

# ARAPAHO

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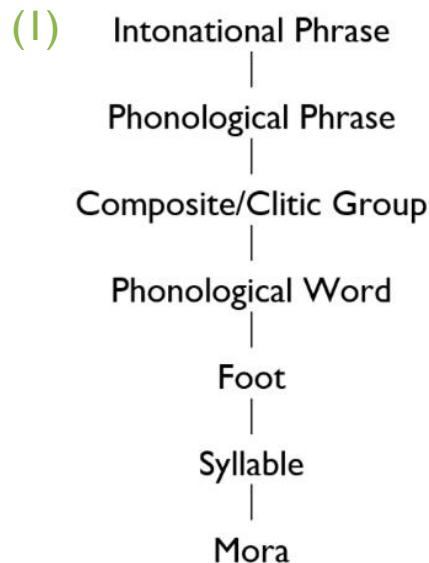
PHONOLOGICAL  
CUES TO MORPHO-  
PROSODIC  
BOUNDARIES



# PHONOLOGICAL CONSTITUENCY

Phonological, morphological, and syntactic complexity of Arapaho (and, more broadly, of Algonquian) provides a fruitful ground for investigating prosodic constituency and (non-)isomorphic relations between phonology and other layers of grammar.

# PHONOLOGICAL CONSTITUENCY



(Selkirk 1986, 1984; Hayes 1989; Nespors & Vogel 1986 and much subsequent work)

(2)

<b>kooheihciicéeθnoohówoo</b>	nébi?
koo=e-ih-cii-ceeθi-noohow-oo	ne-bi[h]
Q=2-PST-NEG-by accident-see(TA)-3SG	I-older.sister
‘Did you happen to see my older sister?’	
(Cowell & Moss 2011, <i>C&amp;M henceforth</i> : 250)	

- How do characteristically long *orthographic (morphological?)* words like (2) map onto the traditional Prosodic Hierarchy (1)?
- How do constituents in (1) map onto the traditional Algonquianist templatic distinctions (Bloomfield 1946)?
- How do constituents in (1) and/or Bloomfield’s templatic slots map onto morpho-syntactic constituents or domains?

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## A NUMBER OF PHONOLOGICAL CUES FOR DOMAINS

For Arapaho, the following phonological processes cue non-isomorphic domains within complex ‘words’:

- Vowel hiatus resolutions/Onsetless syllables repairs
- Consonant mutations
- Vowel harmony
- Stress

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## A NUMBER OF PHONOLOGICAL CUES FOR DOMAINS

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# HIATUS RESOLUTION STRATEGIES

## Resyllabification

- (1) néí.noo  
ne-inoo  
I-mother  
'my mother' (C&M: 67)

## Glottal epenthesis

- (3) h<é>ét-biiθíhi-noo  
<IC>FUT-eat-1SG  
'I will eat.' (C&M: 93)

## Vowel deletion

- (2) SR h<ón>ooxúú-wu-noo  
UR <on>óoxuu-óúwu-noo  
<IC>across-swim-1SG  
'I am swimming across.' (C&M: 17)

## Glide epenthesis

- (4) n<on>óóhow-ún  
<IC>see.so-2SG>1SG  
'You see me.' (C&M: 18)

# PHONOLOGICAL ENVIRONMENT

- If two **short** vowels are adjacent, they are **resyllabified**.
- Resolutions in (5) only apply if the adjacent morphemes result in more than two vowel morae (Bogomolets 2020, to appear):

(5) Glottal epenthesis

Glide epenthesis

Vowel deletion

Resolutions in (5) only apply if at least one of the adjacent morphemes has a long vowel:

(6) VV-V      V-VV      VV-VV

# MORPHO-PROSODIC ENVIRONMENT

(5) Glottal epenthesis

Glide epenthesis

Vowel deletion

- What are the environments for each?
- What can they tell us about the morpho-prosodic domains?



# MORPHO-PROSODIC ENVIRONMENT

Cross-linguistically, in hiatus environments:

- Glottal consonants are epenthesized at boundaries of morpho-prosodic domains,
- Glides are epenthesized within morpho-prosodic domains (Blevins 2009).

