Metrical Markedness in the Pomoan Languages

EUGENE BUCKLEY
UNIVERSITY OF PENNSYLVANIA

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Outline of talk

• stress markedness
  – what theories seem to predict about change
• Pomoan stress
  – reconstruction of proto stress
  – synchronic patterns
• changes that have occurred
  – generalizations and analysis
• adjacent languages
  – possible contact influences on reanalysis
• implications for learning
  – responses to ambiguous generalizations
  – factors and biases in reanalysis
Metrical typology

• cross-linguistic stress patterns
  – what is common, rare, and unattested
  – next question is what the theory should say about this
• some conceivable patterns are surely impossible
  – default stress on the fourth syllable, or pre-antepenult
  – primary stress on middle syllable of any word
  – stresses on 2nd, 3rd, 5th, 8th syllables
• a theory that predicts any such system is dubious
  – so there are some patterns that should be excluded
  – are they formally impossible to represent?
What is markedness?

• some theories exclude certain more plausible patterns
  – left-edge extrametricality
  – quantity-insensitive iamb

• even if permitted, they are still typologically uncommon
  – what does this imply about their formal status?
  – are they possible to represent, but somehow more complex?
  – is there a learning bias against them?

• diachronic change as a window into acquisition
  – overall trajectory reflects what is learned each generation
  – if uncommon patterns persist,
  – can they really be “marked” to the learner?
Pomoan family

• seven languages in northern California
  – time depth compared to Germanic
• presents useful testing ground
  – proto-stress pattern is already somewhat unusual
    • stress on second syllable regardless of weight
    • though does not move beyond the root
• variety of changes in descendents
  – maintained (nearly) intact in several
  – more significantly modified in others
  – radically changed in one of them
• language transmission
  – what does this tell us about learning stress patterns?
Pomoan in the world
Internal relationships

Proto-Pomo

Western Branch

Southern Group

Kashaya Southern Central Northern Northeastern Eastern Southeastern
Proto-Pomo

- reconstructed by McLendon (1973)
  - I’ll mainly accept her assumptions
  - but will make certain minor changes unrelated to stress
- proto-language probably located around territory of E and SE languages
  - Clear Lake region
- phased movements
Reconstructing proto-stress

- actual location of stress in modern languages
  - N, E, SE, C are relatively consistent
  - NE also lends some support
  - K and especially S are now quite different

- aphesis of initial unstressed syllables
  - complete loss with initial /ʔ, h/
  - pervasive in all languages except K, S, sometimes NE
  - even K, S have it to a more limited degree

- vowel deletion in initial unstressed syllables
  - retention of non-laryngeal onset consonant
  - common in C, pervasive in SE

- syncope in post-tonic syllables
  - precedes change in K, S stress patterns
Stress on second syllable

<table>
<thead>
<tr>
<th></th>
<th>‘duck’</th>
<th>‘bear’</th>
<th>‘woman’</th>
<th>‘angelica’</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>q’ajál</td>
<td>buṭaqá</td>
<td>ʔima:ta</td>
<td>baʔtʃ’owá</td>
</tr>
<tr>
<td>S</td>
<td>k’á:jan</td>
<td>bu:ṭáka</td>
<td></td>
<td>baʔtʃ’ówha</td>
</tr>
<tr>
<td>C</td>
<td>k’já:n</td>
<td>p’ṭáka</td>
<td>má:ta</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>k’aján</td>
<td>本市</td>
<td>má:ta</td>
<td>batʃ’ówa</td>
</tr>
<tr>
<td>NE</td>
<td>k’ajá:-</td>
<td>本市</td>
<td>himá:ta</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>q’a: já:n</td>
<td>bu:ráqal</td>
<td>má:-  archaic</td>
<td>ba:k’ó:</td>
</tr>
<tr>
<td>SE</td>
<td>k’ján</td>
<td>bṭéqal</td>
<td></td>
<td>?k’ó-b</td>
</tr>
<tr>
<td>PP</td>
<td>*q’a:ján</td>
<td>*bu:ṭáqa(l)</td>
<td>*ʔimá:ta</td>
<td>*baʔk’ówa</td>
</tr>
</tbody>
</table>

excluding K, S, sometimes NE: the languages show stress on second syllable
## Loss of first syllable

<table>
<thead>
<tr>
<th></th>
<th>‘eye, face’</th>
<th>‘fat’</th>
<th>‘fire’</th>
<th>‘water’</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>huʔúj</td>
<td>?ihpʰúj</td>
<td>òohó’</td>
<td>òahqʰa’</td>
</tr>
<tr>
<td>S</td>
<td>húʔuj</td>
<td>?íhpʰuj</td>
<td>òóh:ó</td>
<td>òáhkʰa</td>
</tr>
<tr>
<td>C</td>
<td>?új</td>
<td>pʰúj</td>
<td>hó</td>
<td>kʰá</td>
</tr>
<tr>
<td>N</td>
<td>?új</td>
<td>pʰúj</td>
<td>hó</td>
<td>kʰá</td>
</tr>
<tr>
<td>NE</td>
<td>?új</td>
<td>fí:</td>
<td>òóho</td>
<td>kʰá</td>
</tr>
<tr>
<td>E</td>
<td>?új</td>
<td>pʰúj</td>
<td>xó</td>
<td>xá</td>
</tr>
<tr>
<td>SE</td>
<td>?új</td>
<td>fúj</td>
<td>χó</td>
<td>χá</td>
</tr>
<tr>
<td>PP</td>
<td>*huʔúj</td>
<td>*?ihpʰúj</td>
<td>*?ohχó</td>
<td>*?ahqʰá</td>
</tr>
</tbody>
</table>

