Toward a Uniform Moraic Quantity (UMQ) Principle
Jonathan Charles Paramore | *Department of Linguistics* | *jcparamo@ucsc.edu*
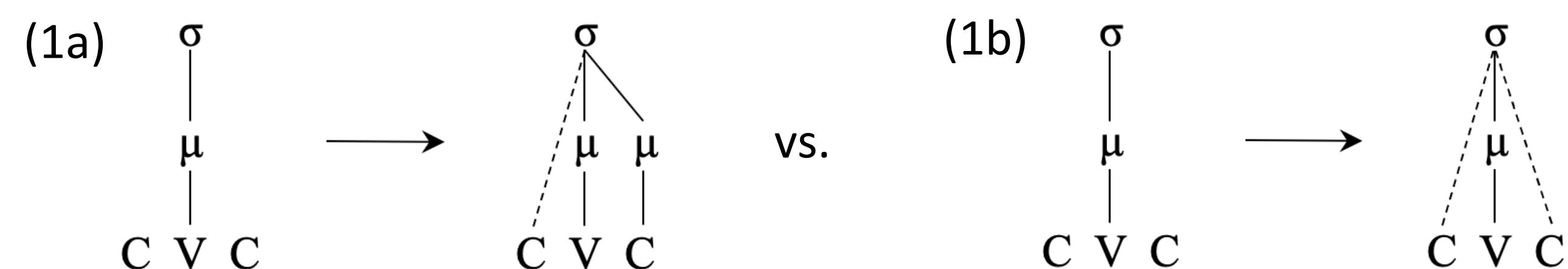
UNIVERSITY OF CALIFORNIA
SANTA CRUZ

Main Claim

Evidence from a wide range of weight-sensitive phenomena suggests that codas are universally moraic.

1. Background

The standard "variable weight" approach to moraic structure contends that the moraicity of codas is variable and language-specific[1], [2], [3].

(1a) vs. (1b)

Examples

(2) Yana[4], [5] – requires codas to contribute a mora to the syllable, as in (1a).
  o Primary stress criterion: {CV:, CVC} > CV
  o Rule: Stress initial syllable or leftmost heavy if present.

  (a) ˈme.cʼi 'coyote' (b) ha.ˈlaa.la.ʔi 'barberry'
    ˈɪ.ri.kʼi 'ear ornaments' ni.ˈgid.sa.sin.ʒa 'I go to another house'

  (c) ni.ˈsaa.tin.ʒa 'it is said I went away'
    ha.cʼa.ˈʒid.pʼaa 'Angelica Tomentosa'

(3) Murik[6], [7] – bans codas from contributing a mora to the syllable, as in (1b).
  o Primary stress criterion: CV: > {CVC, CV}
  o Rule: Stress initial syllable or leftmost heavy if present.
  (a) ˈda.mag 'garden' (b) a.nən.pʰa.ˈrɛːtʰ 'lightning'
    ˈbə.bɛtʰ 'Vitex confassus' nu.ma.ˈřoː.go 'woman'
    ˈda.kʰa.nɨmp 'post' num.ˈboːn 'hot water sago'

2. Issues with the "Variable Weight" Analysis

Languages that treat CVC as light for primary stress often treat CVC as heavy for other weight-sensitive phenomena:

Word Minimality: e.g., Murik minimal words: CV:, CVC, but *CV

(4) ʂ̌aq 'clay' qʼe: 'sun' *CV
  mem 'deaf person' kʼo: 'mask'
  čʼok 'blackbird' ku: 'yes'

Tone: Kunama tonal weight criterion: {CV:, CVR} > {CVO, CV}[8], [9]

(5) baː²³.re¹ 'two' ʎa¹ʎa² 'aardvaark' *ʎa¹²ʎa²
  hoi²³.ka:³¹.da¹ 'to peel' fit¹.ti¹.da² 'to fly' *fit¹².ti¹.da²
  a².saŋ³².ga² 'head'

Syllable Template Restrictions: Kunama: CV, CVC, CV:, but *CV:C

(6) baː.re 'two' a.saŋ.ga 'head' *CV:C
  hai.ma 'gazelle' baʃ.kul.la 'army'

Compensatory Lengthening: Quechua Huallaga: $CV_\mu C_\mu \rightarrow CV:_{\mu\mu}$ [10]

(7) /ima-paq-taq/ [imapaːta] 'what for'
  /hunaq-qa/ [hunaːɣa] 'day-top'

Secondary Stress: Chickasaw CV: > {CVC, CV} Primary vs. {CV:, CVC} > CV Secondary[11], [12]

(8) noˌtakˈfa 'jaw' taˈla:ˌnomˌpa? 'telephone' ˌhattaˈkat 'man'
  ˌokˌfokˈkol 'type of snail' ˌʃimmaˈnoːˌli? 'Seminole' ˌinˌtikˈbaːt 'sibling'

Conclusion: If codas are nonmoraic in languages in which CVC is light for primary stress, we cannot account for the weight of codas in other weight-sensitive phenomena in these same languages.

