Toward a Uniform Moraic Quantity Principle

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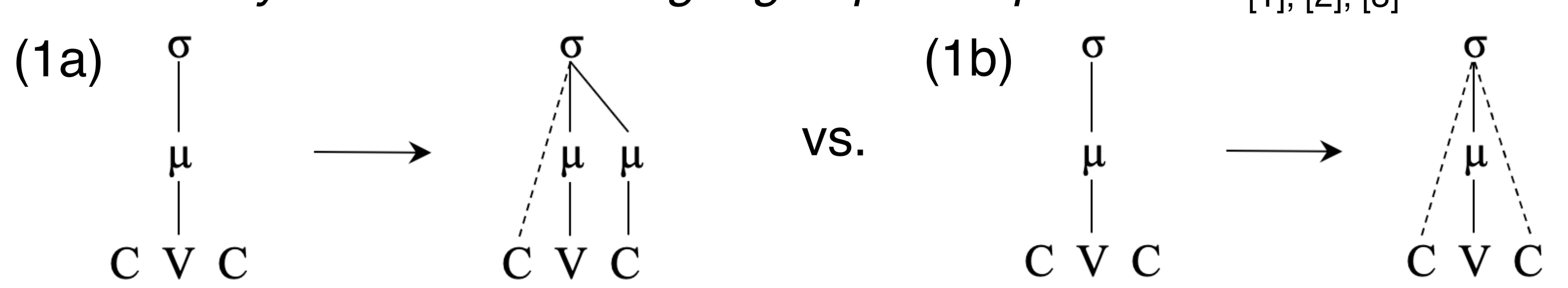
References and Digital Poster

Main Claims

1. The lack of weight uniformity for weight-sensitive processes within and across languages is actually consistent with a theory that treats codas as universally moraic.
2. Cross-linguistic variations in weight criteria are best captured with a syllable weight metric that incorporates sonority into its computations.

1. Background

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



Examples

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

(a)	ˈ**me**.cʼi	"coyote"	(b)	ni.ˈ**saa**.tin.ʒa	"it said I went away"
	ˈ**ɪ**.ri.kʼi	"ear ornaments"		ha.cʼa.ˈ**ʒid**.pʼaa	"Angelica Tomentosa"

(3) **Tibetan**[6], [7] bans codas from contributing a mora to the syllable.
- Primary stress criterion: CVː > {CVC, CV}
- Rule: Stress initial syllable or leftmost heavy if present.

(a)	ˈ**lap**.ʈa	"school"	(b)	am.ˈ**tɔː**	"person from Amdo"
	ˈ**wo**.ma	"milk"		ˈ**tyː**.tuː	"shirt"

(4) **Kwakw'ala**[8], [9] requires sonorant codas (R) to contribute a mora to the syllable, but not obstruent codas (O).
- Primary stress criterion: {CVː, CVR} > {CVO, CV}
- Rule: Stress final syllable or leftmost heavy if present.

(a)	nə.ˈ**pa**	"throw a round thing"	(b)	ˈ**mən**.sa	"to measure"
	maxʷ.ˈ**cʼa**	"to be ashamed"		tʼə.ˈ**liː**.dᶻu	"fish-cutting board"

2. Issues with the "Variable Weight" Analysis

Problem: Weight-sensitive processes within a single language often diverge in how they treat codas in terms of weight[7].

Tibetan

(5) Tonal criterion: {CVː, CVR} > {CVO, CV}

kham³¹ "Kham" lɔː³¹ "electricity" *ʈɔk³¹.pa *ʃo³¹.pa

(6) Compensatory Lengthening: all codas are moraic:

kə**p**.ki → kə**ː**.ki "will do, make"
tʃu**r**.ku → tʃu**ː**.ku "nineteen"

Aguacatec[10]

(7) Word Minimality: CVC light for primary stress but heavy for minimality

s̯aq 'clay' mem 'deaf person'

Chickasaw[11], [12]

