Gradient phonologisation and cue-trading relationships

Stem vowel metaphony and suffix vowel erosion in the Lausberg area (Southern Italy)

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Phonologisation

Phonologisation (Hyman, 2013[1]; Kiparsky, 2015[2])

Nasalisation: Latin 'manus' > French main, /mɛ̃/ (main)

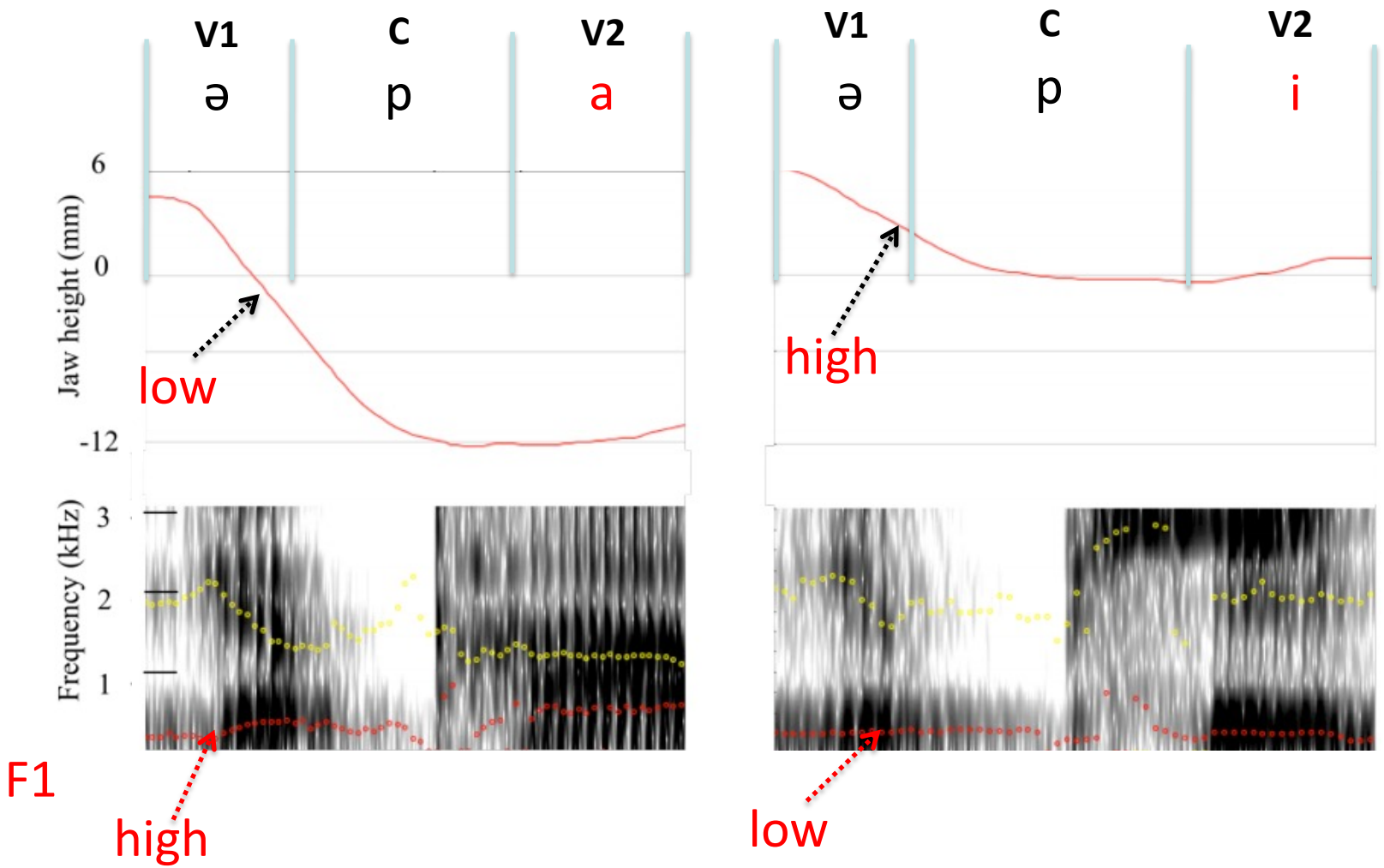
Tonogenesis[3]: /pa, ba/ > /pà, pá/

Umlaut: OHG /futiz/ > /fysə/ (Füße)

S. Italian metaphony[4]: /grosa, grosu/ -> /gros, grus/ ('large', M/F)

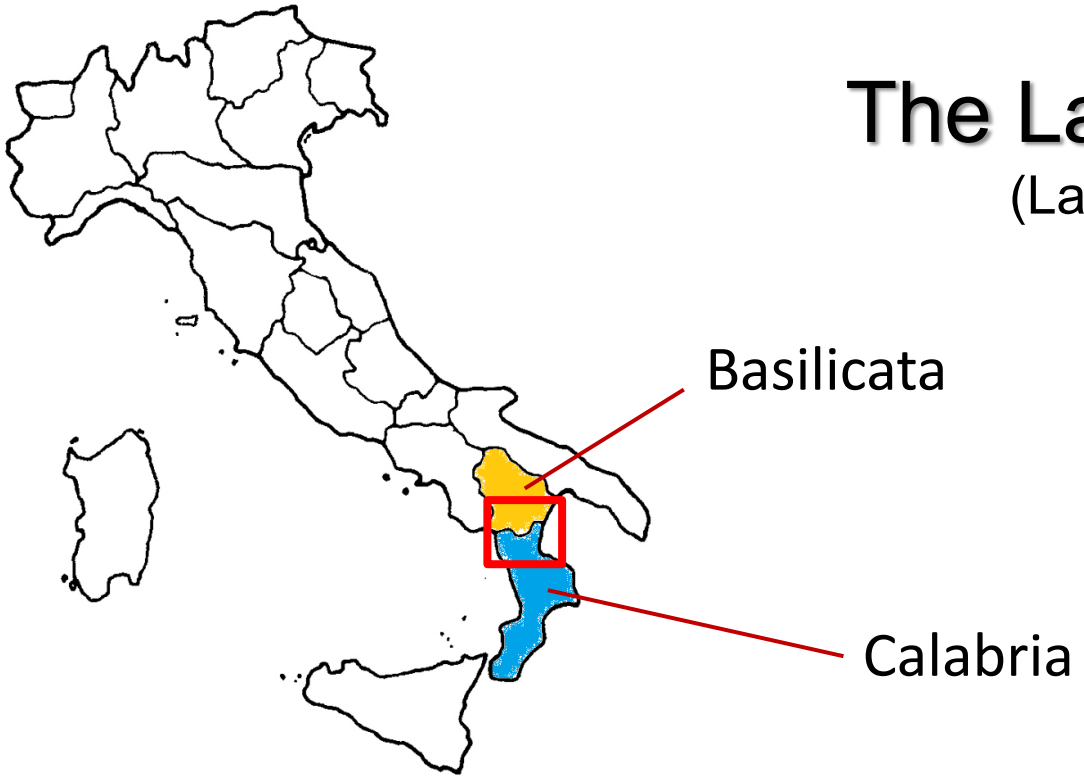
1. Hyman (2013) In A. Yu (Ed.) Origins of Sound Change: Approaches to Phonologization 2. Kiparsky (2015) In Handbook of Historical Phonology. 3. Hombert et al (1979). Language, 55, 37-58. 4. Lopocaro (2016), In F. Torres-Tamarit, K. Linke, & M. v. Oostendorp (Eds.), Approaches to metaphony in the languages of Italy. Berlin: de Gruyter.

