

# Syntax and Prosody in Kashaya Phrasal Accent

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# Outline of talk

- Kashaya stress patterns
- phrasal groupings as diagnosed by accent
  - including mismatches with syntactic structure
- constraint on branching prosody
- role of final accent avoidance
  - encourages certain phrasal groupings
- role of syllabification across words
  - also encourages phrasal grouping
- prosody over syntax

# Pomoan family



# Iambs left to right

- iambic lengthening of stressed open syllables

( mo mú· ) ( li c'e· ) du

‘run in circles’



( ca dú· ) ( ce dun )

‘while looking’



( tíc ) ( ci ce· ) du

‘jerk one’s foot back’



# Syllable extrametricality

- disyllabic or prefixed roots permit extrametricality  
/qahmat-/ , /qaʔc'at-/

< qah > ( ma tí· ) ( bic' ) ( biw )

'must have been mad'



< qaʔ > ( c'a ʔá· ) ( du ce· ) du

'used to cry and cry'



< qaʔ > ( c'át' ) ( k<sup>h</sup>e t<sup>h</sup>in )

'shouldn't cry'



# Foot extrametricality

<wa·> ( dú? ) ( bem )

‘could walk away’



cumulative with syllable extrametricality

<du?> <ya·> ( qán' ) ( qa ba )

‘after thinking about it’



<ho> <t'o ta·> ( la mé· ) ( du )

‘lower one’s head’



“Foot Flipping” of CVV.CV → extrametrical CV.CVV

– accent can be as far right as 5<sup>th</sup> syllable

# Footing across words

- no extrametricality

**ma qá?c'aṭem** 'when you cry'  
(ma qá?) (c'aṭem)



- syllable extrametricality

**cila qá?c'a?** 'cried a long time'  
<ci> (la qá?) (c'a?)



# Footing across words

- foot extrametricality

*mi· bacúla·li* ‘jumped down there’

<mi·> (ba cú) (la·) li



- syllable plus foot extrametricality

*?ima·ta q'ó?di* ‘good woman’

<?i> <ma·> (ta q'ó?) di





# Terminology

- P-PHRASE = *prosodic phrase*
  - domain of foot construction
- STRESS
  - a metrical prominence assigned by foot structure
- ACCENT
  - a tone associated with some metrical prominences
  - many, but not all, p-phrases have an accent
- ACCENT SUPPRESSION
  - non-realization of a stressed syllable as accented

# Our corpus

- published collection *Kashaya Texts* (Oswalt 1964)
  - two primary speakers, but four others also represented
  - 148 printed pages of Kashaya (with facing English)
- original audio recordings for most of the texts
  - varying quality but mostly pretty good
  - a few of the examples in this talk are drawn from Oswalt's elicitation recordings and his unpublished dictionary

# Content of corpus

- 5,154 “sentences” based on Oswald’s punctuation
  - simple presence of periods in the Kashaya transcription
- 9,996 intonational phrases
  - falling  $\wedge$  (careful, well thought-out)
  - rising  $\vee$  (interrogative and “Responsive”)
  - level  $\bar{\quad}$  (neutral)
- about 41,356 “words”
  - orthographic units excluding 3,896 reliable enclitics
  - other small function words don’t reliably group with a word on either side
    - so can’t treat globally, left as independent words
    - but we exclude monosyllables in statistics given below

# Accents in corpus

- 11,435 accented vowels
  - i.e., explicit accent marks in transcription
  - this number, and our discussion, excludes brief sung passages
- we have coded 2,462 multiword prosodic phrases
  - only when the evidence for grouping is relatively clear
    - when an unexpected location of accent is explained by grouping
  - subject to additions and corrections

# Full sentences

( buṭaqá ?em ) ( p<sup>h</sup>ala cóhto? ) ^ ( bihše q<sup>h</sup>á?diw ) ^

[ bear SUBJ ] [ again leave ] [ deer fetch ]

