

## Context

Yoruba (Atlantic-Congo) vowels display categorical correspondence for RTR/ATR across the phonological word (1).

- (1) **Yoruba vowel harmony** (Archangeli & Pulleyblank 1989; Ola Orié 2001, 2003)

ATR    ògèdè    \*ògèdè    ‘incantations’  
RTR    ògèdè    \*ògèdè    ‘banana’

Yoruba displays a clear relationship between inventory shape and neutral harmony.

- (2) **Yoruba non-low vowel inventories**

|      | ATR | RTR |      | ATR | RTR |
|------|-----|-----|------|-----|-----|
| HIGH | i u | ɪ ʊ | HIGH | i u |     |
| MID  | e o | ɛ ɔ | MID  | e o | ɛ ɔ |

(a) Ekiti Yoruba                      (b) Standard / Ifè Yoruba

- (3) **Yoruba cross-dialectal variation in high vowel harmony**

|     | Ekiti | Ifè   | Standard Yoruba |               |
|-----|-------|-------|-----------------|---------------|
| ATR | èbúté | èbúté | èbúté           | ‘harbor’      |
|     | eúro  | eúro  | ewúro           | ‘bitter-leaf’ |
| RTR | orúkò | orúkò | orúkò           | ‘name’        |
|     | èlùbò | èlùbò | èlùbò           | ‘yam flour’   |

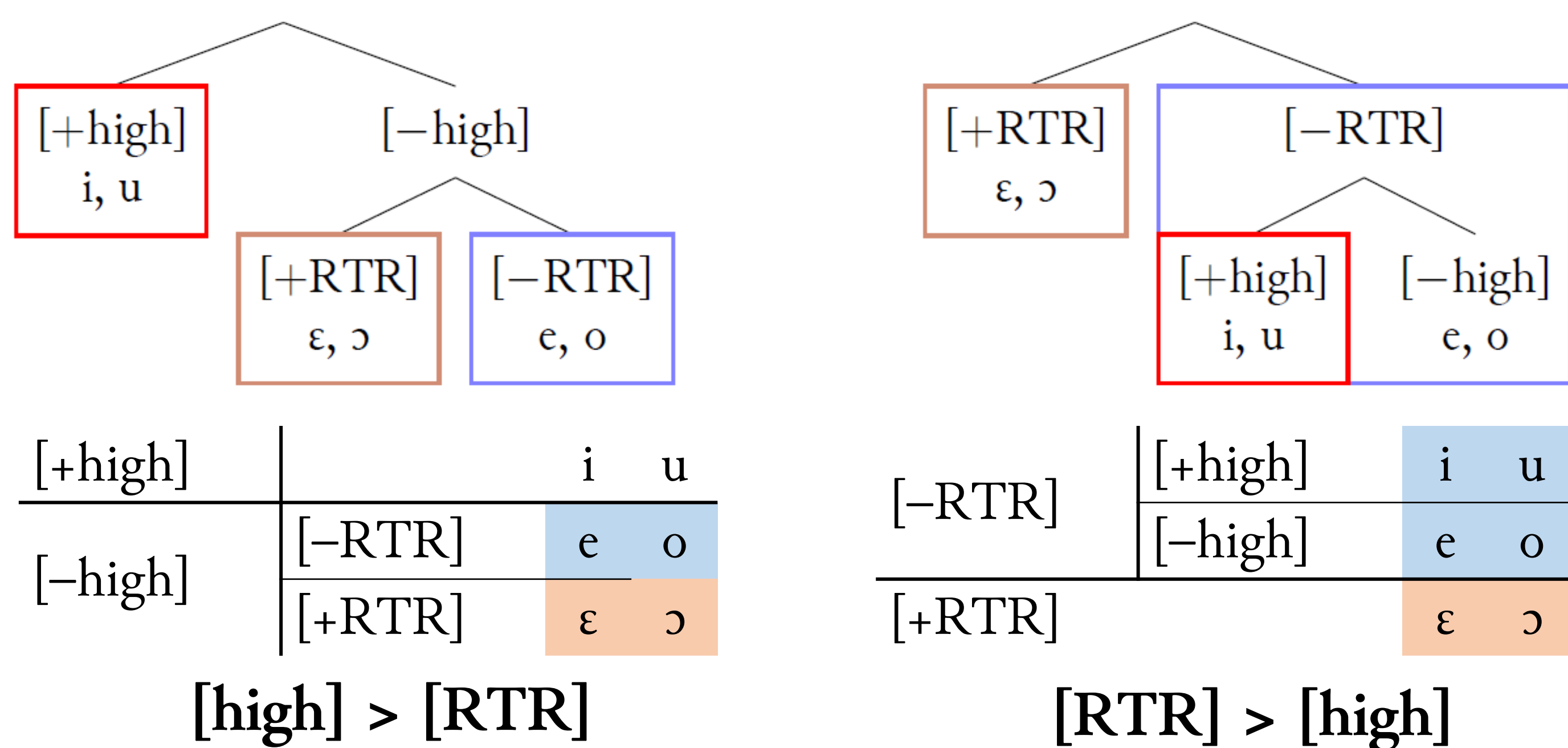
- What motivates and constrains variation in neutral harmony?

