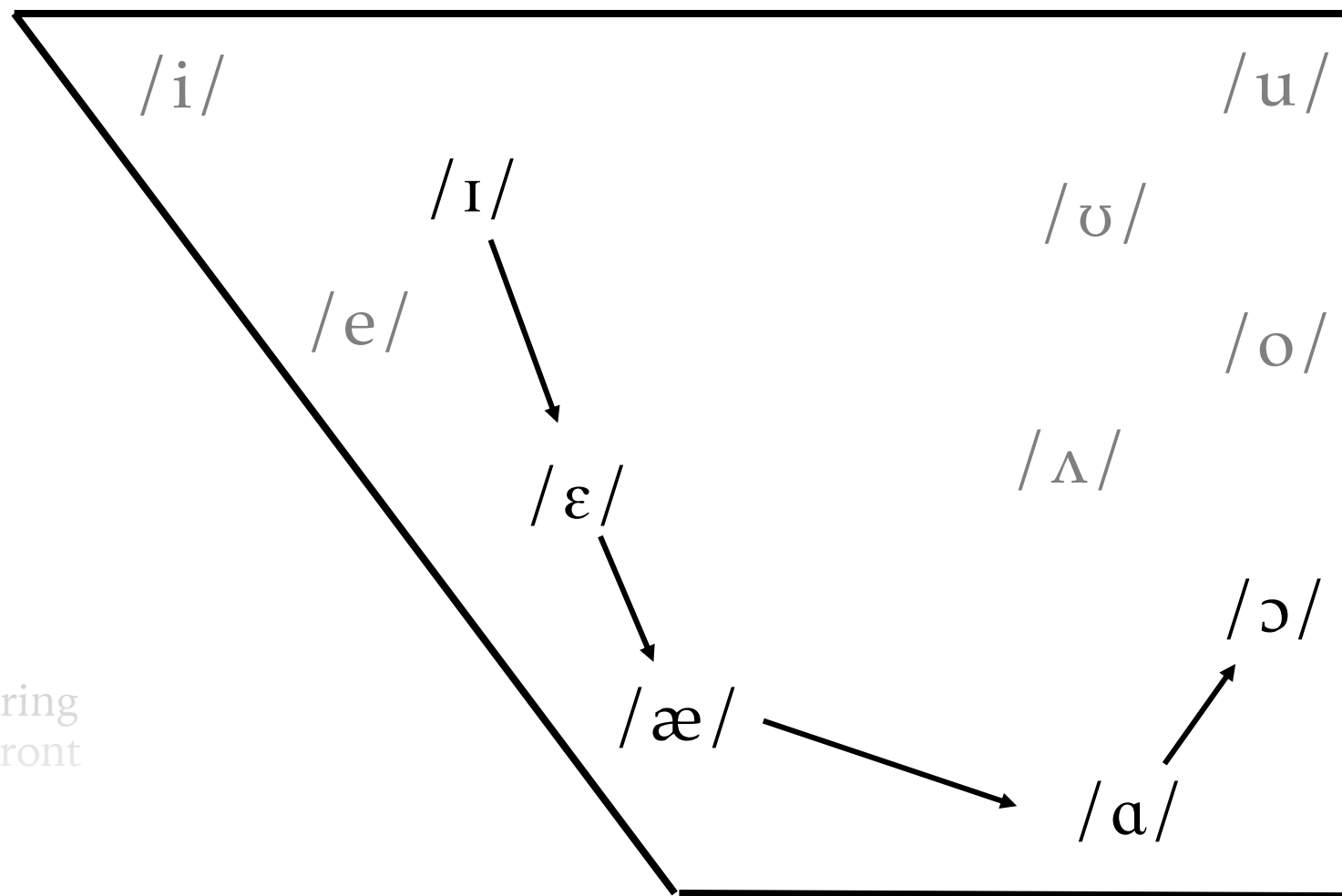


Vowel Dynamics of the Low Vowels in Cowlitz County, Washington

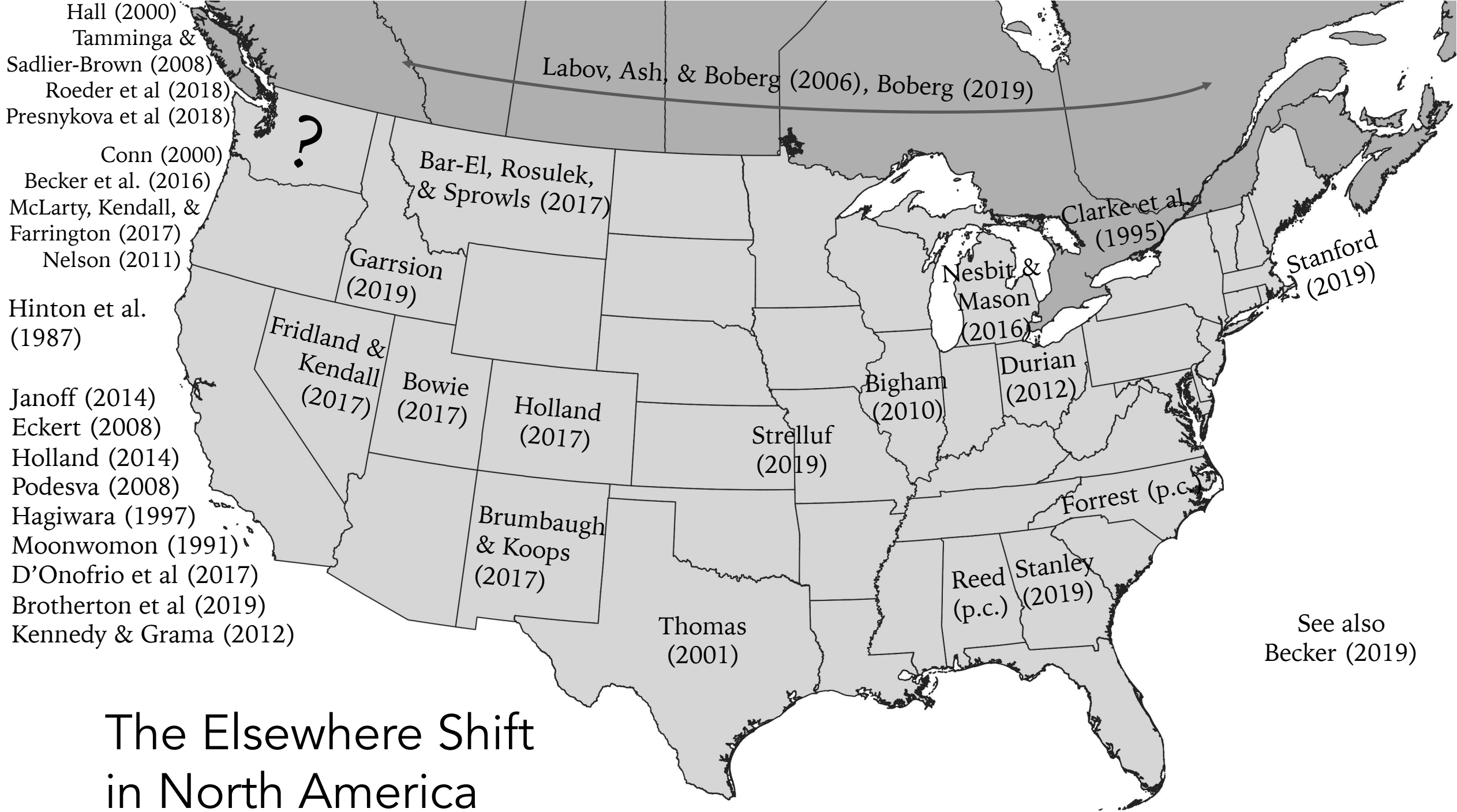
Joey Stanley

UGA Linguistics Colloquium
January 10, 2020

The "Elsewhere Shift"



a.k.a.
California Vowel Shift
Canadian Vowel Shift
Low-Back-Merger Shift
Western Vowel Pattern
Third Dialect Shift
Short Front Vowel Lowering
North American Short Front
Vowel Shift



The Elsewhere Shift in North America

	LOT	TRAP	DRESS	KIT
Vancouver, BC	✓	✓	✓	✓
Victoria, BC	✓	✓	✓	✓
P. Townsend, WA	✓	✓	✓	✗
Seattle, WA	✓	✗	✗	✗
Portland, OR	✓	✓	✓	✗
Eugene, OR	✓	✓	✓	✓



Seattle Caucasians do not participate in the retraction
of /æ/ BAT...

– Wassink (2016:84)

It is curious that Canadian and California English should display such a similar trend while not being geographically contiguous neighbors of each other, since there is currently no evidence documenting the same type of shift in the geographic space between them.

– Swan (2016:30–31)

Seattle is participating in the [Elsewhere] Shift.

– Swan (2019:88–89)

Seattle is participating in the [Elsewhere] Shift.

...

Based on the comparative ages in Wassink's study and the current sample... the [Elsewhere] shift as a phenomenon affecting the front vowels seems to be stable in Seattle speakers born later than the mid-1980s.

– Swan (2019:88–89)

	LOT	TRAP	DRESS	KIT
Vancouver, BC	✓	✓	✓	✓
Victoria, BC	✓	✓	✓	✓
P. Townsend, WA	✓	✓	✓	✗
Seattle, WA	✓	✗	✗	✗
Portland, OR	✓	✓	✓	✗
Eugene, OR	✓	✓	✓	✓



	LOT	TRAP	DRESS	KIT
Vancouver, BC	✓	✓	✓	✓
Victoria, BC	✓	✓	✓	✓
P. Townsend, WA	✓	✓	✓	✗
Seattle, WA	✓	✓	✓	✓
Portland, OR	✓	✓	✓	✗
Eugene, OR	✓	✓	✓	✓



	LOT	TRAP	DRESS	KIT
Vancouver, BC	✓	✓	✓	✓
Victoria, BC	✓	✓	✓	✓
P. Townsend, WA	✓	✓	✓	✗
Seattle, WA	✓	✓	✓	✓
Cowlitz County, WA	?	?	?	?
Portland, OR	✓	✓	✓	✗
Eugene, OR	✓	✓	✓	✓

Research Question 1

Does Cowlitz County participate in the Elsewhere Shift?



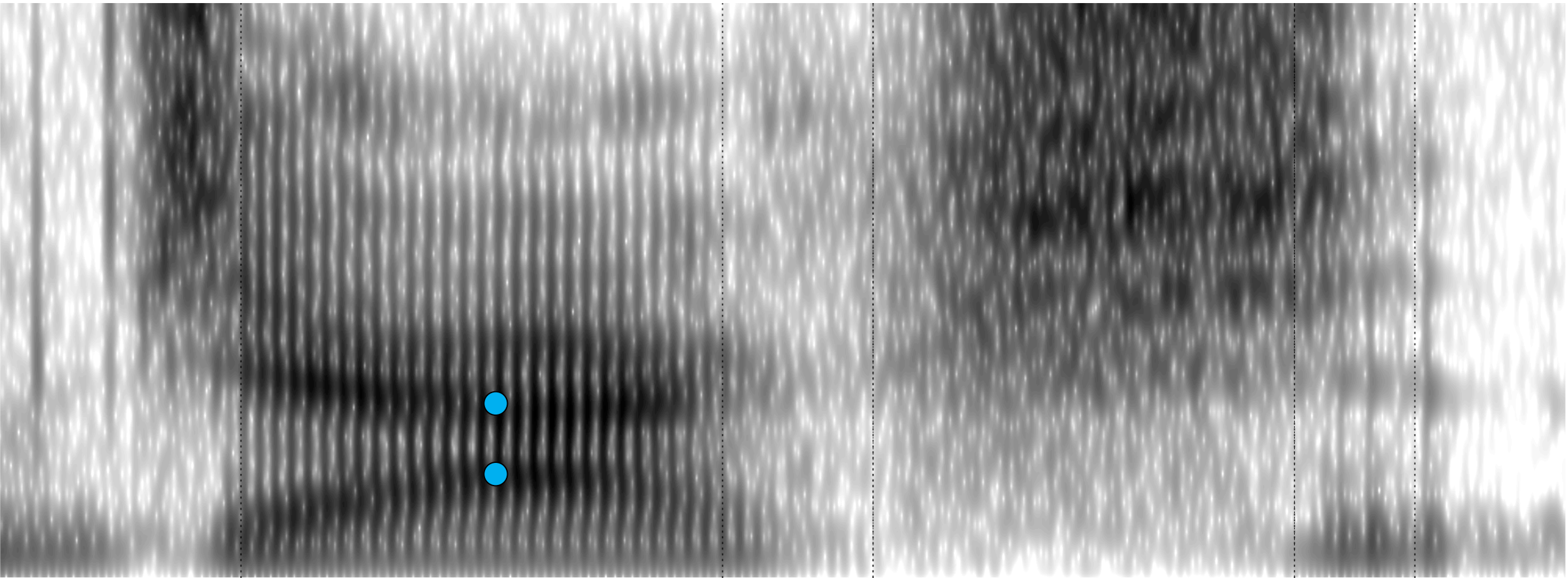
Vowel Dynamics of the Low Vowels in Cowlitz County, Washington

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UGA Linguistics Colloquium
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[T]he quality of most English vowels can be adequately represented by the frequency of their first and second formants, reflecting their height and advancement, respectively.