‘The bear went off again and fetched deer meat’



( mens'i·lí ?dom ) ( šahqo p<sup>h</sup>ó?om? ) ( qahqo báht<sup>h</sup>e ) ( miṭí·li ) ˇ

[ doing EVID ] [ grasshopper burn ] [ opening big ] [ lie-LOC ]

‘then he burned grasshoppers in a large hole’



( ó· ) ( naṭa yá? ) ( p<sup>h</sup>i?k'o ?el ) ( mo?ón' )

[ oh ] [ boy AGT-SUBJ ] [ ball OBJ ] [ strike ]

‘Oh! The boy hit the ball!’



# Noun + Adjective

( naṭa qáwi ) ‘small child’

[ [child]<sub>N</sub> [small]<sub>A</sub> ]<sub>NP</sub>



( duht<sup>h</sup>ál qawi ) ‘small sickness’

[ [sickness]<sub>N</sub> [small]<sub>A</sub> ]<sub>NP</sub>



( ?ihya· báht<sup>h</sup>e ) ‘big bone’

[ [bone]<sub>N</sub> [big]<sub>A</sub> ]<sub>NP</sub>



( ?ihya· qawí ) ‘small bone’

[ [bone]<sub>N</sub> [small]<sub>A</sub> ]<sub>NP</sub>



# Word order within VP

- verb phrase is normally head-final (Olsson 2010)

*duwé? cohto·y* ‘I saw him leave yesterday’

[*yesterday*]<sub>Adv</sub> [*leave*]<sub>V</sub>

- suffix /e·/ is used for evidential verbs when not final in the sentence

*cohtó·ye· duwe?* ‘I saw him leave yesterday’

[*leave*]<sub>V</sub> [*yesterday*]<sub>Adv</sub>

- accentual implications are not clear
  - lack of accent on following word could be due to grouping with the verb, or to suppression
  - certainly the following word is sometimes accented independently, i.e. not phrased with the verb

# Subject + Verb

- subject preceding verb can group with it

( ?ihc<sup>h</sup>e díbuca? ) ‘rain fell’

[ [rain]<sub>NP</sub> [fall]<sub>VP</sub> ]<sub>IP</sub>



- or can phrase separately

( ?ihc<sup>h</sup>e ) ( dibucí·dem ) ‘when rain falls’

[ [rain]<sub>NP</sub> [fall]<sub>VP</sub> ]<sub>IP</sub>





# Object + Verb

- similarly, object can phrase with verb

( ?ohso dúq<sup>h</sup>aya?te· ) ‘let’s go gather clover’

[ [clover]<sub>NP</sub> [gather]<sub>V</sub> ]<sub>VP</sub>



- or separately

( bahša ) ( duq<sup>h</sup>ayá·c’in ) ‘(they) gather buckeyes’

[ [buckeye]<sub>NP</sub> [gather]<sub>V</sub> ]<sub>VP</sub>



# Object + Verb

- with verb

( *maʔa bímuyiʔ* ) ‘(they) eat food’

[ [*food*]<sub>NP</sub> [*eat*]<sub>V</sub> ]<sub>VP</sub>



- separately

( *maʔa* ) ( *bimuyiʔ* ) ‘(they) eat food’

[ [*food*]<sub>NP</sub> [*eat*]<sub>V</sub> ]<sub>VP</sub>



# Grouping of adverbs

- can group with a verb

( p<sup>h</sup>ala cóhto? ) ‘left again’

[ [again]<sub>Adv</sub> [left]<sub>V</sub> ]<sub>VP</sub>



- or another adverbial

( p<sup>h</sup>ala ?áq<sup>h</sup>a· ) ‘back to the shore’

[ ... [again]<sub>Adv</sub> [to water]<sub>Adv</sub> ... ]<sub>VP</sub>



# Complex NPs

- based on syntactic constituency, we expect words in a complex NP to group together, not with V

( q<sup>h</sup>aʔbe hádu· ) ( dihciyíc'ba )

[ [ [rock]<sub>N</sub> [other]<sub>A</sub> ]<sub>NP</sub> [having picked up]<sub>V</sub> ]<sub>VP</sub>

‘after picking up another rock’



# Mismatches

- similar phrases might sometimes match syntax ...