*initial syllable must have been unstressed – therefore 2nd syllable was stressed*
Pomoan instrumental prefixes

• around 20 prefixes of the shape CV
  – express manner, cause, or object of action
    *bi- ‘by collecting, by encircling, by sewing’
    *pʰu- ‘by blowing, by floating in the air’
    *qa- ‘between two forces, by biting’
• overwhelmingly common in verbs
  – K dictionary contains 4220 verb stems
  – of these, 3750 (or 89%) are prefixed
  – also in nouns derived from such verbs
• here the root is the second syllable of the word
  – stress aligned with left edge of root: σ{όσσ
  – location can be expressed by reference to morphology
# Prefixed verbs

<table>
<thead>
<tr>
<th></th>
<th>‘bite’</th>
<th>‘carry’</th>
<th>‘fly, float’</th>
<th>‘smell, stink’</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>qane-</td>
<td>biʔdi-</td>
<td>pʰudi-</td>
<td>mihʃe-</td>
</tr>
<tr>
<td>S</td>
<td>ka:ne-</td>
<td>biʔdi-</td>
<td></td>
<td>mehʃe-</td>
</tr>
<tr>
<td>C</td>
<td>ka:né-</td>
<td></td>
<td>pʰdė-</td>
<td>mʃé-</td>
</tr>
<tr>
<td>N</td>
<td>kané-</td>
<td></td>
<td>pʰide-</td>
<td>mʃé-</td>
</tr>
<tr>
<td>NE</td>
<td>kána-</td>
<td></td>
<td>fuʔdú-</td>
<td>méhʃe-</td>
</tr>
<tr>
<td>E</td>
<td>qa:né-</td>
<td>bi:dí[:l]</td>
<td>pʰu:dí-</td>
<td>miːʃé-</td>
</tr>
<tr>
<td>SE</td>
<td>qné-</td>
<td>bdéy-</td>
<td>-di-</td>
<td>mxé-</td>
</tr>
<tr>
<td>PP</td>
<td>*qa:-né-</td>
<td>*bi-ʔdí-</td>
<td>*pʰu-dí-</td>
<td>*mi-hʃé-</td>
</tr>
</tbody>
</table>

*like disyllabic roots, these take stress on second syllable of the word*
Post-tonic syncope: Southern

- deletion of a vowel in the third syllable
  - unexpected if that syllable is stressed
  - complements evidence that stress was not initial
    - if not initial and not on third, then on second
    - assuming left-orientation, which seems secure
- still-productive syncope in S
  
  /ʔe-hkʰe-matʃ-in/ → ʔehkʰémtʃin ‘move in!’
  /ʔa-htʃa-mok-a/ → ʔahtʃámko ‘flew into’
  /ʔa-hpʰ-alametʃ-in/ → ʔappʰalmétʃin ‘carry down!’

- can’t depend on modern penultimate stress
  - often deletes underlying penult
    ʔah tʃa mó ko
  - so must derive from earlier stress system
Post-tonic syncope: Kashaya

• similar pattern, but lexicalized, in K kinship
  mi-ᵗ’ikí ‘your younger sibling’ < *mi-ᵗ’íki ?
  mi-tʃú-ᵗ’ki ‘your sister’s son’ < *mi-tʃú-ᵗ’iki ?

• presumed origin
  – 2nd syllable stress, deletion of (nonfinal) post-tonic vowel
    *mi-ᵗ’íki > mi-ᵗ’iki
    *mi-tʃú-ᵗ’iki > mi-tʃu-ᵗ’ki

• might also explain an ablaut pattern in K kinship
  – stem with long vowel if monosyllabic prefix, otherwise short
    mi-de·ki´ ‘your older sister’ < *mi-dé:ki ?
    dikí-n’ ‘my older sister’
    miyá:-diki ‘his older sister’
  – i.e. long vowel if stem starts at second syllable
## Monosyllabic stems

<table>
<thead>
<tr>
<th></th>
<th>‘come’</th>
<th>‘hear’</th>
<th>‘leave’</th>
<th>‘claw’</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>wa:d-u´</td>
<td>ŋotʃ-</td>
<td>q’a:-´</td>
<td>he:tʃ˝</td>
</tr>
<tr>
<td>S</td>
<td>hwá:d-u</td>
<td>ŋo:tʃi-</td>
<td></td>
<td>hé:tʃ˝</td>
</tr>
<tr>
<td>C</td>
<td>wá:d-</td>
<td>ŋó:tʃ-</td>
<td></td>
<td>ḟé:tʃ˝</td>
</tr>
<tr>
<td>N</td>
<td>wá:d-</td>
<td>ŋó:-</td>
<td>kˇá-</td>
<td>héts’</td>
</tr>
<tr>
<td>NE</td>
<td></td>
<td></td>
<td></td>
<td>hé:tʃ’a</td>
</tr>
<tr>
<td>E</td>
<td>wád[u:ki]</td>
<td>ŋó:kʰ</td>
<td>qˇá-</td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td></td>
<td>(xkó-)</td>
<td>qˇá-</td>
<td></td>
</tr>
<tr>
<td>PP</td>
<td>*(h)wá:d-</td>
<td>*fó:k-</td>
<td>*qˇá(:)-</td>
<td>*hé:ts’</td>
</tr>
</tbody>
</table>

