

# Evidence for contrastive feature hierarchies in Old Norwegian height harmony

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## Context

What motivates and constrains variation in neutral harmony?

- Asymmetric inventory shape creates illicit harmony targets.

Neutral [low] [a] in Bantu perseveratory height harmony

i	-	u	<b>Shona non-alternating [a]</b>	(Fortune 1955, Beckman 1997)
e	-	o	ip-ir-a	*ip-ir-i <i>be evil</i> -APPL.-PRES.
a			per-er-a	*per-er-e <i>end</i> -APPL.-PRES.

In trigger positions, non-alternating segments may be harmonic (e.g. Pende) or neutral (e.g. Shona). Various phonologists have taken this dichotomy as evidence that “minimal contrastivity” (harmonic pairing) plays an important role in phonology and can optionally limit harmony systems only to harmonically-paired segments—e.g. [ $\pm$ high] [i, e] and [u, o]—to the exclusion of non-contrastive (unpaired) segments—e.g. [-high] [a] (Calabrese 2005, Nevins 2010).

- (1) **Pende harmonic [a]** (Niyonkuru 1978, Hyman 1999)

gu-díg-il-a	<i>vendre pour</i>	gu-túng-il-a	<i>bâtir pour</i>
gu-bemb-el-a	<i>abandonner pour</i>	gu-lómb-él-a	<i>demander pour</i>
gu-sas-el-a	<i>hacher pour</i>	*gu-sas-il-a	

- (2) **Shona neutral [a]** (Fortune 1955, Beckman 1997)

ip-ir-a	<i>be evil for</i>	bvum-is-a	<i>make agree</i>
per-er-a	<i>end in</i>	tond-es-a	<i>make to face</i>
shamb-is-a	<i>make wash</i>	*shamb-es-a	

## Problem

Contrastive relativization is violated by height harmony in Old Norwegian which displays both harmonic and neutral unpaired non-high vowels.

- (3) **Old Norwegian perseveratory height harmony**

hu:s-i	house-DAT.SG.	Sigurð-i	Sigurðr-DAT.SG.
orð-e	word-DAT.SG.	konong-e	king-DAT.SG.

**Neutral blocking [ε, ɔ]**

hɔvð-i	head-DAT.SG.	undr-ɔð-u	wonder-PRET-3.PL.
kveld-i	evening-DAT.SG.	kall-ɔð-u	call-PRET-3.PL.

**Harmonic blocking [a]**

land-e	land-DAT.SG.	undr-að-e	wonder-PRET-3.SG.
ma:l-e	matter-DAT.SG.	kall-að-e	call-PRET-3.SG.

## Representational motivations

Expanding on Dresher’s (2009) Contrastive Hierarchy theory, I argue that neutral harmony patterns like these are representationally motivated and constrained; no additional grammatical mechanisms are needed.