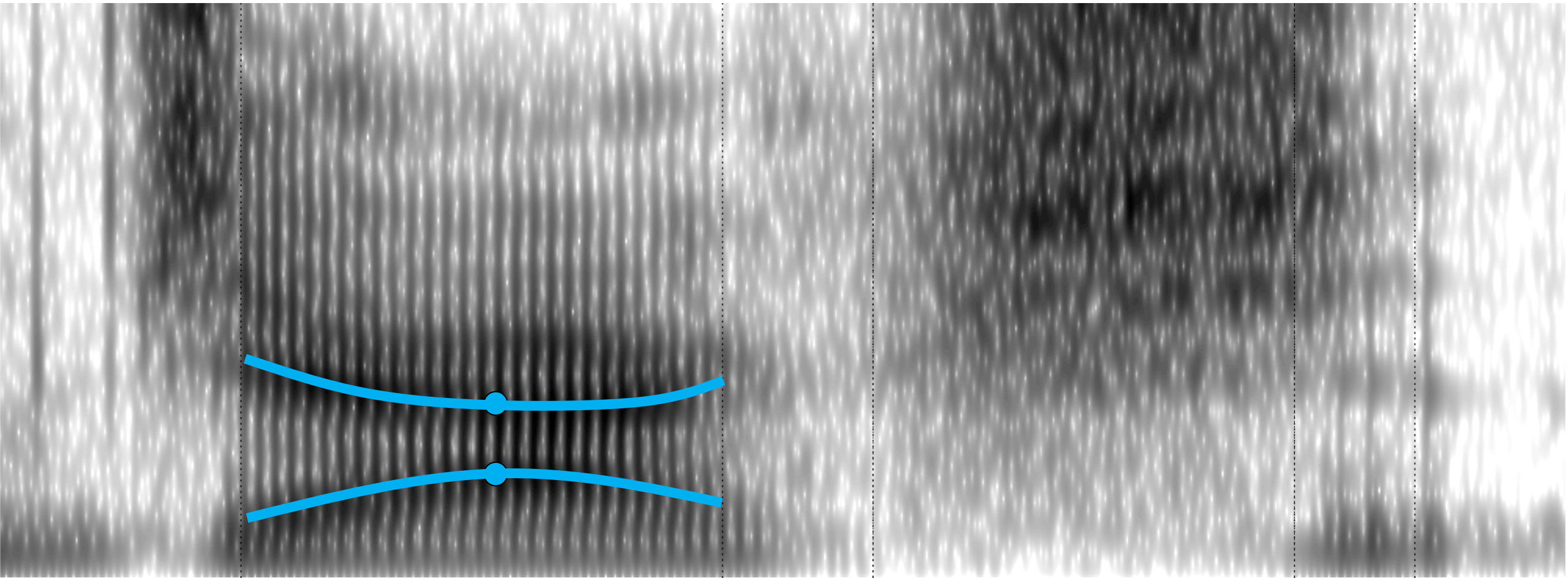
– Labov, Ash, & Boberg (2006:37)



dʒ	æ	k	s	ə	n
jackson					

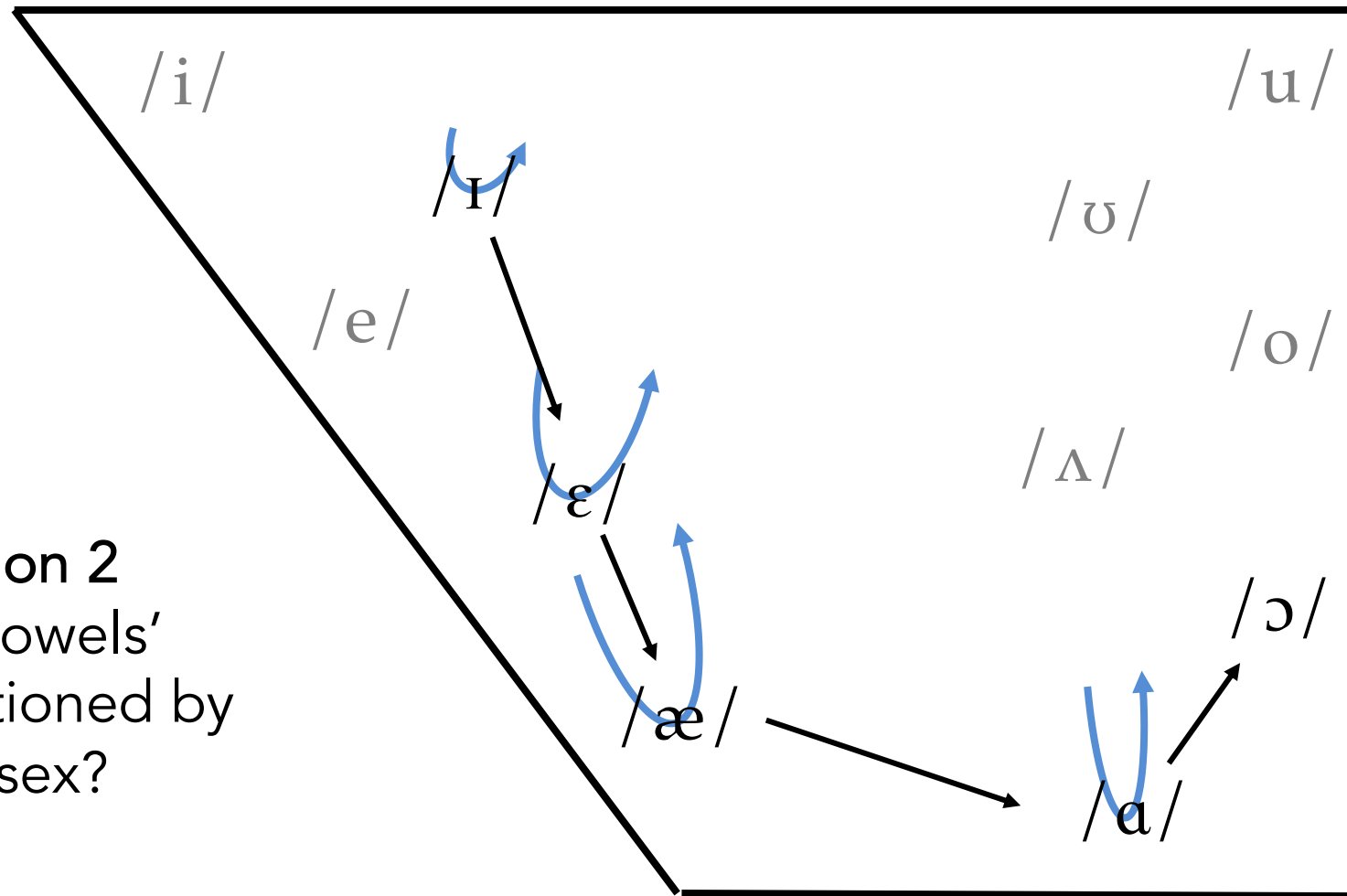
There is a growing consensus in the field that dynamic measurements of vowels provide a more complete view of vowel characteristics, and they avoid a necessarily arbitrary choice of selecting a specific time point where the measurements are taken.

– Strycharczuk & Scobbie (2017:330)



dʒ	æ	k	s	ə	n
jackson					

Vowel **Dynamics** of the Elsewhere Shift



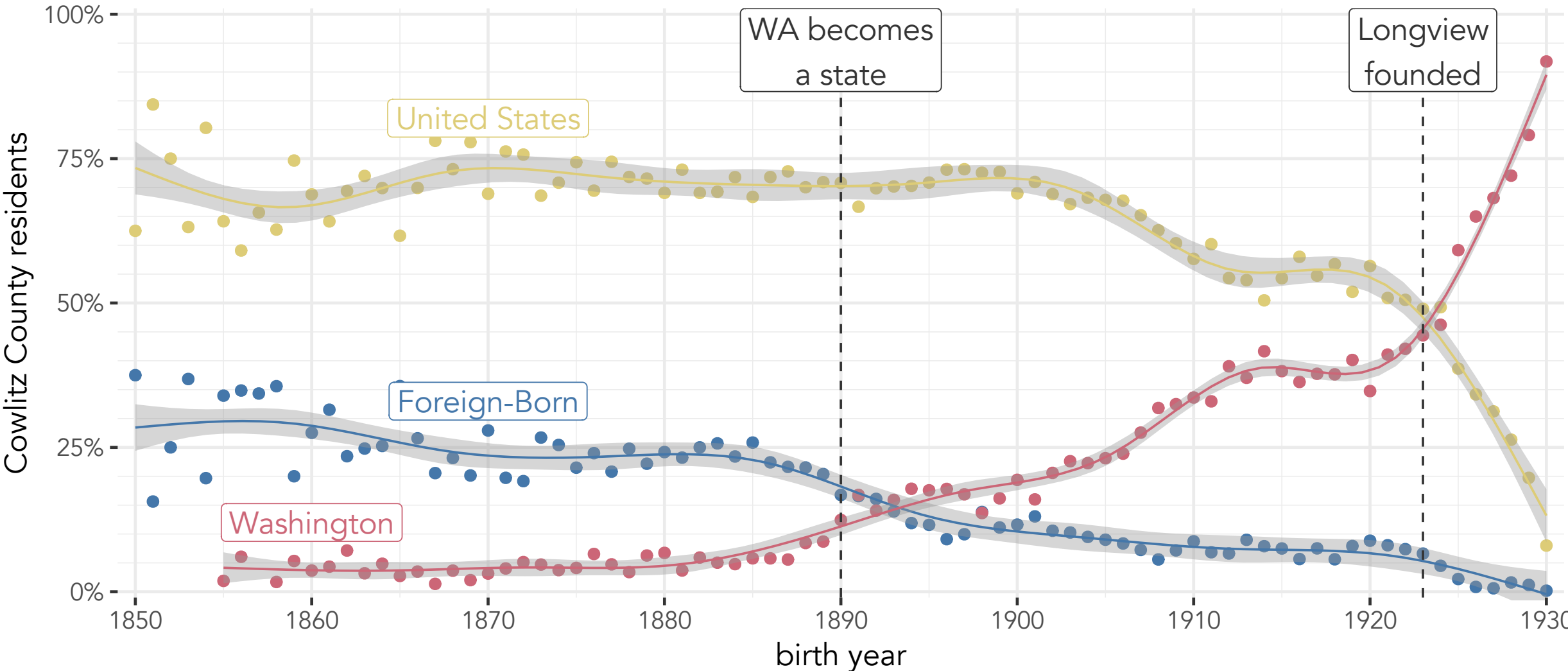
Research Question 2

How are these vowels' dynamics conditioned by generation and sex?