( ?ihc<sup>h</sup>e míhsa? ) ( dibucín'k<sup>h</sup>e )

[ [ [rain]<sub>N</sub> [heavy]<sub>A</sub> ]<sub>NP</sub> [will fall]<sub>VP</sub> ]<sub>IP</sub>

'a heavy rain will fall'



- and sometimes not

( ?ihc<sup>h</sup>é ) ( mihsá? dibu? )

[ [ [rain]<sub>N</sub> [heavy]<sub>A</sub> ]<sub>NP</sub> [fell]<sub>VP</sub> ]<sub>IP</sub>

'a heavy rain fell'

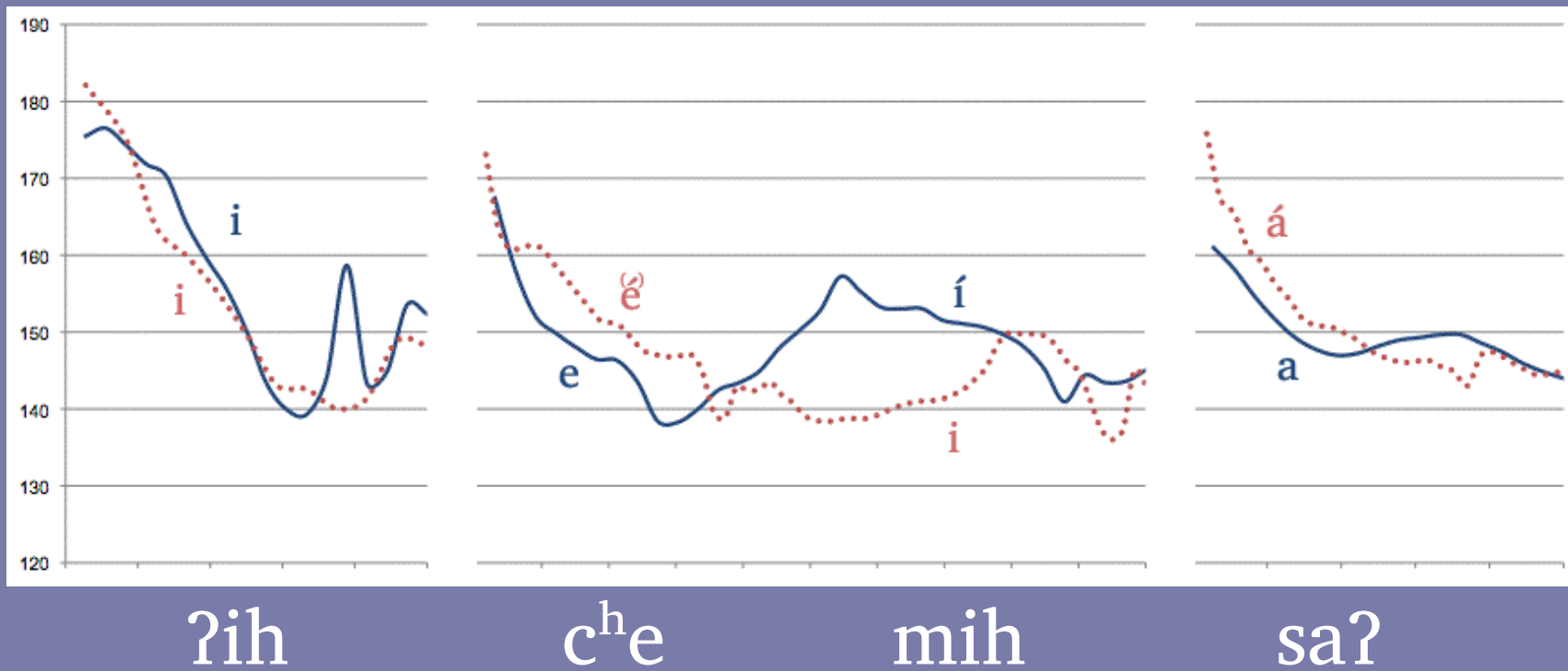


# Pitch comparison

— (NA)(V)  
 ..... (N)(AV)