VCV coarticulation: Several studies (e.g. Öhman 1966; Hoole & Pouplier 2017) show that V1 is phonetically influenced by V2.



(*Source:* Harrington et al. 2013: 244)

Metaphony and the Lausberg region



The Lausberg area

(Lausberg 1939)

Metaphony in Lausberg

- affects mid stem vowels /e, o/
- triggered by high inflectional suffix vowels /i, u/

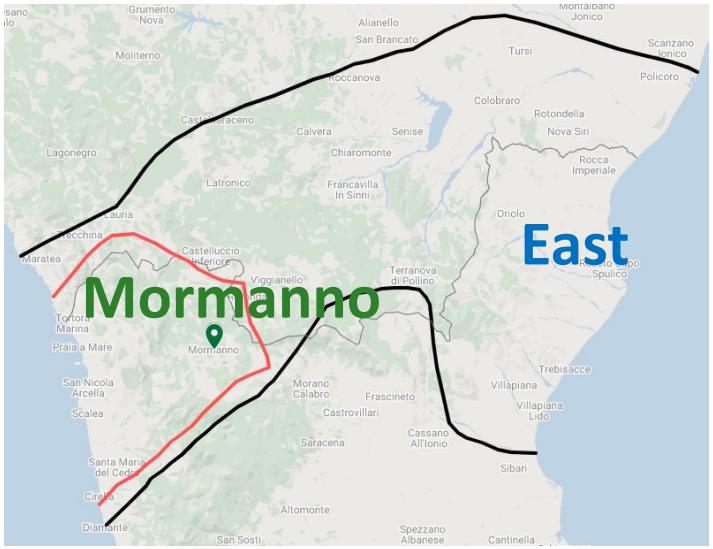
e.g. b[ɛ]lla, b[i]ll**u**
vs Standard Italian /bɛlla, bɛllo/

Why the Lausberg area?

- Coarticulation and sound change in *living* dialects
- Different sound change types coexist in one area

Metaphony in Lausberg: regional variation

West

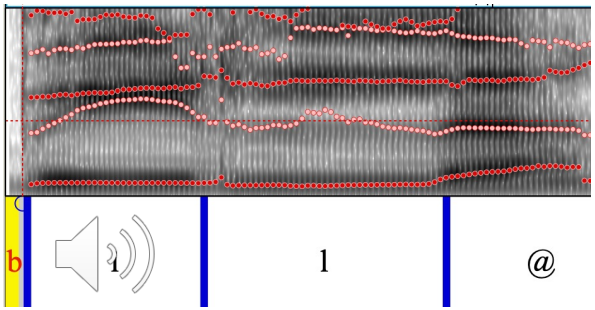


	Mormanno	West	East
[bɛlla]	[bellu]	[bjellu, biellu]	[billu]
[kɔtta]	[kottu]	[kwottu, kuottu]	[kuttu]

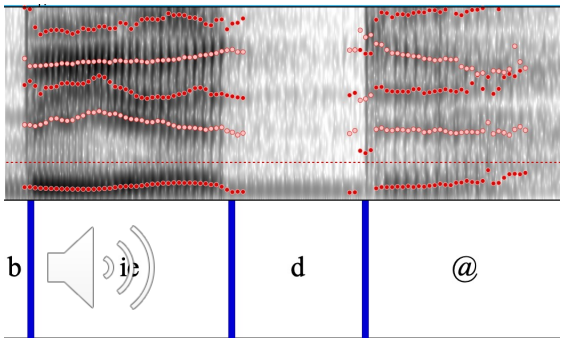
Suffix vowel erosion: regional variation is unclear.
[kotta, kuttu], [kottə, kuttə] or [kott, kutt]?

	Mormanno	West	East
[bɛlla]	[bellu]	[bjellu, biellu]	[billu]
[kɔtta]	[kottu]	[kwottu, kuottu]	[kuttu]

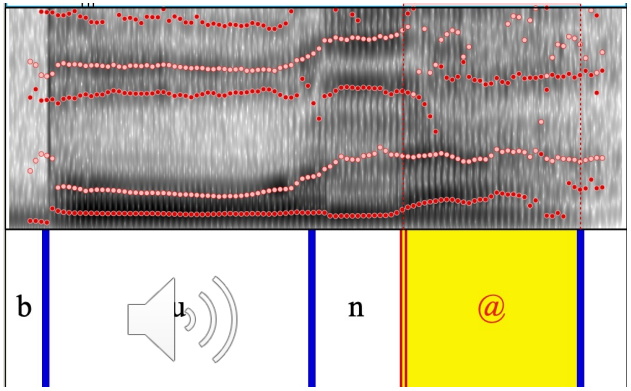
East: *bellu*, [bilə]



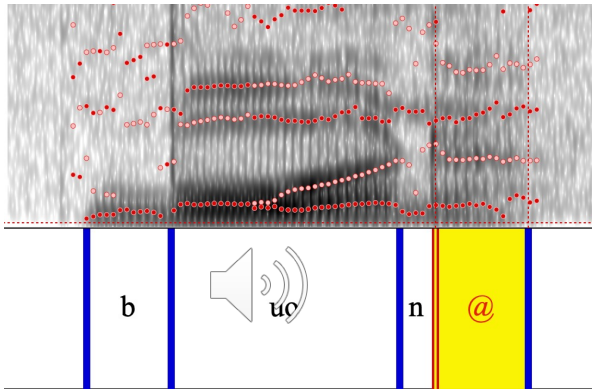
West: *bellu*, [biədə]