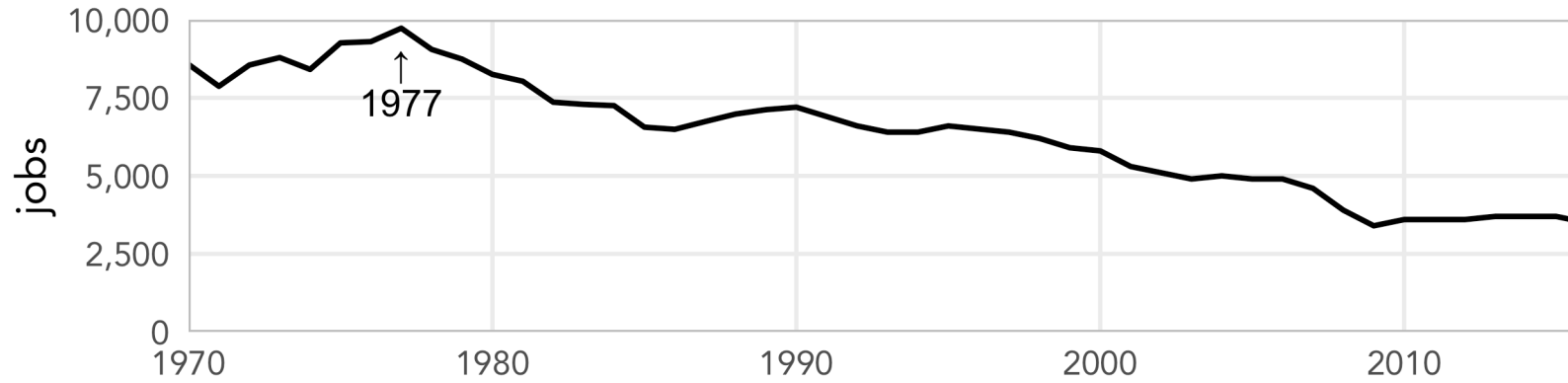
Cowlitz County

Cowlitz County residents' places of origin over time

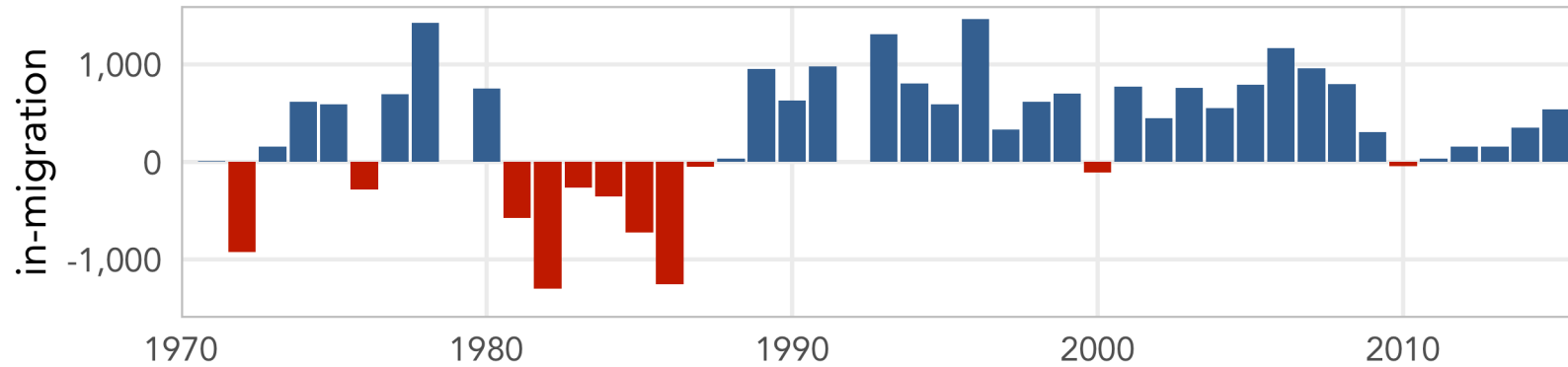
Based on the 1930 census



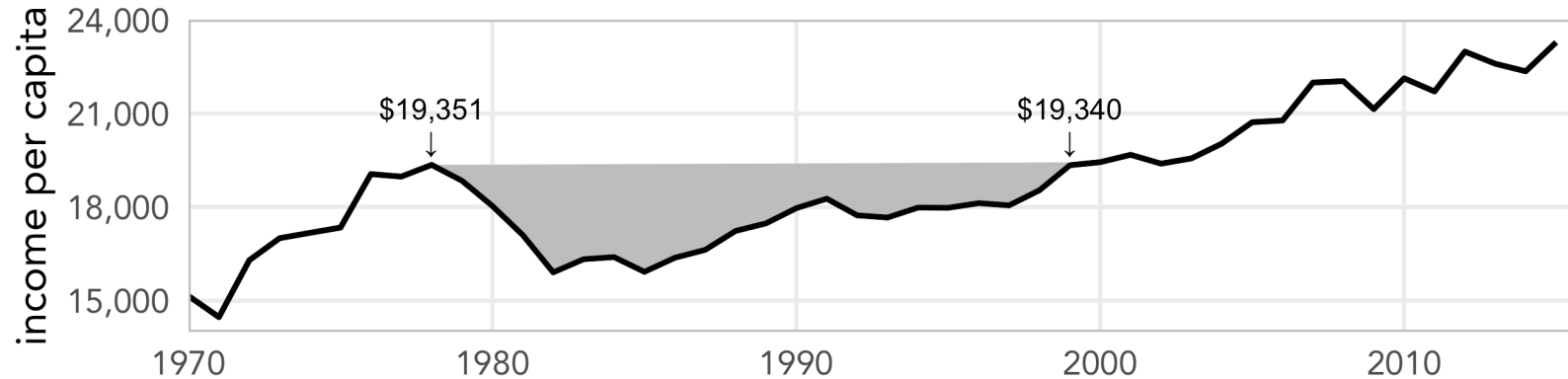
Timber Employment



In-Migration



Inflation-Adjusted Earnings Per Capita



Demographic Change → Linguistic Change

Development of the low back merger in mining towns in Pennsylvania (Herold 1990).

Restructuring of low vowel categories in Rhode Island (Johnson 2010).

Traditional southern features lost and innovative ones adopted in Texas and Oklahoma after the WWII (Bailey 1996).

Loss of prevelar raising in Cowlitz County after restructuring of local mills (Stanley 2018).

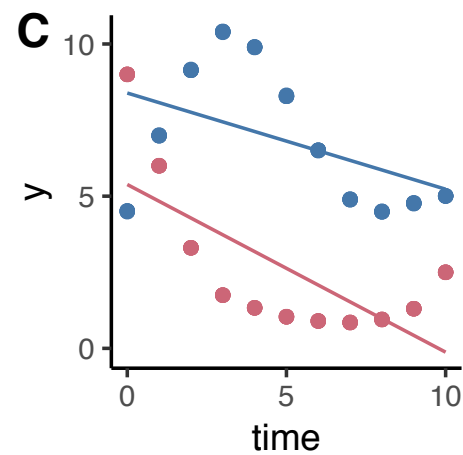
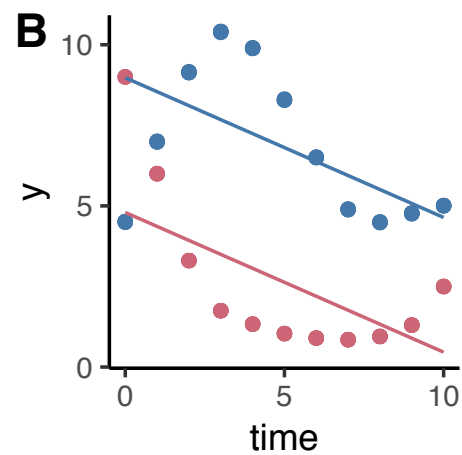
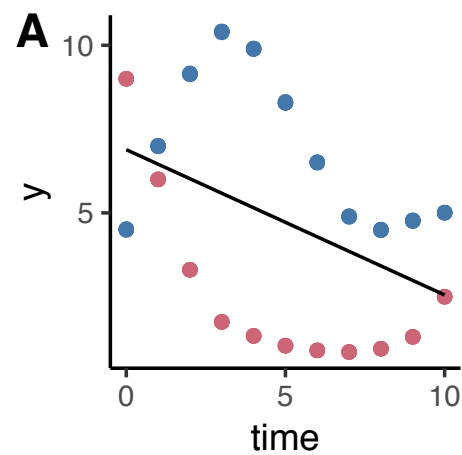
Methods

Data Collection

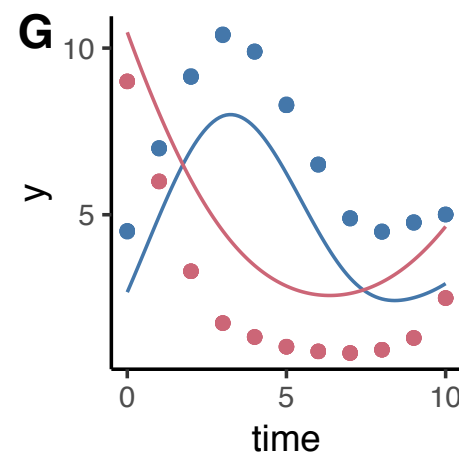
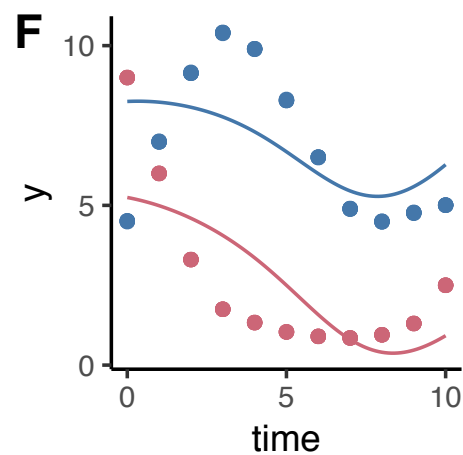
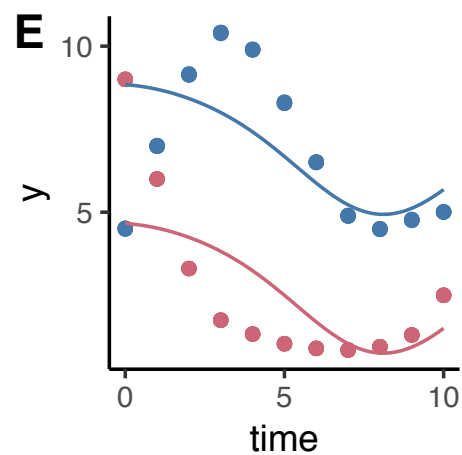
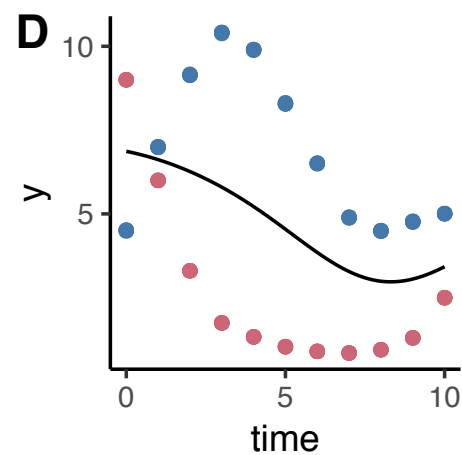
When	Summer 2016
Recruitment	face-to-face, business cards, snowball, family
Method	Traditional sociolinguistic interviews (Labov 1984)
Speakers	54
Audio	45h 16m
Corpus size	~350,000 words
Vowels analyzed	128,370

Data Processing

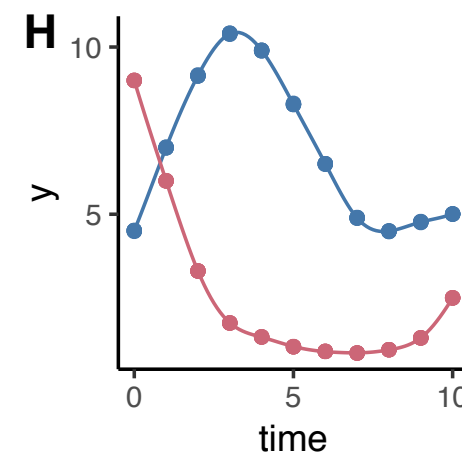
Transcription	Manual
Forced-Alignment	Montreal Forced Aligner (McAuliffe et al. 2017)
Formant Extraction	Praat (Boersma & Weenink 2018)
Filtering	Mahalanobis distance (Mahalanobis 1936)
Normalization	ANAE method (Labov, Ash, Boberg 2006; cf. Nearey 1978)
Transformation	Barks (Zwicker 1961, Traunmüller 1990)
Software	R (R Core Team 2018), tidyverse (Wickham 2018)
Visuals	ggplot2 (Wickham 2015)



◀ Linear mixed-effects models (A–C)



▼ Generalized additive mixed-effects models (D–H)



See Wood (2017), Sóskuthy (2017), Gahl & Baayen (2019), Renwick & Stanley (to appear)

Model Specification

```
mdl <- mgcv::bam(anae_bark ~
```

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

```
  log(dur) * formant_sex_gen +
```

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

```
data = one_vowel)
```

Dependent variable: Bark-transformed, normalized values

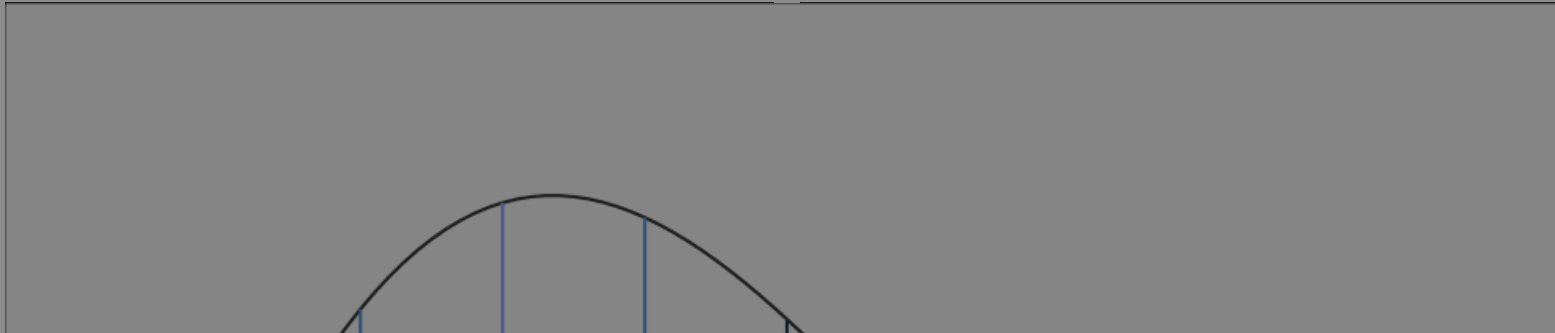
Fits different smooths for each combo of formant, sex, and generation