(ʔih<sup>h</sup>e míhsaʔ) (dibucín<sup>h</sup>e)

(ʔih<sup>h</sup>é) (míhsáʔ dibuʔ)



# Similar contrast

- NP as p-phrase

( ʔama· q'óʔdi ) ( t'án'qaw )

[ [ [thing]<sub>N</sub> [good]<sub>A</sub> ]<sub>NP</sub> [felt-SG]<sub>V</sub> ]<sub>VP</sub>

'was happy'



- A + V as p-phrase

( ʔama· ) ( q'óʔdi t'ác'qan )

[ [ [thing]<sub>N</sub> [good]<sub>A</sub> ]<sub>NP</sub> [while feeling-PL]<sub>V</sub> ]<sub>VP</sub>

'feeling happy'



# More N + Adj mismatches

- subject is separated from its modifier

( ʔahq<sup>h</sup>a ) ( baht<sup>h</sup>e c<sup>h</sup>úliwe· )

[ [ [water]<sub>N</sub> [big]<sub>NP</sub> [flowed]<sub>VP</sub> ]<sub>IP</sub>

‘the tide flowed out’



- object similarly

( ʔama· ) ( q'oʔdi t'ác'qan )

[ [ [thing]<sub>N</sub> [good<sub>A</sub> ]<sub>NP</sub> [while feeling-PL]<sub>VP</sub> ]<sub>VP</sub>

‘feeling happy’





## Second element of NP with V

- default N + A order, here A groups with verb

( ?ahca ) ( qawi cóhto·li )

[ [ [house]<sub>N</sub> [small]<sub>A</sub> ]<sub>NP</sub> [stand-LOC]<sub>V</sub> ]<sub>VP</sub>

‘where a little house was standing’

- marked A + N order, here N groups with verb

( hadu· ) ( ?aca? nóhp<sup>h</sup>owalli )

[ [ [other]<sub>A</sub> [person]<sub>N</sub> ]<sub>NP</sub> [live-LOC]<sub>V</sub> ]<sub>VP</sub>

‘where other people were living’

# Possessive determiners

- possessive determiners mainly appear grouped with their complements

( *miʔk<sup>h</sup>e míhya* ) ‘my neck’

[ [*my*]<sub>D</sub> [*neck*]<sub>NP</sub> ]<sub>DP</sub>



( *tiʔk<sup>h</sup>e bíhše* ) ‘her meat’

[ [*her*]<sub>D</sub> [*meat*]<sub>NP</sub> ]<sub>DP</sub>



( *yaʔk<sup>h</sup>e cáhno* ) ‘our language’

[ [*our*]<sub>D</sub> [*language*]<sub>NP</sub> ]<sub>DP</sub>



# Excluded determiners

- but possessed noun can group with following verb

( tiʔk<sup>h</sup>e ) ( maʔa dúʔatan'ba )

[ [ [his]<sub>D</sub> [food]<sub>NP</sub> ]<sub>DP</sub> [having prepared]<sub>V</sub> ]<sub>VP</sub>

'having prepared his food'



- similarly:

( tiʔk<sup>h</sup>e ) ( ʔima·ta híyaʔtamuʔdo· )

[ [ [his]<sub>D</sub> [wife]<sub>NP</sub> ]<sub>DP</sub> [shares-EVID]<sub>V</sub> ]<sub>VP</sub>

'they say he is sharing his wife'

