Globality in Kashaya
Metrical Structure

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Outline of talk

• Kashaya stress patterns
  – interactions with morphological structure

• evidence for global interaction
  – problems with ordered operations

• fully global OT
  – problems with morphology and opacity

• Stratal OT combined with Candidate Chains
  – promising, but still not a perfect solution
LR iambs and lengthening

- morphological bracketing plays an important role later; roots in bold
- data from Oswalt (1961, 1964) and dictionary notes

\[ \text{[ [ cad-uced ] un ]} \]
(ca dú· ) ( ce dun )
‘while looking’

\[ \text{[ [ ti-cc-iced ] u ]} \]
(tíc ) ( ci ce· ) du
‘jerk one’s foot back’

\[ \text{[ [ mo-mul-ie’-ed ] u ]} \]
(mo mú· ) ( li c’e· ) du
‘run in circles’

\[ \text{[ [ kel-mul-ad-uced ] u ]} \]
(kél ) ( mu la· ) ( du ce· ) du
‘keep peering around’
Syllable extrametricality

- occurs only in disyllabic or prefixed roots (Buckley 1994)
- blocked by minimality for monosyllabic roots

[qahmat-ibic biw]
\langle qah \rangle ( ma tí· ) ( bic’ ) ( biw )
‘must have been mad’

[qaʔc’aṭ-ad-uced u]
\langle qaʔ \rangle ( c’a ťá· ) ( du ce· ) du
‘used to cry and cry’

[qaʔc’aṭʔkʰe tʰin]
\langle qaʔ \rangle ( c’áť’ ) ( kʰe tʰin )
‘shouldn’t cry’

[pi-hset’-ibic-ed u]
\langle pih \rangle ( se t’í· ) ( bi ce· ) du
‘(hair) kept springing up’
Foot extrametricality

• applies to initial Cv· foot
• long vowel can be derived by elision

[ [ wa-ad ] uʔba-em ]
《wa·》( dúʔ ) ( bem )
‘could walk away’

[ [ di·eʔ-id ] ba ]
《di·》( c’ín’ ) ba
‘after having said’

[ cu·se-to-ʔna ]
《cu·》( se tóʔ ) na
‘at our uncle’s house’

[ ma·kina ]
《ma·》( ki ná )
‘car’ < Sp. máquina
Plus syllable extrametricality

- “initial” Cv· relative to syllable extrametricality, if present
- therefore cumulative when root is disyllabic or prefixed

- [ [ duʔya·q-ad-qa ] ba ]
  〈duʔ〉 〈ya·〉 ( qán’ ) ( qa ba )
  ‘after thinking about it

- [ [ ba-ne-aduc-qa ] ·li ]
  〈ba〉 〈ne·〉 ( dúcʰ ) ( qa· ) li
  ‘when (they) sent it off in the distance’

- [ [ šula·m ] iʔba ]
  〈šu〉 〈la·〉 ( máʔ ) ba
  ‘would get sick’

- [ [ qa-de-ibic-qa-wac’ ] in ]
  〈qa〉 〈de·〉 ( bícʰ ) ( qa wa· ) ( c’in )
  ‘when they tried prying’
Foot Flipping

• initial $Cv\cdot Cv \rightarrow CvCv\cdot$
• results in a “perfect iamb”, which is also extrametrical

[[t’e·t-ibic ] ba ]
《t’e ti·》 ( bíc’ ) ba
‘having stood up’

[[ ca-ad-uced ] u ]
《ca du·》 ( ce dú )
‘flies along’

[[ mo-ala-wad-adas ] u ]
《mo la·》 ( wa dá· ) ( da du )
‘run down intermittently’

[[ di·c’-id-uad-adad ] u ]
《di c’i·》 ( du wá· ) ( du ce· ) du
‘he used to tell (this story)’
Plus syllable extrametricality

- cumulative, just like plain foot extrametricality
- as a result, accent can fall as far in as the 5th syllable

```plaintext
[muna·c-id] uʔba
〈mu〉 〈na ci·〉 ( dúʔ ) ba
   ‘would be shy’

[bide-aloq-ic’] ti
〈bi〉 〈da lo·〉 ( qóʔ ) ti
   ‘in order to carry them back up here’

[loq’o·c-ad-uwad] u
〈lo〉 〈q’o ca·〉 ( du wá· ) du
   ‘make noise by moving around’

[si-de-ac’-iyic’] in
〈si〉 〈de c’i·〉 ( yi c’ín )
   ‘while they were sailing along’
```
Level ordering