This holds for Arapaho:

- **Glottal epenthesis** marking the left boundary of morpho-prosodic domains.
- Within morpho-prosodic domains Arapaho employs **vowel deletion**.
- **Glide epenthesis** is harder to spot in Arapaho, but when it occurs, it seems to occur within domains rather than at the boundaries (cf. Blackfoot).

# MORPHO-PROSODIC ENVIRONMENT

- **Glottal epenthesis** marks the left edge of:
  - Morphological words (7a),
  - Domain within morphological words after left edge-most proclitics (7b).
- **Glottal epenthesis** marks the left edge of a constituent comparable to **Phonological Words** in other languages.

(7a) SR      **phw**[h<é>ét-biiθíhi-noo]  
UR            <é>ét-biiθíhi-noo  
                 <IC>FUT-eat-1SG  
                 ‘I will eat.’ (C&M: 93)

(7b) koo<sub>phw</sub>[heihciicéeθnoohówoo] ...  
koo=e-ih-cii-ceeθi-noohow-oo  
Q=2-PST-NEG-by accident-see(TA)-3SG  
‘Did you happen to see her [my older sister]?’

# MORPHO-PROSODIC ENVIRONMENT

- **Vowel deletion** and **Glide epenthesis** as hiatus resolutions occur within the **Phonological Word** domain.
- **Vowel deletion** occurs between:
  - Initials and finals (8),
  - Between some prefixes (9)

(8) SR       $\text{phw}[h\langle\acute{o}n\rangle\text{oox}\mathbf{úú-wu}\text{-noo}]$

UR             $\langle\text{on}\rangle\acute{o}\acute{o}\mathbf{xuu-óú}\text{wu-noo}$

$\langle\text{IC}\rangle$ across-swim-1SG

‘I am swimming across.’ (C&M: 17)

(9)       $\text{koo}_{\text{phw}}[\mathbf{h}\acute{e}\mathbf{i}\text{niisi}\mathbf{3ei}]?$

$\text{koo}=\mathbf{e-ii-niisi}\mathbf{3ei}$

Q=2-IPFV-work(AI)

‘Do you(S) work (i.e., do you have a job)?’ (C&M: 94)

# MORPHO-PROSODIC ENVIRONMENT

- **Glide epenthesis** in Arapaho can look unusual:
  - No /w/-epenthesis,
  - PA \*y>Arapaho /n/ (Goddard 2015: 346) (10)
  - /y/-epenthesis: underlying vs. epenthetic /y/? (11); cf. also Goddard (2015: 346): “AR y inserted between long front vowels after PA \*(h)k > Ø”.
- **Glide epenthesis** can be hard to spot in Arapaho, but when it occurs, it:
  - Occurs within the PhW domain,
  - seems to occur between morphemes that are the closest morpho-phonologically: e.g. under infixation (10) and within complex noun stems (11).

(10) n<on>óóhow-ún  
<IC>see.so-2SG>1SG  
‘You see me.’ (C&M: 18)

(11) bei'ci3ei-yookuu  
bei'ci3ei-ooku  
metal-eye  
‘spectacles’ (Cowell, p.c.)

# MORPHO-PROSODIC ENVIRONMENT

- Note that Gros Ventre shows **/n/-epenthesis** in environments parallel to (11), cf (12):

(11) bei'ci3ei-**y**ookuu

bei'ci3ei-ooku

metal-eye

'spectacles' (Cowell, p.c.)

(12) nisééhii-**n**óθ'a

nisáhi:-ôθa?

wild(AI)-horse

'wild horse' (Cowell, *in prep.*)

# HIATUS RESOLUTIONS: HIERARCHY

Hiatus resolutions ordered from the simplest/most straightforward environment to the most obscure:

- **Resyllabification:** applies to any two short vowels:

(13) V-V → .VV.

- **Glottal epenthesis** - a left-edge resolution: applies at the left edge of **Phonological Words**:

(14) Proclitics  $\text{PhW}[h\dots$

- **Vowel deletion:** applies within PhW:
  - between initials and finals,
  - between some prefixes,
  - doesn't apply between suffixes/ Root-Suffix junctures???