# Summary of findings

- syntax is generally respected
  - members of constituents are more likely to be in one p-phrase
- but syntax-prosody mismatches do occur
  - one member of a constituent placed in a different p-phrase
- the mismatch appears to go only one way
  - PrWds are pulled rightward, not leftward
    - $[\omega\omega]_{XP} [\omega]_{XP} \rightarrow (\omega) (\omega\omega)$
    - $[\omega]_{XP} [\omega\omega]_{XP} \rightarrow *(\omega\omega) (\omega)$
  - e.g., no examples of (SO) (V)
    - yet definitely find (Adv Adv) (V)
    - though full [S][OV] is not very common, so few test cases

# Syntax-prosody alignment

- Optimality Theory analysis
  - edges of p-phrases aligned with edges of XPs
  - following Selkirk, Truckenbrodt, and many others
- ALIGN-XP-R
  - right edge of p-phrase aligns with right edge of XP
  - this is main constraint giving a role to syntactic structure
- WRAP-XP
  - every XP is fully contained within a p-phrase
    - proposed by Truckenbrodt as a complement to ALIGN-XP
  - doesn't seem to play a crucial role in Kashaya


# Binarity constraints

- BIN-MAX
  - p-phrase contains a maximum of two prosodic words
  - prevents three or more PrWds in a phrase
  - status of such larger groupings is difficult to determine
    - due especially to variation and accent suppression
- BIN-MIN
  - p-phrase contains a minimum of two prosodic words
  - penalizes unpaired prosodic words
  - but these definitely do occur

# A prosody constraint

- misalignment of prosody and syntax
  - something prefers prosodic structure ( $\omega$ )( $\omega\omega$ )
  - perhaps a kind of iambic rhythm at the p-phrase level
- BRANCH-R
  - the final p-phrase of an IP is branching
  - we'll consider alternatives as well
- variation in phrasing
  - occurs due to higher or lower ranking of ALIGN-XP
  - relative to this and the binarity constraints


# High-ranked alignment

| $[[rain]_N [heavy]_A]_{NP} [fall]_{VP}$  | ALIGN-XP,R | BIN-MAX | BIN-MIN | BRANCH-R |
|--|------------|---------|---------|----------|
| a. (rain) (heavy) (fall)   |            |         | **!*    | *        |
| b.  (rain heavy) (fall) |            |         | *       | *        |
| c. (rain) (heavy fall)   | *!         |         | *       |          |
| d. (rain heavy fall)   | *!         | *       |         |          |

- right-alignment with NP prevents grouping with V
  - prosody matches syntax
- also dominates BIN-MIN
  - otherwise two-word phrases will never be split




# Low-ranked alignment

| $[[rain]_N [heavy]_A]_{NP} [fall]_{VP}$  | BIN-MAX | BIN-MIN | BRANCH-R | ALIGN-XP,R |
|--|---------|---------|----------|------------|
| a. (rain) (heavy) (fall)   |         | **!*    | *        |            |
| b. (rain heavy) (fall)   |         | *       | *!       |            |
| c.  (rain) (heavy fall) |         | *       |          | *          |
| d. (rain heavy fall)   | *!      |         |          | *          |


- BRANCH-R forces larger prosodic constituent at the right
  - prosody overrides syntactic alignment
- BIN-MAX prevents a single p-phrase for the entire VP
  - unclear whether sometimes violated due to other constraint(s)

# Alignment >> Binarity

| [ [food] <sub>NP</sub> [eat] <sub>V</sub> ] <sub>VP</sub>   | ALIGN-XP,R | BIN-MAX | BIN-MIN | BRANCH-R |
|---|------------|---------|---------|----------|
| a.  (food) (eat) |            |         | **      | *        |
| b. (food eat)   | *!         |         |         |          |