Controlled for duration, separately for each smooth

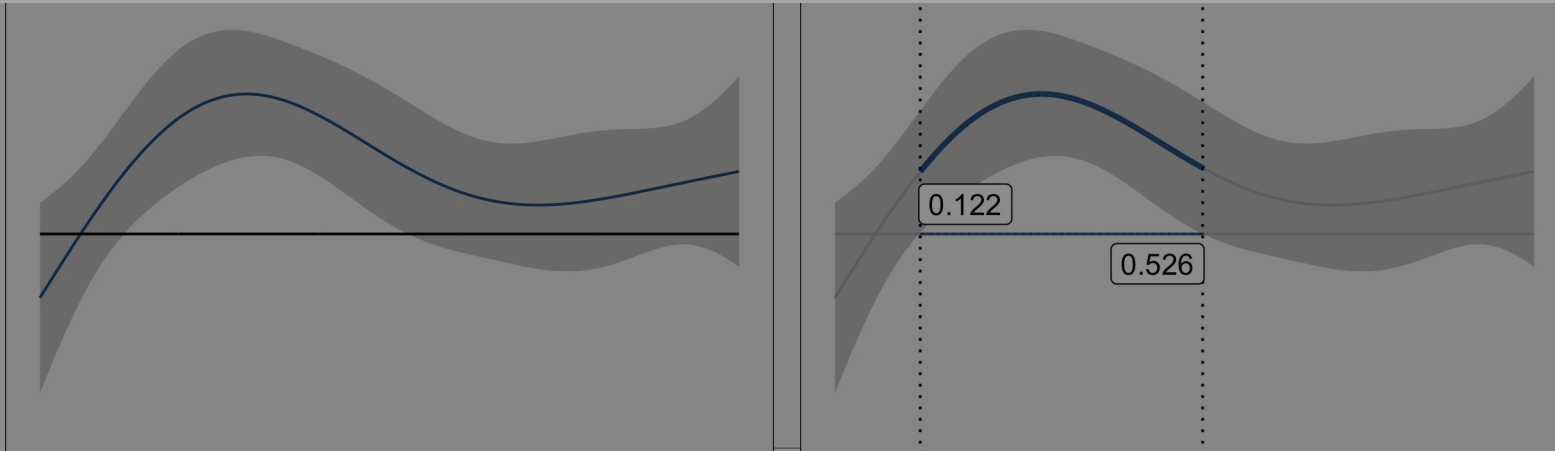
Random intercept for speaker and word, interacting with formant.

One model for each vowel

Difference Smooths



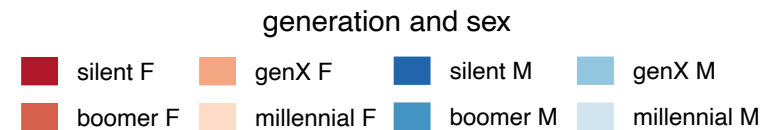
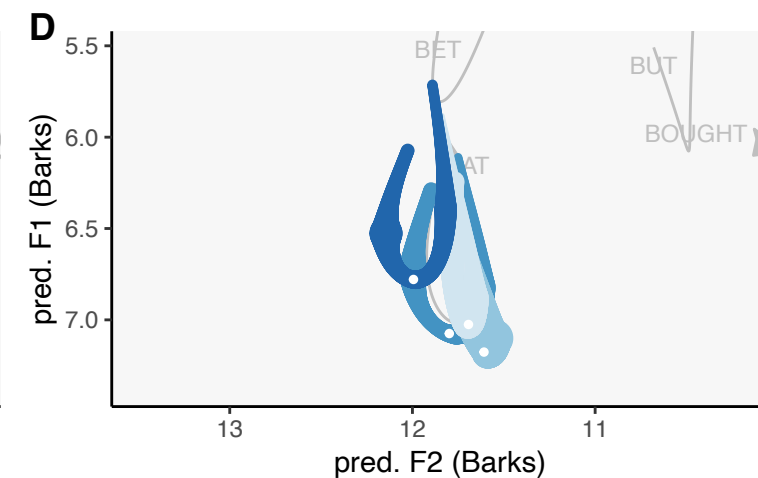
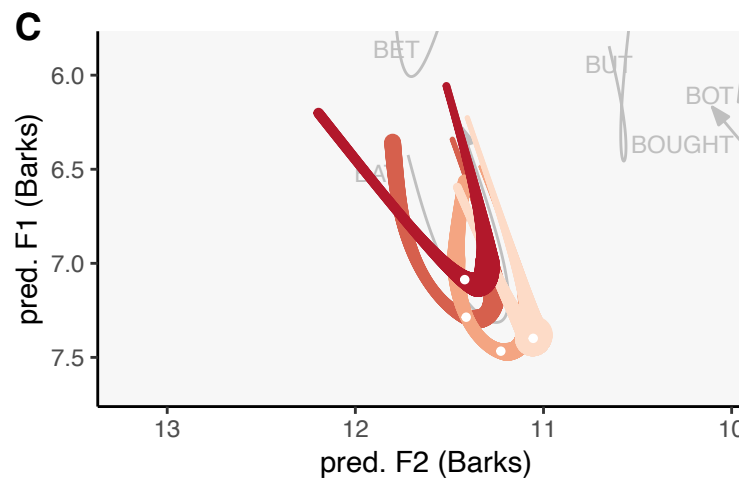
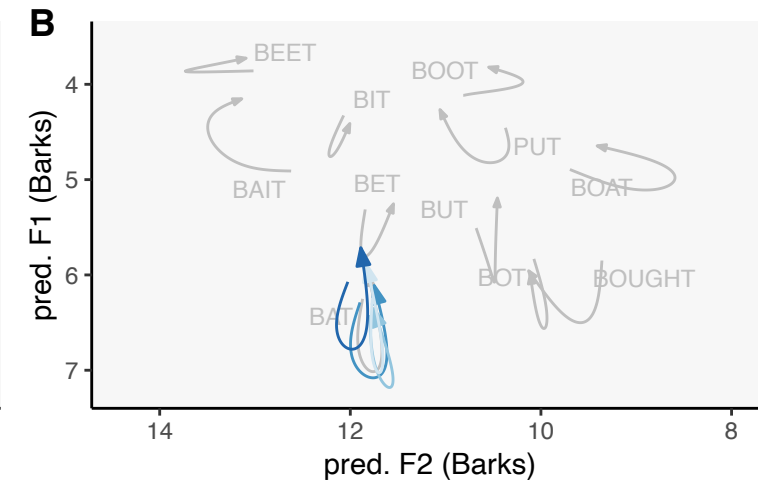
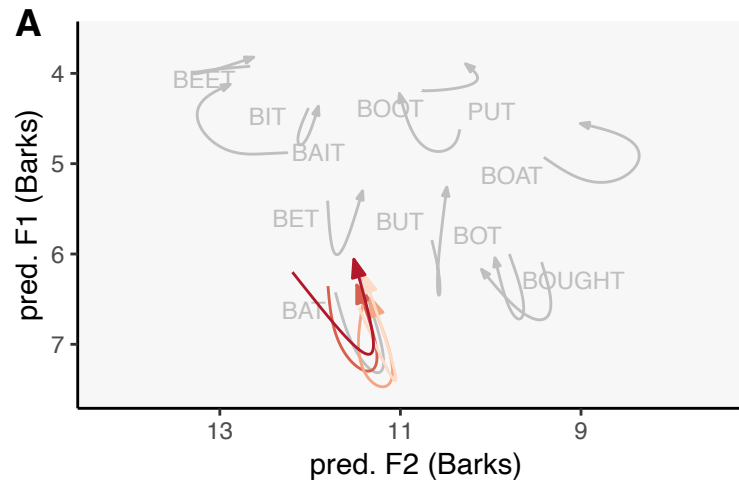
To see this animation, which illustrates how to interpret difference smooths, go to joeystanley.com/colloquium2020



Results

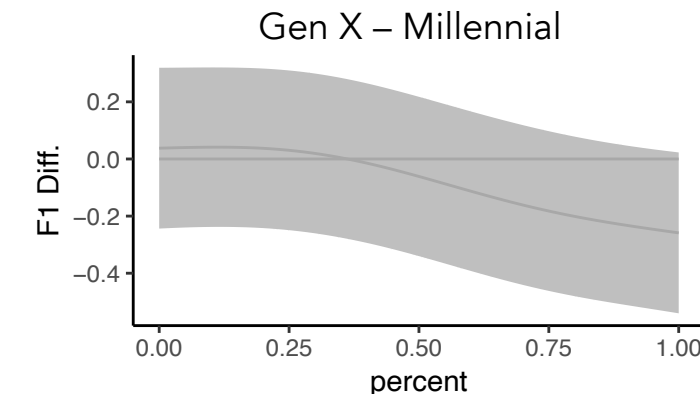
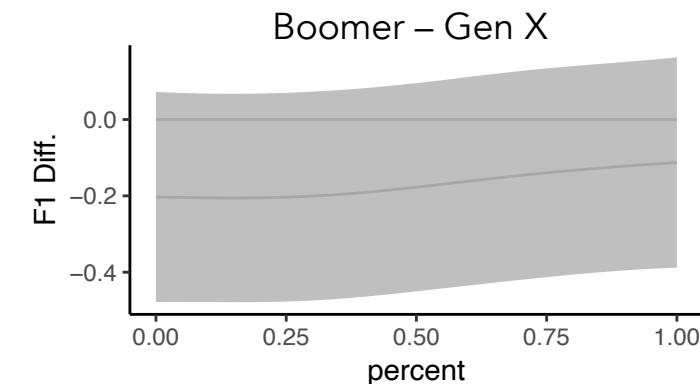
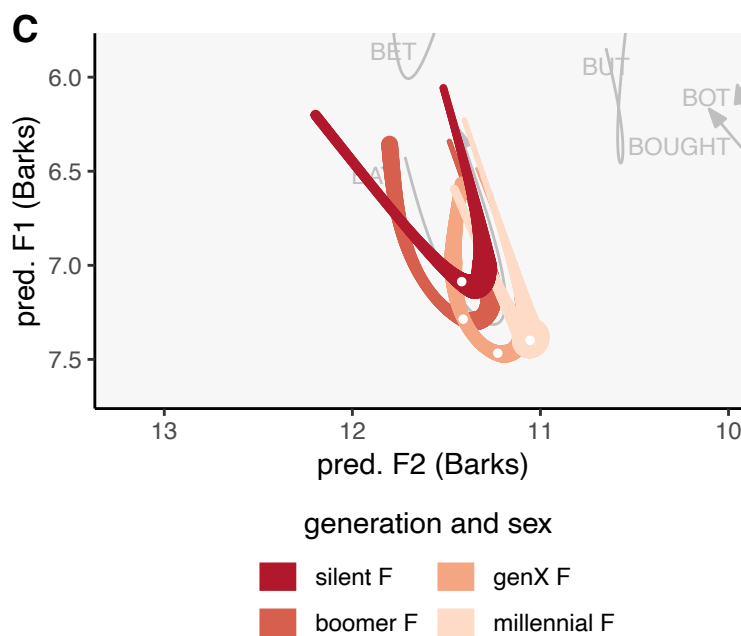
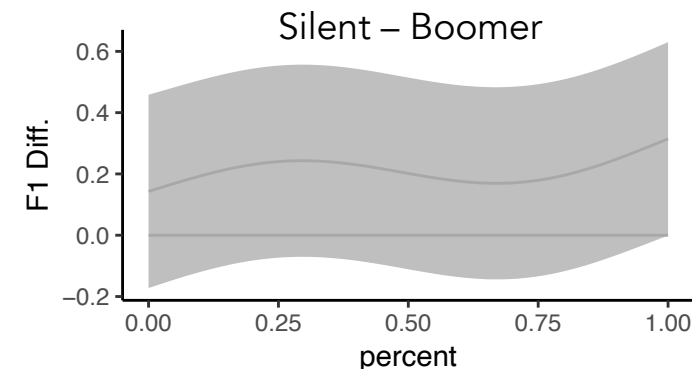
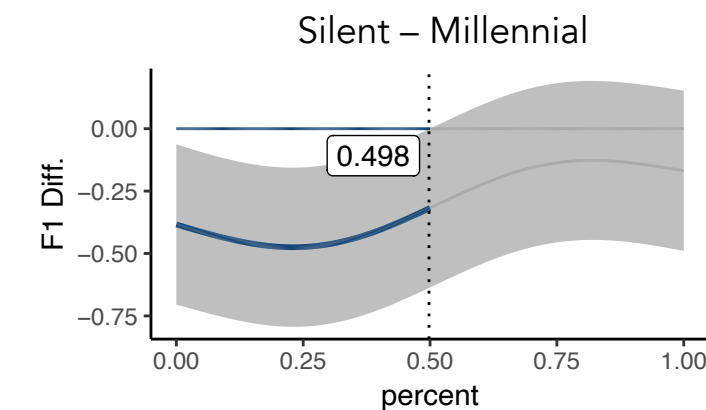
/æ/ (BAT)

- Continuous and relatively constant change over 4(+) generations.
- First half (onset–midpoint) lowered and then retracted.
- Women consistently ahead of the men (in position).
- Women and men change trajectory in tandem.