3. Solution – The UMQ Principle

(9) Uniform Moraic Quantity Principle
  Syllable types are universally invariant in their moraicity
    a. Monomoraic syllables: CV
    b. Bimoraic syllables: CV:, CVC
    c. Trimoraic syllables: CV:C, CVCC
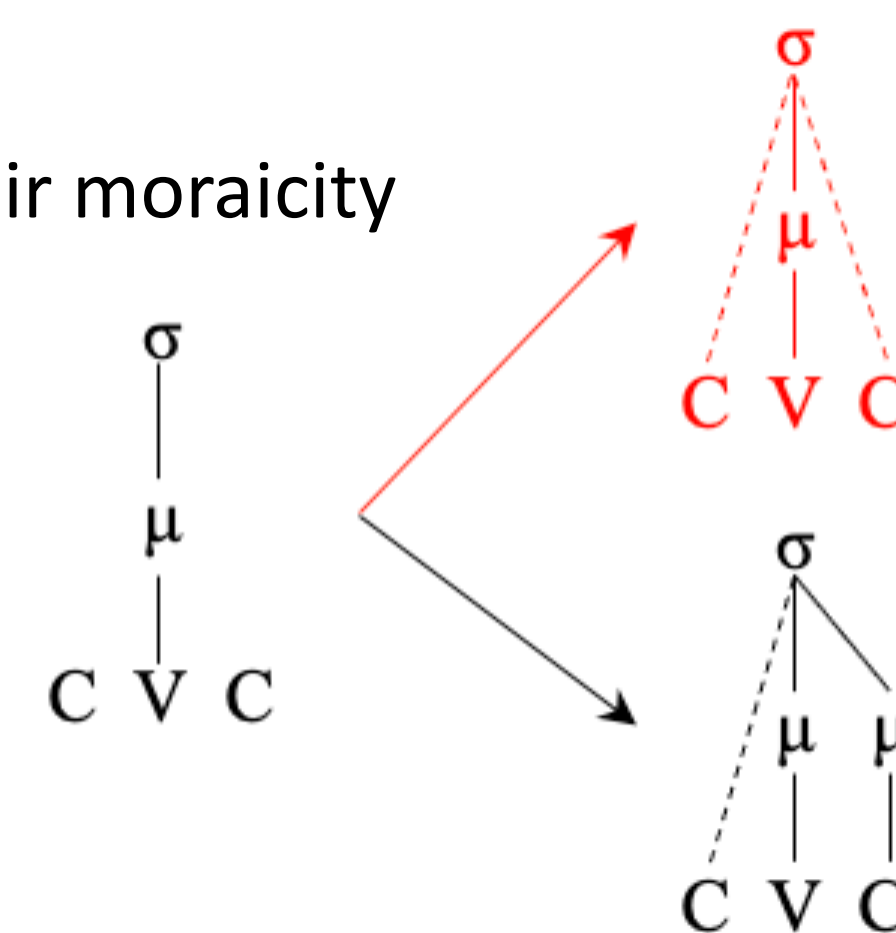
4. Accounting for CVC's Variability