## Modified Contrastive Specification

MCS (Dresher, Piggott & Rice 1994; Dresher 2003, 2009, 2013)

- Distinctive features and sounds are categorized hierarchically and the feature ordering is cross-linguistically variable
  - features have different scopes/domains in different languages
- Contrastivist Hypothesis* (Hall 2007): phonological activity is limited by feature scope

- (4) **Ifè and Standard Yoruba contrastive feature hierarchies**



Alternate feature orderings of [RTR] and [high] produce different feature specifications on /i, u/.

- motivating either blocking (Standard) or transparent skipping (Ifè Yoruba).

- (5) **Ifè and Standard Yoruba contrastive feature specifications**

| i, u  | e, o  | ɛ, ɔ  |  | i, u  | e, o  | ɛ, ɔ |
|-------|-------|-------|--|-------|-------|------|
| +high | -high | -high |  | -RTR  | -RTR  | +RTR |
|       | -RTR  | +RTR  |  | +high | -high |      |

(a) Ifè Yoruba                      (b) Standard Yoruba

## Problems for MCS

Binary contrastive feature hierarchies fail to account for more complex inventories

- (6) **Yoruba low /a/-\*/ə/: harmonic (visible) across all Yoruba dialects**

arè    \*arè    ‘crown’    èpà    \*èpà    ‘peanut’  
ahorò    \*ahorò    ‘ruins’    òyàyà    \*òyàyà    ‘cheerfulness’

Asymmetries in high / low vowels result in asymmetric orthogonal feature specifications on harmonically paired mid vowels (7)

- results in incomplete/incorrect harmony outputs (8–9)

- (7) **Featurally incongruent harmony pairs in Standard Yoruba**

| /i, u/  | /e, o/  | /ɛ, ɔ/ | /a/    |        |
|---------|---------|--------|--------|--------|
| [-RTR]  | [-RTR]  | [+RTR] | [+RTR] | [+RTR] |
| [+high] | [-high] | [-low] | [+low] |        |

- (8) **MCS cannot distinguish hi/mid ATR and mid/lo RTR outputs**

|     |     |      |                |
|-----|-----|------|----------------|
| ATR | ebè | *ibè | ‘heap of yams’ |
|     | epo | *ipo | ‘oil’          |
| RTR | èdò | *adò | ‘liver’        |
|     | èpà | *apà | ‘peanut’       |

- (9) **Binary feature hierarchies fail to produce /e/→[ɛ] mapping in Yoruba**

| /è        | dò/               | /è      | pà/      |
|-----------|-------------------|---------|----------|
| [RTR]     | [+RTR] ← [+RTR]   | [+RTR]  | ← [+RTR] |
| [hi / lo] | [-high]    [-low] | [-high] | [+low]   |
| [è/*à     | dò]               | [è/*à   | pà]      |

## MCS method revisions

The harmony pairing problem is a predictable outcome of binary contrastive feature hierarchies

- privative features provide the correct results (10, 11)

- (10) **Privative MCS produces featurally congruent harmony pairs**

| /i, u/ | /e, o/ | /ɛ, ɔ/ | /a/   |       |
|--------|--------|--------|-------|-------|
| [ ]    | [ ]    | [RTR]  | [RTR] | [RTR] |
| [high] | [ ]    | [ ]    | [low] |       |

- (11) **Privative feature hierarchies produce correct /e/→[ɛ] mapping**

| /è        | dò/           | /è    | pà/     |
|-----------|---------------|-------|---------|
| [RTR]     | [RTR] ← [RTR] | [RTR] | ← [RTR] |
| [hi / lo] | [ ]    [ ]    | [ ]   | [low]   |
| [è        | dò]           | [è    | pà]     |

## Summary

MCS applied to harmony systems:

- natural motivation for inventory asymmetry-driven neutral harmony
- an overall good typological fit
- allows for both economical representations and grammatical models
- ❖ produces featurally-incompatible harmony outputs
  - ✓ privative contrastive feature hierarchies