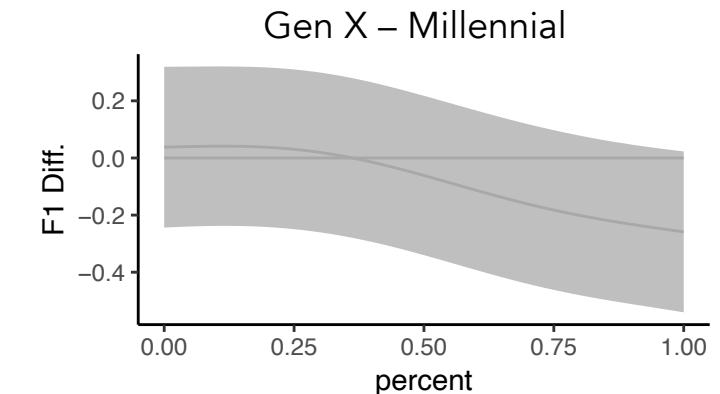
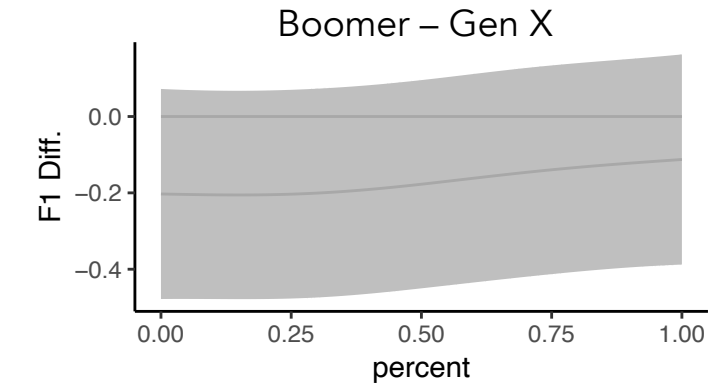
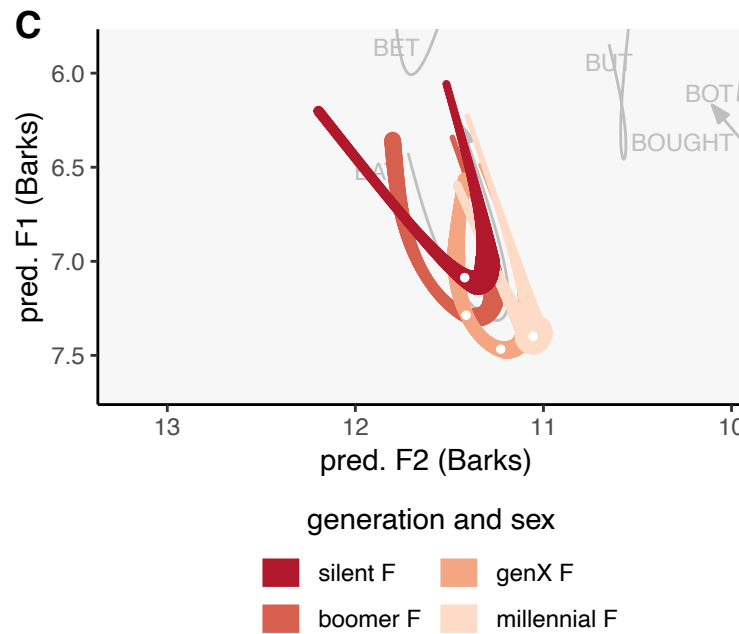
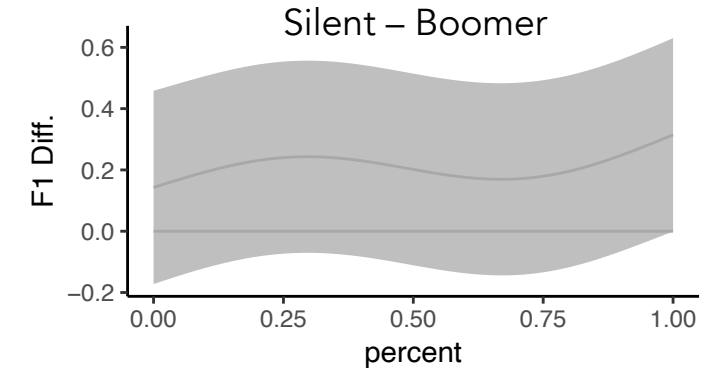
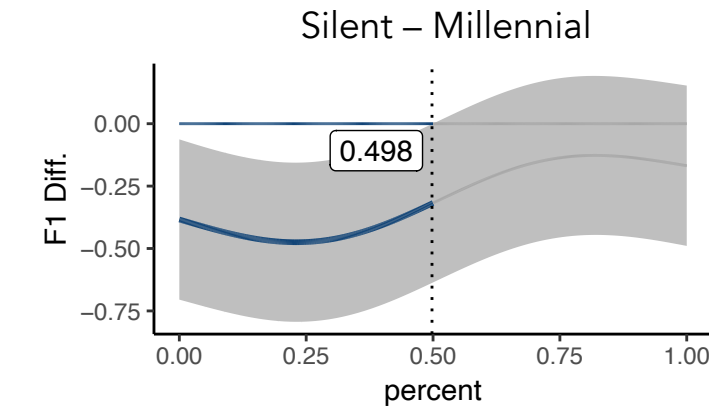
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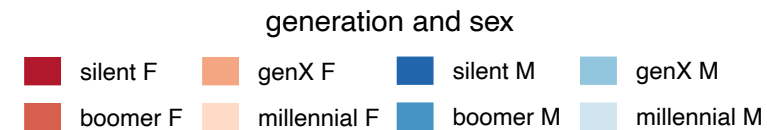
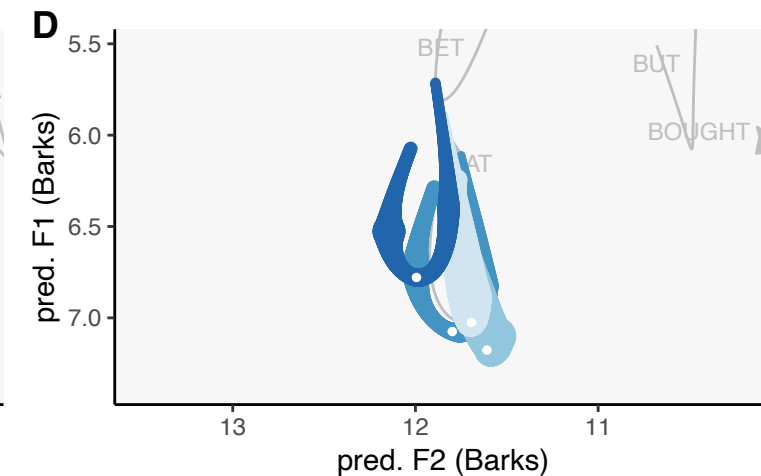
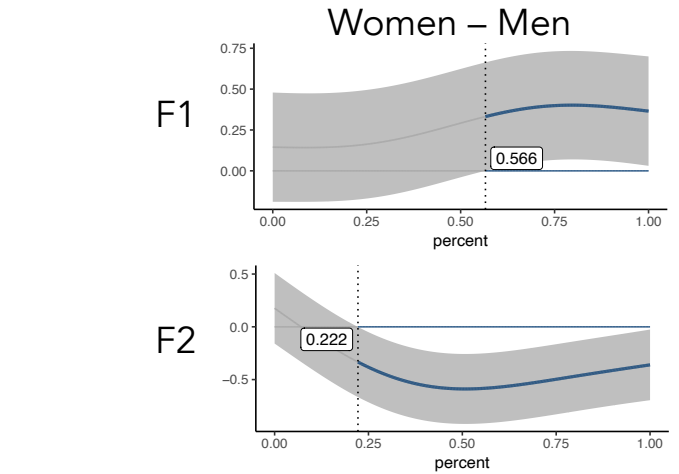
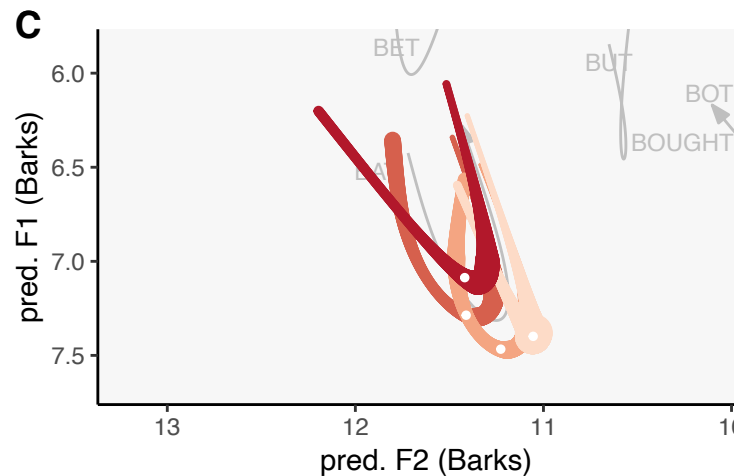
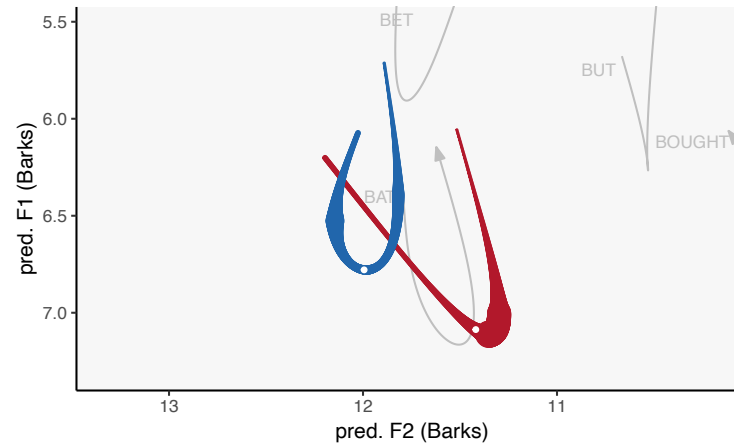
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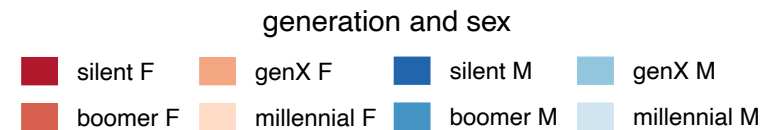
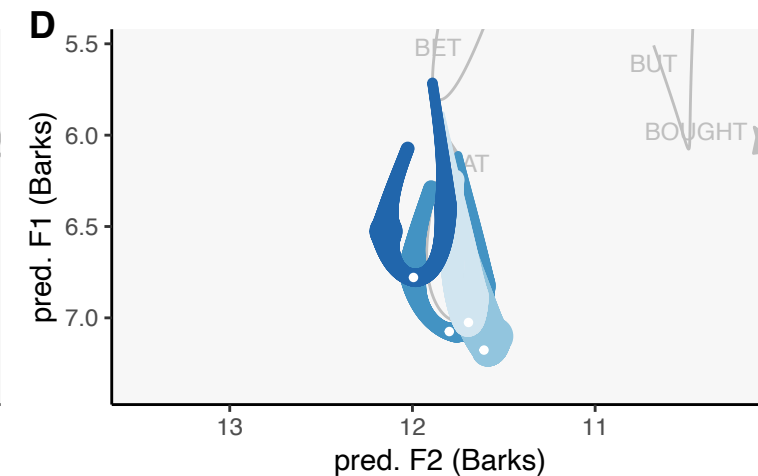
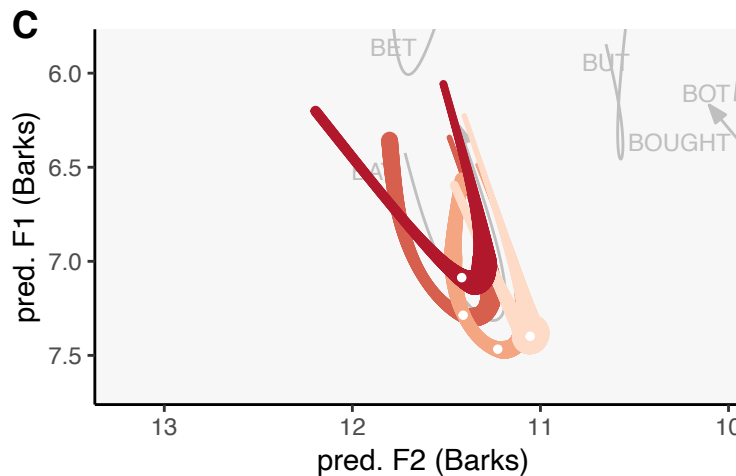
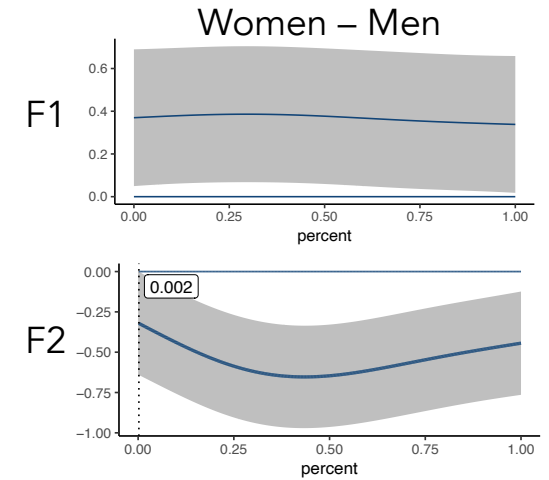
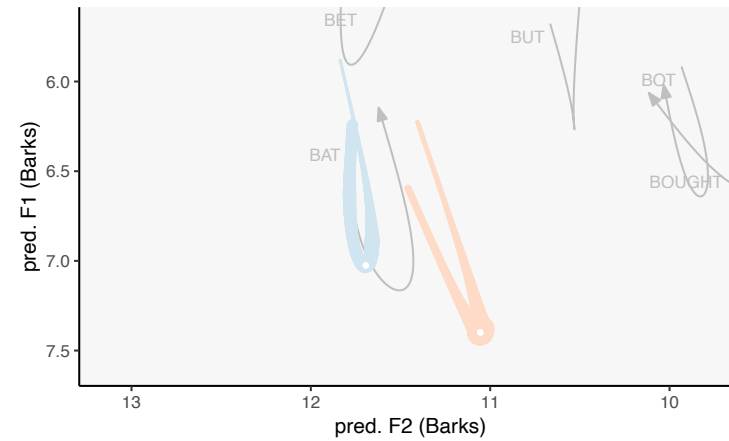
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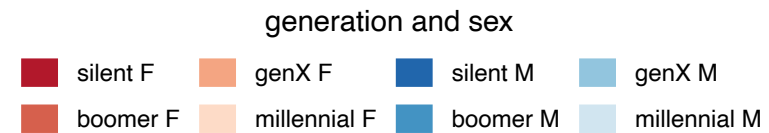
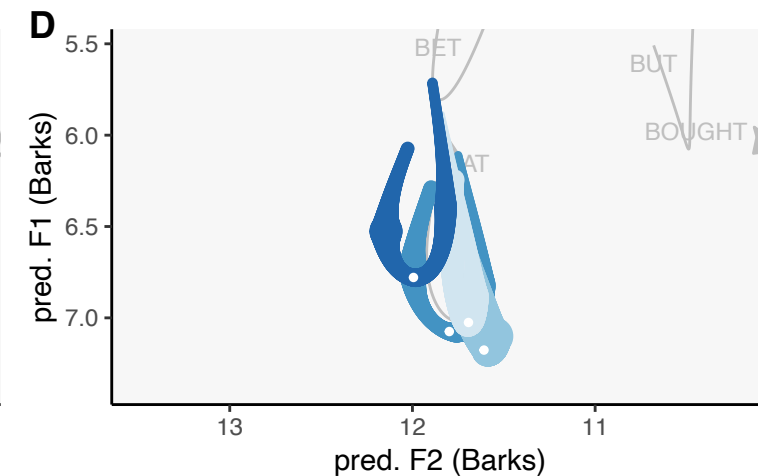
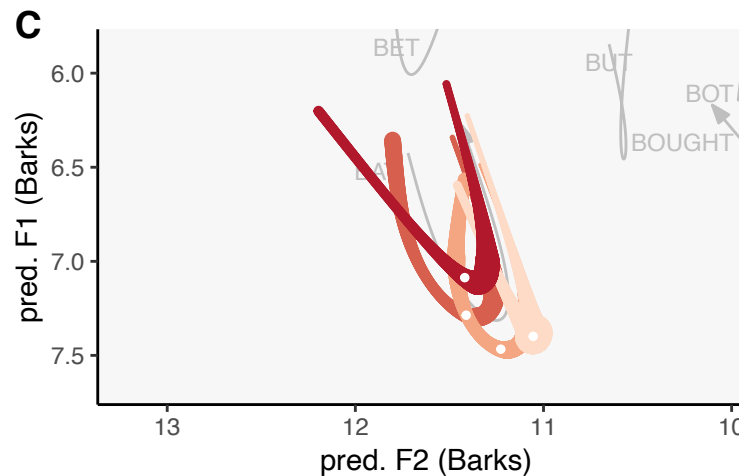
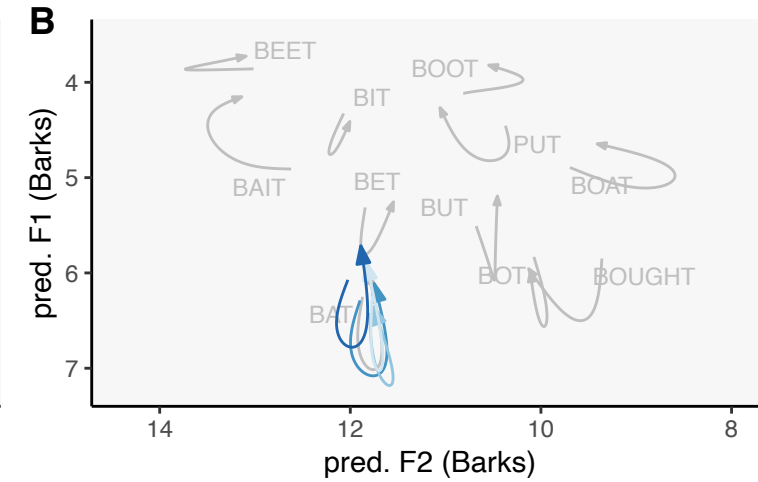
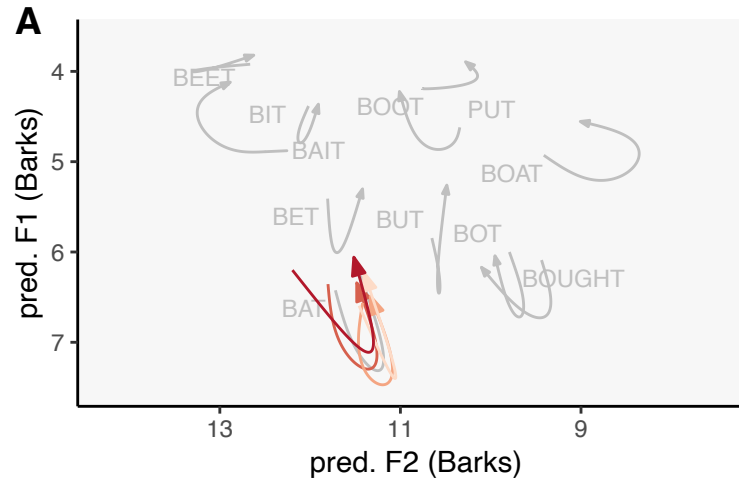
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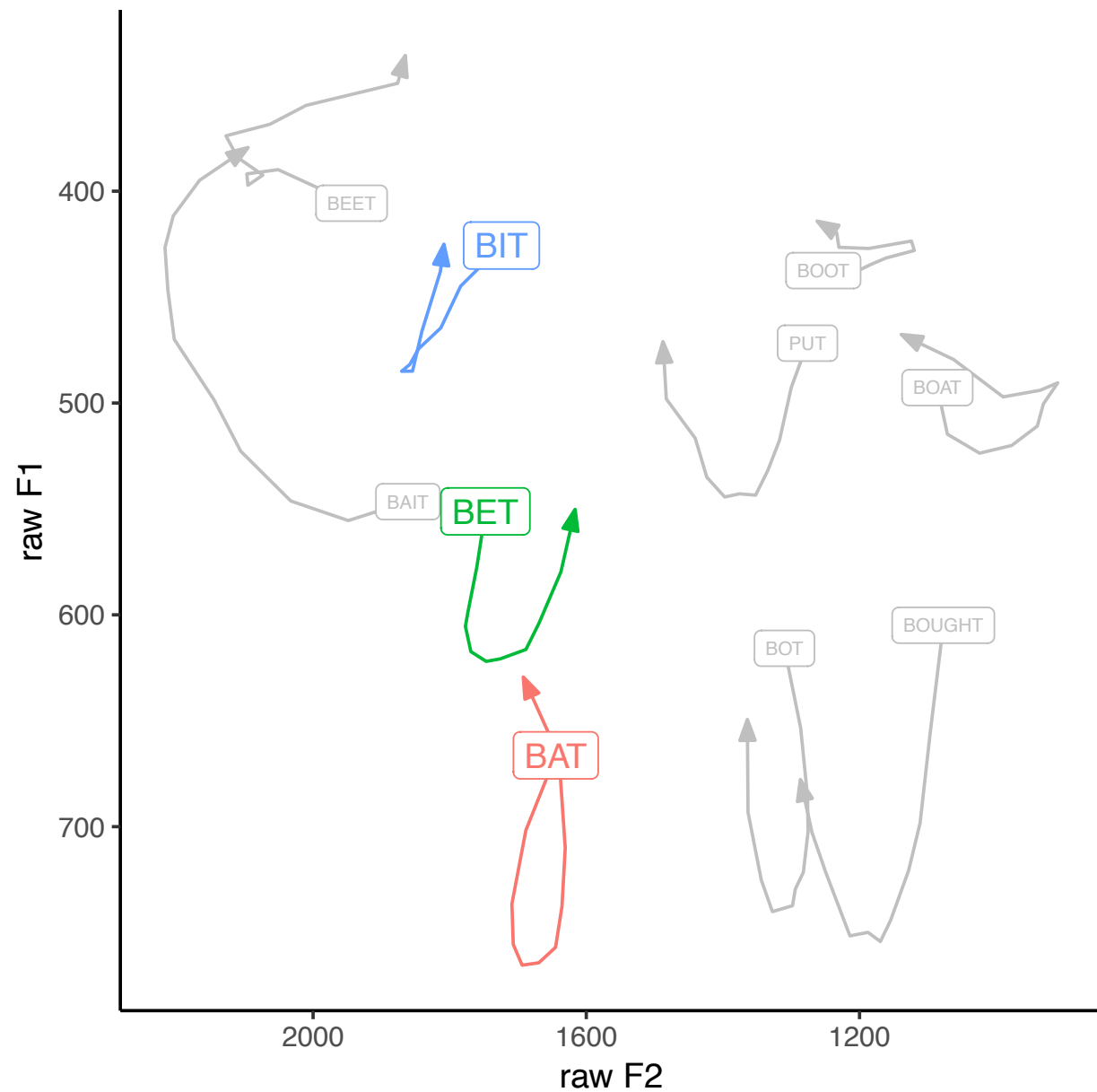
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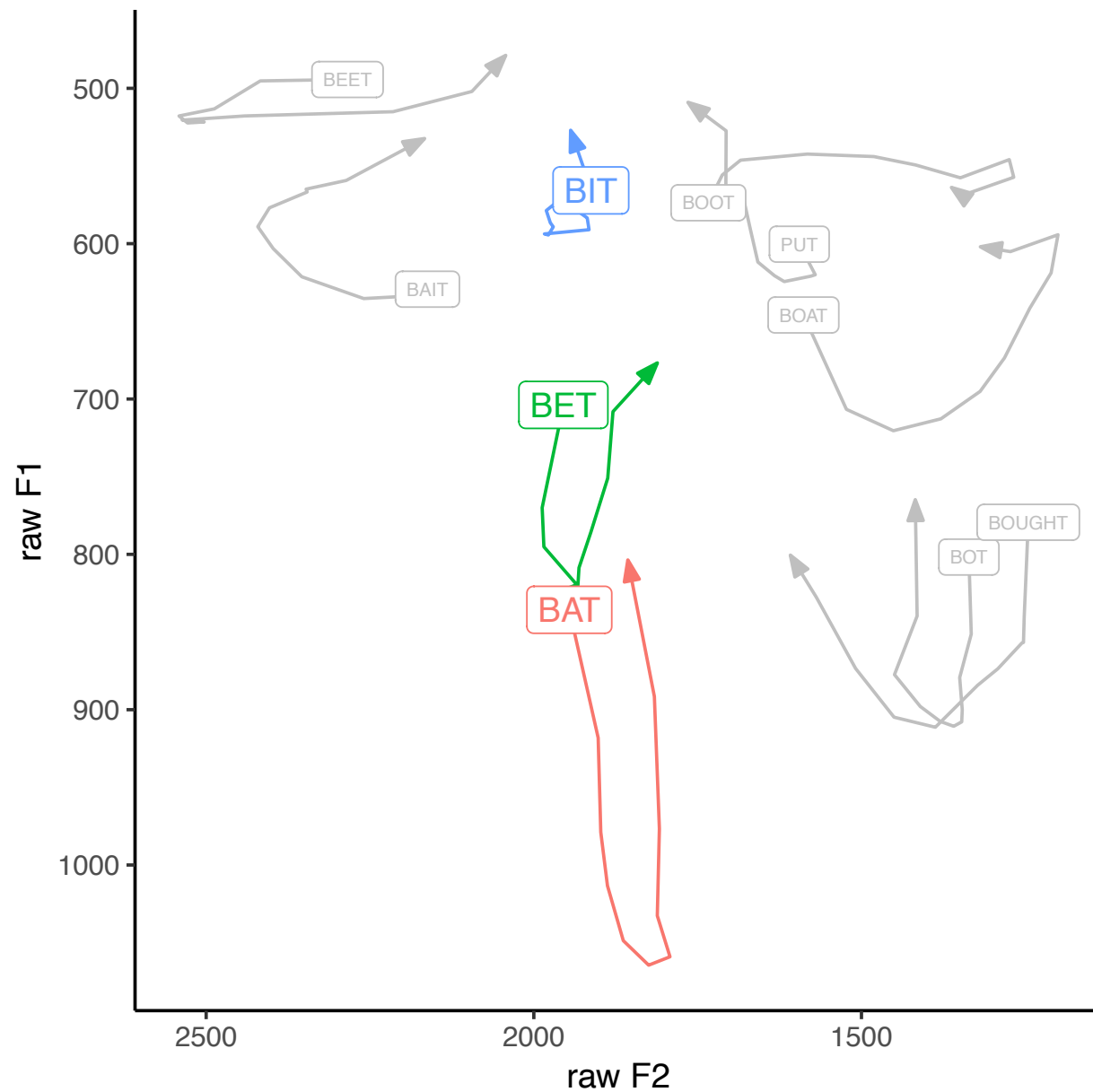
Dale, 80
(b. 1936)