East: *bona*, [bu̯nə]



West: *bona*, [boənə]



Hypotheses and analyses

Production

1. Increasing metaphonic influence in the stem:

MM < West < East

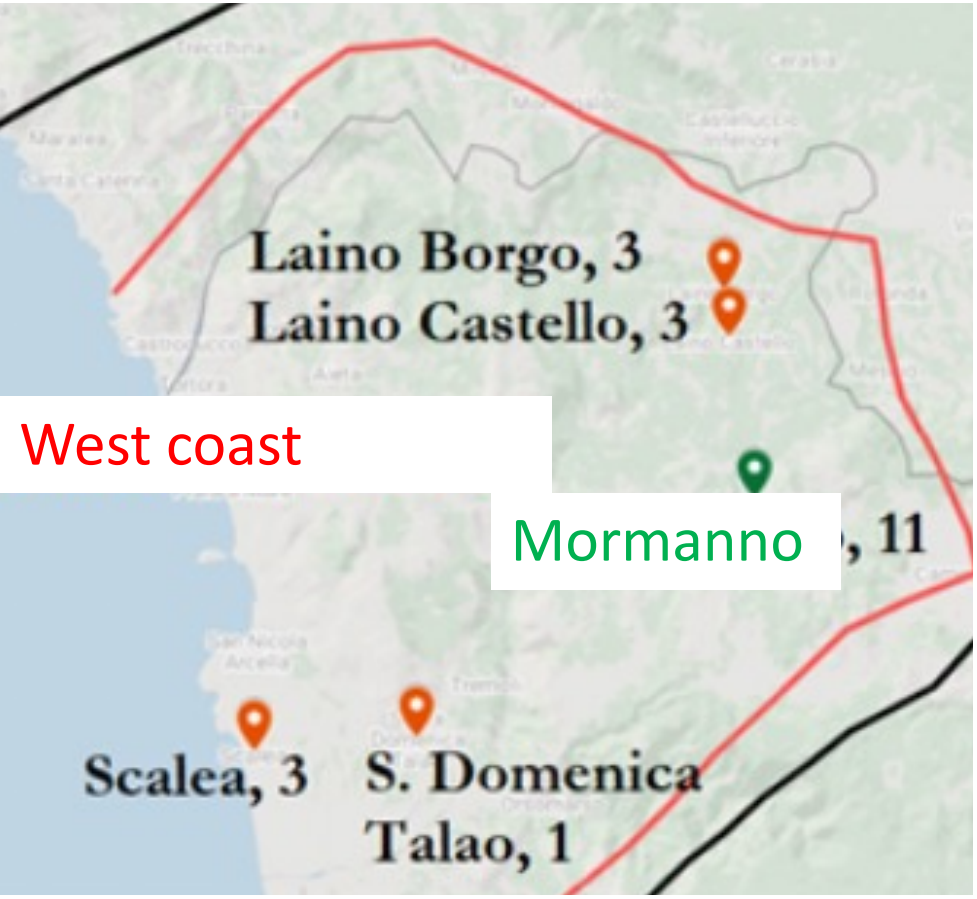
2. Increasing suffix erosion, parallel to metaphony:

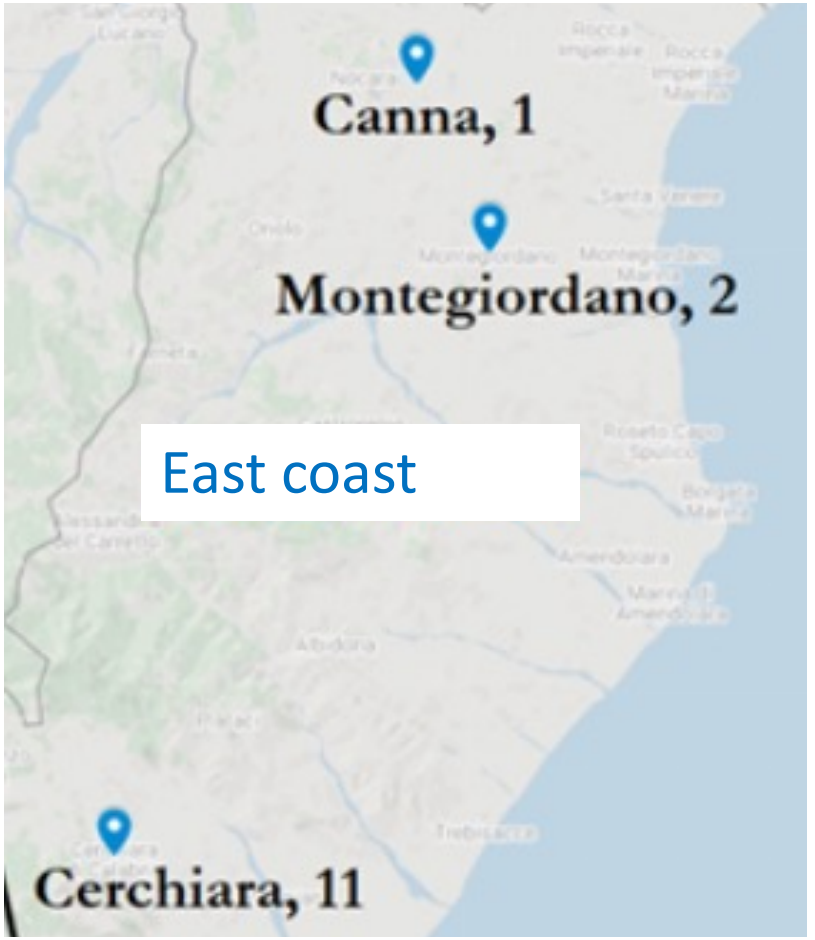
MM < West < East

Perception

3. East coast listeners more sensitive to inflectional morphology in the stem.

Speakers





35 speakers: age range 13 to 91 years; 17 F.

