



# 100 Years of Speech in Georgia

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Joseph A. Stanley

Brigham Young University

Margaret E. L. Renwick

University of Georgia

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New Ways of Analyzing Variation 49  
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# Vowel dynamics are important

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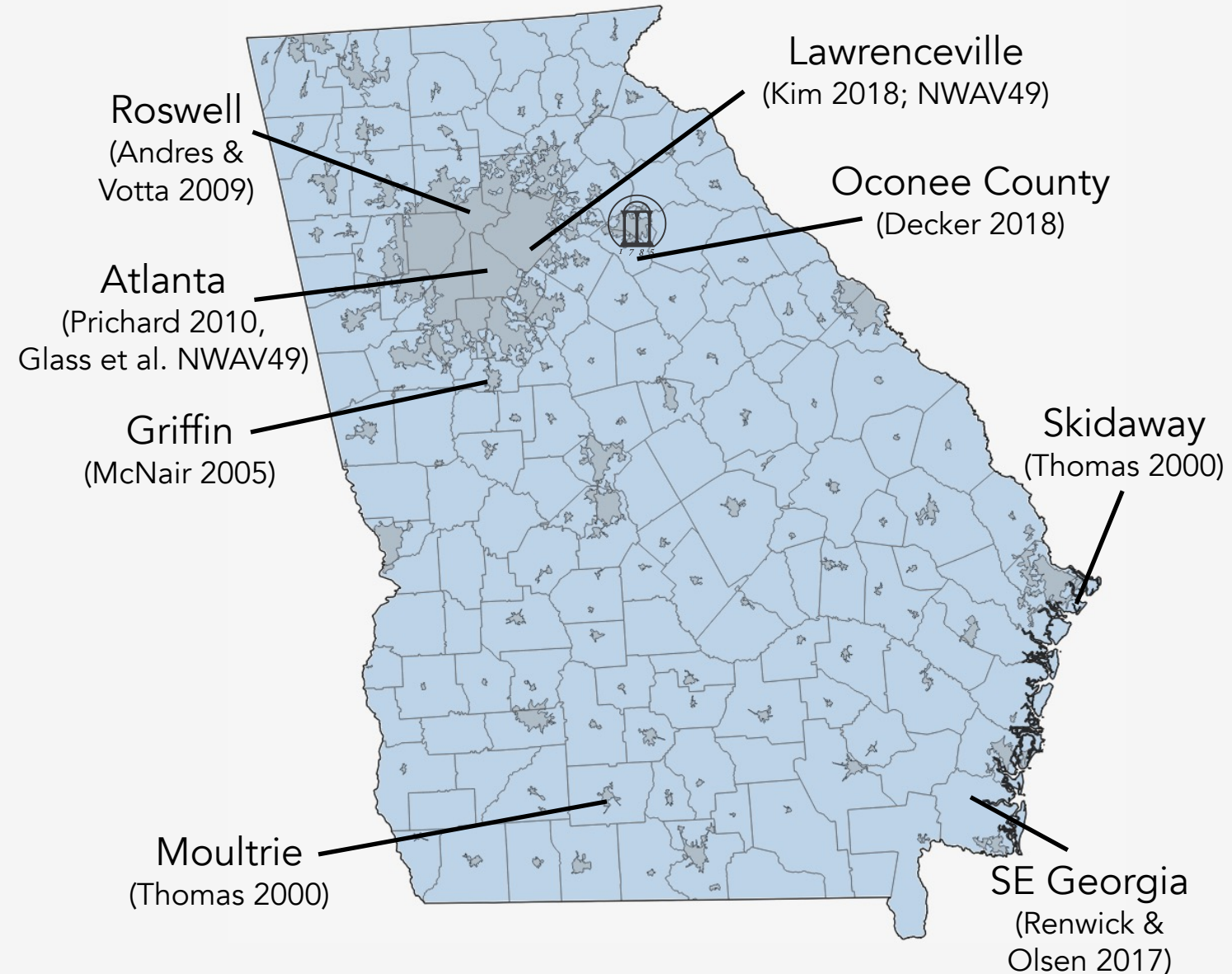
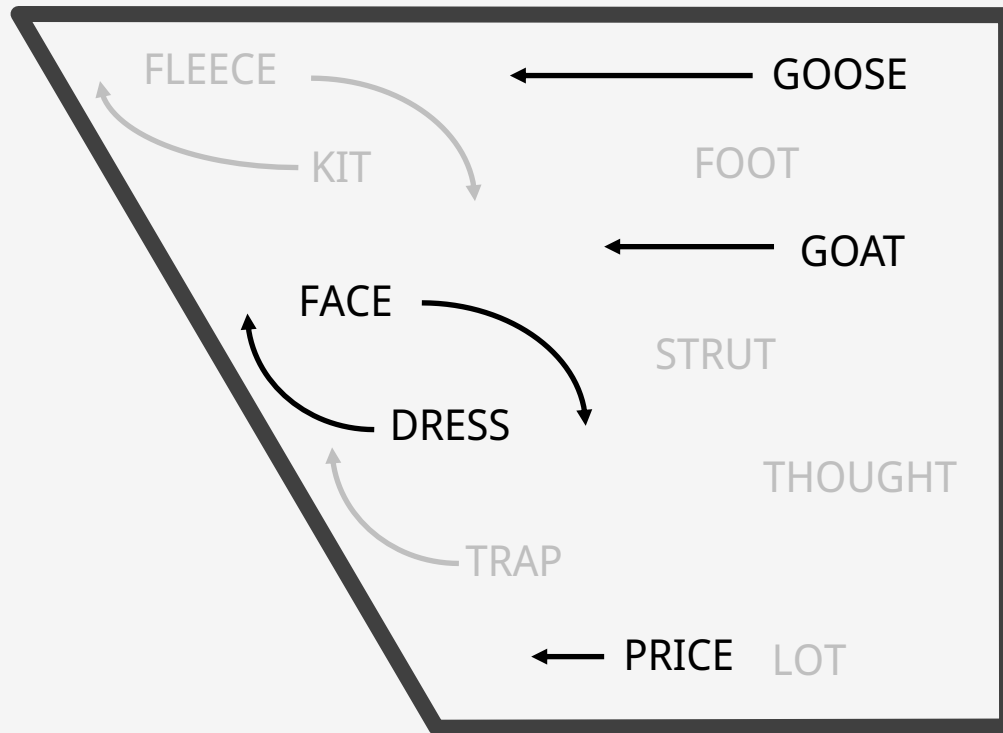
Traditional descriptions of English vowel systems focus on single-point x,y coordinates