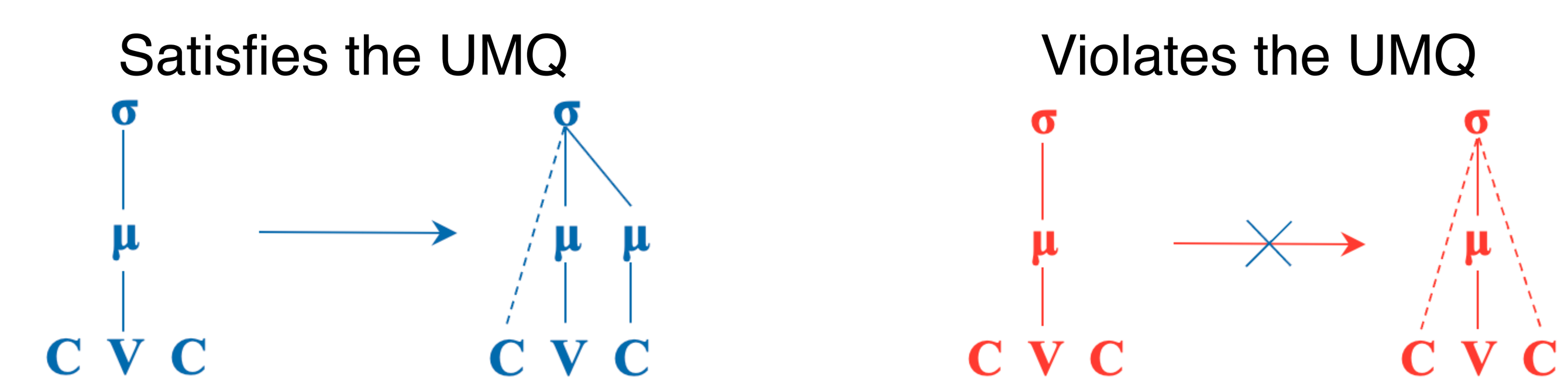
(8) Primary stress on final σ or heavy if present - CVː > {CVC, CV}
Secondary stress on all remaining CVX - {CVː, CVC} > CV

no.ˌtak.ˈfa	"jaw"	ta.ˈlaː.ˌnom.ˌpaʔ	"telephone"
ˌok.ˌfok.ˈkol	"type of snail"	ˌʃim.ma.ˈnoː.ˌliʔ	"Seminole"
ˌhat.ta.ˈkat	"man"	ˌin.ˌtik.ˈbaːt	"sibling"

Conclusion: If codas vary in their moraicity, as the "variable weight" approach suggests, we cannot account for these weight mismatches.

3. Solution – The UMQ Principle

(9) Uniform Moraic Quantity Principle
Nucleus and coda segments always project a mora.



4. Accounting for CVC's Variability

How do we account for variations in syllable weight criteria?

The Moraic Sonority Metric
- Syllable weight is process specific[7].
- Syllable weight is based on the number of moras of a specified sonority.
- Weight criteria coincide with a bifurcation point on the sonority hierarchy.
  - Sonority levels above the bifurcation are used in weight computations.
  - Sonority levels below the bifurcation are excluded from computations.

