The Role of the Body in Language Change

Robert J. Podesva

Social Meaning and Linguistic Variation: A Panel in Honor of Penny Eckert

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Bodies and Linguistic Style

Bodies carry stylistic meaning (Bucholtz and Hall 2016: 179-181).

Study	Bodily Practice	Group	Linguistic Practice
Eckert 2000	choice of jeans	adolescents in suburban Detroit	NCVS
Eckert 2006 [1996]: 195]	“nail polish, lip gloss, hair style, clothing, new walks”	preadolescents in Northern CA	CVS
Calder 2017	Make-up, wigs, nails	SoMa drag queens	/s/
Pratt 2016	Posture, style of walk	students at Bay Area arts high school	CVS, creak, velarized /l/

Claim

Few variationists have attended to embodied practices, perhaps because stylistic practices have been characterized as "incoherent" (Guy and Hinskens 2016) or "unconstrained" (Bell 2016).

Bodily practice is not "merely stylistic," but central to variation analysis, as it can influence change.

The paper examines the connection between two forms of embodiment – smiling and an open jaw articulatory setting – and variation in the GOAT vowel, which is undergoing change in California.

Embodiment

- Semiotically meaningful use of the body, constrained by bodily form, the physical environment, and discourse, which encompasses a wide range of phenomena (gesture, hexis, posture, physical stance, gaze, actions, adornment).

- Focus on the MOUTH, which serves many functions outside of speech, including ingestion, respiration, sexual activity, expression of affect

- Embodiment at different timescales
  - Ephemeral: Smiling (Drahota, Costall, Vasuvedi 2008)
  - Perduring: Open Jaw Setting (Pratt and D'Onofrio 2017)

Fronting of GOAT

Correlates with a number of social factors, including age, sex class, ethnicity, and orientation to the country.

(Luthin 1987, Hall-Lew 2009, Eckert 2011, Podesva 2011, Kennedy and Grama 2012, Podesva, D'Onofrio, Van Hofwegen, and Kim 2015, Hall-Lew this conference)

Exhibits stylistic patterning, suggesting that it carries rich social meaning.

(Boyd et al. 2015, Van Hofwegen 2017, Hall-Lew this conference)

Speakers recruit its social meanings to engage in pre-adolescent drama, construct fun personas, and stake claims to local authenticity.

(Eckert 2011, Podesva 2011, Hall-Lew this conference)

Connecting GOAT Variation to the Body

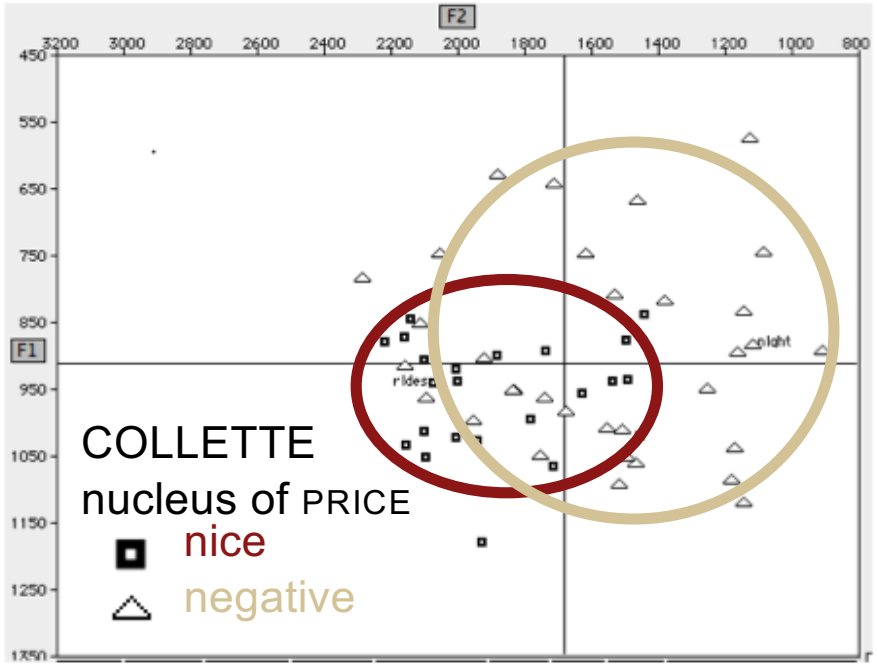
Study 1: Fronting and Smiling
(ephemeral embodied practice)

Study 2: Lowering and Open-Jaw Setting
(durative embodied practice)

Vowels Quality and Affect

Variationists have shown that fronter vowel quality (higher F2) correlates with expressions of positive affect.