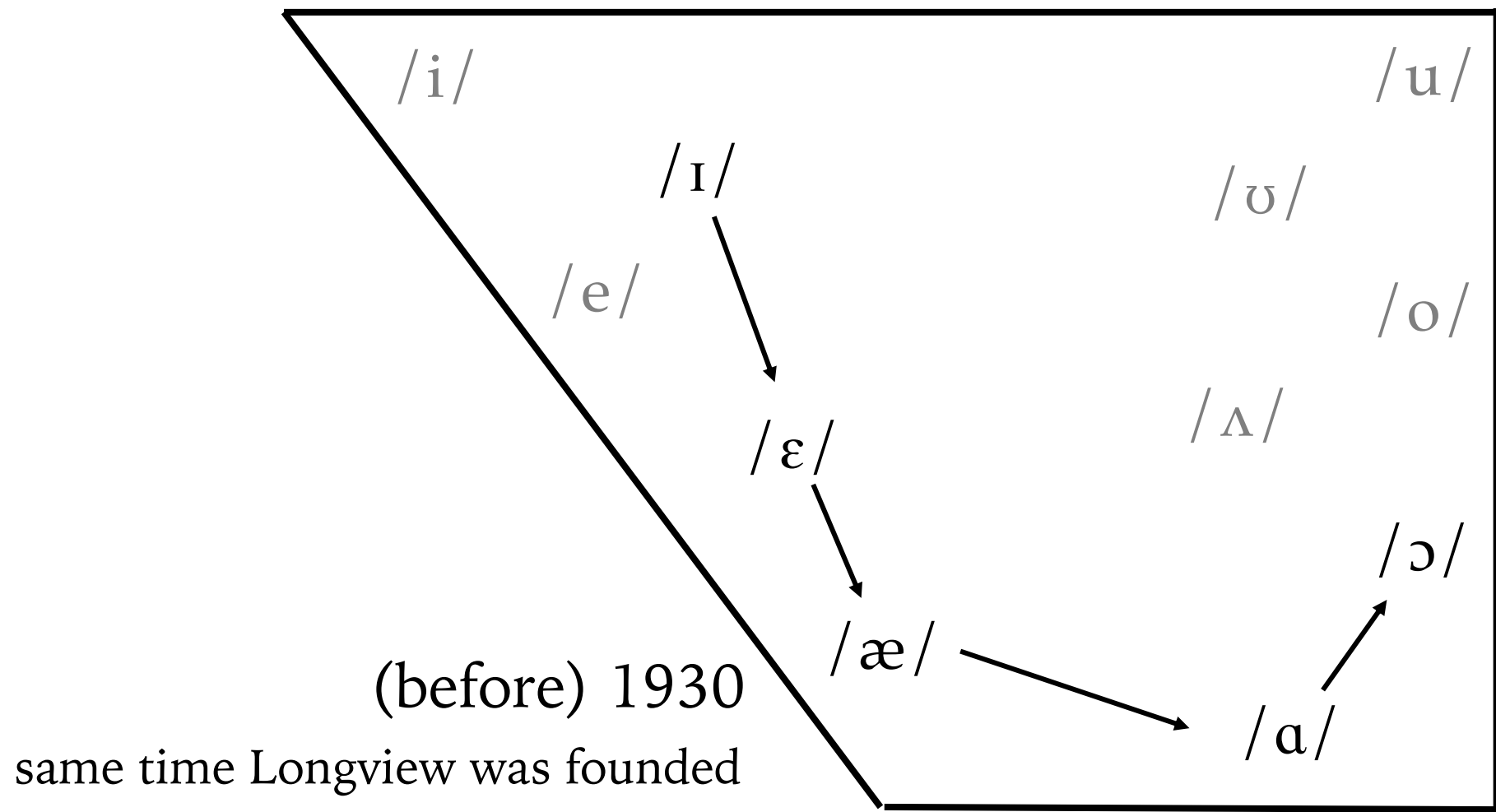
“...’cuz he **had** some **bad**
feeling- **happenings**.”