*here proto-stress is on the first syllable – it can’t be assigned past the root*
Proto-Pomo stress

• appears to be regular
  – though best evidence comes from nouns
• stress on 2nd syllable of word
  – whether prefixed or not
  – \{σσ́, σ{σ́
• but stays on an initial monosyllabic root
  – \{σ́}σ
  – no reconstructed prefixed roots with two syllables
    • but in the relevant daughter languages,
    • stress remains on first root syllable regardless of word length
• initial stress in vocative of kinship terms?
  – limited evidence; will set this aside
Analysis of PP stress

• prefixed stems could refer to morphology
  – stress aligned with left edge of root: $\sigma\{\sigma\sigma$
  – possible source of “2nd syllable” generalization
  – but once established, it requires a phonological analysis

• no reference to vowel length or closed syllables
  – requires left-edge extrametricality: $<\sigma>(\sigma\sigma$
  – or quantity-insensitive iamb: $(\sigma\sigma)\sigma$
  – either approach is uncommon and marked

• monosyllabic stems are also aligned to the root
  – there just happens to be no prefix: $\{\sigma\}...$
    • remains on this root syllable despite addition of suffixes
  – revocation of extrametricality, or nonbranching foot
Modern stress: Eastern Pomo

- mainly the same as proto language
- second syllable of most words
  - including all prefixed roots
  - alternating secondary stress
- first syllable
  - monosyllabic roots (some by aphesis)
  - certain disyllabic stems have to be lexically marked
Eastern Pomo second syllable

- instrumental prefixes are now CV:
  - many of these derive from *CV{hCV or *CV{ʔCV
  - no reference to V length in placement on 2nd syllable

- similar in most words with no apparent prefix

  - du:{qá}t’ki: ‘pull off, pluck’
  - ma:{t’ó}qaja ‘roasted (the meat)’
  - ka:{lú}:ski: ‘sit on something sticky’
  - bi:{dí}m ‘hold in hand without moving’

  - bu:ráqal ‘bear’
  - di:lé ‘forehead’
  - qa:lí ‘sky’
Eastern Pomo initial stress

- unpredictably on first syllable for certain words
  - káju ‘at the beginning’
  - dú:ʃux ‘quiet’
  - ts’á:mal ‘fly’
- some are historically from aphesis
  - ṭʰίja ‘big’ < *ʔahṭʰíj
  - ṭʰó:no ‘seaweed’ < *ʔo:ṭʰóno
- all the numbers have initial stress
  - k’áli ‘one’
  - lé:ma ‘five’
  - ts’á:di ‘six’
  - hádaqal ‘ten’
Eastern Pomo loanwords

• some likely from neighboring languages
  háju  ‘dog’  (widely diffused)
  hí:baja  ‘men’  (identical to NE Pomo)

• initial stress in more recent loanwords
  – similar to SE Pomo; some perhaps borrowed through it
  káhonʔ  ‘box’  < Sp. cajón
  kálawa  ‘nail’  < Sp. clavo
  pásalʔ  ‘to visit’  < Sp. pasar
  pápelʔ  ‘paper’  < Sp. papel
  rí:koʔ  ‘rich’  < Sp. rico

• whatever the source, they exist
  – lexical exceptions to left-edge extrametricality?
Eastern Pomo initial CVC

- initial CVC is not frequent, but takes stress
  - could stress be attracted to VC but not to V: ?
  - perhaps (historical) compounds and reduplicated roots, now lexicalized
    - bόṭʰqo ‘forearm’
    - líkʰlikʰ ‘sparrow hawk’
    - ţíχṭiχ ‘snipe’

- verbs with initial CVC are monosyllabic roots
  - therefore expect initial stress anyway
    - {ká}mli: ‘tip over, wreck (a car)’
    - {ʔé}ʔʃʰki: ‘sneeze’
Eastern Pomo analysis

• follows general Pomo pattern
  – left-edge extrametricality
  – stress at left edge of domain
  – blocked by monosyllabic, unpreixed root
• lexical exceptions
  – extrametricality blocked for certain roots
    • more common than in some other Pomoan languages?
  – includes classes such as loans and numbers
• heavy initial syllables
  – might be true weight sensitivity
    • though not evident in other contexts, or with CV:
  – probably just marked as exceptions like the other cases
Modern stress: Northern Pomo

- similar to proto language
- second syllable of disyllabic roots
  - as well as prefixed monosyllables
- first syllable of monosyllabic root
  - including where aphesis has occurred
- pitch accent realization
  - predictable based on syllable structure
Northern Pomo second syllable