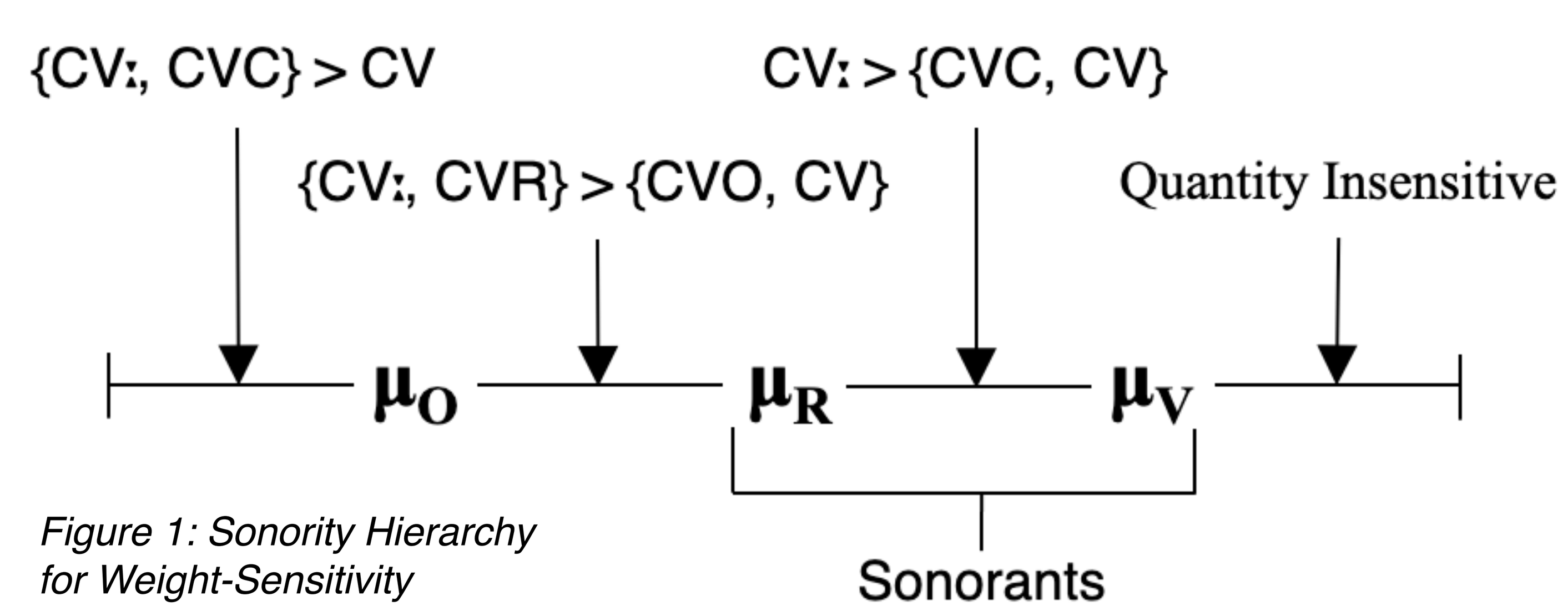


Figure 1: Sonority Hierarchy for Weight-Sensitivity

The Moraic Sonority Metric and Weight-sensitive Stress

- **Every moraic sonority level** is used in some languages.
  - Yana {CVː, CVC} > CV
- **Only a subset of moraic sonority levels** are used in other languages.
  - Kwakw'ala {CVː, CVR} > {CVO, CV}
  - Tibetan CVː > {CVC, CV}
- **Multiple bifurcations between sonority levels** are used for languages with complex stress criteria.
  - Mankiyali[13] CVː > CVC > CV

5. Formalization – Nonfinality Framework

- NON-FIN (GCat, Cat, PCat)[14]
  - Entries on ***a specified level of the metrical grid*** (GCat): e.g., x_ω or x_F
  - Must avoid ***the final instance of a particular element*** (Cat): e.g., μ or σ
  - Within ***a given domain*** (PCat): e.g., σ or ω