Lexical items: examples

118 word types (55 lexical stems)

2752 stem-/e/ and 2620 stem-/o/ vowels

Suffixes	Stem vowels	
	/e/ (n = 2752)	/o/ (n = 2620)
-a	bɛlla	bɔna
-e	vɛrme	nipɔte
-i	d[e-ie-i]nti	f[o-uo-u]rni
-u	l[e-ie-i]ttu	k[o-uo-u]ttu

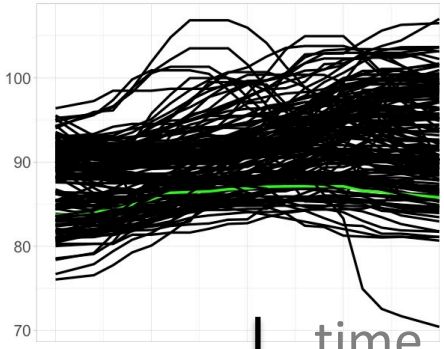
Production: data elicitation/processing

- Word elicitation through a picture-naming task

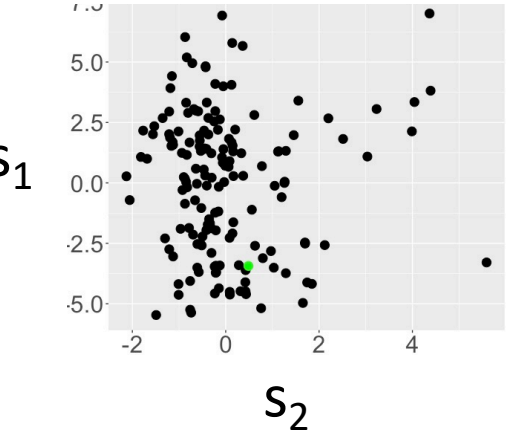
- Inflected forms of nouns, adjectives and verbs
- Analysis: FPCA of F1 and F2 in the stem.

FPCA overview (functional principal components analysis)

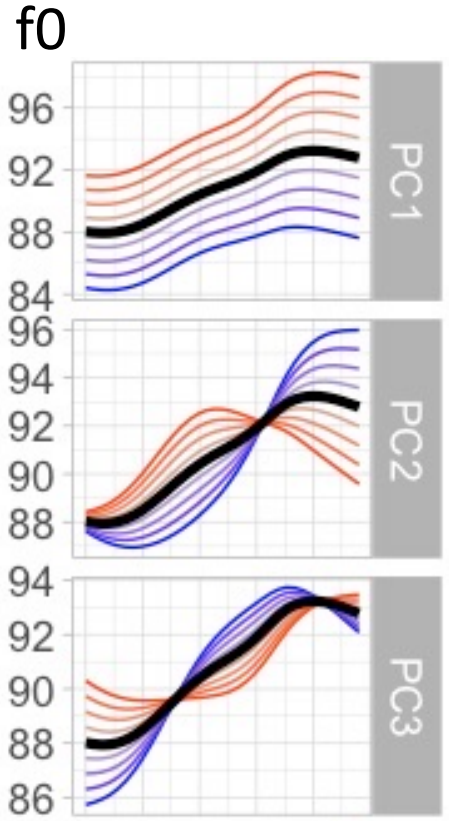
signals



PCscores ← FPCA analysis → PCs



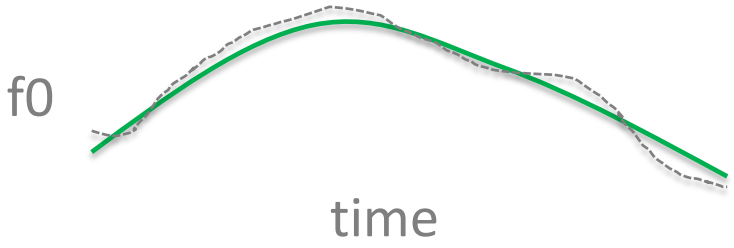
FPCA synthesis



FPCA reconstructed signal

s_1 *PC1 +
s_2 *PC2 +
s_3 *PC3 + ... PC4, ...PCn

=



1. PC shapes that underlie the variation

PC1: Vowel raising / lowering

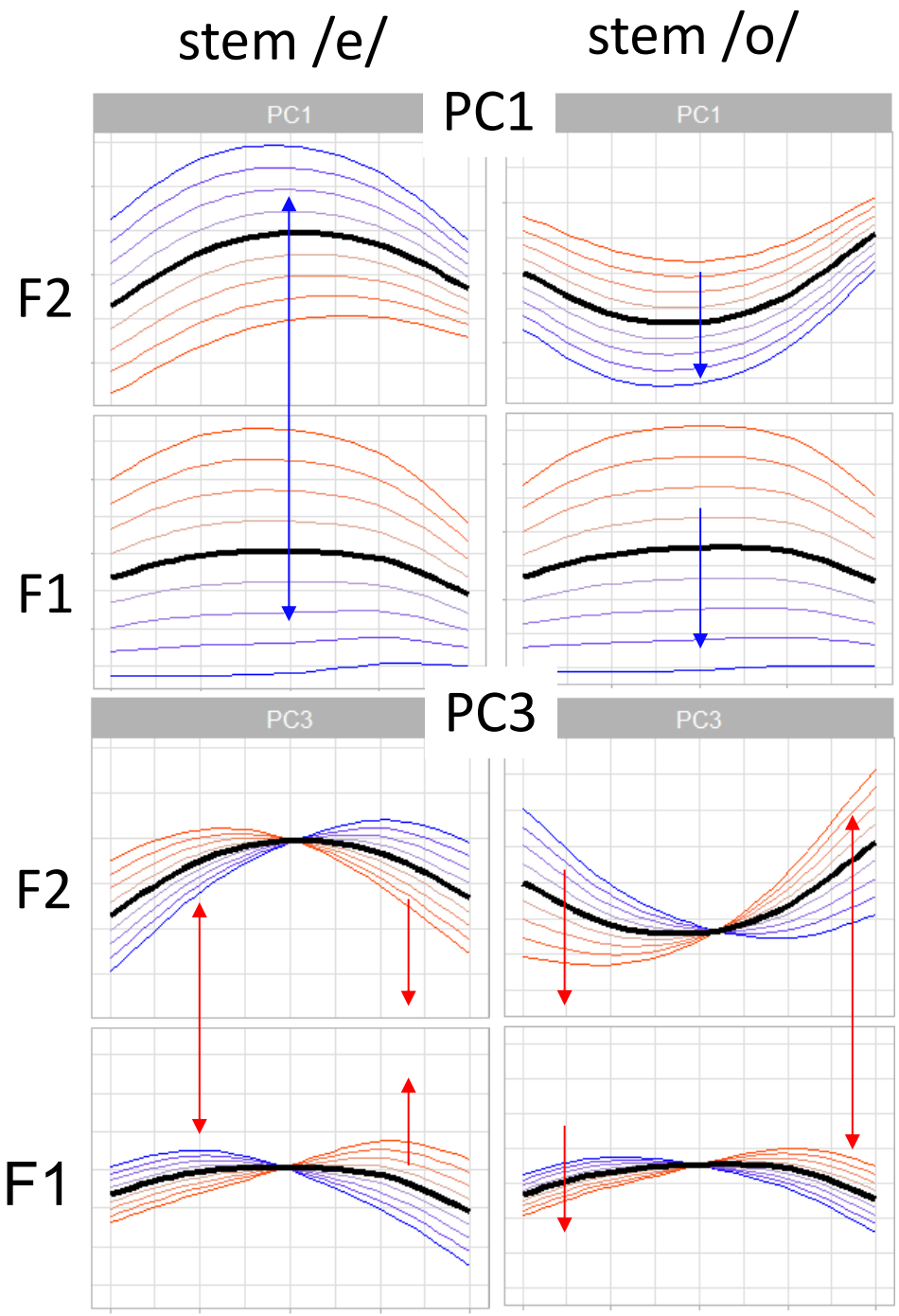
/e/ → [i] /e/ → [ɛ]