- disyllabic (or longer) root
  - {diléj} ‘all’
  - {batʃˈówa} ‘angelica’
  - {da:wák}a ‘go out’
  - {duhú}doj ‘they say he left’
  - {kawí}namjatʃuʔ ‘of the child’
  - {miná}tʃinhe ‘I heard (the baby) cry once’

- prefix, yielding disyllabic stem
  - si{jú:}tʃin ‘recognize taste (of liquid)’
  - mi{jé:}tal ‘be feeling (emotion)’
  - da{séj} ‘wash’
  - da{tsˈáp}na ‘must have slapped’
Northern Pomo first syllable

- monosyllabic root
  - \{pʰó\}moʔo ‘marry each other’
  - \{ṭʰáʔ\}a ‘play (COLLECTIVE)’
  - \{tʃá\}nhe ‘I heard it jump (in the water)’
  - \{lók\}ta ‘fall, drop multiple times’

- historical aphesis
  - \{má:ta\} ‘woman’ < *ʔimá:ta

- other reasons, such as onomatopoeia?
  - \{xó:ta\}manhe ‘I hear him snoring’

- analysis has to permit some exceptions
  - no initial extrametricality, or an underlying stress
  - but most forms can be generated quite regularly
Northern Pomo analysis

• general Pomo pattern
  – left-edge extrametricality
  – stress at left edge of domain
  – blocked by monosyllabic, unprefixed root

• exceptions appear to be quite limited
  – though stress is often not written in sources
  – so data is somewhat limited

• realized with predictable pitch accent
  – rising on short V and most VC
  – falling on short VC = laryngeal or ejective
  – falling on V:
Modern stress: Central Pomo

- similar to proto language
- second syllable of disyllabic roots
  - as well as prefixed monosyllables
- first syllable of monosyllabic root
  - including where vowel deletion has occurred
  - therefore more often word-initial
Central Pomo second syllable

- disyllabic (or longer) roots
  - \{matúl\} ‘old lady’
  - \{maʔá\} ‘food’
  - \{masá:nja\} ‘white (person)’
  - \{tʃa:nó}:n ‘talks’
  - no effect of vowel length

- syllabic prefix, yielding disyllabic stem
  - ba\{yí\}:tʃ’ ‘learned to talk’
  - ja\{ʔá\}ma:tʃatʃ ‘(we) used to gather’
  - qa:{wá}tan ‘eat (habitually)’
  - da\{lí\}da\{li\}w ‘wave the hand’
Central Pomo first syllable

• monosyllabic roots
  {lów}aːtf’aːtʃ’ ‘(we) don’t talk’
  {mí}taq’ ‘they say’
  {tʃáːʔ}jem ‘old man’

• historical vowel deletion, in prefix or within root
  m{ʃé}m{ʃe}w ‘sniff at’ < *mihʃé-
  {ʃíː}jaw ‘carried (the body)’
  {ʔwéni} ‘yesterday’ < *duwéni

• initial in loanwords, or other reasons
  {sómləlo} ‘hat’ < Sp. sombrero
  {háju} ‘dog’ locally diffused
  {ʔúdaːw} ‘lots’
Central Pomo analysis

• general Pomo pattern
  – left-edge extrametricality
  – stress at left edge of domain
  – blocked by monosyllabic, unprefixed root

• lexical exceptions
  – extrametricality blocked for certain roots
  – predictable in presence of initial CC cluster
    • extrasyllabic C blocks extrametrical syllable?

• more frequent stress on first syllable of word
  – compared to E and N
  – since vowel deletion was more widespread in C
Languages with 2nd syllable stress

Proto-Pomo

Western Branch

Southern Group

Kashaya  Southern  Central  Northern  Northeastern  Eastern  Southeastern
Modern stress: Southeastern Pomo

- stress is always initial
  - historical loss of first vowel or syllable
- remains on same syllable as in proto language
  - but simpler synchronic generalization
- no long vowels
  - the only Pomoan language to lose distinctive length
Southeastern Pomo diachrony

- **initial unstressed syllables lose vowel**
  *seʔé* > *sʔé* ‘chaparral’
  *nahpʰó* > *mfó* ‘people’
  *mihján* > *mján* ‘throat’
  *baːlaj* > *bláj* ‘blood’

- **complete aphesis with laryngeal onset**
  *hiːmó* > *mó* ‘hole’
  *hiʔbál* > *bál* ‘tongue’
  *ʔohó* > *hó* ‘fire’
  *ʔahχáj* > *χáj* ‘wood’

- **initial stressed syllables are maintained**
  *tfj’áj* > *ts’áj-ts’aj* ‘scrub jay’
  *q’á(:)-* > *q’á-* ‘leave (behind)’
Southeastern Pomo first syllable

• native words with initial stress
  – regardless of word length
    xéla  ‘friend’
    xélataj  ‘friends’
    tsáqlamat  ‘it flew to the ground’
    háliqmattat  ‘(two) discuss, plan’

• same in Spanish borrowings
  – regardless of stress in source language
    sómlilu  ‘hat’  < sombrero
    mántikija  ‘butter’  < mantequilla
    pílatu  ‘dish’  < plato