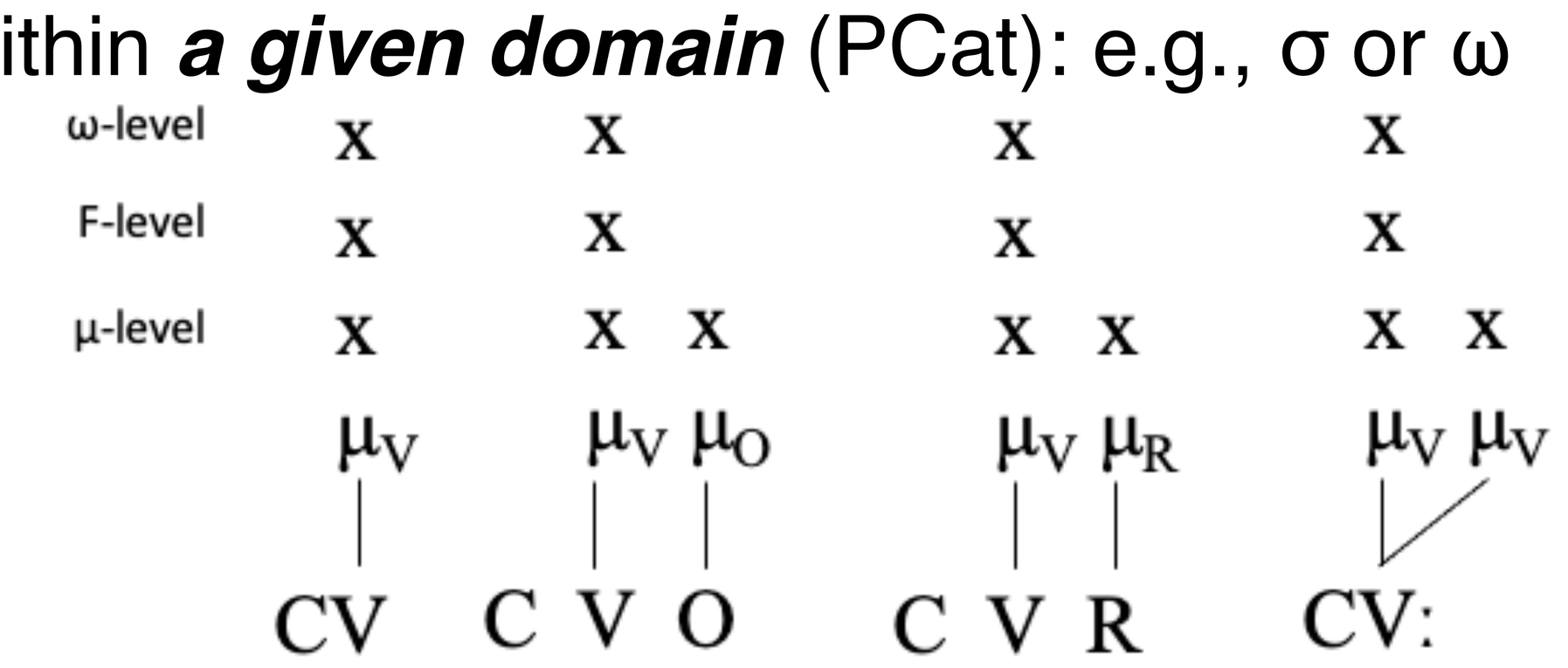
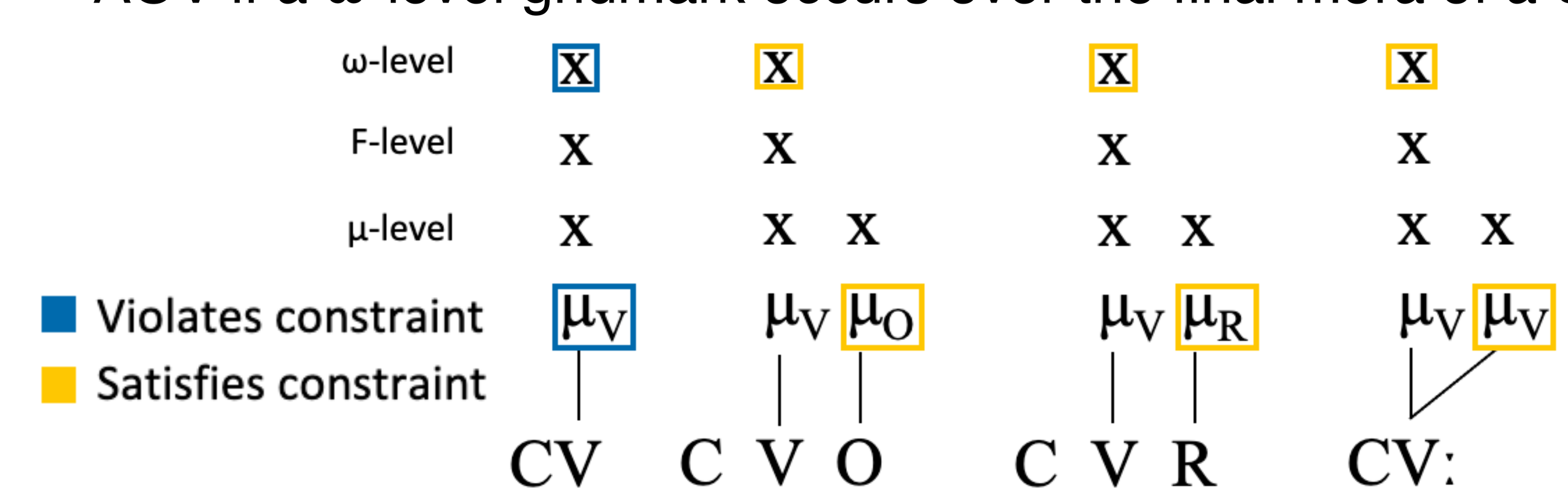