- Eckert (2010): LOT and PRICE
- Eckert (2011): GOAT
- Wong (2014): GOOSE



(Eckert 2010: 75)

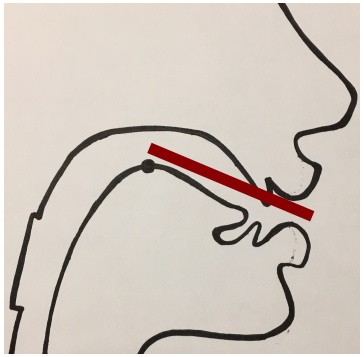
Smiling

Affective stancetaking is often accomplished through forms of embodiment (C. Goodwin 2000, 2007; M. Goodwin, Cekaite & C. Goodwin 2012), such as smiling.

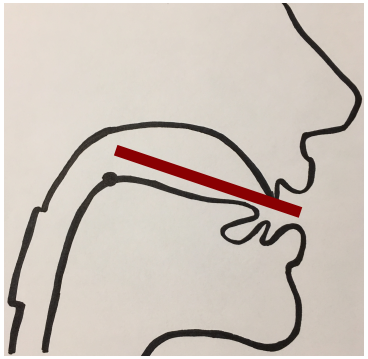
Smiling strongly linked to happiness (Ekman, Friesen, and Ancoli 1980).

Two Paths to a Higher F2

Tongue Fronting



Lip Retraction



Audiovisual Analysis

smiling = TRUE FALSE

42 speakers from Western US (mostly undergraduates from CA), in dyads

Acoustic measurements every 10 ms, reduced to median value per token

Smiling annotation automated using classifier (Podesva et al. 2015)

Mixed-Effects Linear Regression Model: F2 of GOAT

Term	Estimate	Std Error	DFDen	t Ratio	Prob>|t|
Intercept	-1.404	0.130	265.8	-10.79	<.0001*
duration (log)	-0.277	0.05	1652.7	-5.56	<.0001*
vowel [$_{GOAT}$] vs. $_{TOTE}$	-0.144	0.053	13	-2.71	0.0179*
F1 (normalized)	0.377	0.033	1683.2	11.57	<.0001*
sex [female]	-0.117	0.037	37.7	-3.16	0.0031*
smiles during vowel [TRUE]	0.074	0.038	1661.1	1.96	0.05*
smiles during phrase [TRUE]	-0.04	0.023	1323.9	-1.75	0.0805

Longer vowels have lower F2 (are backer).

TOTE F2 > GOAT F2

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Lowering (higher F1) predicts fronting (higher F2).

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Male speakers produce higher F2 than female speakers (Podesva, D'Onofrio, Van Hofwegen, and Kim 2015; cf. Hall-Lew this conference).