/o/ → [u] /o/ → [ɔ]

PC3: Diphthongisation

/e/ → [ɛi] /e/ → [iɛ]

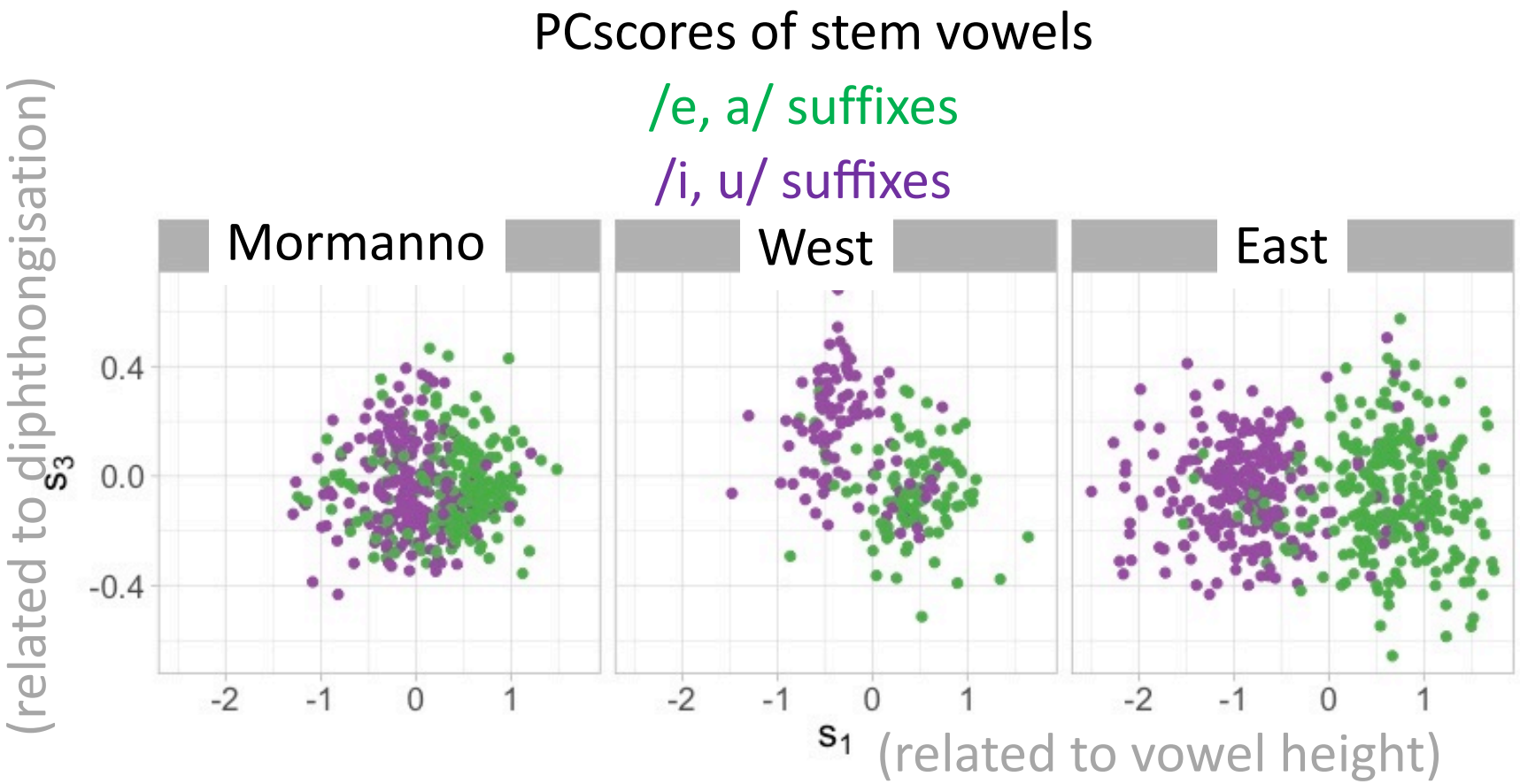
/o/ → [ɔu] /o/ → [uɔ]