- The relative placement of vowels indicates a speaker's shift, or vowel system

But many varieties of English include changes in *vowel dynamics*

- Speakers and listeners don't depend on a single acoustic target (e.g., Strange et al. 1983)
- Southern speech: [aɪ] → [a:], [ɪ] → [iə], [æ] → [eə], etc.
- "spectral change over time may be part of a package of acoustic distinctions that signals both dialect and vowel category information" (Fridland et al. 2014, p. 348)
- "very little linguistic work on Southern speech has focused on dynamics" (Farrington et al. 2018:187; cf. e.g. Risdal & Kohn 2014)

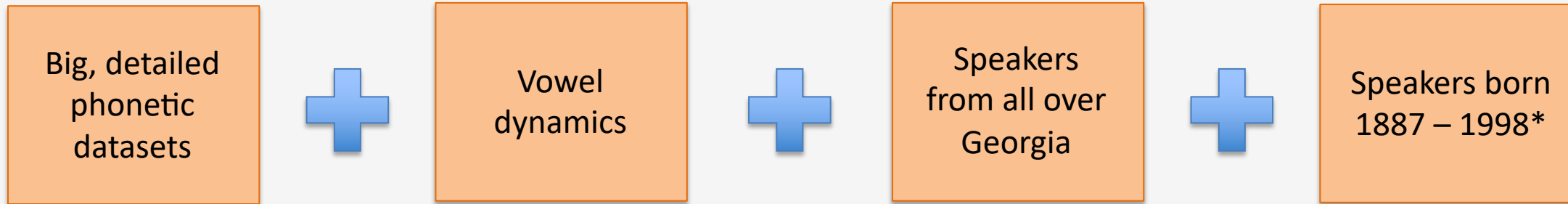
# Vowels in Georgia



# 100 Years of Speech in Georgia

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"How has American English speech changed in Georgia, over the last 100 years?"