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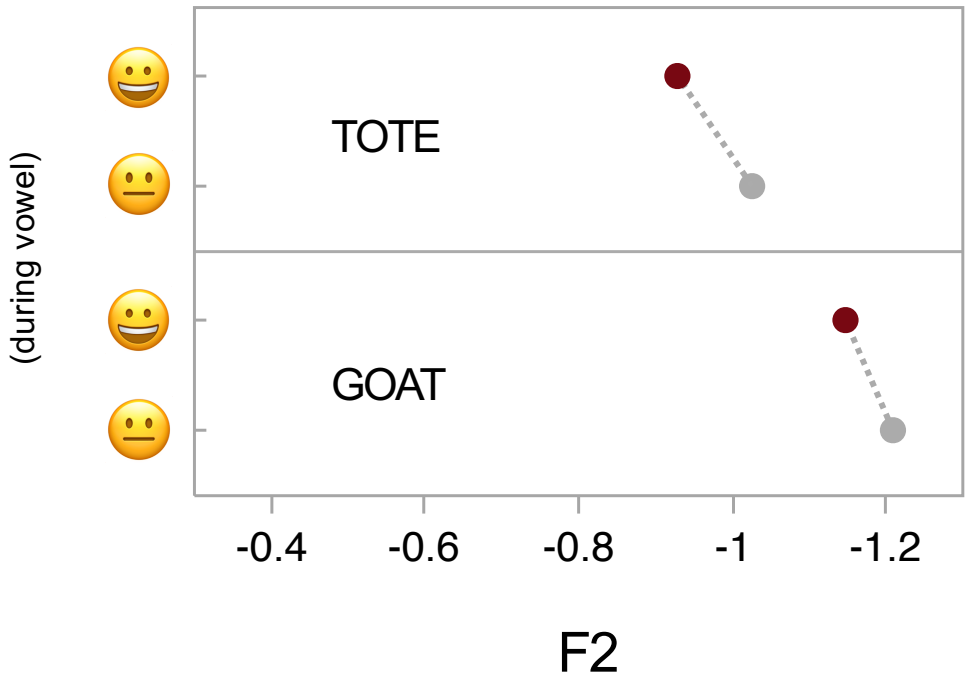
Smiled vowel tokens have higher F2 than non-smiled tokens.

Effect of Smiling on F2



Smiled GOAT and TOTE vowels have higher F2.

Interim Conclusion: Smiling & Vocalic Variation

GOAT (and TOTE) exhibits higher F2 when smiled.

A study on the same dataset shows that the front lax vowels (KIT, DRESS, TRAP) are lower (have higher F1) when smiled (Podesva 2016).

Together, these findings suggest that some sound changes (i.e., the California Vowel Shift) are advanced during moments when the body is used to express heightened affect.

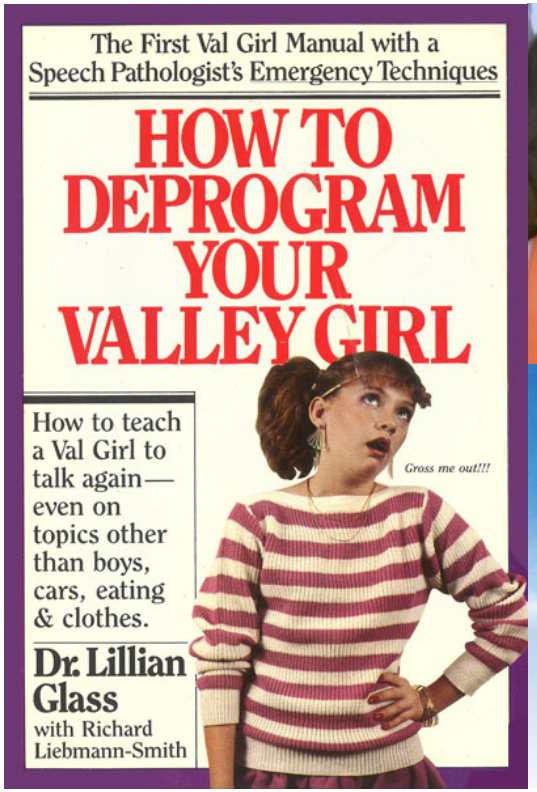
Even though GOAT is typically characterized as undergoing fronting in California, it is also lowering.

Connecting GOAT Variation to the Body

Study 1: Fronting and Smiling
(ephemeral embodied practice)

Study 2: Lowering and Open-Jaw Setting
(durative embodied practice)

Open-Jaw Setting



Pratt and D'Onofrio (2017)