(14) Proclitics  $\text{PhW}[h\dots$  **vowel deletion** ]

- **Glide epenthesis:** ??? applies within PhW - to the most “tightly bound” morphemes:
  - Infix-Prefix/Proclitic; Infix-Root junctures,
  - within complex (compound) stems.

# PHONOLOGICAL ANALYSIS?

(2) **PhP**[**CG**[koo<sub>PhW</sub>[heihciicéeθnoohówoo]]]  
koo=e-ih-cii-ceeθi-noohow-oo  
Q=2-PST-NEG-by accident-see(TA)-3SG  
'Did you happen to see my older sister?'

nébi]?  
ne-bi[h]  
I-older.sister  
(C&M: 250)

## PhW:

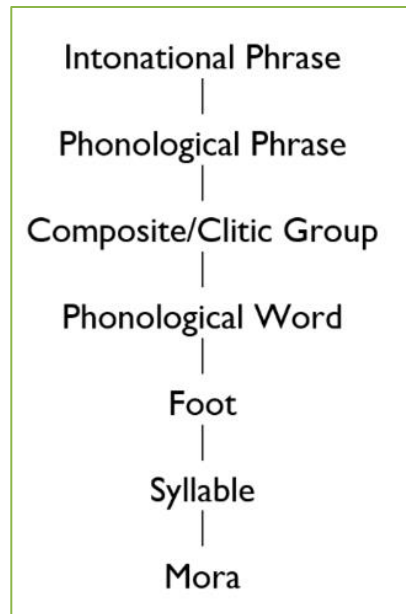
- Glottal epenthesis at the left edge,
- Domain of regressive vowel harmony.

## CG:

- Stress domain,
- Domain of progressive vowel harmony.

## PhP:

- Intonational unit.



# PHONOLOGICAL ANALYSIS?

- (2) **PhP**[**CG**[koo<sub>PhW</sub>[heihcii<sub>PStem</sub>[céeθnoohówoo]]]] nébi]?  
koo=e-ih-cii-ceeθi-noohow-oo ne-bi[h]  
Q=2-PST-NEG-by accident-see(TA)-3SG I-older.sister  
'Did you happen to see my older sister?' (C&M: 250)

## PhW:

- Glottal epenthesis at the left edge,
- Domain of regressive vowel harmony.

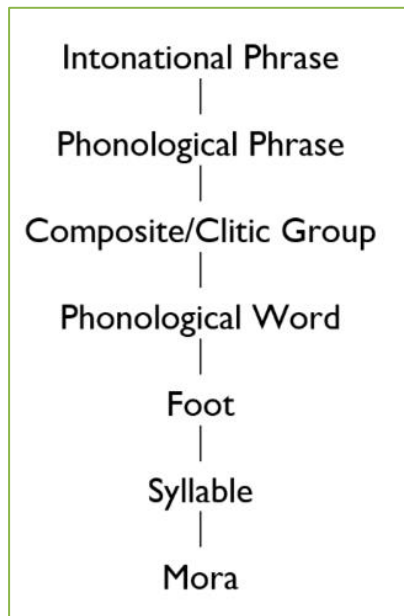
## CG:

- Stress domain,
- Domain of progressive vowel harmony.

## PhP:

- Intonational cues.

- Smaller domains within PhW?  
○ Domain of glide epenthesis? **PStem**?





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## NEXT STEPS

- More data for each of the resolutions → define phonological and morpho-syntactic environments more precisely.
- Specific patterns within each of the hiatus resolution strategies:
  - E.g. in case of vowel deletion, which vowel deletes? (cf. Casali 1997 for a cross-linguistic discussion)
- Mapping of the traditional Algonquianist templatic slots onto the prosodic constituents.
- Mapping of the traditional Algonquianist templatic slots and prosodic constituents onto morpho-syntactic constituents or domains.



THANK YOU!



# ACKNOWLEDGEMENTS

I am, as always, ever grateful to Andrew Cowell for all his guidance in my exploration of Arapaho. Thank you to Natalie Weber for many thought-provoking discussions and for making this special session possible.

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