\*111 years of speech in Georgia?

# Data & Methods

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# Data Collection

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## Linguistic Atlas of the Gulf States

(Pedersen et al. 1986)

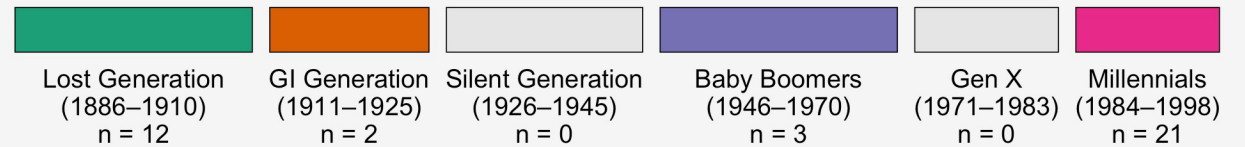
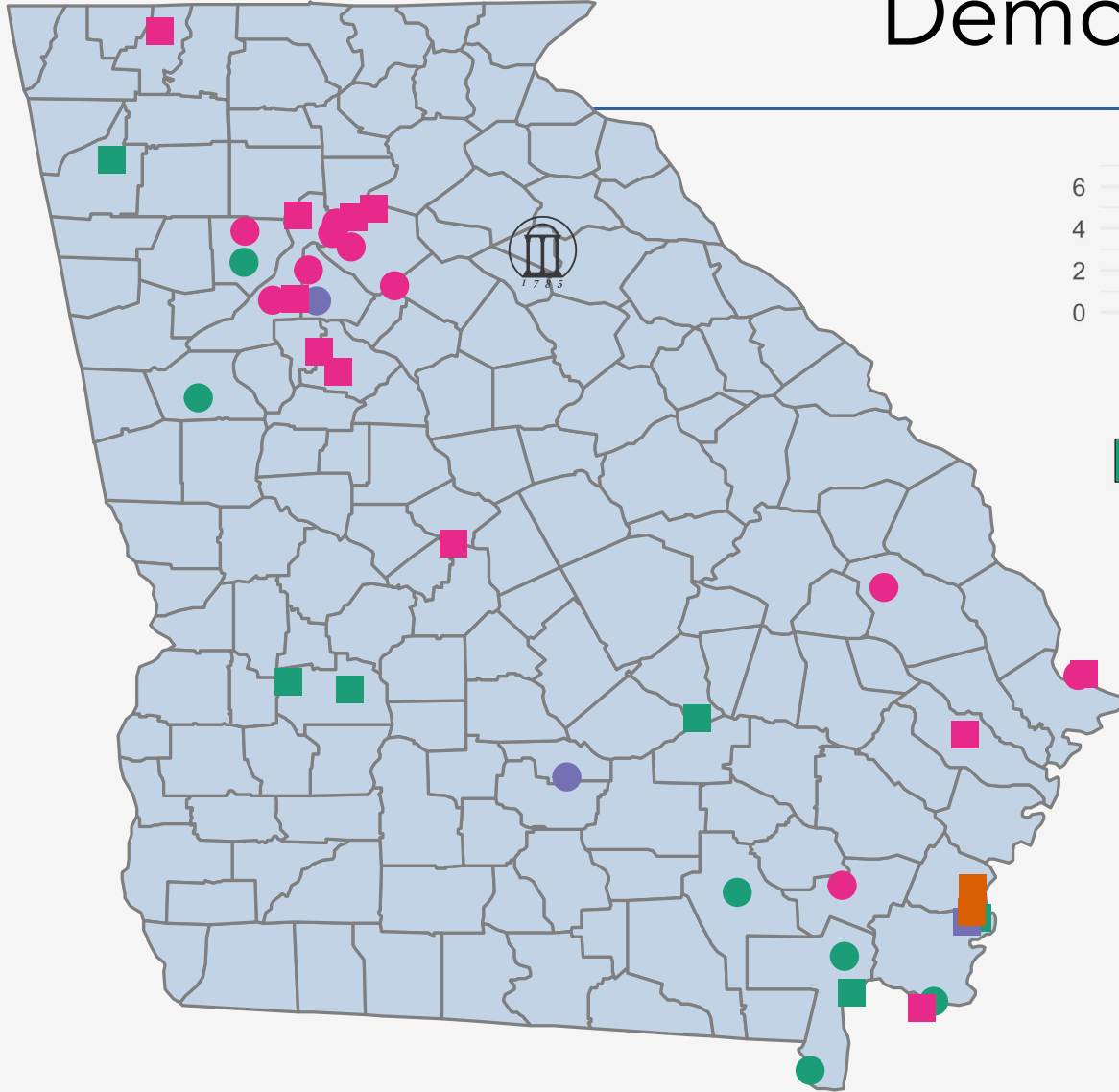
## Contemporary Speakers