Open-Jaw Setting and Parodic Language

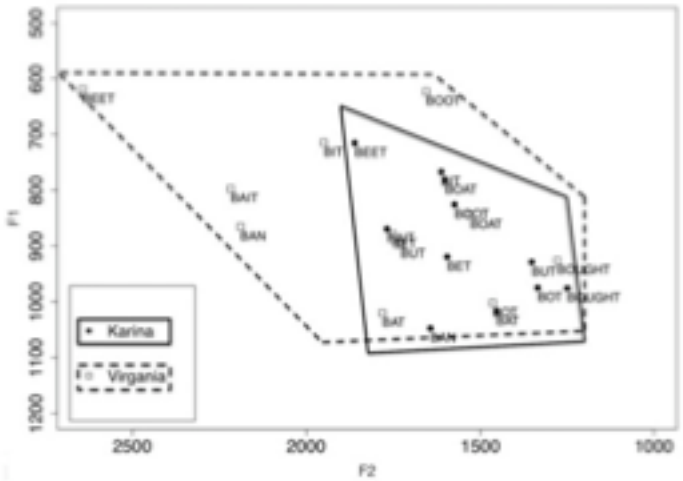
speaking

open-jaw
84% of time

not speaking

open-jaw
60% of time

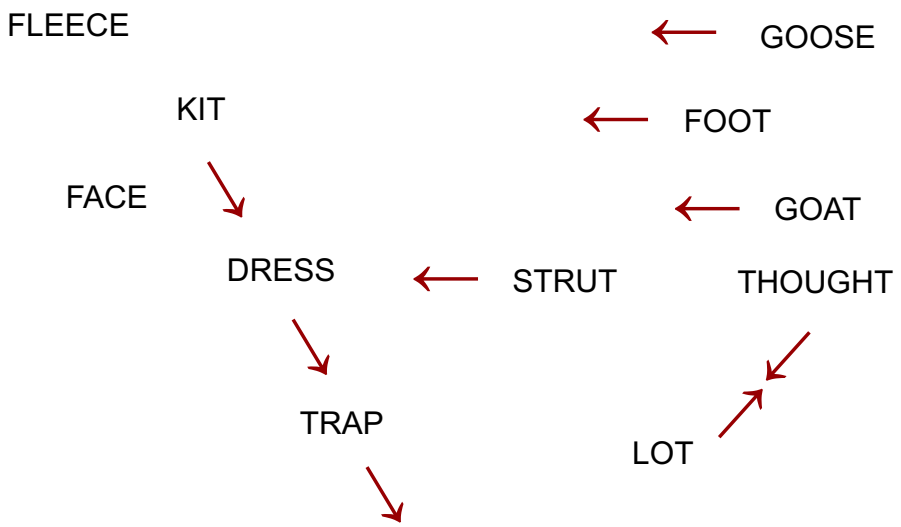
Pratt and D'Onofrio (2017)



Relative to another stylized character, Wiig's *Californians* character produces many hallmarks of the CVS.