- fundamental structure of a Kashaya verb
  
  \[
  \text{ROOT} \quad \text{ibic} \quad \text{STEM} \quad \text{ba} \quad \text{WORD}
  \]

- “Level 1” = Stem Level suffixes ≈ derivational
  - a verb can contain many such suffixes, but sometimes none
    - directionals, inceptives
    - reflexive, reciprocal
    - causative
    - duratives, distributive

- “Level 2” = Word Level suffixes ≈ inflectional
  - every verb requires one slot to be filled, chosen from several categories
    - absolutive
    - evidentials
    - imperatives
    - modals
    - switch reference
  - certain other suffixes can precede or follow this slot
No word-level lengthening

- Stem Level suffixes undergo Lengthening and Flipping
- Word Level suffixes do not undergo either process

[ [ **mo-mac-ed** ] ela ]
( mo má· ) ( ce de· ) la
‘I keep running in there’

[ [ **t-ala-mec’** ] tʰi-pʰila ]
( ta lá· ) ( me? ) ( tʰi pʰi· ) la
‘if (you) don’t climb down’

[ [ **hoṭʰ-ala** ] s’uw-em ]
( ho tʰá· ) ( la s’u· ) ( wem )
‘it would warm (us) up’

[ [ **s’i-yic’** ] ?cid-tʰi-mi-ya-em ]
( s’i yí? ) ( ci? ) ( tʰi mi· ) ( yam )
‘they never used to do (that)’
No word-level lengthening

• this is true even in the main-stress syllable
• syllable extrametricality of course affects the location of feet

[[ s’i ] phila ]
( s’i phí ) la
‘if it happens’

[[ cad ] ela ]
( ca dé ) la
‘I see (it)’

[[ bawil ] ela ]
⟨ba⟩ ( wi lé ) la
‘I am putting (it) in’

[[ ca-hke ] wi-ya-e· ]
⟨cah⟩ ( ke wí ) ( ye· )
‘it blocked me from sitting’
No word-level Flipping

- Foot Flipping occurs only if the entire $Cv\cdot Cv$ is located in the Stem
- otherwise the $Cv\cdot$ remains a nonbranching (and extrametrical) foot

\[
\begin{align*}
\text{[[ q’a· ] mela ]}
\quad \langle q’a\cdot \rangle ( \text{ me lá )} \\
& \quad \text{‘I left’}
\end{align*}
\]

\[
\begin{align*}
\text{[[ sima·q ] eti ]}
\quad \langle si \rangle \langle ma\cdot \rangle ( \text{ qa tí )} \\
& \quad \text{‘although he’s asleep’}
\end{align*}
\]

\[
\begin{align*}
\text{[[ qa-ţ’o· ] wi-ya-e· ]}
\quad \langle qa \rangle \langle ţ’o\cdot \rangle ( \text{ wi yé· )} \\
& \quad \text{‘rubbed off (my skin)’}
\end{align*}
\]

\[
\begin{align*}
\text{[[ Šo-ţ’o· ] tʰi-pʰila ]}
\quad \langle Šo \rangle \langle ţ’o\cdot \rangle ( \text{ tʰi pʰí ) la} \\
& \quad \text{‘if (you) don’t peel it’}
\end{align*}
\]

\[
\begin{align*}
\quad & \ast \langle q’a \rangle \langle me\cdot \rangle ( \text{ lá )} \\
\quad & \ast \langle si \rangle \langle ma \rangle \langle qa\cdot \rangle ( \text{ tí )} \\
\quad & \ast \langle qa \rangle \langle ţ’o \rangle \langle wi\cdot \rangle ( \text{ yé· )} \\
\quad & \ast \langle Šo \rangle \langle ţ’o \rangle \langle tʰi\cdot \rangle ( \text{ pʰí lá )}
\end{align*}
\]
Word vs. Stem suffixes

• the Stem Level suffix undergoes Foot Flipping
• but not the Word Level suffix under the same syllable configuration

[[ q’a· ] mela ]
《q’a·》( me lá )
‘I left’

[[ sima·q ] eti ]
⟨si⟩《ma·》( qa tí )
‘although he’s asleep’

[[ qa-ṭ’o· ] wi-ya-e· ]
⟨qa⟩《ṭ’o·》( wi yé· )
‘rubbed off my (skin)’

[[ q’a·-cid ] u ]
《q’a ci·》( dú )
‘keep leaving’

[[ sima·q-ad ] u ]
⟨si⟩《ma qa·》( dú )
‘usually sleep’

[[ qa-ṭ’o·-cid-uced ] u ]
⟨qa⟩《ṭ’o ci·》( du cé· ) du
‘be peeling with the teeth’

• a degenerate foot such as (dú) is permitted when necessary
• so this cannot be what causes avoidance of Flipping in the Word level
No Flipping before CVC

• since Flipping applies to \( C_v \cdot C_v \), it is blocked in \( C_v \cdot C_v C \)
• this is true even fully within the Stem Level

\[
\begin{align*}
\text{[ [ q’a’-cid ] ba ]} & \quad \text{[ [ q’a’-cid ] u ]} \\
\langle q’a’ \rangle ( \text{cín’} ) \ ba & \quad \langle q’a ci’ \rangle ( \text{dú} ) \\
\text{‘after leaving’} & \quad \text{‘keep leaving’}
\end{align*}
\]

\[
\begin{align*}
\text{[ [ sima•q-ad ] th-e ]} & \quad \text{[ [ sima•q-ad ] u ]} \\
\langle si \rangle \langle ma • \rangle ( qá? ) \ t^h e & \quad \langle si \rangle \langle ma qa • \rangle ( \text{dú} ) \\
\text{‘can’t sleep’} & \quad \text{‘usually sleep’}
\end{align*}
\]

\[
\begin{align*}
\text{[ [ qa-ṭ’o’-cid ] thu ]} & \quad \text{[ [ qa-ṭ’o’-cid-uced ] u ]} \\
\langle qa \rangle \langle ḏ’o’ • \rangle ( \text{cí?} ) ( \ t^h u? ) & \quad \langle qa \rangle \langle ḏ’o ci’ \rangle ( \text{du cé•} ) \ du \\
\text{‘don’t peel (it)!’} & \quad \text{‘be peeling with the teeth’}
\end{align*}
\]

• Flipping has to apply only within the Stem Level suffixes
• but whether \( C_v C \) blocks Flipping depends on the Word Level suffixes
Ordering analysis of Lengthening

• apply Lengthening to the Stem
  – only Stem level suffixes are present at this point

  \[ \text{hoṭʰ-ala} \]
  \( \text{(hoṭʰá·) la} \)

• then add the Word level suffixes without Lengthening
  – new suffixes do not undergo the process

  \[ \text{[ (hoṭʰá·)la ] s’uw-em} \]
  \( \text{(hoṭʰá·) (la s’u) (wem)} \)

• this approach can be implemented in Lexical Phonology (Buckley 1994)
  – also in any derivational theory that permits an intermediate representation of
  the Stem to which phonological processes apply
Final extrasyllabicity

• extrasyllabic final C in Stem to permit Lengthening there
  [ mo-mul-ic’-ed ]
  ( mo mú· ) ( li c’e· ) d

• necessary since often ends up as an open syllable due to Word suffix
  [ [ mo-mul-ic’-ed ] u ]
  ( mo mú· ) ( li c’e· ) du  ‘run in circles’

• if the syllable ends up closed, it will shorten again independently
  [ mo-mul-ic’-ed ]
  ( mo mú· ) ( li c’e· ) d

  [ [ mo-mul-ic’-ed ] ba ]
  ( mo mú· ) ( li c’en’ ) ba  ‘after running in circles’

• so here, look-ahead is not crucial; but Flipping is more complicated...
Look-ahead for Flipping

- when we see just the Stem with extrasyllabicity, Flipping should apply
  \[ q'a\cdot - cid \]
  \( \langle q'a\ ci\cdot \rangle d \)

- but we can’t predict whether we’ll eventually have \( CvC \) or \( Cv \)
  \[ [ [ q'a\cdot -cid ] ba ] \]
  \( \langle q'a\cdot \rangle ( cín' ) ba \)
  ‘after leaving’

  \[ [ [ q'a\cdot -cid ] u ] \]
  \( \langle q'a\ ci\cdot \rangle ( dú ) \)
  ‘keep leaving’

- and we can’t just undo it by shortening, unlike with Iambic Lengthening
  \[ [ [ q'a\cdot -cid ] ba ] \]
  \( \langle q'a\ ci\cdot \rangle d ba \)

  \( \rightarrow \langle q'a\ ci\cdot n' \rangle ba \)

  \( \rightarrow * \langle q'a\ cin' \rangle ( bá ) \sim * ( q'a\ cín' ) ba \)
Avoiding look-ahead

• Buckley (1994) splits the effect of Foot Flipping into two steps
  – first set the stage for Flipping
  – implemented later only if syllable structure permits
  – converted here to a two-level analysis

• Stem Level: adjoin the Cv to Cv·, creating anti-iamb Cv·Cv

  \[
  \text{Foot Extrametricality} \quad \q'a\cdot ci \quad d \\
  \text{CV Adjunction} \quad \q'a\cdot ci \quad d 
  \]

• Word Level: closed syllable destroys Cv·Cv, else Flipping occurs

  \[
  \text{[ [ q’a\cdot-cid ] ba ]} \quad \text{[ [ q’a\cdot-cid ] u ]} \\
  \q'a\cdot ci \quad d \quad ba \quad \q'a\cdot ci \quad d \quad u \quad \q'a\cdot ci \quad d \\
  \q'a\cdot ( cin' ) \quad ba \quad \q'a\cdot ci \quad du 
  \]
Lexical Phonology summary

• advantages
  – architecture captures Stem / Word distinction
  – Iambic Lengthening, CV Adjunction simply turn off
  – the general problem of opacity has an easy solution in ordered rules

• disadvantages
  – Flipping is split into two processes
    • temporary anti-iamb violates general pattern of language
  – makes no connection with Lengthening
    • yet both are fundamentally about changes in vowel length

• classic Optimality Theory avoids the look-ahead problem
  – evaluates the output directly, with surface syllabification present
  – but requires some other means of identifying the lengthening suffixes
    • some domain equivalent to the Stem
    • or a long list of relevant morphemes
Constraint Domains

• Buckley (1996, 1997) proposes Constraint Domains
  – index constraints to particular substrings of the output
  – roughly the same as the morphological bracketing, but not nested

\[
\begin{align*}
&\text{[ [ sima\cdot q ] eti ]} & \text{[ [ sima\cdot q-ad ] u ]} \\
&\{ \text{si ma\cdot q} \}_S \{ \text{e ti} \}_W & \{ \text{si ma\cdot qa d} \}_S \{ \text{u} \}_W \\
&\langle \text{si} \rangle \langle \text{ma\cdot} \rangle ( \text{qa tí} ) & \langle \text{si} \rangle \langle \text{ma qa\cdot} \rangle ( \text{dú} )
\end{align*}
\]

• ranking ensures that Word suffixes are faithful to underlying length
  – IDENT-LENGTH : the length of a segment is identical in input and output
  – *(CV·)CV or other FTFORM constraints that force Flipping to occur
  – IDENT-LENGTH\text{WORD} \gg *(CV·)CV \gg IDENT-LENGTH\text{STEM}
Flipping with Stem vs. Word suffixes

<table>
<thead>
<tr>
<th></th>
<th>{sima·qad}ₜ{u}ₜ</th>
<th>IDENT-Lₜ</th>
<th>*(CV·)CV</th>
<th>IDENT-Lₛ</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>si (ma·) (qa dú)</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>si (ma qa·) (dú)</td>
<td></td>
<td></td>
<td>**</td>
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<tr>
<th></th>
<th>{sima·q}ₜ{eti}ₜ</th>
<th>IDENT-Lₜ</th>
<th>*(CV·)CV</th>
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<td>c.</td>
<td>si (ma·) (qa tí)</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>si (ma qa·) (tí)</td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

- here Flipping causes two IDENT violations, unlike Buckley (1997)
- the difference is not crucial
## Similar for Iambic Lengthening

\[
\begin{array}{|c|c|c|}
\hline
\{\text{hoṭʰ-ala}\}_S \{\text{s’uwem}\}_W & \text{IDENT-}L_W & \text{SWP} \\
\hline
\text{a.} & \text{(ho ṭʰá) (la s’u) (wem)} & *!*
\hline
\text{b.} & \text{(ho ṭʰá·) (la s’u) (wem)} & * & * \\
\hline
\text{c.} & \text{(ho ṭʰá·) (la s’u·) (wem)} & *! & * \\
\hline
\end{array}
\]

- SWP = **Stress-to-Weight Principle**: a stressed syllable is heavy
  - causes Iambic Lengthening
- it may be possible to unify the constraints for Lengthening and Foot Flipping
  - cf. also **Perfect-Iamb** or **Uneven-Iamb**: a foot has the shape CvCv·
  - I haven’t worked out those details
- Buckley (1997) used gradient foot alignment for Foot Flipping
  - favored expanding a foot rightward
  - this type is now generally deprecated in favor of categorical constraints
    - Kager (2001), McCarthy (2003), Buckley (2009)
No look-ahead required

<table>
<thead>
<tr>
<th></th>
<th>{q’a·cid}_S{u}_W</th>
<th>IDENT-L_W</th>
<th>*(CV·)CV</th>
<th>IDENT-L_S</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>(q’a·)(cidú)</td>
<td></td>
<td>!</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>(q’aci·)(dú)</td>
<td></td>
<td></td>
<td>**</td>
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<tr>
<td>c</td>
<td>(q’a·)(cí’n’)ba</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>(q’aci·n’)(bá)</td>
<td></td>
<td>!*</td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>(q’acin’)(bá)</td>
<td></td>
<td>!</td>
<td></td>
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- forms (d) and (e) would be distinguished by a phonotactic constraint *v·C
- the main point is that they both lose
Constraint Domains summary

• advantages
  – IDENT-L connects Lengthening and Flipping
    • one indexed constraint for the Word level accounts for both
  – no need for look-ahead
    • the full output is evaluated at once

• disadvantages
  – stipulates Stem / Word distinction
    • laid on top of output, rather than part of architecture
  – has no inherent account for opacity
    • would require extra mechanisms just like Classic OT
  – e.g., Phrasal footing can be different from Word, without Flipping
    \[ [ [ \text{baco} \cdot ] ] [ [ \text{si-bo-ad} ] u ] \]
    \[ \langle \text{ba} \rangle \langle \text{co} \cdot \rangle ( \text{si bó} \cdot ) \text{ du} \]
    ‘a group of boats is sailing along’
    \[ *\langle \text{ba} \rangle \langle \text{co} \text{ si} \cdot \rangle ( \text{bó} \cdot ) \text{ du} \]
  – yet the entire sequence /co·si/ is in two Stem domains
    • so changes to vowel length there ought to be permitted

hat tip to Paul Kiparsky
Stratal Optimality Theory

- fixed stages in derivation (Kiparsky, Bermúdez-Otero)
  - Stem, Word, Phrase
  - output of level $n$ is input to level $n+1$
  - limited handling of opacity across strata

- assume each stage is internally global like Classic OT
  - candidates evaluated against constraint ranking

<table>
<thead>
<tr>
<th>Stem Level</th>
<th>morphology</th>
<th>output of Eval</th>
<th>SWP &gt;&gt; IDENT-L</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>hoṭʰ-ala</td>
<td>(ho ṭʰá·) la</td>
<td></td>
</tr>
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</table>

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<tr>
<th>Word Level</th>
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<td></td>
<td>(hoṭʰá·)la-s’uw-em</td>
<td>(ho ṭʰá·) (la s’u) (wem)</td>
<td></td>
</tr>
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</table>
Stratal OT and globality

- stratum-internal globality won’t help with the look-ahead problem
  - in this regard, it’s exactly like Lexical Phonology
- still need some equivalent to CV Adjunction in the Stem level
  - but what kind of constraints will generate this result?
  - why no Lengthening at the Word level if Flipping occurs there?

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<tr>
<th>Stem Level</th>
<th>morphology</th>
<th>q’a·-cid</th>
<th>output of Eval</th>
<th>(q’a· ci) d</th>
<th>PARSE-SYL &gt;&gt; Ft-FORM?</th>
</tr>
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<tbody>
<tr>
<td>Word Level</td>
<td>morphology A</td>
<td>(q’a·ci)d-u</td>
<td>output of Eval</td>
<td>(q’a ci·) (dí)</td>
<td>PERFECT-IAMB?</td>
</tr>
<tr>
<td>or</td>
<td>morphology B</td>
<td>(q’a·ci)d-ba</td>
<td>output of Eval</td>
<td>(q’a·) (cí’’) ba</td>
<td>*V·C &gt;&gt; Ft-FAITH?</td>
</tr>
</tbody>
</table>
Global evaluation of Stratal OT

• proposal: maintain the Stratal OT levels of representation
  – Stem ⇒ Word ⇒ Phrase
• but evaluate all representations globally
  – somewhat similar idea in Baker (2009)
• borrow the notion of Chains from OT-CC
  – Eval compares CHAINS of candidates (McCarthy 2007)
    • a set of representations moving from input to output
  – but here, a fixed number of steps in chain, defined by strata
  – certain affinities to Constraint Domain approach
• unlike OT-CC, which is GRADUAL
  – one step in the chain for every faithfulness violation
  – more like traditional derivational phonology
    • except that each step must be HARMONICALLY IMPROVING
  – won’t get into details of that theory here
    • it was designed to handle opacity
    • moves away from global evaluation and won’t help the Kashaya problem
    • also does not address level-ordering issues
Stratal Chains

- same structural relations among Stem, Word, Phrase levels
  - but choice of output $n$ is potentially affected by output $n+1$
- chain consists of Input ($\approx$UR) plus three stratal outputs
  - first item in chain, the Input, might be “fully faithful parse” of UR
    - with syllabic and possibly moraic structure added; not foot structure
  - morphology is not present from the beginning
    - unlike OT-CC and Classic OT
- $<\text{Input }, \text{Stem-Output }, \text{Word-Output }, \text{Phrase-Output} >$
- I’ll mostly set aside the Phrase-Output here
  - but it’s actually central for other facts about Kashaya stress, which is assigned to the phonological phrase and can span words (Buckley & Gluckman 2012)
  - in particular, a degenerate foot is probably not created until the Phrase level (lower ranking of FT-BIN there)
  - the effect of Foot Extrametricality is felt in the Phrase as well
Kashaya derivations

- vowel length in the Stem depends on the suffix added in the Word level

<table>
<thead>
<tr>
<th>Input</th>
<th>root</th>
<th>faithfule parse</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>q’a·</td>
<td>q’a·</td>
</tr>
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<td>(q’a ci·)(dú)</td>
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- global evaluation of the chains can achieve this effect

  < q’a·, (q’aci·)d, (q’aci·)(dú) >

  < q’a·, (q’a·)ci d, (q’a·)(cín’)ba >
### SL and WL for /q’a·-cid-u/

#### Stem Level

<table>
<thead>
<tr>
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<th>*(CV·)CV</th>
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#### Word Level

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# SL and WL for /q’a·-cid-u/

## Stem Level

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<td>b.</td>
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## Word Level

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## WL of stem output /q’a·cid/

### Stem Level

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<td>b. ☞ (q’a ci·) d</td>
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### Word Level

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<td>ii. (q’a ci·) (díu)</td>
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**WL of stem output /q’aci·d/**

### Stem Level

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### Word Level

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</table>
Global evaluation of /q’a·-cid-u/

- violations for each step in the chain are considered as a group, but presented heuristically
- candidate a.i. without Flipping fails because it violates the relevant constraint without being forced to by a higher constraint
- candidate a.ii. is homophonous with the winner but only by chance; it is rejected due to Word-level Flipping

<table>
<thead>
<tr>
<th></th>
<th>*V·C</th>
<th>IDENT-L_W</th>
<th>*(CV·)CV</th>
<th>IDENT-L_S</th>
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<tr>
<td>a.i.</td>
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<tr>
<td></td>
<td>(q’a·) (ci dú)</td>
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<td>(q’a·) ci d</td>
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<td>*(CV·)CV</td>
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<td>IDENT-L_W</td>
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<td>IDENT-L_S</td>
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<tr>
<td>b.i.</td>
<td>(q’a ci·) d</td>
<td>IDENT-L_W</td>
<td>*(CV·)CV</td>
<td>IDENT-L_S</td>
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35
## SL and WL for /q’a·-cid-ba/

### Stem Level

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<thead>
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### Word Level

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<td>(q’a ci·n’) (bá)</td>
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<td>ii.</td>
<td>(☞) (q’a cin’) (bá)</td>
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</table>
Global evaluation of /q’a·-cid-ba/

- crucial example of the Word level affecting the Stem level
- candidate *b.i.* has Flipping and leaves an ill-formed syllable
- candidate *b.ii.* has Flipping with Word-level shortening

<table>
<thead>
<tr>
<th></th>
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<th>*(CV·)CV</th>
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</table>
Conclusion

• global evaluation of stratal chains
  – captures the Stem / Word dichotomy like Stratal OT
  – captures the central role of IDENT-LENGTH like Constraint Domains

• generates a superset of the grammars that regular Stratal OT does
  – necessary power for Kashaya
  – more cases?

• could it help with level-internal opacity?
  – claimed to be a problem for Stratal OT (McCarthy 2007)
Yahwíy!
(Thank you.)
References

• Kiparsky, Paul. 2000. Opacity and cyclicity. The Linguistic Review 17, 351-367. [among other works]
• McCarthy, John. 2003. OT constraints are categorical. Phonology 20, 75-138.