• very simple generalization of “first syllable”
  – historical loss of unfooted material at the beginning of the word
  – evidence of avoiding degenerate feet for secondary stress
Modern stress: Northeastern Pomo

- less consistent with proto language
- often 2nd syllable of disyllabic roots
  - as well as prefixed monosyllables
- but 1st of many disyllabic roots
  - apparently prior to apphesis
- tendency to penult?
  - open questions
Northeastern Pomo second syllable

- these follow the general Pomo pattern
- in some disyllabic (or longer) roots
  - matches proto stress
    - {ʃahkó}ka: ‘grasshopper’ < *ʃahqót
    - {himá:ta} ‘woman’ < *ʔimá:ta
    - {jiʔbá} ‘body’ < *jiʔbá
    - {?ahá:} ‘wood’ < *ʔahχáj
- syllabic prefix, yielding disyllabic stem
  - also typical of the other languages
    - fu{ʔdí} ‘float’ < *pʰu-ʔdí
    - fo{ʔk’óm}on ‘cut off’
    - da{ʔdí}ma ‘lay (rock) down’
Northeastern Pomo first syllable

• in some disyllabic roots
  – has shifted leftward from proto stress
    {dúwe} ‘night’ < *duwwé
    {béhʃe} ‘deer’ < *bihʃé
    {táno} ‘speech’ < *kahnó
    {máʔa} ‘acorn’ < *maʔá

• monosyllabic roots
  – often from aphesis, based on proto stress
    {ʔá} ‘horn’ < *haʔá
    {fó:} ‘magnesite’ < *ʔipʰó:(l)
  – no aphesis if stress shifted leftward:
    {ʔóho} ‘fire’ < *ʔohχó
Northeastern Pomo variation

• some forms are transcribed variably
  – with stress on 1st and 2nd syllables
  – no apparent difference in context
• possible tendency for penultimate stress
  – based on shift under suffixation
  má:ti ‘day’
  ma:tí-min ‘sunrise’
• but some root stress appears to be stable
  – if we can rely on somewhat limited data
Northeastern Pomo rhythm?

• may shift between 1st and 2nd syllables
  – depending on overall rhythm of sentence

  ñilíma  ‘sit down!’
  ñáma ñílima  ‘you sit down!’

  mahkú:i  ‘handkerchief’
  tína: máhku:i  ‘kerchief for head’

• tentative hypothesis
  – rhythm does influence shifting stress

• between 1st and 2nd, with iterative effects
  – but the options remain within the Pomo pattern
  – variable extrametricality, *or* foot headedness?
Modern stress: Southern Pomo

- regular penultimate stress
  - reported to be on the phrase, not just the word
- outlier in Pomoan
  - right-orientation
  - all others are left-oriented (but NE?)
- secondary stress
  - on alternating syllables preceding the penult
Southern Pomo penult

• main stress on penult
  
  \( k^h \text{áʔbe} \) \quad \text{‘rock’}
  \( k^h \text{aʔ}(\text{bé-ʔwan}) \) \quad \text{‘rock-DET.OBJECT’}
  \( k^h \text{aʔ}(\text{bé-jej}) \) \quad \text{‘Rock (Man)-AGENT’}

• clashing secondary stress in trisyllables
  – transcribed explicitly for just a few words
  – but described as a general pattern
  \( (\text{bù:})(\text{táka}) \) \quad \text{‘bear’}
  \( (\text{kìt})(\text{tsídu}) \) \quad \text{‘small (COLLECTIVE)’}
Southern Pomo phrasal

- phrasal stress
  - can include enclitics and multiple words
    \[(bàh)(tʰé=k’o)\] ‘with many’
    \[(sí:ma) (pʰiʔt’a)(wáʔ=to)\] ‘I feel sleepy’
    ‘when it came to make (noise) I heard it’
- alternation in stress due to phrasal context
  - I’ll return to this later
    \[(béhʃe)\] ‘deer’
    \[beh(ʃè dah)(láːli)\] ‘deer, I think’
Southern Pomo analysis

• quantity-insensitive trochees, primary stress at right
  \((\dot{o}\sigma) (\dot{o}\sigma) (\dot{o}\sigma)\)
  – iterative from right to left, a very common pattern
• can be constructed across phrases
  – shares this property with Kashaya
• antepenult in trisyllables is stressed, and typically heavy
  \((\dot{o}) (\dot{o}\sigma)\)
  – historically, to meet a minimum size of two moras?
  – if correct, would simplify some reconstructions
• not clear whether this foot occurs in longer words
  – theories would generally predict it
  \(? (\dot{o}) (\dot{o}\sigma) (\dot{o}\sigma)\)
Modern stress: Kashaya

• most complex of all
  – but still left-oriented
• iambs from the left
  – first syllable is extrametrical
  – unless that would leave the root unfooted
• clear quantity sensitivity
  – unlike the other languages
  – special role for long vowels
Kashaya iambic feet