Reflexes of Open-Jaw Setting on the Vowel System

California Vowel Shift

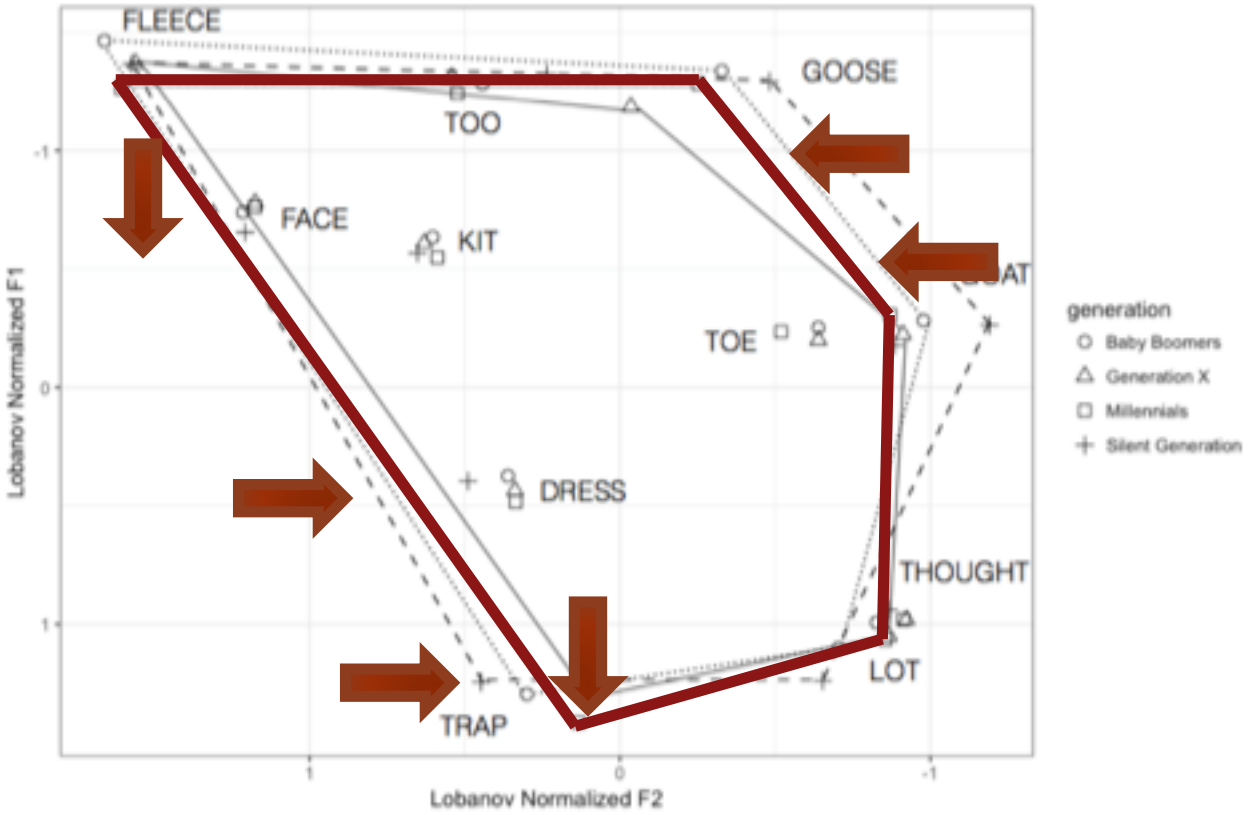


If speakers are adopting an open-jaw setting for purely social reasons, lowering should not be confined to the front lax vowels.

Evidence in support of hypothesis:

1. Changes in overall shape of vowel space
2. Lowering among vowels not traditionally understood to be lowering (stable FLEECE, fronting GOAT)

Open-Jaw Setting Influence on Overall Vowel Space



D'Onofrio, Pratt and Van Hofwegen (in prep)

Compression from the sides of the vowel space, some elongation at the bottom

Utilization of the height dimension consistent with open-jaw setting

Open-Jaw Setting Influence on Other Vowels
(apart from front lax)

1. The front tense vowel, FLEECE (traditionally described as stable), is lowering in apparent time (D'Onofrio, Pratt, and Van Hofwegen in prep).

2. The back vowel, GOAT (traditionally described as undergoing fronting), lowers when it is fronted. Is the vowel undergoing lowering?

GOAT variation in the Central Valley

Sample: 72 white speakers

- 18 speakers per community
- 9 men, 9 women)
- ages span the adult life-course

Analysis

- Manually adjusted alignments for 25 tokens/vowel/speaker
- Hand-corrected midpoint formant measurements
- Labanov-normalized
- Also took measurements at 50 equidistant points over trajectory

Mixed-Effects Linear Regression Model: F2 of GOAT

Term	Estimate	Std Error	DFDen	t Ratio	Prob>|t|
Intercept	0.4302	0.1015	514.4	4.24	<.0001*
duration (log)	-0.2048	0.0164	4013.0	-12.48	<.0001*
vowel [$_{GOAT}$] vs. $_{TOTE}$	-0.1165	0.0324	15.8	-3.59	0.0025*
F1 (normalized)	0.2876	0.0127	4015.9	22.71	<.0001*
age	-0.0046	0.0010	68.9	-4.76	<.0001*
age * F1 (normalized)	0.0028	0.0006	3985.6	4.73	<.0001*
age * vowel [$_{GOAT}$]	0.0007	0.0003	3973.8	2.56	0.0104*

Longer vowels have lower F2 (are backer).
TOTE F2 > GOAT F2
Lowering (higher F1) predicts fronting (higher F2).
No observed effect of speaker sex