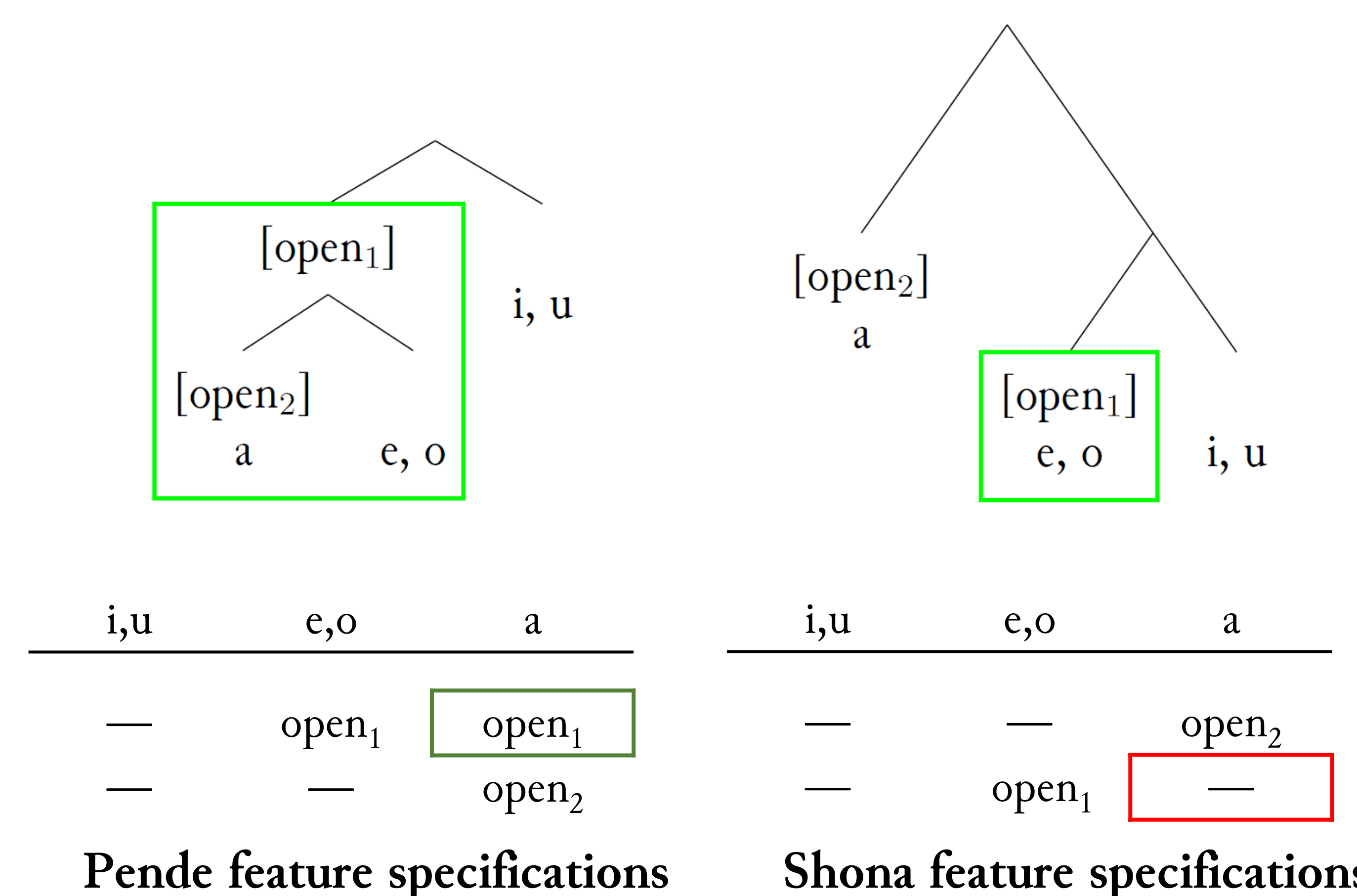
### Representational assumptions

- Privative multitiered height features (cf. Clements 2015)
- 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

Alternate feature orderings of [open<sub>1</sub>] (non-high) and [open<sub>2</sub>] (low) produce different feature specifications on [a] which motivate either harmony (Pende) or harmony neutrality (Shona).

high		i	u	non-low	high	i	u
	non-low	e	o		non-high	e	o
non-high	low	a		low		a	

[non-high] > [low]                      [low] > [non-high]