Jessica, 18
(b. 1997)

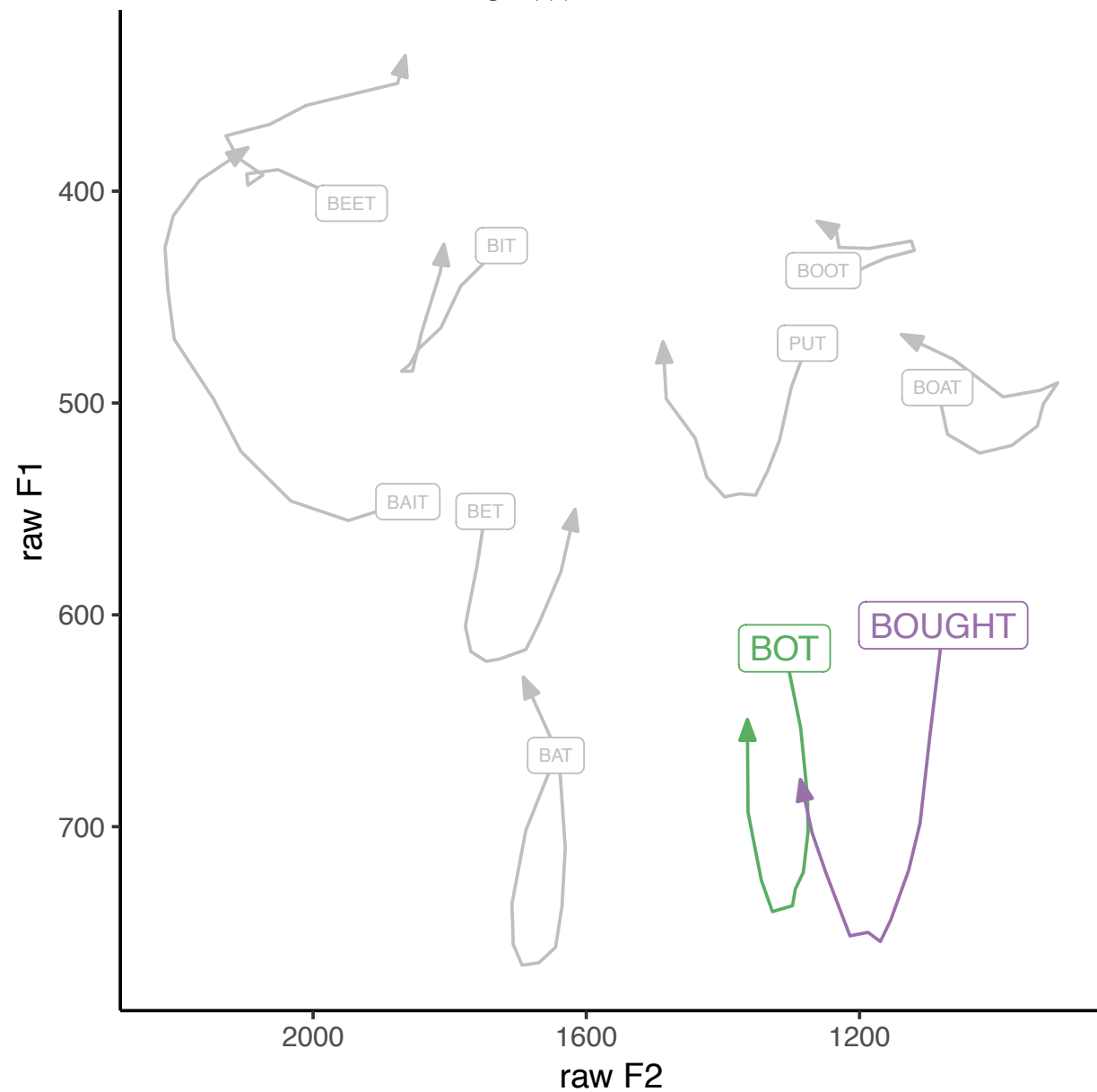
“Um, and then the high school
has a cooking **class**, **has** I think
a **fashion class**.”