When	1968–1983	2017
Method	Linguistic Atlas interviews	300 read sentences
Format	Reel-to-reel; digitized	WAV
Speakers	19, of 241 interviewed in GA	21, mostly from metro-Atlanta
Audio	72.24 hours	12.5 hours
Vowel tokens	291,672	84,847



Listen to audio  
clips here!

# Demographics



## Ethnicity

- Legacy data retains the Black (4) vs. Non-Black (13) distinction from original coding.
- Contemporary data includes 3 Asian, 1 Black, 1 Latino, 1 Mixed, 15 White Americans.

# Data Analysis

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Transcription	manual (Olsen et al. 2017)
Forced-Alignment	Montreal Forced-Aligner (McAuliffe et al. 2017)
Formant Extraction	FAVE (Rosenfelder et al. 2014) at 20%, 35%, 50%, 65%, 80% into vowels' durations
Exclusions	stopwords, pre-liquids, pre-nasals, non-primary lexical stress
Outlier detection	Mahalanobis Distance (Mahalanobis 1936); furthest 5% removed
Transformation	Barks (Zwicker 1961, Traunmüller 1990)
Statistics	generalized additive mixed-effects models (Wood 2017; cf. Sóskuthy 2017, Gahl & Baayen 2019, Renwick & Stanley 2020)
Modeling	Five separate models: /aɪ/, /eɪ/, /ɛ/, /u/, /oʊ/
Software	R (R Core Team 2018), tidyverse (Wickham 2018); mgcv (Wood 2011); itsadug (van Rij et al. 2020)
Visuals	ggplot2 (Wickham 2015)

# Model Specification

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```
mgcv::bam(bark_raw ~
```

Dependent variable: Bark-transformed, raw values

```
formant_allophone_gender_generation +  
s(percent, by = formant_allophone_gender_generation, k = 4) +
```

Fits different smooths for each combination of formant, gender, allophone, and generation

