non-canonical correspondence: Root-final vowels in loans

<table>
<thead>
<tr>
<th></th>
<th>Non-contracted root</th>
<th>Contracted affixed form</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fission</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td>/axu₁s₂Root/</td>
<td>/axu₁s₂Root - niₐf/</td>
</tr>
<tr>
<td>Output</td>
<td>[axu₁s₂u₁]Root</td>
<td>[axs₂u₁]Root - niₐf</td>
</tr>
</tbody>
</table>

• The vowel that occurs at the end of the root is not actually epenthetic, but a correspondent of an input root vowel, as called for by **ANCHOR-R**. Vowel fission occurs in the non-contracted root, and CV metathesis occurs in the contracted form.

³ Specifically, the element at the right edge of the root must have a correspondent with an element at the right edge of a vowel. Because a vowel is itself a corresponding element, I assume it is an element at its own right edge.
• Vowel fission violates INTEGRITY-IO (McCarthy & Prince 1995):

(24) **INTEGRITY-IO**

No element of the input has multiple correspondents in the output.

(25) Deriving the non-contracted root

• Fission structures motivate an existential quantification for faithfulness (Struijke 2000).
  o Input-output faithfulness is conceptualized as regulating preservation of properties of the input rather than demanding identity of input-output strings.
• Relevant here: Ǝ-LINEARITY-IO, formalized in (26) (adapted from Struijke 2000).

(26) **Ǝ-LINEARITY-IO**

“If a segment precedes another segment in the input, some output correspondent of each segment must respect that ordering.”

Let \( \alpha \) and \( \beta \) be segments \( \in \) input in the domain of a correspondence relation \( \mathcal{R} \), such that \( \alpha \) precedes \( \beta \); then there is some segment \( \alpha' \in \) output such that \( \alpha \mathcal{R} \alpha' \) which precedes some segment \( \beta' \in \) output such that \( \beta \mathcal{R} \beta' \).

(27) Vowel fission in roots that are consonant-final in the input ANCHOR(Root, V, R), Ǝ-LINEARITY-IO >> INTEGRITY-IO

<table>
<thead>
<tr>
<th></th>
<th>/axu₁s₂Rf/</th>
<th>ANCHOR-R</th>
<th>Ǝ-LINEARITY</th>
<th>INTEGRITY-IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>V fission</td>
<td>( # ) a. [áxu₁s₂u₁]ₚR₁</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>C-final root</td>
<td>b. [áxu₁s₂]ₚR₁</td>
<td></td>
<td>*</td>
<td>!</td>
</tr>
<tr>
<td>CV metathesis</td>
<td>c. [áxs₂u₁]ₚR₁</td>
<td></td>
<td></td>
<td>!</td>
</tr>
</tbody>
</table>

• Ǝ-LINEARITY prevents CV metathesis with the final root consonant. Note that in (27c) what appears to be deletion of the vowel in the second root syllable is actually metathesis.

(28) **Summary: Fission, metathesis, and ‘epenthetic’ vowel copy harmony**

• Vowel fission and CV metathesis, both forms of non-canonical correspondence, are each means of satisfying ANCHOR-R for roots that end in a consonant in the input.
• The fission solution emerges in non-contracted forms through the combined force of ANCHOR-R and Ǝ-LINEARITY dominating INTEGRITY.
• The apparent phenomenon of epenthetic vowel copy harmony is actually the result of the so-called ‘epenthetic’ vowel being in correspondence with an input root vowel.

4.2 Blocking of stressed vowel copy harmony in contracted forms

(29) **What drives contraction: \( *[σσσσ]_ω \)**

• A cover label for the constraint(s) that drive reduction of words that exceed three syllables. (The particulars of this phenomenon await further analysis.)
• Variable ranking of \( *[σσσσ]_ω \) with respect to Ǝ-LINEARITY will obtain optionality of contraction, not elaborated here.
• When \(*[oo\sigma\sigma]_w\) is sufficiently high ranked to drive contraction, it dominates \(\exists\text{-LINEARITY}\) to produce metathesis. ANCHOR-R must also dominate \(\exists\text{-LINEARITY}\).
• MAX – not shown – will be in the top stratum to prevent deletion in this and other forms.