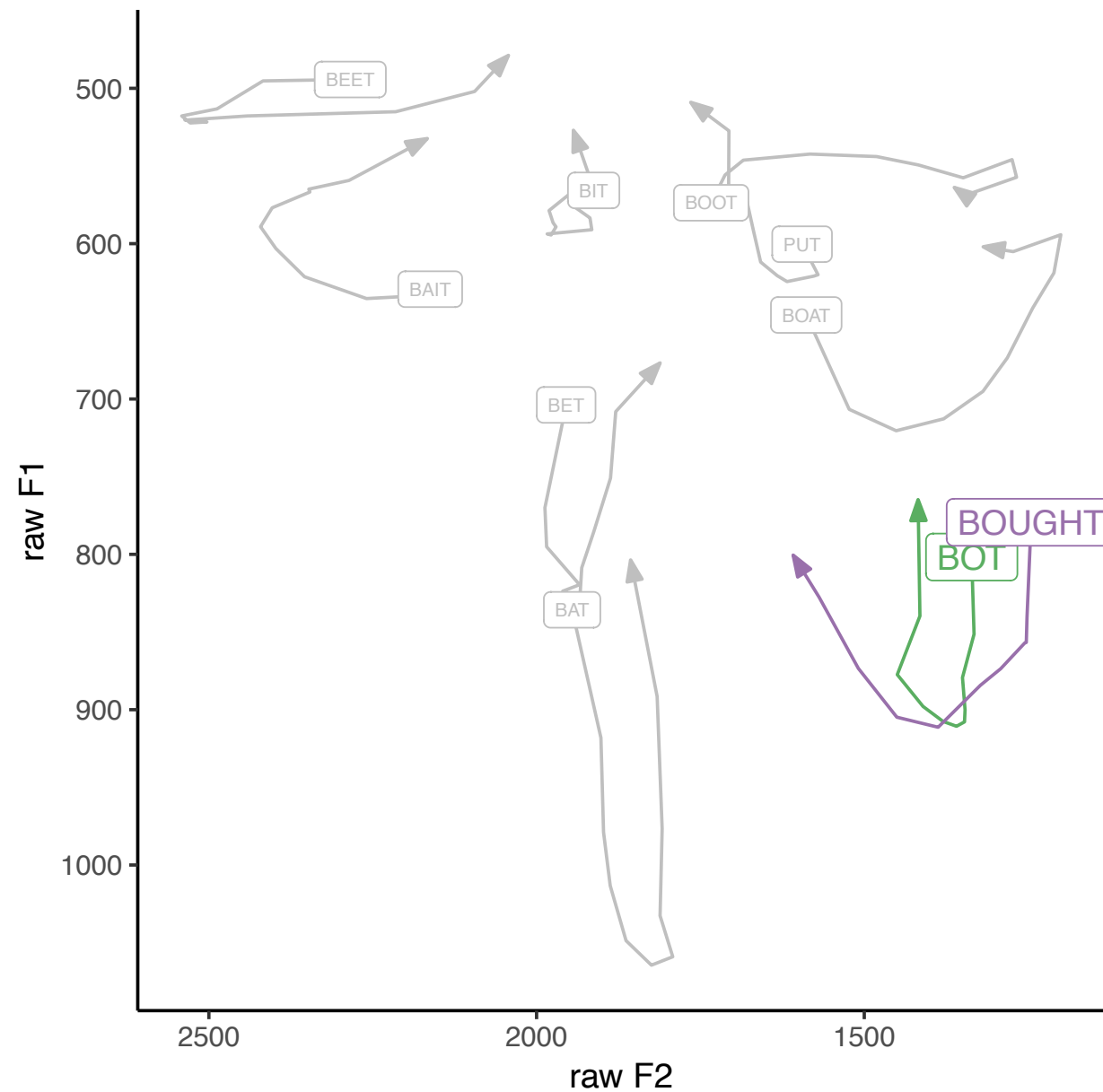
Dale, 80
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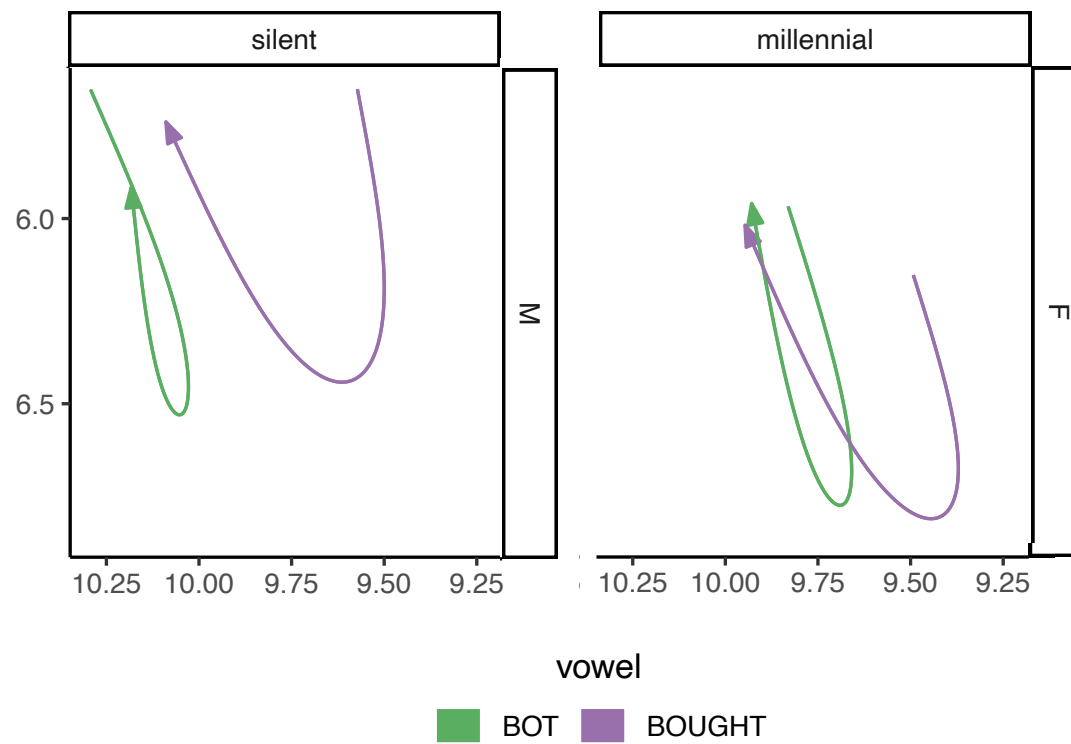
“Saved up the money and finally
they **bought** the **property** down
on...”

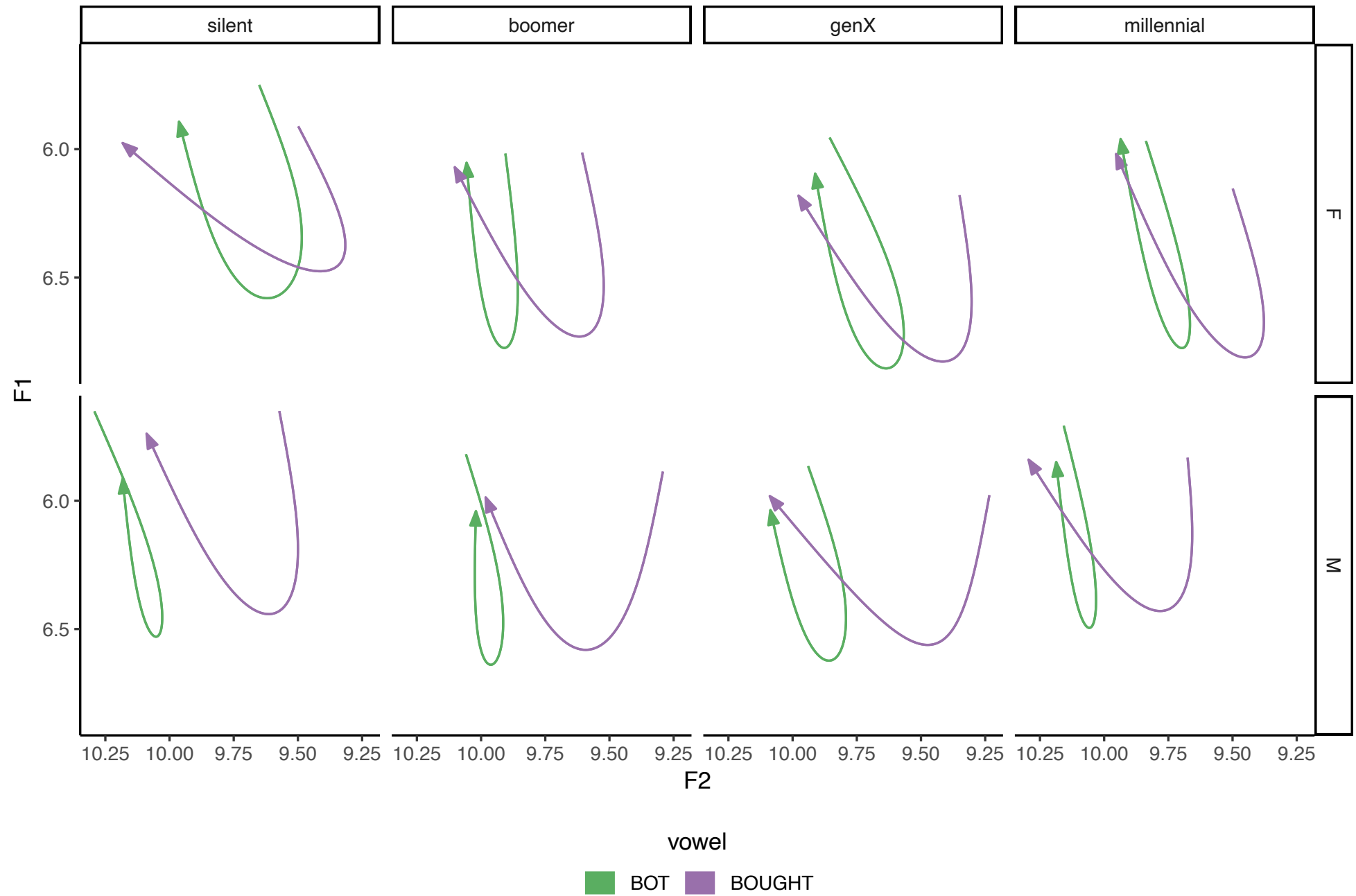


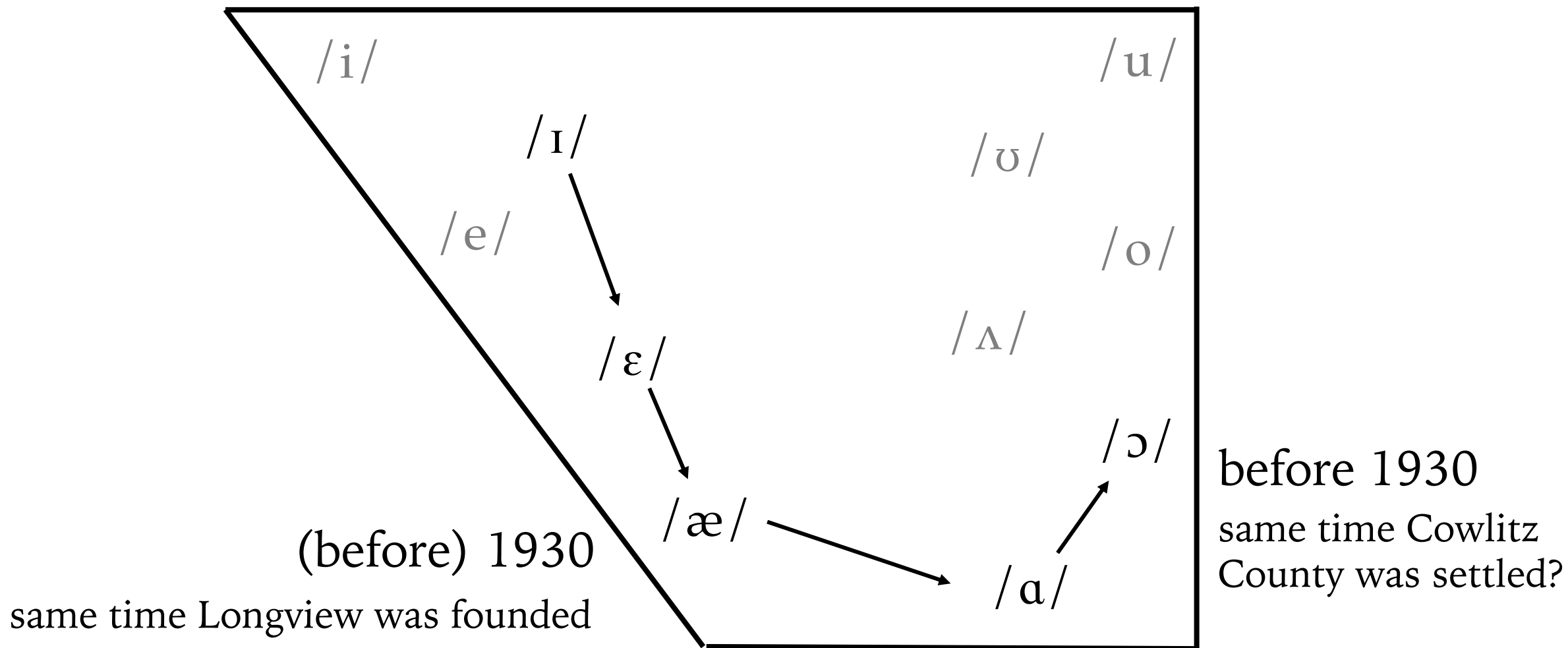
Jessica, 18
(b. 1997)

“And like **water**, it’s **not** just for
coffee like you can have...”









Discussion

Q1: Does Cowlitz County participate in the Elsewhere Shift?

BOT/BOUGHT

- Not 100% merged.
- Have been in a stable near-merger since the 1930s.

Hypothesis: Started when area was being settled (1850s–1920s) because of the demographic shift.

/æ/ BAT

- Slowly lowering over 4 generations (since at least the 1930s)
- Women consistently ahead of the men
 - change in progress for over 60 years.

Hypothesis: Began in earnest when Longview was founded (mid 1920s), in addition to language-internal pressure.

Q2: How are these vowels' **dynamics** conditioned by generation and sex?

BOT/BOUGHT

- No pattern

Conclusion: Though these vowels' trajectories are what keeps them distinct, they are not socially conditioned by generation or sex.

/æ/ BAT

- Only the onset changed over time.
- Men and women changed trajectory shape at the same time.

Conclusion: There is more to a vowel shift than what's happening at the midpoints.

Conclusions

The Elsewhere Shift is in Washington (and has been for a while).

- The low back merger predates /æ/ bat lowering.
- /æ/ BAT lowering is a change in progress.

Methodologically, GAMMs can illuminate variation and change in vowel trajectories.

Next step: experimental work...

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Thanks for attending!

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