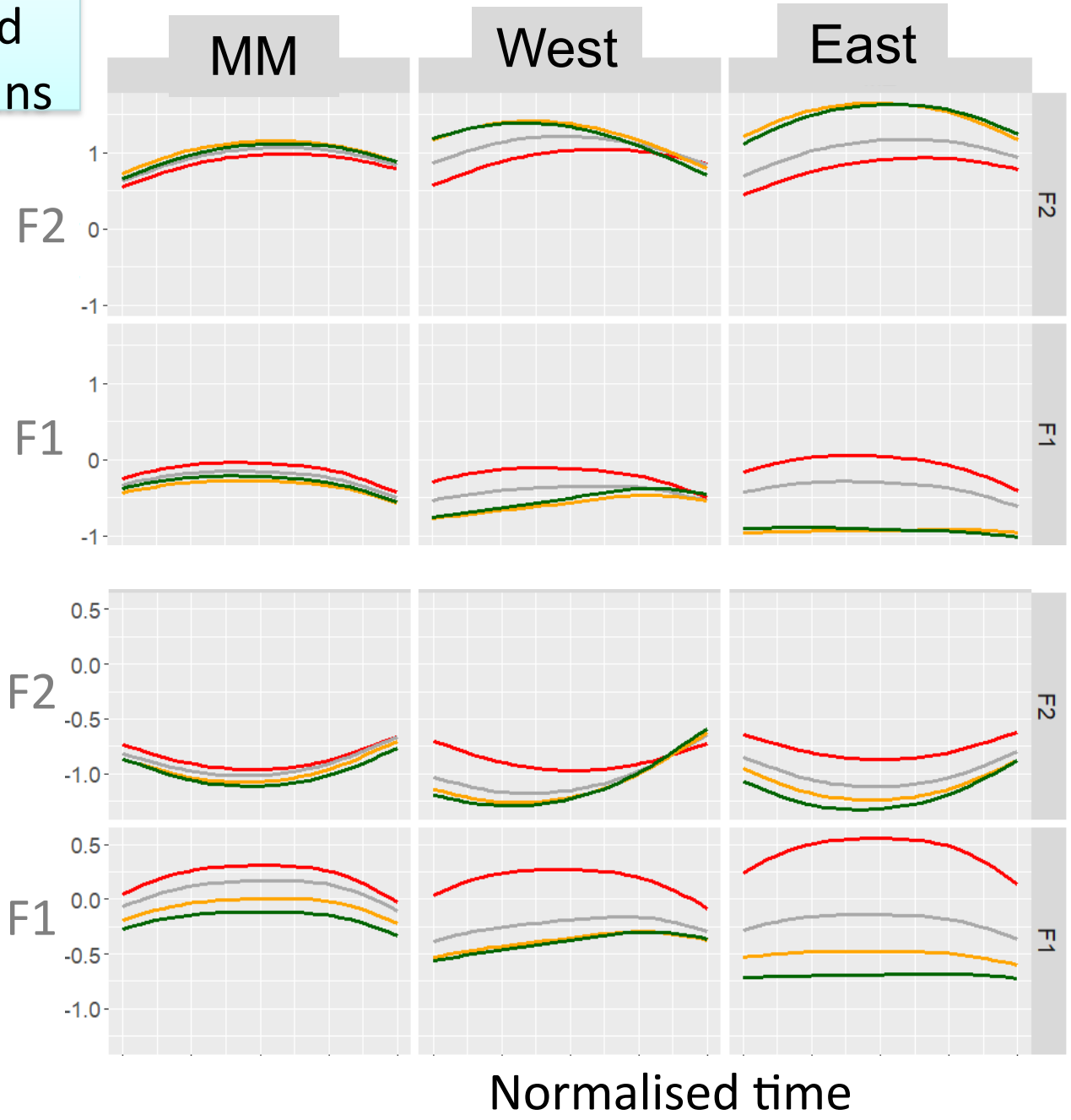
2. PCs scores

1. The size of the separation between non-metaphonic /grɔss(a)/ and metaphonic /gruss(u)/ is East > West > Mormanno

2. West has high values on s3 = diphthongisation

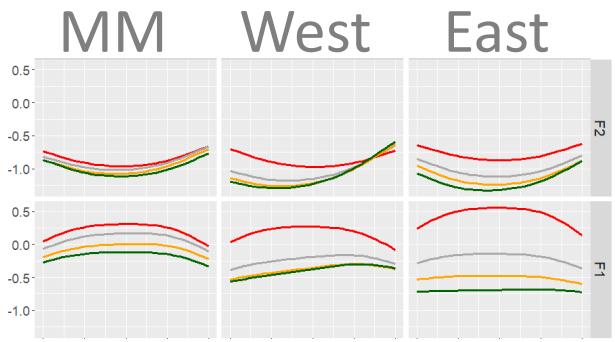


3. FPCA reconstructed formant means



2. Predicted degree of suffix reduction

Results for the stem



(a) Influence of suffix on stem vowel: MM < West < East
(b) Diphthongisation in stem vowel: West > (MM, East).