- extrametricality of first syllable by default
  - stress on 2nd syllable if heavy, else 3rd
  - iambic lengthening of (most) stressed vowels
    - main evidence for secondary stress feet
- true of unprefixed disyllabic roots
  - `{qaʔtʃ′át′}kʰetʰin` ‘shouldn’t cry’
  - `{qaʔtʃ′at}á:dutʃe:du` ‘used to cry and cry’
- as well as all prefixed roots
  - whether the root is monosyllabic or longer
    - `tʃa{qʰám}muʔ` ‘cut pieces apart from each other’
    - `tʃa{qʰam}á:lawi:biʔ` ‘start to cut downward’
    - `bi{lukú}mciʔ` ‘eat with one’s mouth closed’
Kashaya monosyllabic root

• extrametricality is blocked
  – as in the other Pomoan languages
    \{kél\}mula:dutʃe:du \quad \text{‘keep peering around’}
    \{mo\}mú:litʃ’e:du \quad \text{‘run in circles’}
    \{tʃad\}ú:tʃedun \quad \text{‘while looking’}

• but the root itself is still often unstressed
  – the foot (not the stress) has to overlap the root
  – evaluated via the vowel, as the syllable head
    \* \{tʃad\}utʃé:dun = \underline{tʃa}(dutʃé:)dun

• the other languages keep stress on the root
  – same formal statement if they are trochaic
Kashaya analysis

- iambic feet from left to right
  - extrametricality by default
- retains much of general Pomo pattern
  - left-edge extrametricality
  - stress at left edge of domain
  - blocked by monosyllabic, unprefixed root
- syllable weight plays central role
  - unlike in the other languages
- lexical exceptions
  - extrametricality blocked for a few roots
  - also fixed stress on some loans
Kashaya phrasal stress

• two words grouped as one stress
  – optional but common
    (ma + qáʔ) (tʃ’aṭem) ‘when you cry’
    <ʔo>(ho + dúh)(samu:)tʃi ‘tend the fire!’
    <ʔah>(qʰa + bá)(tʰe:=li ‘with lots of water’

• most often yields initial stress in second word
  – influence of initial stress in other languages?

• more complex pattern with long vowels
  – accent shifts from (CV:) to following foot
  – doesn’t change foot structure
  – will set this issue aside here
Kashaya degenerate feet

- **final stress on disyllabic words**
  
  `<ʔah>(qʰá)  ‘water’
  <qa>(né)     ‘bite!’

- **phrasal grouping avoids this**
  
  `<bih>(ʃé)  ‘deer’
  `<bih>(ʃe bó)(ʔotaʔ)(tʰuʔ)  ‘don’t hunt deer!’

- **degenerate foot can be unaccented**
  - that is, no pitch accent on that metrical structure
    
    `<bih>(ʃe) <bo>(ʔotáʔ)(tʰuʔ)  ‘don’t hunt deer!’

- **strategies to minimize role of such feet**
  - even though they are often created
  - such feet are also characteristic of general Pomo
Summary of stress patterns

<table>
<thead>
<tr>
<th>Stem:</th>
<th>Disyllabic</th>
<th>Prefixed</th>
<th>Monosyllabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>PP</td>
<td>{σό}</td>
<td>σ{ό}</td>
<td>{ό}σ</td>
</tr>
<tr>
<td>E</td>
<td>{σό} (~ {όσ})</td>
<td>σ{ό}</td>
<td>{ό}σ</td>
</tr>
<tr>
<td>N</td>
<td>{σό} (~ {όσ})</td>
<td>σ{ό}</td>
<td>{ό}σ</td>
</tr>
<tr>
<td>C</td>
<td>{σό}, {Cό}</td>
<td>σ{ό} , C{ό}</td>
<td>{ό}σ</td>
</tr>
<tr>
<td>SE</td>
<td>{Cό}</td>
<td>C{ό}</td>
<td>{ό}σ</td>
</tr>
<tr>
<td>NE</td>
<td>{σό} ~ {όσ}?</td>
<td>σ{ό} ?</td>
<td>{ό}σ ?</td>
</tr>
<tr>
<td>S</td>
<td>{σό}{ό}, {όσ}</td>
<td>σ{ό}{ό} , σ{ό}{σ}</td>
<td>{σ}όσ , {ό}σ</td>
</tr>
<tr>
<td>K</td>
<td>{σόσ}, {σόσ}</td>
<td>σ{όσ} , σ{όσ}</td>
<td>{ό}σ , {ό}σ</td>
</tr>
</tbody>
</table>
Diachronic tendencies

• shift from 2nd to 1st syllable
  – scattered examples in E, N, C
  – common in NE

• deletion to yield initial stress
  – with laryngeal onsets in E, N, C, some NE
  – vowel after nonlaryngeal in SE, some in C

• major changes in two languages
  – penultimate in S
  – iambic in K

• does language contact explain some of it?
Languages near Pomoan

- Athabaskan
  - Kato

- Yuki-Wappo
  - Coast Yuki, Yuki, and Huchnom
  - Wappo

- Wintun
  - Nomlaki (N. branch)
  - Patwin (S. branch)

- Miwok-Costanoan
  - Lake Miwok
  - Coast Miwok
Stress in Kato (or Wailaki)

- no description of stress in Kato
  - not even marked
- data for closely related Wailaki
  - 1st syllable of root
    - also of word, for basic nouns
  - can be preceded by many prefixes
    - typical Athabaskan verb structure
- not similar to other languages in area
  - including Pomoan
Yuki-Wappo languages