(30) CV metathesis under word contraction
\(*[oo\sigma\sigma]_w, \text{ANCHOR}(\text{Root, V, R}) >> \exists\text{-LINEARITY-IO}\

<table>
<thead>
<tr>
<th>CV metathesis</th>
<th>([axu_1s_\text{R}-n_\text{I}A_\theta])</th>
<th>(*[oo\sigma\sigma]_w, \text{ANCHOR-R})</th>
<th>(\exists\text{-LINEARITY})</th>
<th>Integrity</th>
</tr>
</thead>
<tbody>
<tr>
<td>V fission</td>
<td>([axu_1s_\text{R}-n_\text{I}A_\theta])</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C-final root</td>
<td>([axu_1s_\text{R}-n_\text{I}A_\theta])</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(31) What causes blocking of stressed vowel copy harmony?
• Recall that when the base is contracted, the vowel features of a suffix are not licensed, and only then. Compare: [axusú-ni] ~ [axsú-ni] ‘garlic’ POSS.
• Captured by \(\exists\text{-IDENT-IO(F)}\), in (32) (adapted from Struijke 2000).
• Indexed version: \(\exists\text{-IDENT-IO(F)}_L\). ‘L’ signifies that the constraint is indexed to the loan stratum of the lexicon (Ito & Mester 1999, Pater 2000, in press).

(32) \(\exists\text{-IDENT-IO(F)}\)
“If an input segment has correspondent output segment(s), there is some output correspondent with an identical specification for [F].”

Let \(\alpha\) be a segment \(\in\) input in the domain of a correspondence relation \(\exists\) and \(\alpha\) have a correspondent segment in the output. If \(\alpha\) is \([yF]\), then there is some segment \(\alpha'\) \(\in\) output such that \(\alpha\exists\alpha'\) and \(\alpha'\) is \([yF]\).

(33) Deriving when stressed vowel copy harmony occurs and is blocked in loans
• Non-contracted affixed forms: Stressed vowel harmony
  o A vowel undergoes fission and has two output correspondents.
  o \(\exists\text{-IDENT-IO(F)}_L\) is satisfied provided at least one of those correspondents is identical to the input vowel.
  o This makes one of the two correspondents of a fissioned vowel receptive to a phonological process that alters it.
• Contracted affixed forms: Stressed vowel harmony is blocked
  o There is only a single output correspondent for each input vowel.
  o This makes each vowel resist undergoing harmony, since that would entail violation of \(\exists\text{-IDENT-IO(F)}_L\).

(34) Ranking details
• \(\exists\text{-IDENT-IO(V-F)}_L\) dominates LICENSE([V-F]_post-tonicA\(\theta\), \(\ddot{o}\)) to prevent harmony in the stressed vowel of a loan when it is the sole correspondent of an input vowel.
• When the suffix vowel’s features are unlicensed, it maps faithfully in final position rather than undergoing harmony to the stressed vowel. This indicates that word-final IDENT dominates the licensing constraint.
• LICENSE([V-F]_{post-tonicAF}, 0) dominates the general IDENT-IO(V-F) constraint, which is not lexically indexed, to guarantee that harmony occurs when a loan root is not involved.4
• Since $\exists$-IDENT(V-F\text{FEATURE})_{L} is indexed to loans, it will not interfere with regular copy harmony in stressed vowels in native roots, as in (14).

4 IDENT-IO(V-F\text{FEATURE}) could be characterized as $\exists$-IDENT-IO(V-F\text{FEATURE}), but because there is only a single output correspondent for each vowel, it would not affect the outcome.