Predicted degree of suffix centralisation

MM < West < East

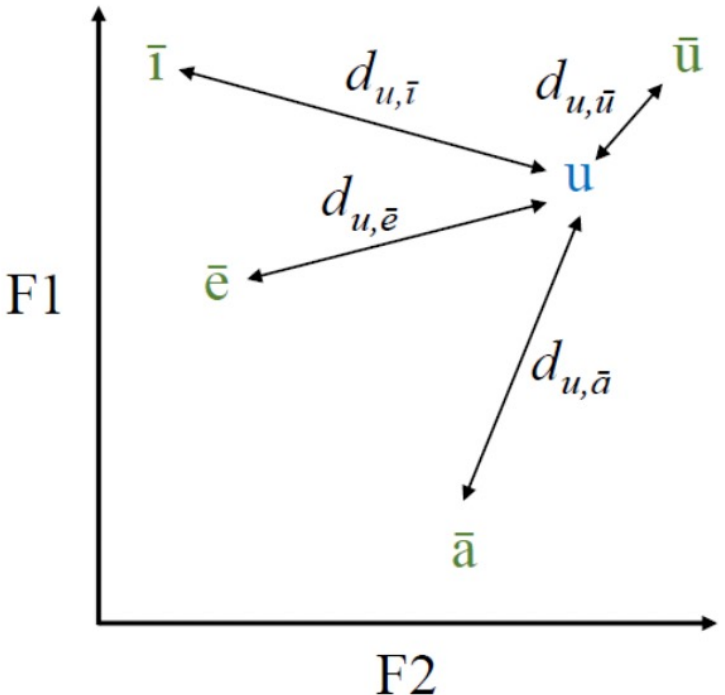
Calculation of suffix centralisation

For each speaker, calculate

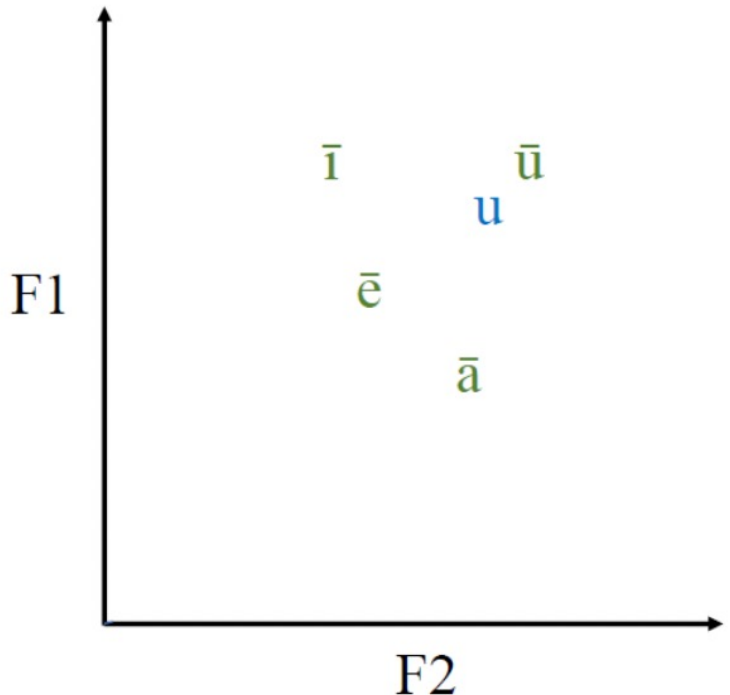
- suffix means of /i, u, e, a/ in F1 x F2 space
- distance of each vowel token to the means

$$\text{centralisation} = \log\left(\frac{d_{u,\bar{u}}}{d_{u,\bar{e}} + d_{u,\bar{a}} + d_{u,\bar{i}}}\right)$$

low centralisation

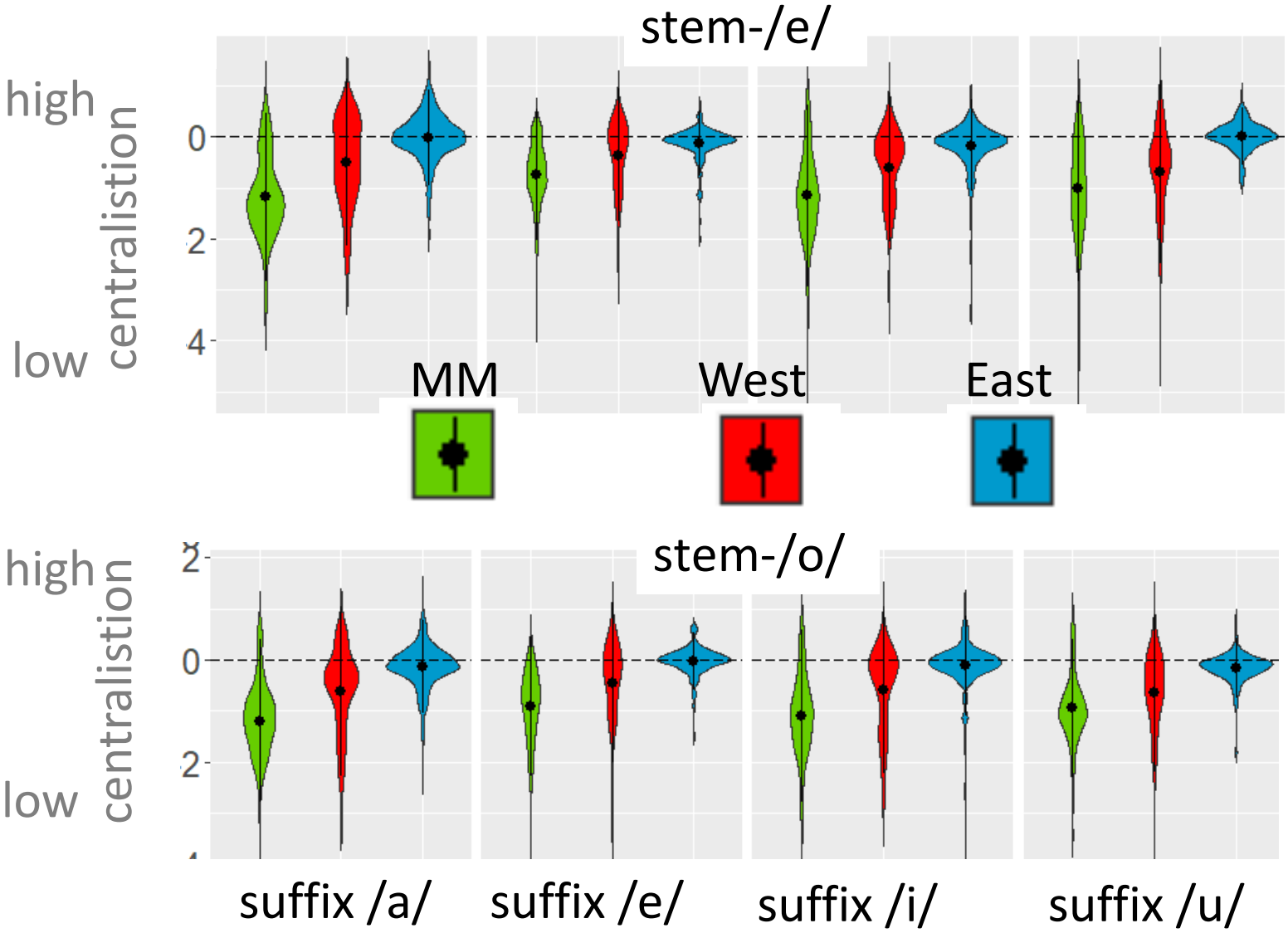


high centralisation



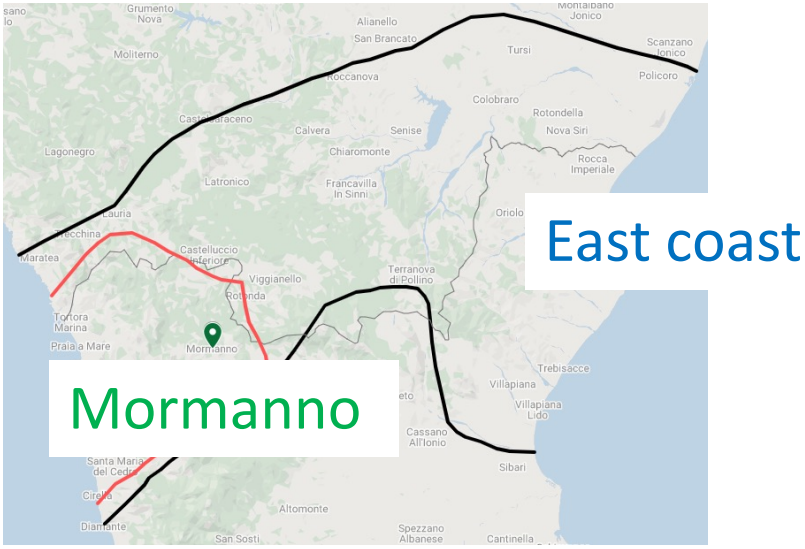
Suffix centralisation

NB: Centralisation = 0 (zero): a suffix token is just as close to its own as to other means (i.e. no information).