- in this grammar, ALIGN-XP dominates BRANCH-R
  - this ensures a p-phrase boundary before the verb
- also dominates BIN-MIN
  - otherwise two-word phrases will never be split
- shows that we can't just have ALIGN-XP and BRANCH-R locally unranked

# Binarity >> Alignment

| [ [food] <sub>NP</sub> [eat] <sub>V</sub> ] <sub>VP</sub>                                       | BIN-MAX | BIN-MIN | BRANCH-R | ALIGN-XP,R |
|---|---------|---------|----------|------------|
| a. (food) (eat)   |         | *!*     | *        |            |
| b.  (food eat) |         |         |          | *          |

- in this grammar, ALIGN-XP is ranked lower
  - allows BIN-MIN to force a single grouping
- but are there alternatives to BRANCH-R ?
  - in particular, an appeal to forces other than the branching structure

# Conspiracy against final accent?

- but perhaps it's not grammar competition
  - instead might be gradient pressures of various types
- accents close to the end of a p-phrase are disfavored
  - akin to the well known preference for final lapses
  - RHYTHM (Hung 1994), LAPSE-AT-END (Kager 2001)
- strategies in Kashaya
  - retraction to previous foot
  - suppression of final accent
  - grouping in a p-phrase

# Retraction

- a rather direct form of final-accent avoidance
  - move the accent leftward
  - but only in a specific configuration
- formally, revocation of foot extrametricality
  - accent falls on foot that ought to be extrametrical
  - moves accent away from (near-)final position

# Optional retraction

- foot extrametricality, as expected

< cah > < no· > ( dún ) ( s'em )

‘must have been talking’



- retracted from final syllable

< cah > ( nó· ) ( dam )

‘the one talking’



- syllable extrametricality with long root /cahno-/
  - long vowel derived from elision of /cahno-ad-/

# Retraction to avoid final accent

- applies optionally
- but highly correlated with avoidance of final accent
  - out of 225 tokens of retraction
  - 189 of them (84%) would otherwise have final accent
- how often does foot extrametricality yield final accent?
  - quick estimate, based on 4<sup>th</sup> and 5<sup>th</sup> syllable accents
    - since they occur only by virtue of foot extrametricality
  - 83 final out of 159 such accents (52%)
  - so not randomly applying to eligible accents

# Suppression of final accent

- suppression is another way to eliminate a final accent
  - this often seems to occur with short words that are not grouped
  - compare observed to expected final accents
- OBSERVED final accents
  - e.g., third-syllable accents on all 3-syllable words
  - calculate percent of words of length  $n$  that have final accent
- EXPECTED frequency of accents on that syllable
  - based on percent third-syllable accents on 4–7 syllable words
  - if strictly determined from the left edge, length should not matter



# Avoidance of final accent

| Accented syllable     | 2     | 3     | 4     | 5    |
|-----------------------|-------|-------|-------|------|
| Attested Final (O)    | 16.3% | 17.9% | 4.3%  | 1.5% |
| Attested Nonfinal (E) | 26.3% | 38.8% | 10.8% | 4.9% |
| O/E                   | 0.62  | 0.46  | 0.40  | 0.30 |

- observed final accents
- expected frequency of accents on that syllable
  - since O/E is much lower than 1, length does play a role
    - suppression of accents that would otherwise be word-final?
    - or bias in the creation of p-phrases ...

# Grouping to avoid final accent

- 2–3 syllable words are liable to have final accent
  - if they occur alone, or as first element in p-phrase
    - details depend on root length and closed syllables
  - for example, **bimuyí?** ‘(they) ate’
- also the most likely to be grouped with preceding word
  - usually then initial accent, avoiding a final accent
  - for example, **ma?a bímuyi?** ‘(they) ate food’
- a broad pattern in the corpus