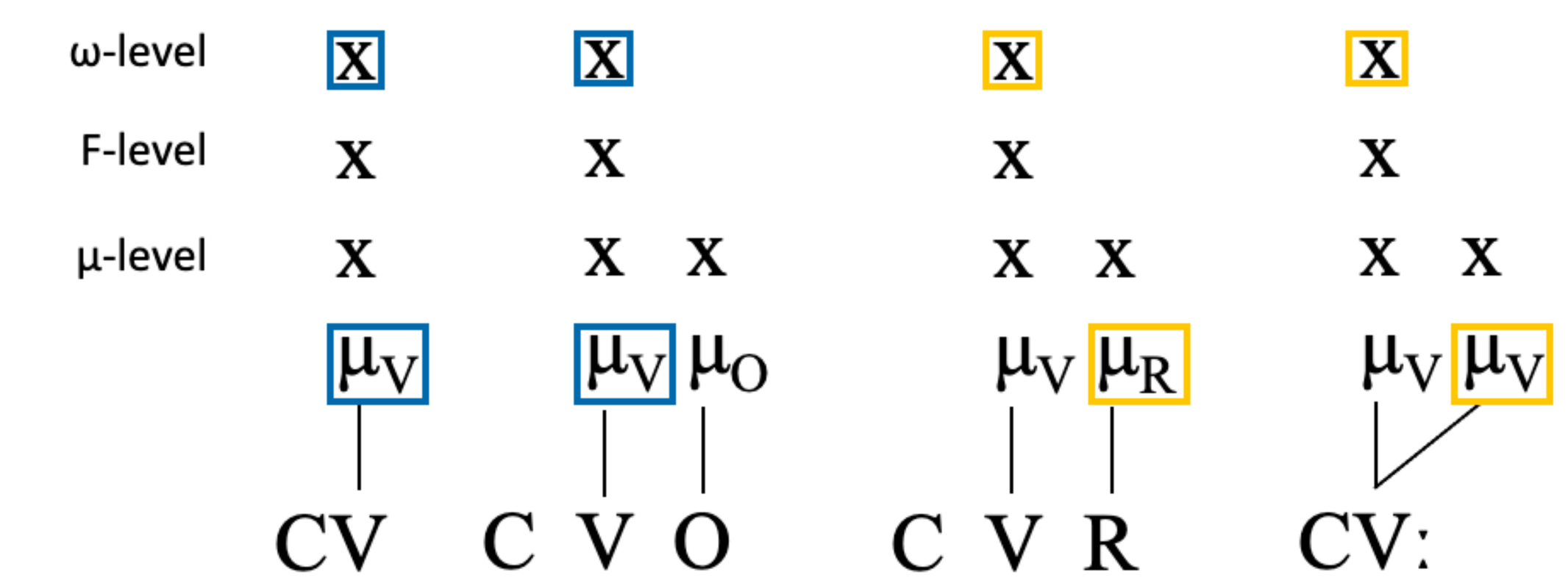