5 As before, a single mark is indicated for IDENT(V-F) for each unfaithful vowel to simplify the presentation.

(35) Harmony and lack of harmony in loans with consonant final roots
$\exists$-IDENT(V-F)_{L}, IDENT-$\sigma_{\text{Final}}$(V-F)) >> LICENSE([V-F]_{post-tonicAF}, 0) >> IDENT(V-F)5

<table>
<thead>
<tr>
<th></th>
<th>/axu_{1}s_{1}-ni/</th>
<th>$\exists$-IDENT(V-F)_{L}</th>
<th>IDENT-$\sigma_{\text{Final}}$(V-F)</th>
<th>LICENSE([V-F]_{post-tonicAF}, 0)</th>
<th>IDENT(V-F)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>i. Non contracted form</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\sigma$ harmonizes with suffix</td>
<td>a. axu_{1}s_{1}-ni</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>$\sigma$/suffix do not harmonize</td>
<td>b. axu_{1}s_{1}-ni</td>
<td></td>
<td></td>
<td></td>
<td>*!</td>
</tr>
<tr>
<td>Suffix harmonizes with $\sigma$</td>
<td>c. axu_{1}s_{1}-nu</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td><strong>ii. Contracted form</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\sigma$/suffix do not harmonize</td>
<td>a. axs_{1}-ni</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>$\sigma$ harmonizes with suffix</td>
<td>b. axs_{1}-ni</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Suffix harmonizes with $\sigma$</td>
<td>c. axs_{1}-nu</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

• **Two well-formed variants in (35):**
  o (35i) and (35ii) have the same input, which contains a loan-stratum root and a suffix.
  o In (35i), the input maps to an output with a non-contracted root; in (35ii) it maps to the alternant with a contracted root. Both are well-formed in the language. (What determines the choice of variant is a separate issue, not under focus here.)

• **Non-contracted root:**
  o In (35i), the second root vowel in the input has two correspondents in the optimal output.
  o This enables the root-final vowel to undergo licensing-driven harmony, in (a), without incurring a violation of $\exists$-IDENT(V-F)_{L}, because some correspondent of the root vowel exists in the output that is faithful to its features in the input.

• **Contracted root:**
  o In (35ii), the alternate form where the second root vowel has only one output correspondent is considered.
  o In the winning output in (a), harmony from the word-final vowel does not operate. $\exists$-IDENT(V-F)_{L} blocks harmony, as in (b).
(36) **Summary: Blocking of stressed vowel copy harmony**

- Stressed vowel copy harmony in contracted forms is blocked by \( \exists \text{-IDENT} \) indexed to loans, which prevents the sole output correspondent of a vowel from undergoing harmony.
- In non-contracted loans, stressed vowel copy harmony can proceed without violating \( \exists \text{-IDENT} \), because the input vowel that is in correspondence with the output stressed vowel is realized faithfully in the preceding syllable.

5. Conclusion

(37) **Some primary constraint interactions in Jaqaru**

a. \( \text{LICENSE}([V\text{-FEATURE}]_{\text{post-tonicAf}, \sigma}, \text{IDENT-}\sigma_{\text{Final}}(V\text{-FEATURE}) \gg \text{IDENT}(V\text{-FEATURE}) \)

Licensing-driven harmony is triggered by post-tonic affix vowels and is controlled by the vowel in the word-final syllable.

b. \( \text{ANCHOR}(\text{Root}, V, R), \exists \text{-LINEARITY-IO} \gg \text{INTEGRITY-IO} \)

Vowel fission can occur to guarantee vowel-final roots.

c. \( \text{ANCHOR}(\text{Root}, V, R) \gg \exists \text{-LINEARITY-IO} \)

In contracted forms, metathesis can occur to guarantee vowel-final roots.

d. \( \exists \text{-IDENT}(V\text{-F}) \gg \text{LICENSE}([V\text{-FEATURE}]_{\text{post-tonicAf}, \sigma} \gg \text{IDENT}(V\text{-FEATURE}) \)

Licensing-driven harmony is blocked in loans when vowel fission does not occur.

e. \( \text{IDENT-}\sigma_{\text{Final}}(V\text{-FEATURE}) \gg \text{LICENSE}([V\text{-FEATURE}]_{\text{post-tonicAf}, \sigma} \)

When licensing-driven harmony is blocked, a vowel in a word-final syllable remains faithful.