- Yukian
  - several closely related languages
  - stress usually on 1st syllable of root
    - excludes (rare) prefixes
  - some disyllabic roots have stress on 2nd syllable
  - limited pitch accent

- Wappo
  - stress on 1st syllable of root
    - excludes prefixes, more common than in Yukian

- both similar to Pomoan
  - unlikely source of change
Wintun languages

- Nomlaki
  - no stress description
- Wintu
  - just north of Nomlaki, and grouped with it
    - so use as stand-in
  - two-syllable window
  - stress on second syllable if heavy, otherwise first
- Patwin
  - again, stress on first or second syllable
  - seems to correlate fairly well with syllable weight
- weight not central in Pomoan
  - except in distant Kashaya
Interim summary

• Kato, Wailaki not especially relevant
  – first syllable of root is like other languages
  – long string of prefixes is only in Athabaskan
• Yuki-Wappo stresses first root syllable
  – may especially have affected NE
  – Yuki might also relate to pitch accent in N
• Wintun has first/second syllable stress
  – with important role for syllable weight
  – potentially germane to NE, though facts uncertain
• of course, Pomoan may have influenced them
  – such as second-syllable stresses in Yukian
Western Miwok

- two nearby varieties
  - Lake Miwok adjacent to E and SE
  - Coast Miwok adjacent to K and S

- Bodega Miwok
  - northwest dialect of Coast Miwok
  - immediately adjacent to K and S
  - discussion based on forms in dictionary
    (Callaghan 1970)
Miwok stress

• reported Lake Miwok stress (Callaghan 1971)
  – stress on leftmost CVV
  – otherwise on leftmost CVC
  – otherwise on initial syllable

• data suggests that stress rarely moves past the second syllable
  – consistent with Proto-Pomo except for syllable weight
  – and in E and NE nearby

• Bodega Miwok is similar to Lake Miwok, except that
  – “stress may shift to the penult”

• important since adjacent S has penultimate stress
  – but what exactly does that description mean?
Bodega Miwok stress

- disyllables have initial stress unless final long vowel
  
  kóle  
  ‘grass’
  kénúm  
  ‘every’
  hú:ma  
  ‘fish eggs’
  ?ellé:  
  ‘fish’

- longer words mostly penultimate
  
  – rightward shift under suffixation

<table>
<thead>
<tr>
<th>Word</th>
<th>Example</th>
<th>Suffixation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>támal</td>
<td>‘west, coast’</td>
<td>tamál-to</td>
<td>‘on the coast’</td>
</tr>
<tr>
<td>kó:ja</td>
<td>‘girl’</td>
<td>ko:já-ko</td>
<td>‘girls’</td>
</tr>
<tr>
<td>jólum</td>
<td>‘eat’</td>
<td>jolúm-ne</td>
<td>‘feed’</td>
</tr>
<tr>
<td>táwuh</td>
<td>‘think, guess’</td>
<td>tawúh-mi</td>
<td>‘guess!’</td>
</tr>
<tr>
<td>tólpa</td>
<td>‘answer’</td>
<td>tolpá-mmi</td>
<td>‘answer!’</td>
</tr>
<tr>
<td>tollé-pa</td>
<td>‘let go of’</td>
<td>tolepá-mmi</td>
<td>‘let go of it!’</td>
</tr>
</tbody>
</table>
Bodega Miwok extrametricality

• certain suffixes appear to be ignored for stress
  – stress is antepenultimate unless the penult is heavy
    lú:ṭa  ‘poke (a fire)’
    lu:ṭá-ja  ‘a poker’
    lú:ṭa-<ṭi>  ‘poke’ (PERFECTIVE)
    júlu  ‘be angry’
    jullú-m-<ṭi>  ‘quarrel’ (RECIP, PERF)
    kénne  ‘one’
    kenné-tto  ‘together’ (ALLATIVE)
    kénne-<wa>  ‘one place’ (LOCATIVE)
    kenne-wá-tto  ‘in one place’

• residue of unexplained exceptions
  – antepenultimate without these suffixes
  – penultimate on light syllable before these suffixes
Miwok and Southern Pomo

• around 89% penultimate stress in Bodega Miwok
  – partly due to large number of disyllables
  – final long vowels are quite uncommon
• so overwhelmingly one pattern in Miwok data
  – especially if take extrametricality into account
  – those suffixes excluded from penultimate domain
• appears to be the basis of S Pomo innovation
  – adjacency to this pattern is surely not a coincidence
  – past period of significant bilingualism?
• perhaps also related to ambiguities in S words
  – trisyllables with stress on second syllable
  – matches both inherited and penultimate analysis
Southern Pomo reanalysis

- texts in S show many trisyllabic words
  - ambiguous between “second” and “penultimate”
    kʰaːlɛʔwan kúʔmu diːláts’aw, kʰaʔbéjej
    ‘Rock broke all the trees by falling on them’
- reanalysis as penultimate system
  - suppose native speakers of Miwok marrying into Pomo communities
  - children exposed to both languages
  - or to Miwok-accented Pomo with tendency to use penultimate stress
Southern Pomo phrases