Figure 2: Metrical Grid Formulations for each syllable type when stressed

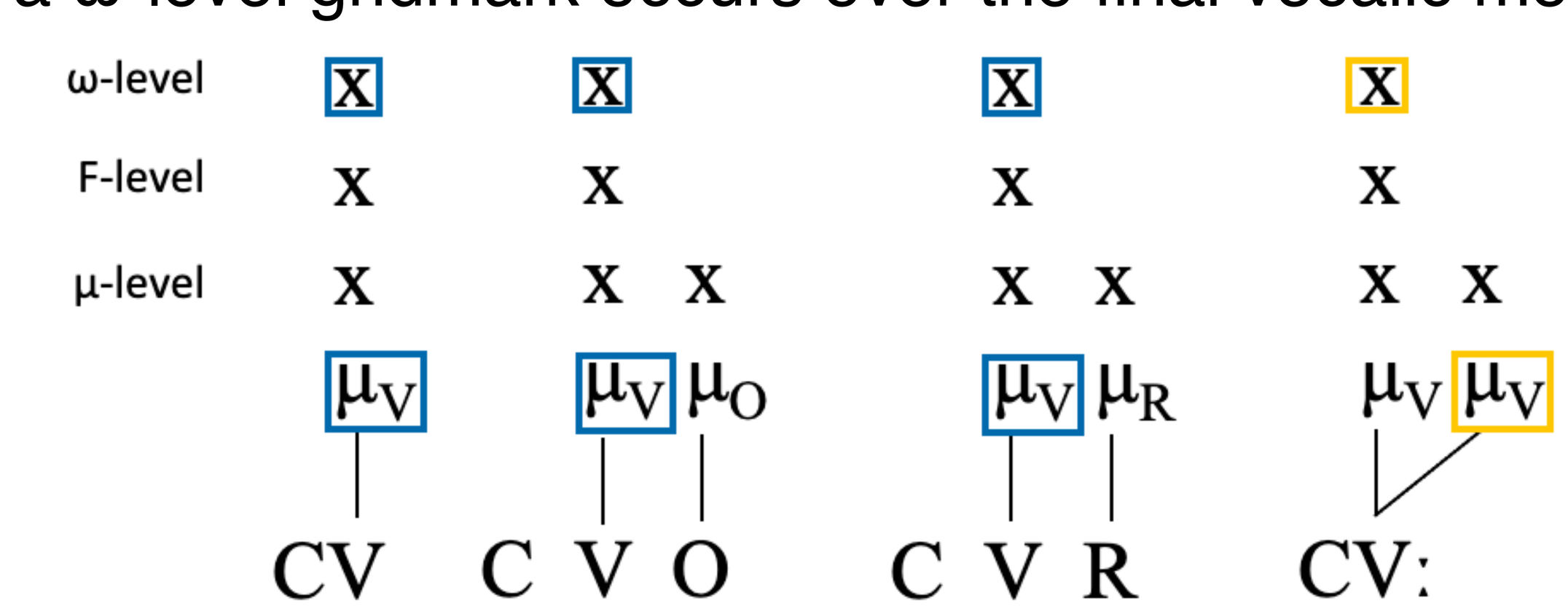
- NON-FIN (x_ω, μ, σ)[14] "*FINμ" – Bifurcation below μ_O
  AOV if a ω-level gridmark occurs over the final mora of a σ.



- NON-FIN (x_ω, μ_R, σ) "*FINSON" – Bifurcation between μ_O and μ_R
  AOV if a ω-level gridmark occurs over the final sonorant mora of a σ.



- NON-FIN (x_ω, μ_V, σ) "*FINV" – Bifurcation between μ_R and μ_V
  AOV if a ω-level gridmark occurs over the final vocalic mora of a σ.



Primary stress in Kwakw'ala {CVː, CVR} > {CVO, CV}

/maxʷcʼa/	*FINSON	x_ω-R	*FINμ
→ (w) maxʷ$_\mu$.ˈcʼa	*		*
(a) ˈmaxʷ$_\mu$. cʼa	*	*W	L

/mənsa/	*FINSON	x_ω-R	*FINμ
→ (w) ˈmən$_\mu$.sa		*	
(a) mən$_\mu$.ˈsa	*W	L	*W

6. Discussion & Future Research

Discussion
- Advantages of the UMQ.
  - Simplifies our theory of moraic structure.
  - Obviates the need for Coercion[15], [16].
  - More accurately predicts the cross-linguistic moraic status of codas.

Future Research
- Are there gaps in the factorial typology of the proposed Nonfinality constraints?
- Formalization of moraic sonority for other weight-sensitive phenomena.
- What about moraic onsets?
- Can these moraic sonority constraints be phonetically grounded?

Acknowledgements
Many thanks to Rachel Walker, Ryan Bennett, Brett Hyde, and the linguistics community at UCSC for their comments and suggestions.