} replicated findings

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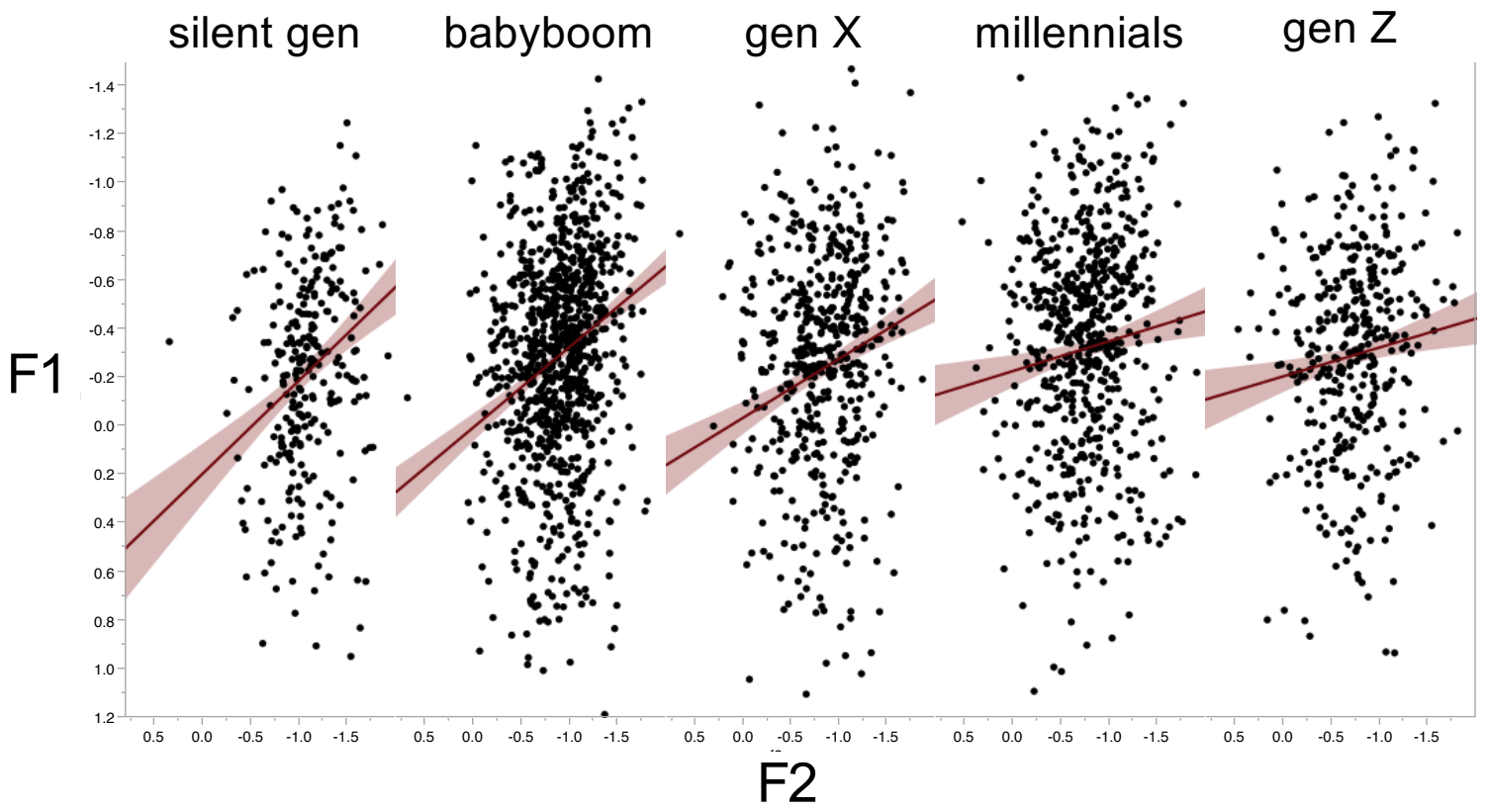
Older speakers produce lower F2 (backer GOAT) than younger speakers.

Effect of age on fronting is stronger for GOAT than TOTE.