```
log_dur * formant_allophone_gender_generation +
```

Controlled for duration

```
s(speaker, allophone, formant, bs = "re") +  
s(speaker, allophone, formant, percent, bs = "re") +
```

Random intercept and slope for speaker, interacting with allophone and formant.

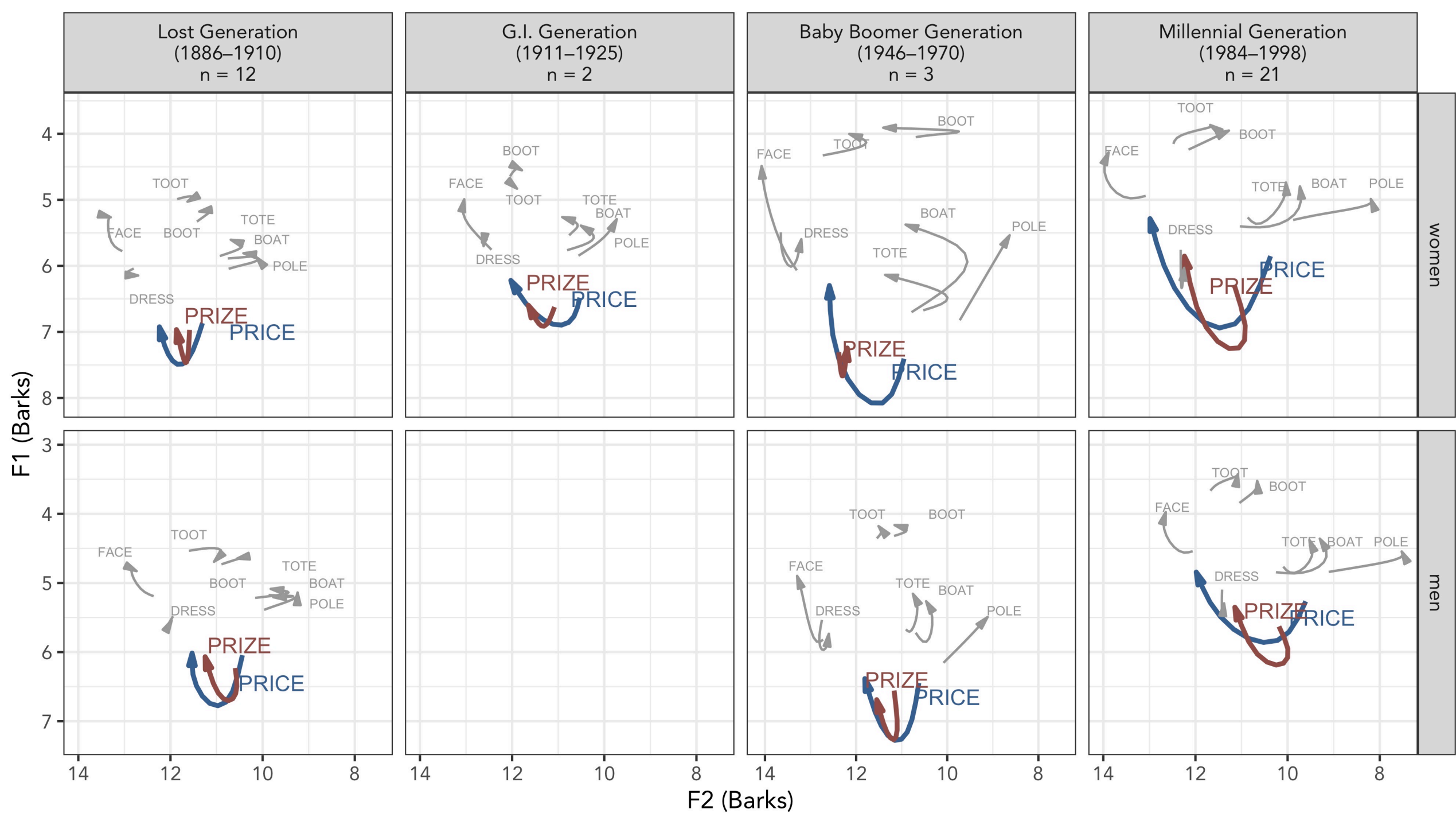
```
s(word, formant, allophone bs = "re"),
```

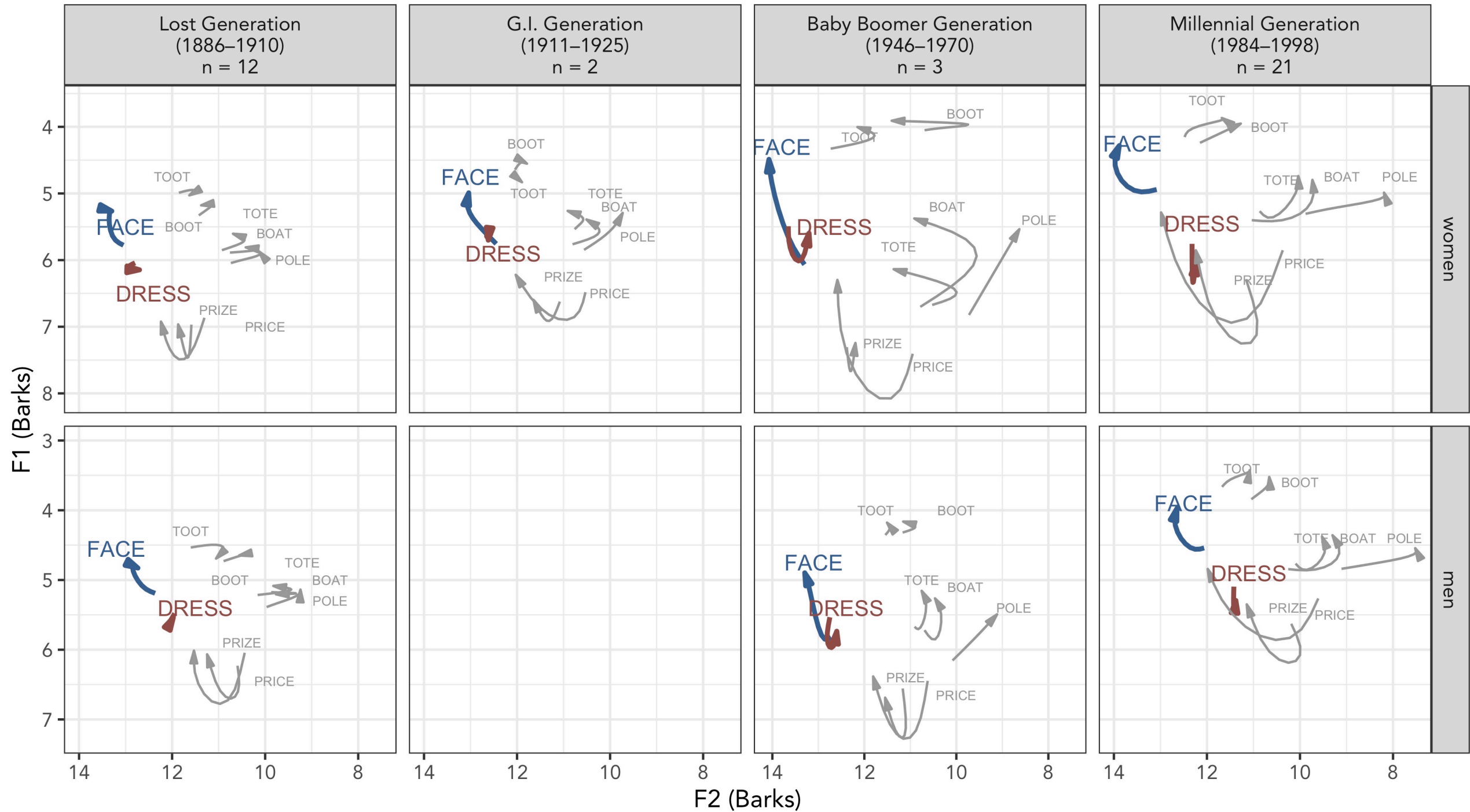
Random intercepts for word, by formant and allophone

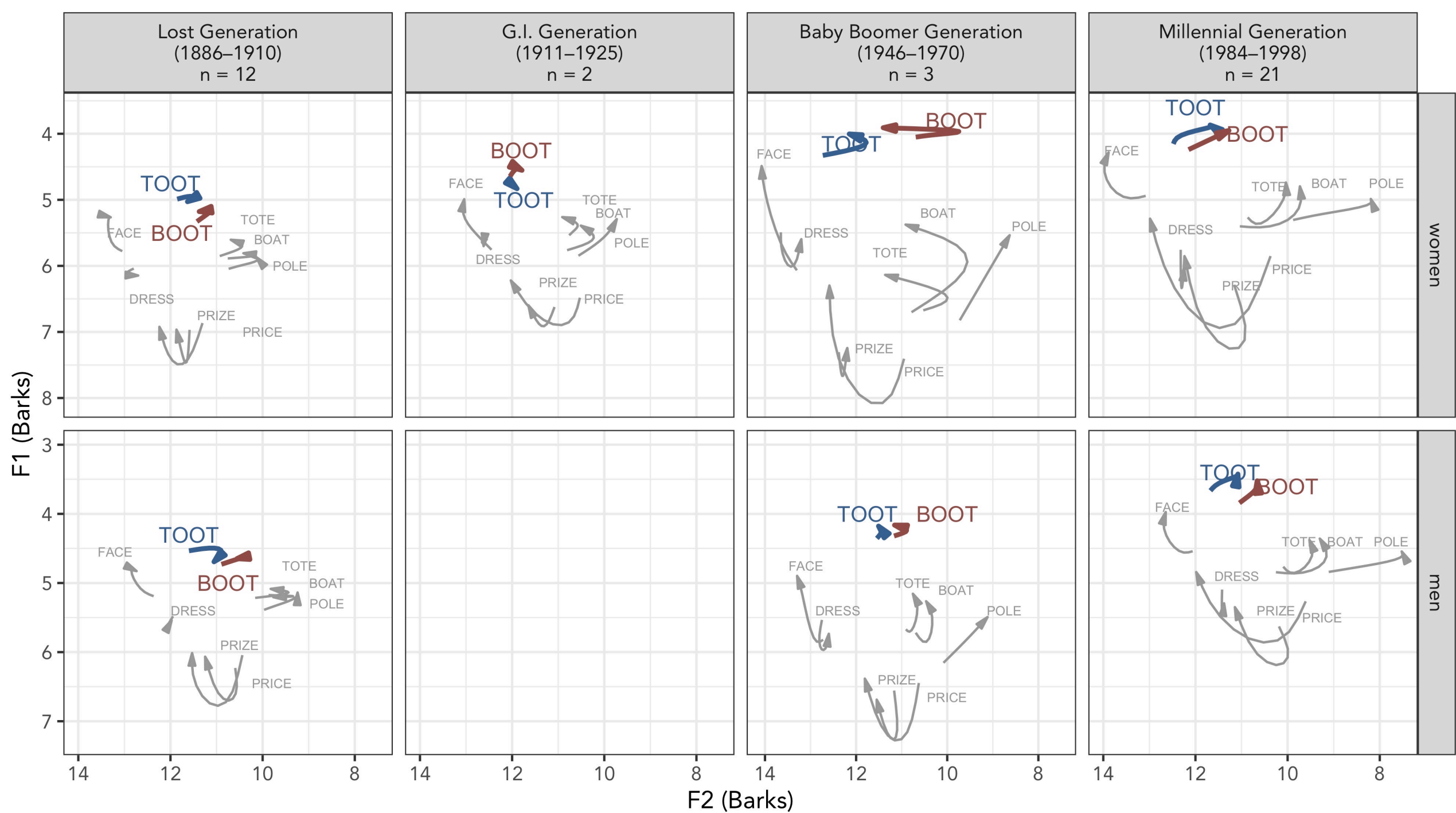
```
data = vowel.data)
```

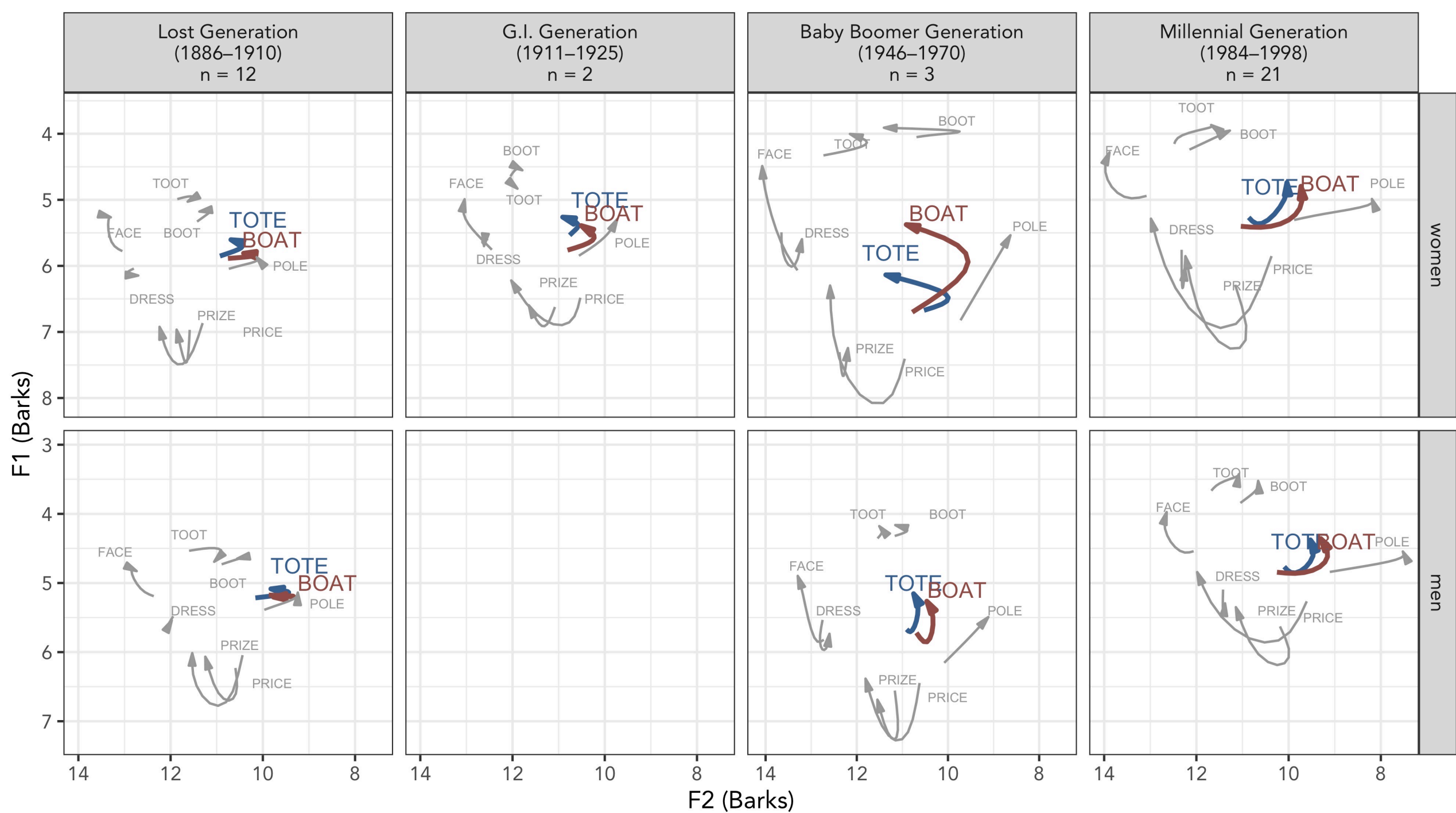
# Results

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# Discussion