# Grouping to avoid final accent

| Syllables in word                              | 2     | 3     | 4     | 5     | 6     |
|--|-------|-------|-------|-------|-------|
| Accented alone                                 | 1691  | 1939  | 1225  | 377   | 100   |
| If accented alone,<br>then final accent        | 77.1% | 37.0% | 6.2%  | 1.9%  | —     |
| Accented in p-phrase                           | 981   | 571   | 236   | 84    | 20    |
| If accented at all,<br>then second in p-phrase | 36.7% | 22.7% | 16.2% | 18.2% | 16.7% |

- 2 and 3 syllable words are much more likely to have a final accent if they are not prosodically grouped
  - as in (maʔa) (bimuyíʔ)
- this is something to be avoided

# Grouping to avoid final accent

| Syllables in word                              | 2     | 3     | 4     | 5     | 6     |
|--|-------|-------|-------|-------|-------|
| Accented alone                                 | 1691  | 1939  | 1225  | 377   | 100   |
| If accented alone,<br>then final accent        | 77.1% | 37.0% | 6.2%  | 1.9%  | —     |
| Accented in p-phrase                           | 981   | 571   | 236   | 84    | 20    |
| If accented at all,<br>then second in p-phrase | 36.7% | 22.7% | 16.2% | 18.2% | 16.7% |

- 2 and 3 syllable words are also more likely to be the second element in a p-phrase
  - as in (maʔa bímuʔiʔ)
- this moves the accent leftward, away from the final syllable

# Interim conclusion



- final accent disfavored
  - possibly gradient, i.e. not just against absolute final accent
- multiple strategies to avoid final accent
  - move it leftward by retraction
  - suppress the accent
  - group words together so accent won't be final
    - rather than, or in addition to, structural BRANCH-R ?
- next, another cause of phrasal grouping
  - syllabification across words

# Syllabification across words

- many lexical roots begin with a “laryngeal increment”  
/hsibo/ ‘three’, /hla·li/ ‘maybe’, /-hce-/ ‘obstruct’  
/ʔs’uš-/ ‘be pointed’, /-ʔyo-/ ‘gather’, /-ʔdayac-/ ‘fail to do’
- some enclitics also have initial clusters  
plurals /hca/, /yya/  
postpositions /hlaw/ ‘until, as far as’, /ltow/ ‘from, out of’
- initial C syllabifies as coda with preceding V  
hiʔbayá hca ‘men’
- deletes after an obstruent  
ninéʔ ca ‘elders’



# Syllabification across words

- closed syllable from across-word syllabification increases occurrence of accent
  - example of **mens'iba** 'having done so'
  - expect final stress, <men> (s'ibá)
- 342 unaccented, 97.7% followed by CV 
  - open **mens'iba ?ul** 'having already done so'
  - just 3 /hC/, 5 /ʔC/
- 31 accented, 93.5% followed by CCV 
  - closed **mens'ibá ?do** 'having done so, they say'
  - just 2 not followed by increment

# Closed syllables and accent placement

( qawi yá? ) ‘the small man’  
*small AGT*



( qawí yya ) ‘a few small men’  
*small PL*



( ?ahq<sup>h</sup>a hó? mu·kito ) ‘he gave him water’  
*water give him*



( ?ahq<sup>h</sup>á ?q’oc’qa mu·kito ) ‘he gave him water’  
*water drink.CAUS him*





# Accents on derived closed syllables

|            | Word-Final Accent | No Final Accent | Percent Final Accent |
|------------|-------------------|-----------------|----------------------|
| Final VC#C | 1,701             | 9,357           | 15.4%                |
| Final V#CC | 425               | 840             | 33.6%                |
| Final open | 575               | 13,850          | 4.0%                 |

- types of final VC
  - V#CC with coda from following word or clitic
  - VC#C from final C from inside lexical word
- accent more likely in V#CC than VC#C
  - in fact, more than twice as likely

# Mismatch due to V#CC

- elements of N compound in same p-phrase

( q<sup>h</sup>aʔbe ʔácac' em )

[ [ [rock]<sub>N</sub> [man]<sub>N</sub> ]<sub>N</sub> [SUBJ]<sub>D</sub> ]<sub>DP</sub>