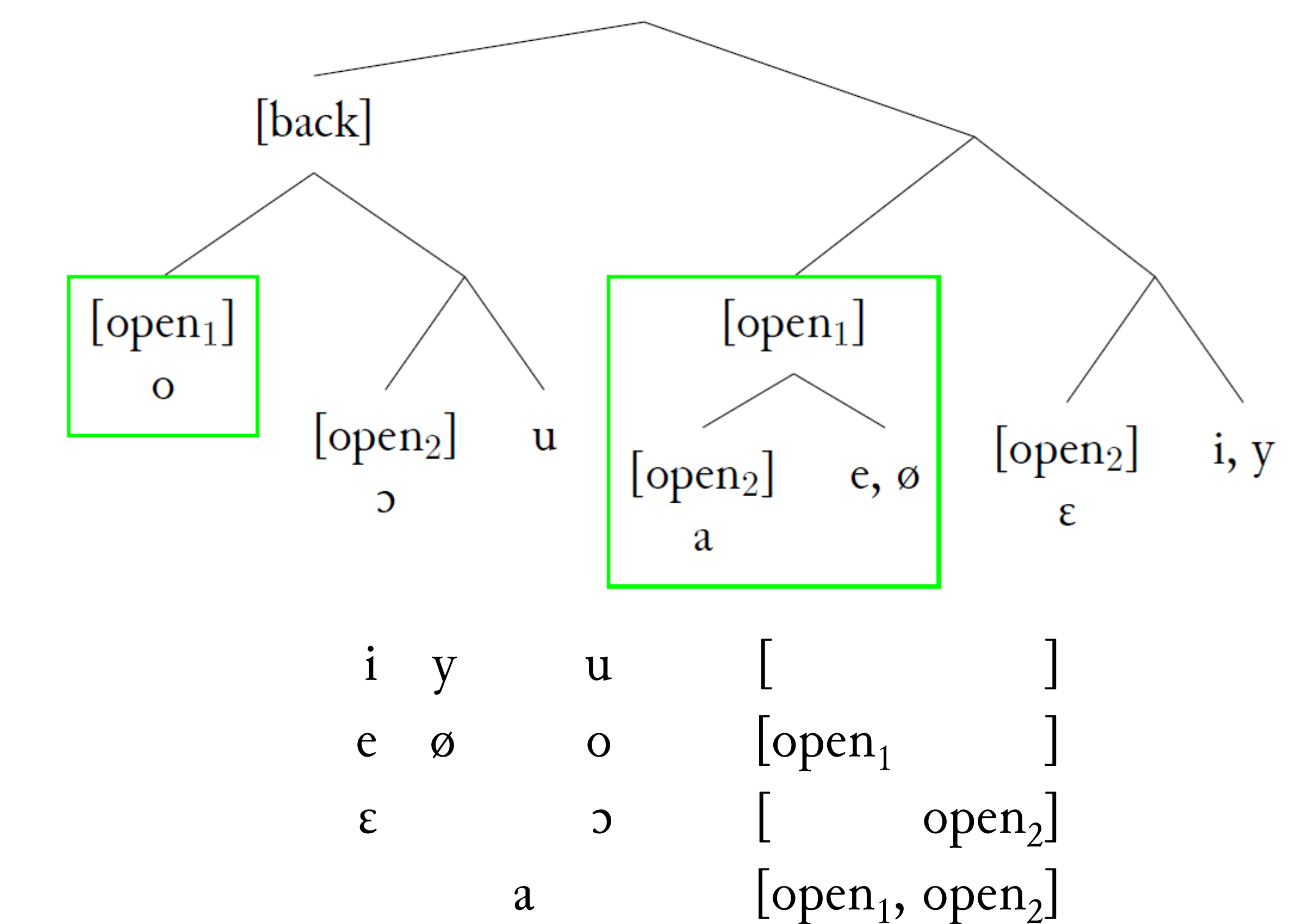


## Analysis

Old Norwegian short vowels feature two groups of harmonically unpaired segments:

- [open<sub>2</sub>] [ε, ɔ] and [open<sub>1</sub>, open<sub>2</sub>] [a]

Old Norwegian orders its features [back] > [open<sub>1</sub>] > [open<sub>2</sub>] which puts [ε, ɔ] outside and [a] within the domain of the harmony feature [open<sub>1</sub>] motivating [ε, ɔ]-neutrality and [a]-harmony.



Old Norwegian feature specifications

## Summary

- What motivates and constrains neutral harmony?
- Contrastive feature hierarchies motivate neutral harmony in asymmetric sound inventories
  - Neutral harmony variation reflects different feature ordering

## Acknowledgements

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