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# Georgia English: Then and Now

	Oldest speakers	Youngest speakers
PRICE	Less diphthongal (esp. PRIZE)	More diphthongal
FACE-DRESS	Similar onset positions, no overlap	FACE has raised, DRESS has lowered
GOOSE	Onset fronted toward [ʊ] (TOOT > BOOT), largely monophthongal	Onset fronted toward [ʊ] or [y] (TOOT > BOOT), more diphthongal
GOAT	All allophones are backed	TOTE, BOAT are fronted, POLE remains backed and diphthongal

# The Direction of Change

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In cities like Raleigh, the Southern vernacular is “receding.” (Dodsworth & Kohn 2012)

- Is that happening in metro-Atlanta? If so, what is replacing Southern speech?

Our interpretation: Young Georgians are adopting the Low-Back Merger Shift

- The *cot-caught* merger is (nearly) complete (Andres & Votta 2009, Stanley 2020)
- The front lax vowels /æ, ɛ, ɪ/ are lower, and more centralized
- Regionally distinctive pronunciations are lessened (like PRIZE-monophthongization)
- It’s happened in Oregon (Becker et al 2016), Washington (Stanley 2020), Colorado (Holland & Brandenburg), Ohio (Durian 2012), Massachusetts (Stanford et al. 2019), and Michigan (Mason 2018).
- Why not **Georgia** too?
  - Regional “flavors” include the PRIZE/PRICE distinction, and heavily fronted back vowels

# Conclusions and Next Steps

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How has Georgia English changed since the 1890s?

All vowels have changed, in relative position and trajectory shape.

What is the direction of that change?

In the same direction as many other urban areas in North America.

What's next?

Collect, transcribe and analyze more **legacy data** and more **contemporary data**, for greater coverage of racial patterns, generational changes, and subregional patterns

Collaborative efforts are underway with Lelia Glass and Jon Forrest:

Stay tuned for new analyses including over 100 Georgia speakers!

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