Two weight metrics:
  1. Moraic quantity metric: $\mu\mu\mu > \mu\mu > \mu$ ({CV:C, CVCC} > {CV:, CVC} > CV)
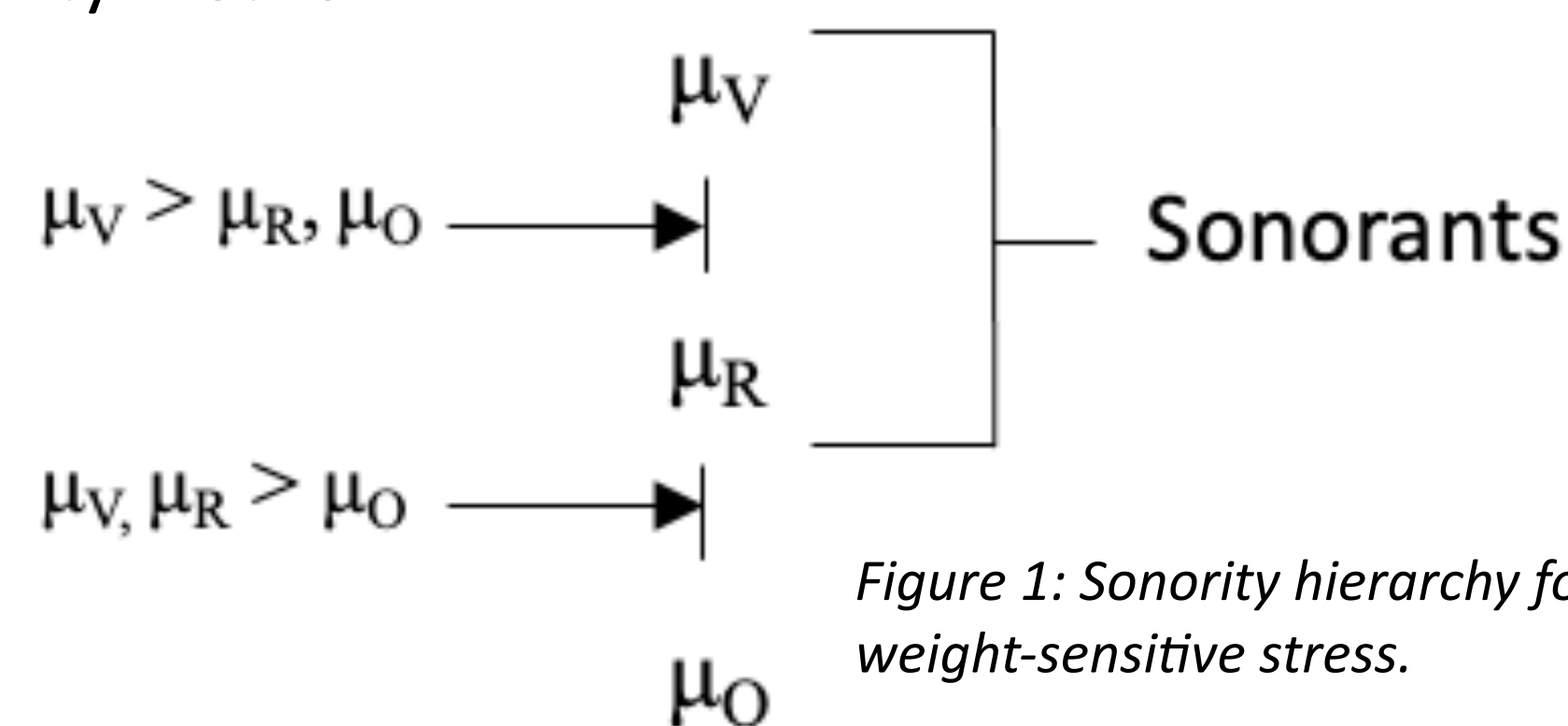 2. Moraic sonority metric:

Figure 1: Sonority hierarchy for weight-sensitive stress.

• **Some languages utilize the moraic quantity metric** to form their stress criteria.
  o Yana {CV:, CVC} > CV
    • $\mu\mu > \mu$
• **Some languages utilize the moraic sonority metric** to form their stress criteria.
  o Murik CV: > {CVC, CV}
    • $\mu_V > \mu_R, \mu_O$
  o Kwakw'ala[13], [14] {CV:, CVR} > {CVO, CV}
    • $\mu_V, \mu_R > \mu_O$
• **Languages with complex stress criteria often utilize both weight metrics.**
  o Mankiyali[15] CV: > CVC > CV
    • $\mu\mu > \mu$
    • $\mu_V > \mu_R, \mu_O$

5. Formalization – Nonfinality Framework

• NON-FIN (GCat, Cat, PCat)
  o Entries on *a specified level of the grid* (GCat)
  o Must avoid *the final instance of a particular element* (Cat)
  o Within *a given domain* (PCat)
• Constraint on moraic quantity
  o NON-FIN (x_ω, μ, σ)[16]
    Assign a violation for every word-level gridmark that occurs over the final mora of a syllable.