• stress in phrases possibly related to reanalysis
  * <beh>(ʃé) original pattern
  <beh>(ʃé) <dah>(lá:li) independent footing on 2nd
  ~ beh(ʃé dah)(lá:li) or iterative from penult
  (béhʃe) new penultimate pattern

• period of variation behʃé ~ béhʃe may even have led to phrase-level pattern
  – speakers conceivably preferred the variant that led to better sentence rhythm
  – form in isolation then stabilized as penultimate
Kashaya reanalysis

• doesn’t abandon the old system like S does
  – keeps left-orientation
  – but develops it further
• repeats what may have occurred in Proto-Pomo
  – perhaps Pre-Proto-Pomo was first-in-root: \( \sigma\{\acute{o}\}, \{\acute{o}\sigma}\)
  – later develops second-in-word for longer roots: \(\{\sigma\acute{o}\}\)
• likely a role again for prefix structure
  – overwhelmingly common in verbs
• depends on ambiguous pattern in \(\sigma\{\acute{o}\}\)
  – 2nd in word, or 1st in root
• bilingualism for Central and Kashaya?
Central versus Kashaya: prefixed

• original generalization with prefix
  – put stress on first syllable of root
  – which is the second syllable of the word
    *mi-{hʃé}-c-im ‘smell it!’

• loss of vowel or first syllable in C, not K
  – C: put stress on first (remaining) syllable:
    mʃécim
  – pre-K: still put stress on second syllable:
    *mihʃécim
  – or is it the first syllable of the root?
    • facts are ambiguous to the learner
Central versus Kashaya: unprefixes

• original generalization with unprefixed word
  – put stress on second syllable of the word
  – can’t refer to “root” as distinct in this case
    *duwéni ‘yesterday’

• loss of vowel or first syllable in C, not K
  – C: put stress on first (remaining) syllable:
    ʔwéni
  – pre-K: still put stress on second syllable:
    *duwéni
  – difference is purely phonological
    • learner can’t refer to a prefix
Central speaker learning Kashaya

- overwhelming cognate relations
  - loss of vowels or entire first syllable in C
  - creates phonological mismatch with K
  - if significant bilingualism, could play important role

- morphological generalization
  - “put stress on first root syllable”
  - same as historical pattern, predicts no change

- phonological generalization
  - “put stress on second syllable of word”
  - ignores cognate syllable, but a simpler generalization

- further substitution of “root” vs. “word”? 
  - C often has initial stress in both root and word 
  - K stress reanalyzed as “second syllable of root”?  

Kashaya alignment

• new K system combines two patterns
  – left edge of root as reference point
  – assign stress to “2nd syllable” of root, not word
• if prefixed, then this yields the 3rd syllable
  – in other words, “2nd syllable” after extrametricality
• but not if 1st visible syllable is CVC
  – depending on weight: \texttt{mi\{hʃé\}C.C} \sim \texttt{mi\{hʃe\}.CV} \\
• learning and perception
  – period of variation during reanalysis
  – affected by differences in weight of syllables
Kashaya syllable weight

- likely variation in stress location during change
  - mi{hʃé}C.CV ~ mi{hʃe}C.CV
  - mi{hʃé}.CV ~ mi{hʃe}.CV

- stresses on closed 2nd syllable more perceptible
  - reinforced by greater energy of syllable (Gordon 2004)
  - child learners making sense of this via weight

- introduction of true iambs
  - stress varies between 1st and 2nd, by weight
  - a crucial development

- no other nearby language has this
  - weight is relevant in Wintun and Miwok
  - but in quite different ways than in K
Summary: Extrametricality

• Proto-Pomo had left extrametricality
  – this itself was probably an innovation
  – skipping of prefix → skipping of any first syllable

• some languages abandon this element
  – SE deletes the extrametrical syllable
  – S completely replaces the system
  – NE might have variable extrametricality

• majority of the languages maintain it
  – despite how marked it is
  – even more marked to have 3rd syllable stress in K
Summary: Degenerate feet

• Proto-Pomo had frequent degenerate feet
  – in disyllables with final CV
  – made necessary by extrametricality

• most languages maintain this element
  – SE develops even more since it loses vowel length
  – create more words shaped CV by aphesis
  – only S clearly avoids it, by footing both syllables
    • yet that required deep contact with Miwok, it seems

• two marked elements
  – both survive widely
  – support each other formally
Implications

• degenerate feet are, typologically, quite marked
  – if markedness has any effect, this should be penalized
  – yet they persist across time in nearly all the languages
  – just minor remedies in synchronic footing (SE, K)

• language transmission here depends on what the child hears, not markedness biases
  – whether inherited or by contact
  – if these biases exist, they must be weak

• special role for patterns in shorter, simpler words?
  – such as Southern behʃé ~ béhʃe ‘deer, meat’
  – learned earlier, so perhaps an outsize role
  – less morphological confounding
Implications

• left extrametricality is quite rare
  – yet it survives in most of the languages
  – where it diminishes, could be due to contact
• the Kashaya system is especially unusual
  – may have arisen due to very special circumstances
  – a closely related language that lost initial syllables
  – combined with proximity and bilingualism
• special explanation for an unusual pattern
  – computationally unexceptional
  – but unlikely to arise historically
  – Kashaya just happened to be in the right place at the right time
Thank You!