Perception

Listeners: 17 from East Coast, 17 from Mormanno



Perception

Spoken material from 14 West coast, 11 MM speakers

Only the stem was presented to the listeners from these pairs:

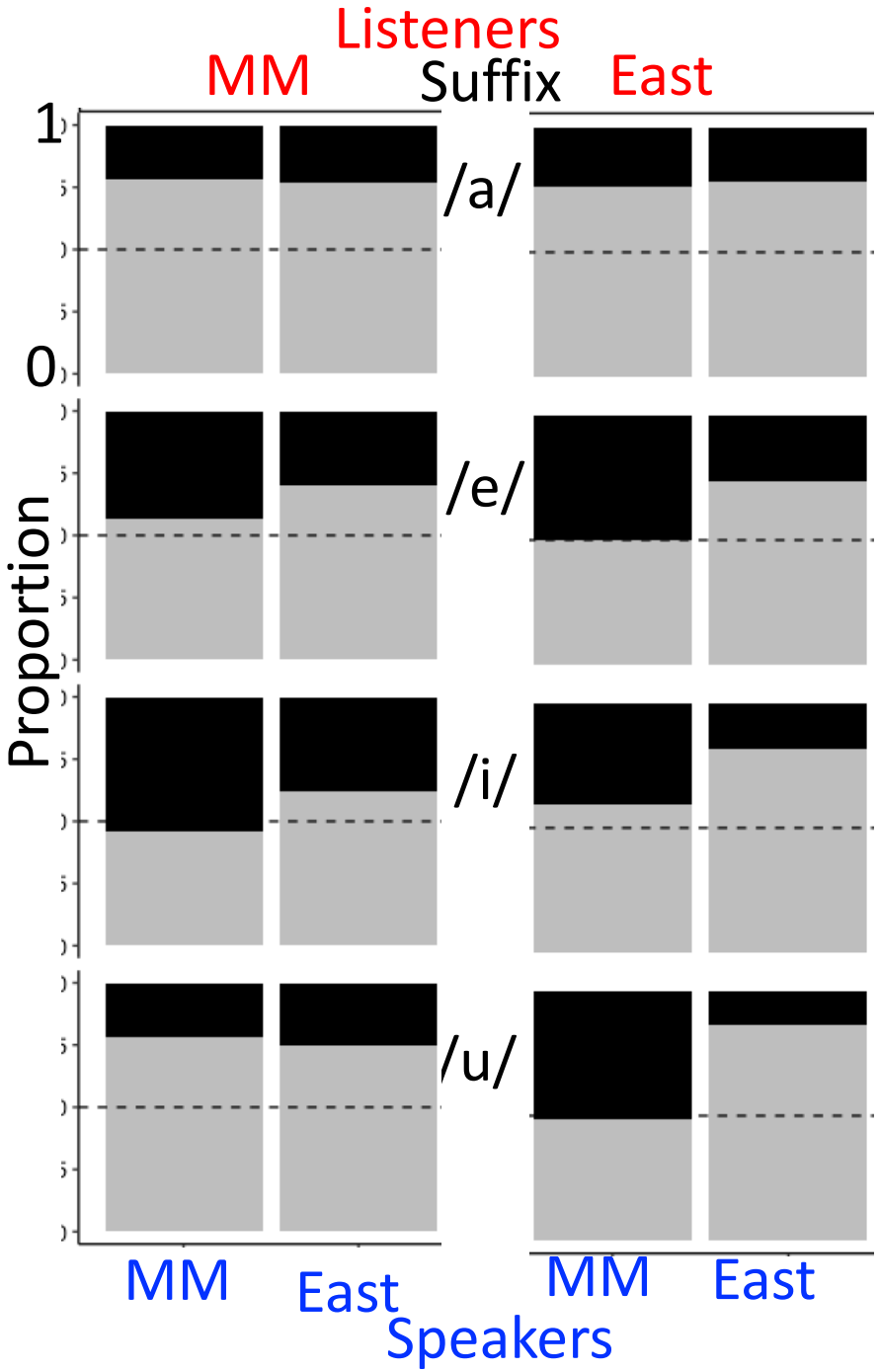
Stem	Suffixes	Word pairs		Meaning
/e/	/a, u/	bella	bellu	beautiful (f./m.)
		pettsa	pettsu	cloth, piece
		vekkja	vekkju	old (f./m.)
	/e, i/	dente	denti	tooth, teeth
		mese	mesi	month, months
		pede	pedi	foot, feet
		verme	vermi	worm, worms
/o/	/a, u/	bona	bonu	good (f./m.)
		korna	kornu	horn, horns
		kotta	kottu	cooked (f./m.)
		morta	mortu	dead (f./m.)
		ossa	ossu	bones, bone
		ova	ovu	eggs, egg
		tsoppa	tsoppu	lame (f./m.)

Perception

Upon hearing the stem only, listeners had to choose between two alternatives:

Qual è la parola detta?

denti dente



Proportion correctly identified

------ Chance level (0.5)

Accuracy in identifying morphological information in the stem:

1. East-speakers > MM-speakers (col 2 > 1; col 4 > 3).
2. East-listeners > MM listeners when listening to East speakers (col 4 > col 2)
3. MM-listeners > MZ listeners when listening to MM speakers' stems with /u/ suffix

Summary of three studies

Production

1. Increasing metaphonic influence in the stem:

MM < West < East

1b. Dipthongisation in the West

2. Increasing suffix erosion, parallel to metaphony:

MM < West < East

Perception

3a. More morphological information in East vs. Mormanno stems.

3b. East listeners do better than MM listeners on East-produced stems.

3c. MM listeners do better than East listeners on MM-stems spliced from /u/ suffixes.

Future questions to be addressed in 2023

How exactly is VCV coarticulation in MM related to stem diphthongisation on the West coast?

Effects on metaphony of age within each region and mobility between regions

Analysis of perception/production relationships within the same individual.