Figure 2: Metrical Grid Formulations for each syllable type

• Constraints on moraic sonority
  o NON-FIN $(x_\omega, \mu_V, \sigma)$
    Assign a violation for every word-level gridmark that occurs over the final vocalic mora of a syllable.
  o NON-FIN $(x_\omega, \mu_R, \sigma)$
    Assign a violation for every word-level gridmark that occurs over the final sonorant mora of a syllable.
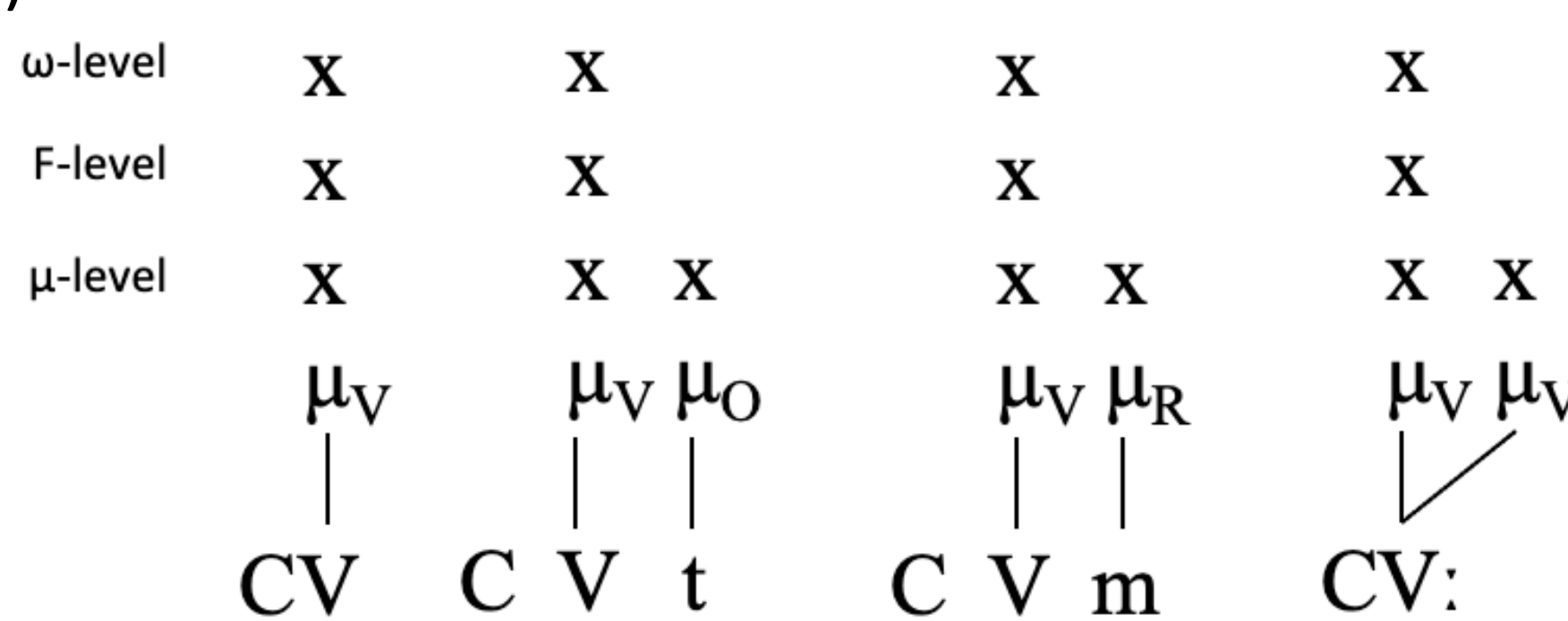
6. OT Analysis

Primary stress in Murik CV: > {CVC, CV}

(10)

/damag/	Non-fin $(x_\omega, \mu_V, \sigma)$	x_ω-L	Non-fin (x_ω, μ, σ)
→ (w) ˈda.mag	1	0	1
(a) da.ˈmag	1	1 W	0 L

(11)

/anənpʰarɛːtʰ/	Non-fin $(x_\omega, \mu_V, \sigma)$	x_ω-L	Non-fin (x_ω, μ, σ)
→ (w) a. nən.pʰa.ˈrɛːtʰ	0	3	0
(a) a.ˈnən.pʰa.rɛːtʰ	1 W	1 L	0
(b) ˈa.nən.pʰa.rɛːtʰ	1 W	0 L	1 W

Primary stress in Mankiyali CV: > CVC > CV

(12)

/mačʰɪr/	NF(x_ω, μ, σ)	NF$(x_\omega, \mu_V, \sigma)$	NF$(x_\omega, \sigma, \omega)$	x_ω-R
→ (w) ma.ˈčʰɪr	0	1	1	0
(a) ˈma.čʰɪr	1 W	1	0 L	1 W

(13)

/kamzorii/	NF(x_ω, μ, σ)	NF$(x_\omega, \mu_V, \sigma)$	NF$(x_\omega, \sigma, \omega)$	x_ω-R
→ (w) kam.zo.ˈrii	0	0	1	0
(a) kam.ˈzo.rii	1 W	1 W	0 L	1 W
(b) ˈkam.zo.rii	0	1 W	0 L	2 W

7. Discussion & Future Research

Discussion
• Nuclei and codas are universally moraic
• Advantages of the UMQ
  o Simplifies our theory of moraic structure
  o Obviates the need for Coercion
  o More accurately predicts CVC's moraic status in "CVC light-for-stress" languages.

Future Research
• What is the factorial typology of the proposed Nonfinality constraints?
• How can languages that use vowel quality to make syllable weight distinctions be incorporated into the moraic sonority metric?
• Impact of the UMQ Principle on foot structure
• Formalization of how other weight-sensitive phenomena utilize the two syllable weight metrics proposed here
• Can these moraic sonority constraints be phonetically or cognitively grounded?

References
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