

# Nonbinary speaker participation in a sound change in progress

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# Overview

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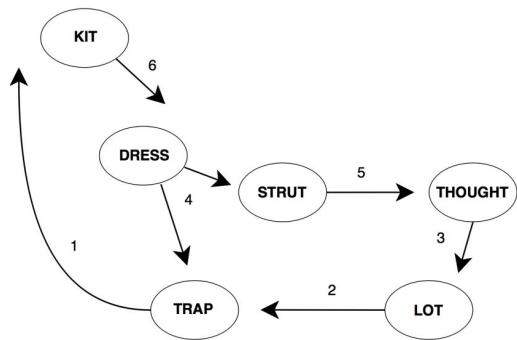
# Goals of the Study

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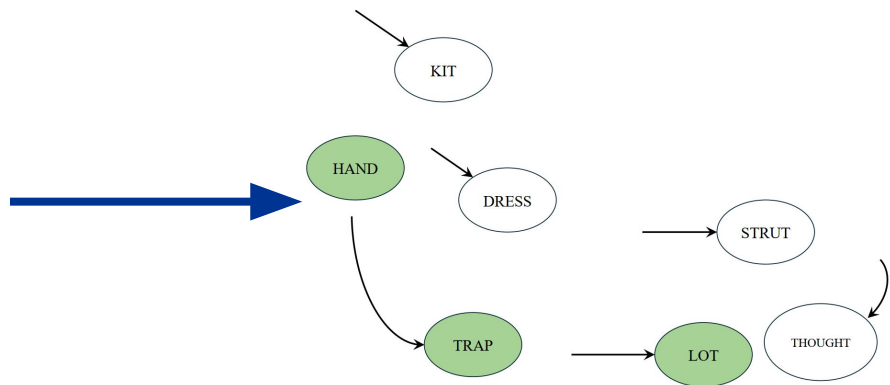
- Investigate how nonbinary Michiganders are participating in the reversal of the Northern Cities Shift (shown in work such as Gehringer, 2022; Wagner et al., 2016)
- Compare formant trajectories and midpoints to analyze TRAP vowel (informed by Nesbitt 2023; Renwick et al., 2023; Stanley, 2021)
- Contribute to our understanding of gender as a social phenomenon and how it influences language change (adding to work such as Becker et al., 2022; Cordoba, 2023; Rechsteiner & Sneller, 2023)

# Northern Cities Shift (NCS) Reversal

- NCS has lost social prestige; younger speakers now perceive NCS as stigmatized (Driscoll & Lape, 2015; Dinkin, 2024)
- NCS reversal differs by place and speaker identity (e.g., D'Onofrio & Benheim, 2020; Dinkin, 2024)
- Primary comparison for the current study is Nesbitt (2023)



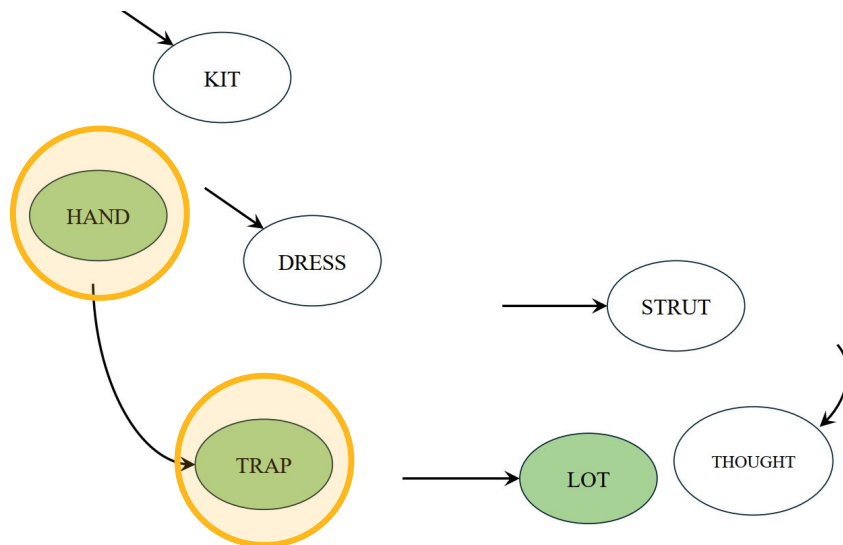
*NCS figure from Wagner et al. (2016)*



*NCS reversal figure from Sneller and Greeson (2025)*

# Younger Speakers Are Splitting TRAP

- Primary comparison for the current study is data points on millennial Michiganders TRAP splitting from Nesbitt (2023)



*NCS reversal figure from Sneller and Greeson (2025)*

# The Present Study

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Using sociolinguistic interviews with 8 nonbinary Michiganders, this study asks:

1. To what degree do nonbinary Michiganders participate in the reversal of NCS TRAP, compared to binary-gender speakers?
2. Can within-group differences be explained with a qualitative analysis of speakers' alignment with queerness and desire to be seen as nonbinary?