(38) **Chief results**

- In Jaqaru, there are two distinct drives for vowel copy harmony phenomena:
  - Stressed syllable copy harmony – licensing of features by a prominent position.
  - Apparent ‘epenthetic’ vowel copy harmony – non-canonical correspondence with an input root vowel, involving either vowel fission or CV metathesis.

- The role of existential faithfulness
  - Existential faithfulness offers a straightforward explanation for why stressed vowel copy harmony is blocked in contracted forms but not in non-contracted ones.

- General theoretical implications
  - Evidence that vowel fission structures exist.
  - Evidence that existential quantification of faithfulness is an important part of phonological theory in configurations involving multiple correspondence.
Comparison with ordered rule account

<table>
<thead>
<tr>
<th>Ordered rule approach</th>
<th>Non-canonical correspondence approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordered epenthesis, harmony, and deletion rules.</td>
<td>Vowel fission and CV metathesis occur when necessary to satisfy ANCHOR-R. No epenthesis or deletion transpires.</td>
</tr>
<tr>
<td>Two copy harmony rules required: one for epenthetic vowels, one for stressed vowels.</td>
<td>Two distinct sources of copy harmony: prominence-based licensing and non-canonical IO correspondence.</td>
</tr>
<tr>
<td>Counterbleeding interaction – derivational opacity.</td>
<td>No counterbleeding opacity.</td>
</tr>
<tr>
<td>Does not predict blocking of stressed vowel copy harmony in contracted forms.</td>
<td>Blocking of stressed vowel copy harmony is obtained in contracted forms by 3-IDENT.</td>
</tr>
</tbody>
</table>

Appendix: Morpheme-specific triggers for stressed vowel copy

(40) Suffixes that trigger stressed vowel copy
- /-ru/ INDUCTIVE, /-ja/ CAUSATIVE, /-fi/ MEDIAL PASSIVE / REFLEXIVE, /-fi/ RECIPROCAL, /-fu/ GERUND, /-ri/ AGENTIVE, /-ni/ POSSESSIVE, /-xi/ EMPHATIC, /-fi/ EVOKER.

(41) Compare non-triggering [-sa] INDEFINITE and [-ni] TRANSLOCATIVE; the latter is homophonous with the triggering possessive suffix.

a. kawkį-sa ‘whoever’ INDEF
b. mantá-ni ‘to enter towards the speaker’ TRANSLOC

(42) Observations
- The suffixes that trigger stressed vowel copy harmony do not show any obvious phonological or morphological basis for their triggering status to the exclusion of others (Cerrón-Palomino López 2003).
  o Vowels of any quality can trigger harmony.
  o Triggering suffixes may contain fricatives or sonorant consonants, but these are also found in non-triggering suffixes.
  o Triggering suffixes are not restricted to a particular morphological subcategory; they include examples of derivational and inflectional suffixes from both verbal and nominal categories.

(43) Analysis: Lexical indexation of the licensing constraint
- Following Pater (in press), morpheme-specific triggering can be analyzed using a lexically indexed markedness constraint, namely, LICENSE([V-FEATURE], 0) (see also Pater 2000, Flack 2007, Mahanta 2007, among others).
- Lexical indexation might obviate the restriction to post-tonic affix vowels in (11).
- Since morpheme-specific triggering is not the focus of this talk, lexical indexation of the licensing constraint was not included in §2.
References: