Kashaya foot extrametricality as post-accentuation

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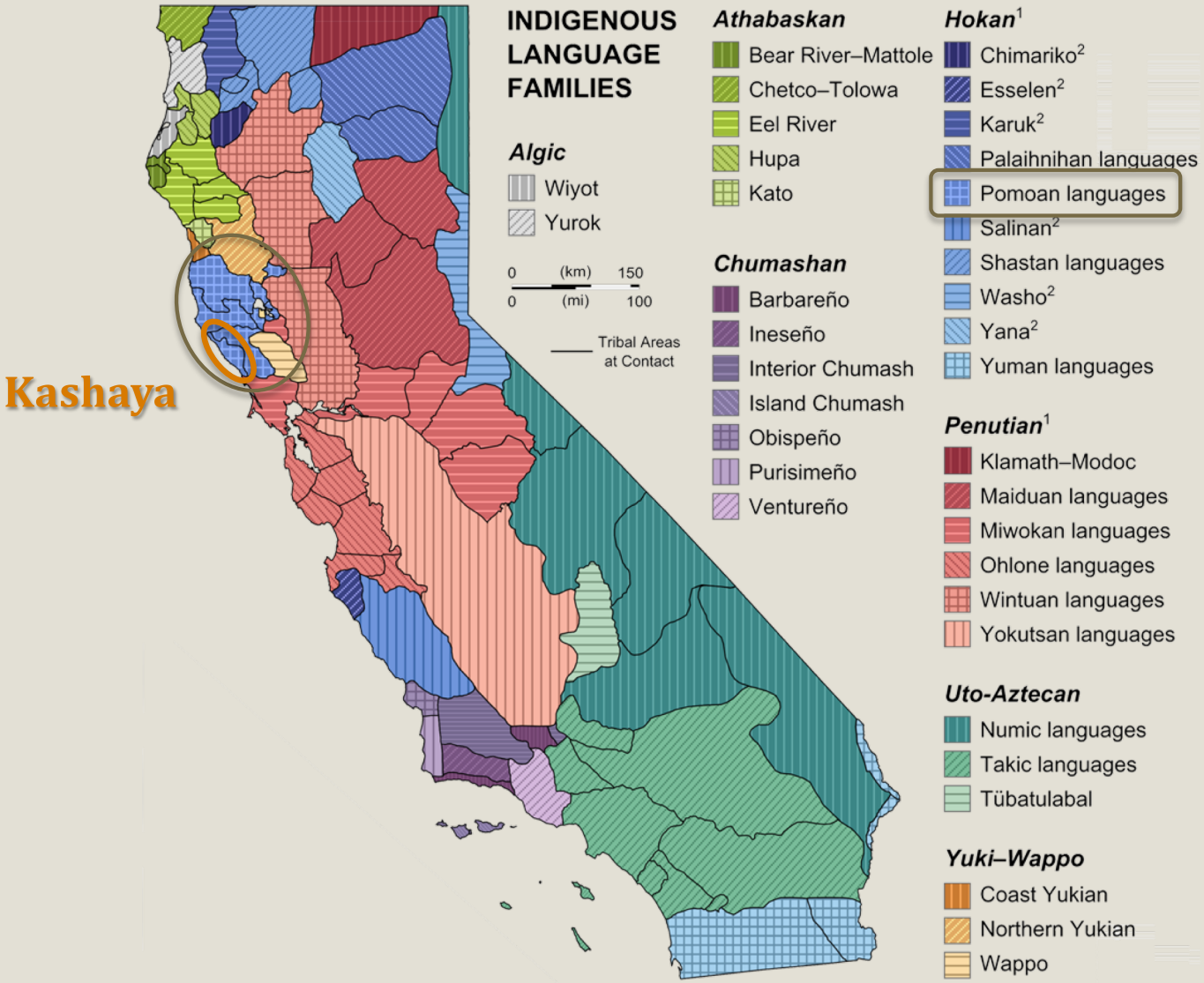
Outline of talk

- Iambic stress pattern
  - within words and phrases
  - (CV:) foot causes rightward shift of accent
    - including when length is lost or moved
  - lexical triggers with no long vowels
- Analysis as alignment
  - require head foot to follow the triggering foot
  - disrupted by phrasal resyllabification
  - unified diacritic analysis of all cases, with account for opacity

Kashaya in California



Kashaya footing

- Iambs from left to right
  - iterative, as evidenced by iambic lengthening
    Oswalt (1961, 1988), Buckley (1994, 1997)
    - for clarity, the head (accented) foot is highlighted
- First syllable is extrametrical by default
  - blocked if the root is monosyllabic and unprefixed
    - essentially, a root vowel must be footed
- Focus on pattern with syllable extrametricality
  - but will also show monosyllabic root examples

Stress within a word

- Second or third syllable
  - depending on weight of second syllable

a. *cuʔdan-tʰu-meʔ* ‘don’t shoot! PL’
<cuʔ>(dán)(tʰumeʔ)

b. *cuʔdan-ad-u* ‘keep shooting’
<cuʔ>(daná:)du

c. *cahci-hqa-w* ‘place in seated position’
<cah>(cíh)(qaw)

d. *cahci-meʔ* ‘sit down! IN-LAW’
<cah>(cimé ʔ)

Phrasal groupings

- Stress is often assigned across two or more words
  - or to a word and following clitic(s)
- Distinct from lexical footing
  - for words beyond the first in the phrase
  - iambic lengthening depends on word-internal feet
- Assume basic stratal architecture
  - Word vs. Phrase
- Examples presented here show phrasal footing
  - this is the source of surface accent
  - even in one-word utterances

Stress within a phrase

- Second or third syllable, once again
  - might fall on first or second word (or clitic)

a. *bihše hc^{h}oyic’-ʔ* ‘the deer died’
<bih>(šéh)(c^{h}oyiʔ)

b. *bihše boʔo-ʔk^{h}e* ‘will hunt deer’
<bih>(šebó)(ʔoʔ)k^{h}e

c. *sima =ltow* ‘during sleep’
<si>(mál)(tow)

d. *sima miṭi-ad-u* ‘lying asleep on the ground’
<si>(mamí)(ṭi:)du

Accent shift

- If leftmost foot is (CV:), pitch accent will fall on the following foot instead
  - thus occurs on third or fourth syllable
  - depending on weight of third syllable
- Skipped (CV:) is a nonbranching foot
  - parallel to (CVC) that takes the accent

Accent shift within a word

- To third or fourth syllable

a.	*dase:-wa-em*	‘I see (you’re) washing it’
	<da>(se:)(wám)	
b.	*dase:-weti*	‘although I washed it’
	<da>(se:)(wetí)	
c.	*maṭ’a:-qac’-t^{h}u?*	‘don’t let it hex you!’
	<ma>(ṭ’a:)(qá?)(t^{h}u?)	
d.	*maṭ’a:-wi-y-e: to*	‘it hexed me’
	<ma>(ṭ’a:)(wiyé:)to	

Accent shift within a phrase

- Quite a common occurrence
  - provides frequent evidence for phrasal stress

a. *ʔima:ta =ʔyow-a-em* ‘former woman NOM’
<ʔi>(ma:)(táʔ)(yowam)

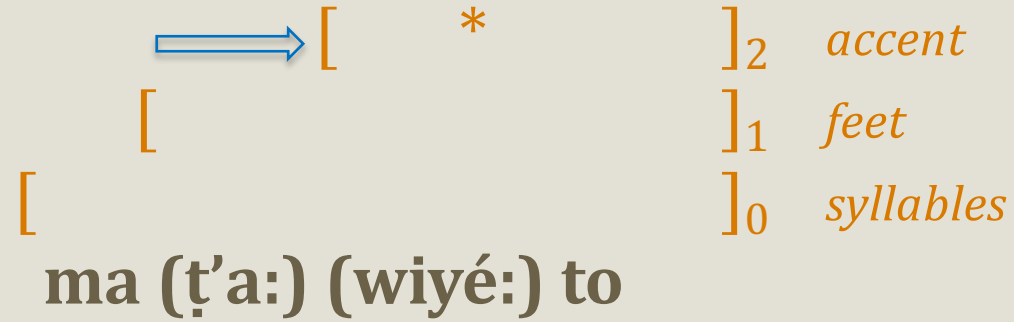
b. *ʔima:ta našoya* ‘young woman’
<ʔi>(ma:)(taná)(šoya)

c. *qahwe: wahqa-qa =ʔ* ‘must have swallowed gum’
<qah>(we:)(wáh)(qaqaʔ)

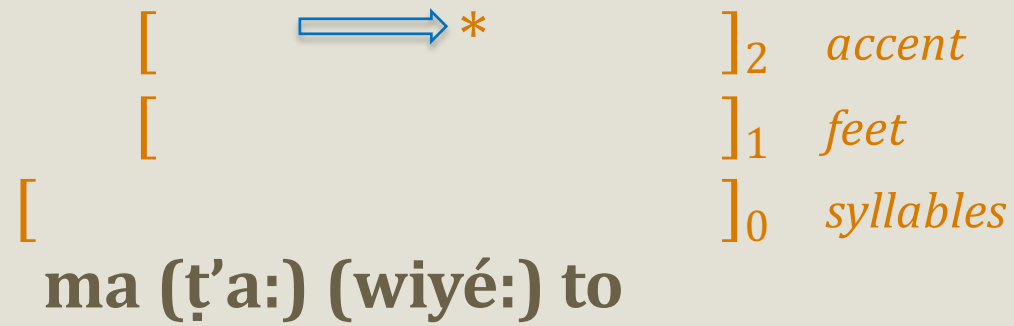
d. *qahwe: qac-id-u* ‘ask for gum’
<qah>(we:)(qací:)du

Accentual domain

- Foot is excluded from “end rule left” domain

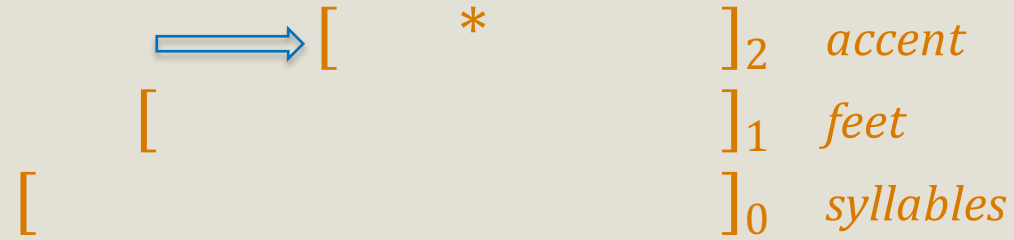


- Accent is shifted within footing domain



Accentual domain

- Foot is excluded from “end rule left” domain



- This representation is like the result of foot extrametricality
  - but we’ll create it by different means
- Better account of (CV:) not at the left edge

Syllable extrametricality

- Exclusion of a syllable from foot structure

		Ǵ	F	
<σ>	σ	σ	σ	σ
bih	(še bó)		(ʔoʔ)	k^{h}e

- Caused by a constraint dominating PARSE-SYL
- "Some syllable precedes every foot" (Buckley 1997)
  - ALIGN(Foot, L; Syllable, R)
- "No word begins with a foot" (Buckley 2009)
  - *ALIGN(Word, L; Foot, L)

Foot extrametricality

- Accent shift as extrametricality of the foot (Buckley 1994 *et seq.*)

	<F>		Ḟ		F
<σ>	σ	σ	σ	σ	σ
ʔi	(ma:)	(ta ná)		(šo ya)	

- Trickier to formalize by means of alignment
  - not just any foot, but (CV:) specifically
  - also at a higher level of structure
  - "Align the left edge of a line 2 constituent with the right edge of a CV: foot." (Buckley 1997)

Foot extrametricality

- Foot extrametricality is problematic as a component of the theory
  - few examples exist, and perhaps should be abandoned as an option (McCarthy 2003)
  - limited evidence for cumulativity of extrametricality at different levels (Hayes 1995)
- Other options, such as *(CV́:), do not require exclusion from the accent domain
- Opacity in Kashaya, where (CV:) is not present on the surface, leads to particular complications...

Opaque accent shift

- Long vowel regularly shortens in closed syllable
  - but still causes accent shift

a. *šula:m-iʔba* ‘would get sick’
<šu>(la:)(máʔ)ba

b. *šula:m-qa-em* ‘the one who seems sick NOM’
<šu>(lam)(qám)

c. *šula:m-wi-y-e: to* ‘I got sick’
<šu>(lam)(wiyé:)to

- Compare underlying short vowel: no accent shift

d. *duṭ’am-wi-y-e: to* ‘more keep coming to me’
<du>(ṭ’ám)(wiye:)to

Opacity

- Long vowel often surfaces in stems like /šula:m/
  - good evidence for underlying length
- Analysis by ordering
  - apply foot extrametricality before shortening (Buckley 1994)
- Analysis by output constraints
  - stem paradigms are uniform in showing accent shift (Buckley 1999)
- Or faithfulness to prior footing
  - in a stratal OT model

Word-edge accent shift

- CVC ending a disyllable is normally stressed
  - extrametrical syllable plus nonbranching foot

a. *yahmoṭ =yac^{h}ma* ‘mountain lion NOM.PL’
<yah>(móʔ)(yac^{h})ma

b. *kilak^{h} =yacol* ‘eagle OBJ’
<ki>(lák^{h})(yacol)

- But some such words (>) show accent shift

c. *ʔacac> =yac^{h}ma* ‘person NOM.PL’
<ʔa>(caʔ)(yác^{h})ma

d. *ʔacac> =yacoʔk^{h}e* ‘person BEN’
<ʔa>(caʔ)(yacóʔ)k^{h}e

Word-edge accent shift

- Additional examples

a. *k'abaṭ˃ šihp^{h}a* 'madrone leaf'
<k'a>(baʔ)(šíh)p^{h}a

b. *k'abaṭ˃ q^{h}ale* 'madrone tree'
<k'a>(baʔ)(q^{h}alé)

c. *calel˃ hiʔbaya* 'some random man'
<ca>(lel)(híʔ)(baya)

d. *calel˃ cic'i:d-e: ma* 'you're doing it haphazardly'
<ca>(lel)(cic'í:)(de:)ma

- Not really discussed in previous literature

Monosyllables

- This occurs also with some monosyllables
  - they lack extrametricality, so the pattern is shifted

a. *k'is> miʔda* 'every red one'
(k'is)(míʔ)da

b. *k'is> cic'i:d-i* 'keep turning red!'
(k'is)(cic'í:)du

c. *hec'> =t^{h}in =ʔ-e: mu* 'it's not a nail'
(hec')(t^{h}iné:)mu

  - compare underlying short vowel: no accent shift

d. *meṭ =t^{h}in =ʔ-e: mu* 'it's not time'
(méʔ)(t^{h}ine:)mu

Accent shift and vowel length

- These words never have a surface long vowel
  - they are not verbs, so they lack the necessary alternations under suffixation
- But that is Oswalt's treatment of them
  - **/ʔaca:c/**, **/cale:l/**, **/k'i:s/**, etc.
  - always undergo closed-syllable shortening
- Not opacity in the same way
  - underlying long vowel is fully abstract
  - also makes incorrect prediction...

Restricted distribution

- Prediction if abstract long vowels exist
  - should be possible word-interally
  - compare transparent /**ʔima:ta**/ ‘woman’
  - and opaque /**šula:m-qam**/ ‘the one who seems sick’
- But no such forms exist
  - such as */**ʔima:nta**/
  - surfacing as ***<ʔi>(man)(taʔé:)mu**
- Medial CVC in such words always takes the accent
  - as in **<šah>(p^{h}én)ta** ‘bluebird’

Post-accentuation

- Lexicalized accent shift occurs only finally
  - confirms connection to the word edge
- Analyze as post-accentuation
  - requirement that the accent follow a certain element
  - ultimately, property of a foot rather than a stem edge
- Two possible sources
  - **foot** that consists of a syllable with a long vowel
  - **lexeme** that bears an idiosyncratic property
- Compare to similar patterns in other languages

Post-accentuation in Japanese

- Prefix *ma-* ‘true’ can induce accent on next syllable
  - a. *ma$^{>}$ + minami* ‘due south’
    ma-mínami
  - b. *ma$^{>}$ + yonaká* ‘dead of night’
    ma-yónaka
- Also (more common) pre-accenting suffixes
  - c. *yosida + $^{<}$ke* ‘Yoshida family’
    yosidá-ke
  - d. *nisímura + $^{<}$ke* ‘Nishimura family’
    nisimurá-ke

Analyzing Japanese

- Poser (1984): invisibility
  - prefix or suffix is ignored when accenting edge syllable
  - similar to Foot Extrametricality for Kashaya
- Alderete (1999): local anti-faithfulness
  - transderivational (output-output):
    - affixed stem must differ from its prominence realization in other contexts
    - must happen on syllable adjacent to the triggering affix
  - cannot be applied to Kashaya
    - not “base-mutating” as in most of Alderete’s cases

Post-accentuation in Russian

- Some basic accent patterns in nouns
  1. always on the same **stem** vowel
  2. on an **accented suffix**, else the **first** syllable
  3. always on the first **suffix** vowel

kor**ó**v-a	borod-**á**	gospož-**á**	*nom.sg.*
kor**ó**v-ɨ	b**ó**rod-ɨ	gospož-**ɨ́**	*nom.pl.*
‘cow’	‘beard’	‘lady’	

- Last class is post-accenting
  - location on suffix is a property of the stem
  - occurs on unaccented suffixes such as nom.pl.

Analyzing Russian

- Melvold (1989): shifting stress
  - lexically at end of stem, but moves rightward
  - compare moving accentual tone to next foot head
- Idsardi (1992): final left bracket: **x x (**
  - similar to fixed stem stress: **x (x** or **(x x**
  - equivalent to alignment in OT
    - at least for bracket at edge, rather than internally
- Alderete (1999): post-stem prominence
  - Align(PROM, L; Stem, R)
  - Kashaya requires alignment with head foot rather than with a prominence

Accent shift as alignment

- Responds to lexical marking on stems
  - since true of just a subset of stems
- Cannot just be “some foot”
  - that’s expected anyway in most cases, since heavy syllable would be final in an iambic foot
- Treat as Head Foot
  - accent is then assigned to this foot
- Call it POST-ACCENT
  - right edge > is aligned with left edge of head foot
  - similar effect to extrametricality, but different basis

Analysis with accent shift

- **NON-INITIAL** : Initial syllable extrametricality
- **POST-ACCENT** : Must refer to diacritic feature of stem

yahmoṭ =yac^{h}ma	NON-INITIAL	POST-ACCENT	ALIGN-L
a. (yáh) (moʔ) (yac^{h}) ma	*!	—	
☞ b. yah (móʔ) (yac^{h}) ma		—	*
c. yah (moʔ) (yác^{h}) ma		—	**!

ʔacac$^{>}$ =yac^{h}ma	NON-INITIAL	POST-ACCENT	ALIGN-L
a. ʔa (cáʔ) $^{>}$ (yac^{h}) ma		*!	*
☞ b. ʔa (caʔ) $^{>}$ (yác^{h}) ma			**

Analysis as (CV:) alignment

- Constraint **(CV:) ($_{HD}$**
  - Foot (CV:) is right-aligned with head (accented) foot
  - direct reference to the triggering property of length
- Not the same as extrametricality
  - no reference to the left edge

ʔima:ta našoya	NON-INITIAL	(CV:) ($_{HD}$	ALIGN-L
a. **ʔi (má:) (tana) (šoya)**		*!	*
☞ b. **ʔi (ma:) (taná) (šoya)**			**
c. **ʔi (ma:) (tana) (šoyá)**		*!	****

Diacritic alignment of (CV:)

- Alternatively, same diacritic is inserted for (CV:) feet
  - does not make direct reference to vowel length
  - details otherwise remain quite similar
- Perhaps all alignment is with foot, not stem
  - even for the lexically specific items (more below)

ʔima:ta našoya	NON-INITIAL	POST-ACCENT	ALIGN-L
a. **ʔi (má:) > (tana) (šoya)**		*!	*
☞ b. **ʔi (ma:) > (taná) (šoya)**			**
c. **ʔi (ma:) > (tana) (šoyá)**		*!	****

Opaque alignment of (CVC)

- Underlying length in /CV:C/ eventually lost
  - could assign diacritic in Word level, with length still present
  - persists to Phrase level where lexical diacritic is also needed
- These outputs have shortening but retain diacritic
  - opacity is situated in the diacritic

Word: **šu(la:m)>(qam)**	NON-INITIAL	POST-ACCENT	ALIGN-L
a. **šu (lám) > (qam)**		*!	*
☞ b. **šu (lam) > (qám)**			**

“Foot Flipping” to (CVCV:)

- Leftmost foot (CV:) plus CV surfaces as (CVCV:) (Buckley 1994)

  a. *šula:m-iʔba* ‘would get sick’
  <šu>(la:)(máʔ)ba

  – with opaque accent shift

  b. *šula:m-adad-pʰi* ‘after getting sicker’
  <šu>(lama:)(dán’)pʰi

  c. *šula:m-ad-uced-u* ‘keep getting sick’
  <šu>(lama:)(ducé:)du

  – compare underlying short vowel: no accent shift

  d. *hoṭʰam-ad-uced-u* ‘keep getting warm’
  <ho>(ṭʰamá:)(duce:)du

Opaque alignment of (CVCV:)

- Diacritic could operate for this foot as well
- Best overall analysis is less clear (see Buckley 2017)
  - might be Output-Output effect (Buckley 1999)
    - i.e., via shared stem /**šula:m**/
  - or assigned to **(CV:)** foot and persists with addition of **CV**

Word: **šu(la:ma)>(duce:)du**	NON-INITIAL	POST-ACCENT	ALIGN-L
a. **šu (lamá:) > (duce:) du**		*!	*
☞ b. **šu (lama:) > (ducé:) du**			***

Glottal-initial clitics

- Glottal stop at the beginning of an enclitic
  - surfaces as glottalization of a preceding stop/affricate
  - disappears after a sonorant
  - e.g., copular /ʔe:/, nominative /ʔemu/
- In either case, that consonant surfaces as an onset

a. *siʔbal =ʔe: mito* ‘you are far away’
<siʔ>(balé:)(mito)

b. *yahmoṭ =ʔemu* ‘the mountain lion NOM’
<yah>(moṭʼé)mu

Loss of accent shift

- In the same context, shifting words lose this special property
  - due to syllabification across the boundary

  a. *ʔacac$^{>}$ =ʔemu* ‘the man NOM’
  <ʔa>(cac’é)mu
  ***<ʔa>(cac’)(emú)**
  ***<ʔa>(ca)(c’emú)**

  - pattern just like regular words

  b. *yahmoṭ =ʔemu* ‘the mountain lion NOM’
  <yah>(moṭ’é)mu

More examples

- Regular accent due to resyllabification

a. *ʔacac$^{>}$ =ʔi-yow-a-l* ‘the former man OBJ’
<ʔa>(cac’í)yowal
***<ʔa>(cac’)(iyó)wal**
***<ʔa>(ca)(c’iyó)wal**

b. *maṭ^{h}ey$^{>}$ =ʔemu* ‘the doe NOM’
<ma>(ṭ^{h}eyé)mu
***<ma>(ṭ^{h}ey)(emú)**
***<ma>(ṭ^{h}e)(yemú)**

Effect of resyllabification

- Lexemes like *ʔacaʔ* require post-accentuation
  - but this effect is mediated by prosody
  - akin to crisp edges (Ito & Mester 1999)
- Undominated ONSET leads to a prosodic conflict
  - **maṭʰey**$^{>}$ in **ma.tʰe.y|e.mu**
  - Foot alignment is impossible, renders it inert
    - not to mention effect of glottal fusion
- Same insight seems unavailable in other approaches
  - whether extrametricality or tone shift

Analysis with resyllabification

- ***C?** : Forces fusion with preceding consonant
- ***[$_{\sigma}$ R'** : Loss of glottalization in onset for all sonorants
- Open question whether diacritic is actually present for (c)–(e)

maṭ^{h}ey$^{>}$ =?emu	**ONSET**	***C?**	***[$_{\sigma}$ R'**	**POST-ACCENT**	**ALIGN-L**
a. **ma (ṭ^{h}ey) $^{>}$ (?emú)**		*!			**
b. **ma (ṭ^{h}ey') $^{>}$ (emú)**	*!				**
c. **ma (ṭ^{h}e) (y'$^{>}$emú)**			*!	*?	**
☞ d. **ma (ṭ^{h}e y$^{>}$é) mu**				*?	*
e. **ma (ṭ^{h}e) (y$^{>}$e mú)**				*?	**!

Underlying long vowel

- This also happens with a true long vowel
  - in verbs that show surface length elsewhere

a. *šula:m-ʔ =ʔi-yow-a-l* ‘formerly sick OBJ’
<šu>(lamí)(yowal)
***<šu>(lam)(iyó)wal**

b. *da-t’e:l-ʔ =ʔi-do: mu* ‘they say he smeared it’
<da>(t’elí)(do:)mu
***<da>(t’el)(idó:)mu**

c. *mace:-w =ʔi-qan* ‘apparently protected’
<ma>(cewí)(qan)
***<ma>(cew)(iqán)**

Loss of length

- It is quite noteworthy that the underlying long vowel fails to surface even in this open syllable

  šula:m-ʔ =ʔi-yow-a-l ‘formerly sick OBJ’
  <šu>(lamí)(yowal)
  ***<šu>(la:)(miyó)wal**

  – If (CV:) persists long enough to cause accent shift here, why is the length absent?
- But this makes sense under the diacritic analysis
  – does not rely on continued presence of (CV:)
  – assumes it is generally lost before Phrase level

Dubiousness of length as trigger

- Where long vowel **can't** surface, accent shifts
  - but where it **could** surface, it disappears and accent doesn't shift (b, d)

a. *šula:m-ʔ banema:duʔ* 'arrived and fell down sick'
<šu>(lam')(bané)(ma:)(duʔ)

b. *šula:m-ʔ =ʔi-yow-a-l* 'formerly sick OBJ'
<šu>(la.mí)(yowal)

c. *da-t'e:l-ʔ tubic-ic'-ʔ* 'start to smear'
<da>(t'el')(tubí)(yiʔ)

d. *da-t'e:l-ʔ =ʔi-do: mu* 'they say he smeared it'
<da>(t'e.lí)(do:)mu

Unified treatment

- At first glance, we find disjunct loci of accent shift
  - the right edge of certain stems
  - the right edge of **(CV:)** feet
- There is also considerable opacity
  - **(CVC)** from closed-syllable shortening
  - **(CVCV:)** that results from underlying CV: + CV
- But in every case, it is the right edge of a foot
  - requires accent on following foot
  - maybe it's really about the foot in all cases

Focus on feet

- The transparent situation with **(CV:)** feet is already fairly unusual cross-linguistically
  - perhaps not surprising it requires an ad-hoc solution
  - diacritic on foot, triggering alignment constraint
    - with another foot, of course, so at the same prosodic level
- Remaining cases can all take the same approach
  - addresses the opacity problem
    - depends on diacritic, not on (prior) vowel length
  - effect at right stem boundary is also at a foot boundary
    - since CVC must end an iambic foot
    - lexical diacritic actually associates with this foot

Subtleties of edges

- Post-accentuation only if foot maintains its integrity
  - material can be added, but not moved out
- Maintained if external material is incorporated

  a. *q^{h}os'a: =ʔ-yow-a-m* 'formerly in winter NOM'
  <q^{h}o>(s'aʔ)(yowám)

- Fails if internal C is syllabified outside the foot

  b. *šula:m-ʔ =ʔi-yow-a-m* 'formerly sick NOM'
  <šu>(lamí)owam
  ***<šu>la(miyó)wam**

- Disruption of syllable structure (from Word to Phrase level)
  - may depend on change in bimoraic syllable structure
  - foot is recreated (à la Hayes 1989) and loses diacritic

Diacritics and morphemes

- Lexical exceptionality often associated with morphemes, rather than phonological objects (Pater 2007, Gouskova 2012)
  - many long vowels in Kashaya arise from elision across morphemes, and behave the same way
  - but the (CV:) diacritic is predictable anyway, not specified underlyingly
- The only underlying diacritic is indeed linked to particular morphemes, such as /ʔacaʔ/
  - but I suggest it is transferred to the right-aligned foot

Diacritics and feet

- Lexically indexed constraints sometimes linked to phonological elements (Round 2017)
  - not necessary (or perhaps possible) in Kashaya, since the foot structure itself is regular, not in UR
  - but shares the notion that the diacritic is affiliated (ultimately) with a phonological category
  - here, the foot rather than the more typical segment
- Question remains about the mechanism that assigns this diacritic
  - need similar cases for comparison

Summary

- Advantages of alignment approach
  - avoids abstract underlying vowel length
    - accounts for lack of word-internal abstract length
  - deals with diverse and opaque triggers
    - unifies divergent sources of shifted accent
  - accounts for loss of accent shift under resyllabification
- Important question
  - how does this kind of prosodic diacritic fit into a larger theoretical picture

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