Correlation between fronting and lowering is stronger among older speakers.

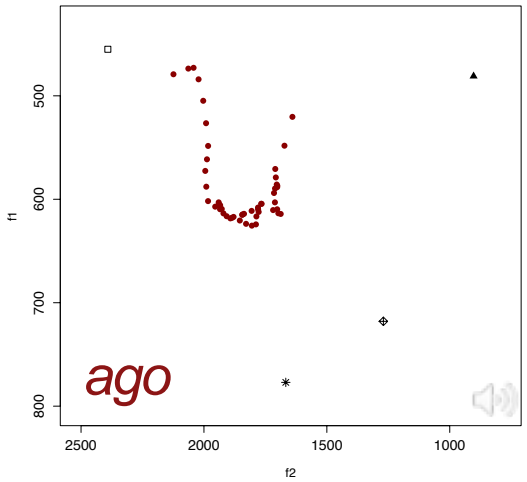
GOAT Fronting: Age * F1 Interaction

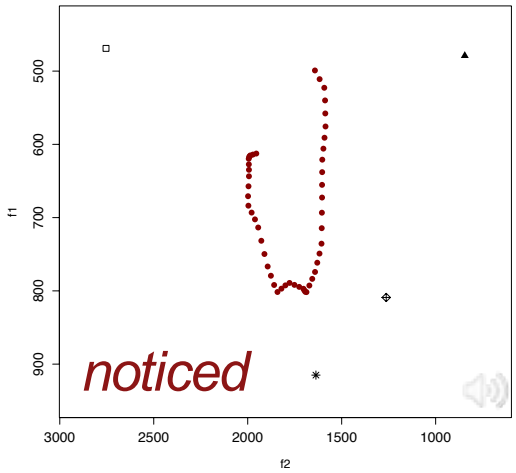


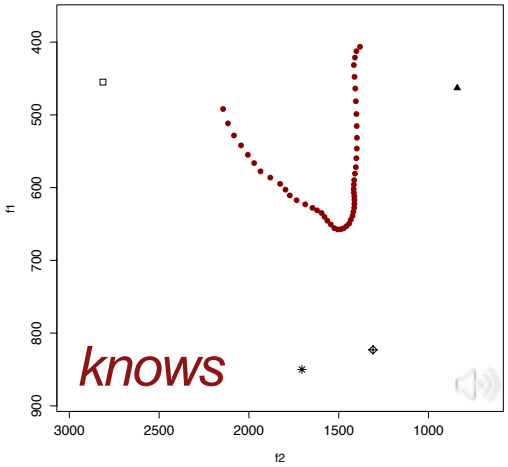
Correlation between fronting and lowering is strongest among older speakers.

Multimodal Sign (T)	→	Linguistic Sign (T+1)
Oldest speakers introduce fronted GOAT	variation pattern	Fronted GOAT common among young speakers
Social meaning of fronted GOAT not yet established	social meaning	Social meaning of fronted GOAT legible in its own right
Meaning of GOAT only legible in its association with (visible) embodied practice of open-jaw setting	connection to body	Fronted GOAT no longer reliant on open-jaw setting

Formant Trajectories for GOAT







Lowering takes the tongue “off course,” suggesting a low articulatory target.

Low target achieved by independent jaw-lowering gesture, phased slightly after tongue body (fronting) gesture.

Interim Conclusion: Open-Jaw Setting & Vocalic Variation

Open-jaw setting has had consequences for California vowel system:

- Speakers utilizing the height dimension more than front-back dimension (D'Onofrio, Pratt, and Van Hofwegen in prep)
- Lowering patterns evident among vowels that are reported to be stable (FLEECE, D'Onofrio et al. in prep) and fronting (GOAT)

Lowering has played a stylistic role, one that has fundamentally influenced the trajectory of GOAT fronting.

Conclusion

Speakers convey embodied meaning both from moment to moment (through expressions of affect) and duratively (through facial postures).

Bodily practices occur alongside and can influence linguistic behavior.

- Can introduce variation
- Can maintain variation

Style is meaningful, and meaning – some of it embodied – can drive change.

Thank You!

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Questions?

podesva@stanford.edu