'Rock Man (SUBJ)'



- second element of N compound split off

( q<sup>h</sup>aʔbe ) ( ʔimó ltow )

[ [ [rock]<sub>N</sub> [hole]<sub>N</sub> ]<sub>N</sub> [from]<sub>P</sub> ]<sub>PP</sub>

'from a cave'



# Hypothesis

- syllabification across words makes p-phrase grouping more likely
- a word-final accent then is not final in the p-phrase
  - therefore more likely to be realized
  - because not in conflict with final-accent avoidance
- if correct, this skew in frequency is indirect evidence for ( $\acute{\omega}\omega$ ) groupings
  - compare to empirically similar ( $\acute{\omega}$ )( $\omega$ ) with suppression
  - but without disfavored final accent on the first p-phrase

# Crisp edges

- prosodic boundaries align “crisply”
  - down through the hierarchy (Ito & Mester 1994)

|          |   |   |   |   |   |   |   |   |   |   |
|----------|---|---|---|---|---|---|---|---|---|---|
| p-phrase | ( |   | ) | ( |   | ) |   |   |   |   |
| syllable | [ | ] | [ | ] | [ | ] | [ | ] | [ | ] |

- across-word syllabification can disrupt this pattern
  - if coda is not from the same p-phrase as the preceding V

|          |   |   |   |   |   |   |   |   |   |   |   |
|----------|---|---|---|---|---|---|---|---|---|---|---|
| p-phrase | ( |   | ) | ( |   | ) |   |   |   |   |   |
| syllable | [ | ] | [ |   | ] | [ | ] | [ | ] | [ | ] |

# Conflicting alignments

- noncrisp edge )C.

- p-phrase at word boundary

\* ( q<sup>h</sup>a?.be ?í.mo ) ( l.tow )

[ [ [rock]<sub>N</sub> [hole]<sub>N</sub> ]<sub>N</sub> [from]<sub>P</sub> ]<sub>PP</sub>

- crisp edge C.)

- but p-phrase **not** at word boundary

\* ( q<sup>h</sup>a?.be ?í.mo l. ) ( tow )

[ [ [rock]<sub>N</sub> [hole]<sub>N</sub> ]<sub>N</sub> [from]<sub>P</sub> ]<sub>PP</sub>

- preference for p-phrase to align with **some** morphosyntactic edge appears to rule out this crisp solution

# Avoiding the problem

- noncrisp edge )C.
  - p-phrase at word boundary
- crisp edge elsewhere
  - p-phrase at different word boundary

\* ( q<sup>h</sup>a?.be ?í.mo ) ( l.tow )  
[ [ [rock]<sub>N</sub> [hole]<sub>N</sub> ]<sub>N</sub> [from]<sub>P</sub> ]<sub>PP</sub>

( q<sup>h</sup>a?.be ) ( ?i.mó l.tow )  
[ [ [rock]<sub>N</sub> [hole]<sub>N</sub> ]<sub>N</sub> [from]<sub>P</sub> ]<sub>PP</sub>

- in the attested form, the p-phrase does align with a morphosyntactic edge
- but leads to a mismatch with the syntactic constituency

## Summary: V#CC

- p-phrase boundaries avoid locus of across-word syllabification
  - crisp edge-alignment of prosodic categories
- not directly motivated by accent assignment
  - but important consequence for accent

# Conclusions

- Kashaya iambic footing often occurs across words
  - location of accent is primary evidence of phrasing
- word groupings typically follow syntactic constituency
  - but sometimes the rightmost two words are grouped regardless of their syntactic relation
- indicates some non-syntactic pressure
  - possible role for pure structural constraint such as BRANCH-R
  - but also more general pressures on avoidance of final accent
    - phrasal grouping is just one strategy
  - across-word syllabification also encourages grouping
- prosodic factors (sometimes) outrank syntax



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