# Methodology

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# Participants

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- 8 nonbinary speakers recruited through my personal connections.
  - Speakers did not all know each other/did not constitute a cohesive community
- All 8 participants...
  - lived in central Michigan at the time of the interviews
  - had some level of college education
  - were born between 1993 and 1998
    - ages ranged from 23 to 27; mean age = 25.4
- 4 participants were assigned female at birth (AFAB)
- 4 participants were assigned male at birth (AMAB)
- 1 participant was Black; 7 participants were White

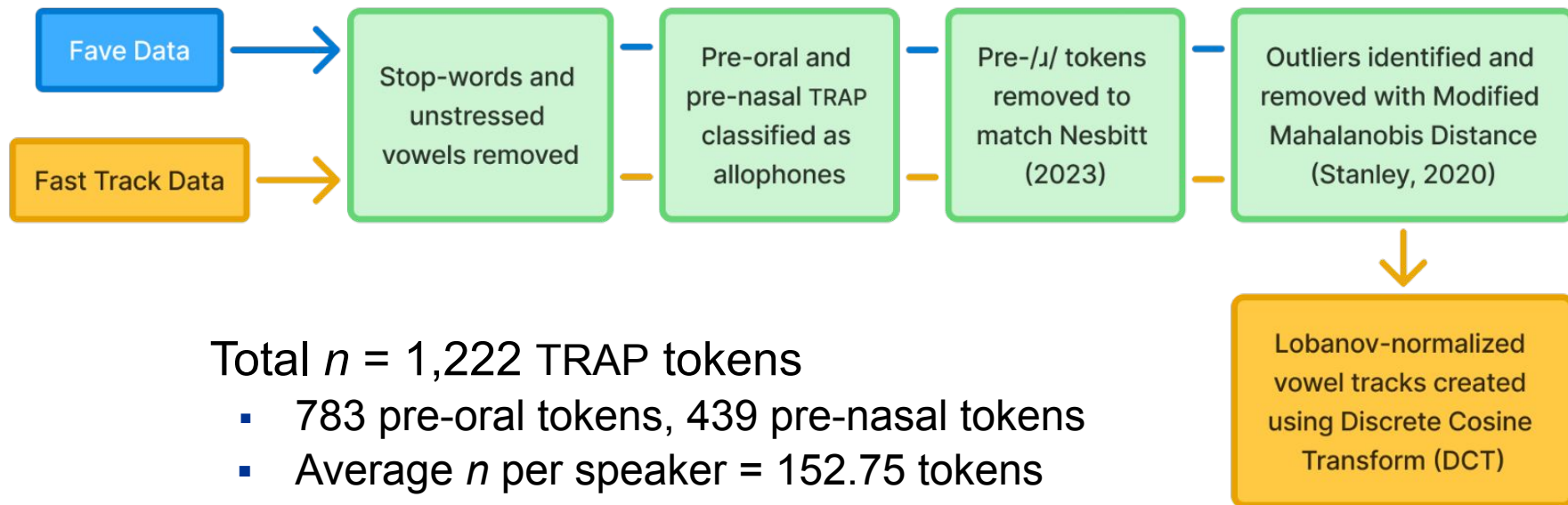




# Interviews, Transcription, and Extraction

- Interviews conducted virtually on Zoom between 2020 and 2022
  - Interviews ranged in length from 41 to 75 minutes
- Interviews manually transcribed then force-aligned with MFA (McAuliffe et al., 2017)
  - TRAP token alignments manually checked and adjusted when needed
- Two sets of vowel measurements were obtained:
  - Vowel formant tracks via Fast Track (Barreda, 2021)
    - To model TRAP trajectories, as NCS TRAP is becoming less diphthongal over time (Nesbitt, 2021)
  - Normalized F1 and F2 midpoints via FAVE (Rosenfelder et al., 2014)
    - Following the methodology of Nesbitt (2023)

# Tokens and Subsetting



# Participant Orientations

Two topics in all interviews were:

- orientation toward presenting as nonbinary
- orientation toward local queer community
  - *orientation*: locally situated identity goals & communities of speakers  
(similar to Johnstone, 2004, 2010; Reed, 2018; Sneller, 2024)

Participants were categorized into 1 of 3 groups (similar to Dinkin, 2024)

- *high*: nonbinary presentation is important AND part of a queer community
- *mixed*: nonbinary presentation is important OR part of a queer community
- *low*: nonbinary presentation is NOT important NOR part of a queer community

# Orientation to Presentation Examples

## GW (*high*)

I just worry about my perception – or how I'm perceived a lot [...] I'll feel like I am more easily perceived as masculine to people who are looking at me and therefore will act that way as to not alienate them by acting more feminine than I look or something like that. But that never – also never feels good at all.

## MR (*low*)

I typically don't [describe my gender]. I guess nonchalant, maybe? Because I'm not – I am not in the subset of nonbinary people that – I use *he/they* so like I'm not – you can call me – honestly, *he/they* is just – I don't care what you call me, so that's what I mean by nonchalant.



# Orientation to Community Examples

## GW (*high*)

I mean, I have enough queer friends that I feel like it's hard to not be considered a community. I have a lot of queer friends at this point, and, like, I would love to at some point – like, one of the things that I, like, potentially see, like, myself doing in the future maybe is, like, being able to get a big house for queer people to just exist at.

## MR (*low*)

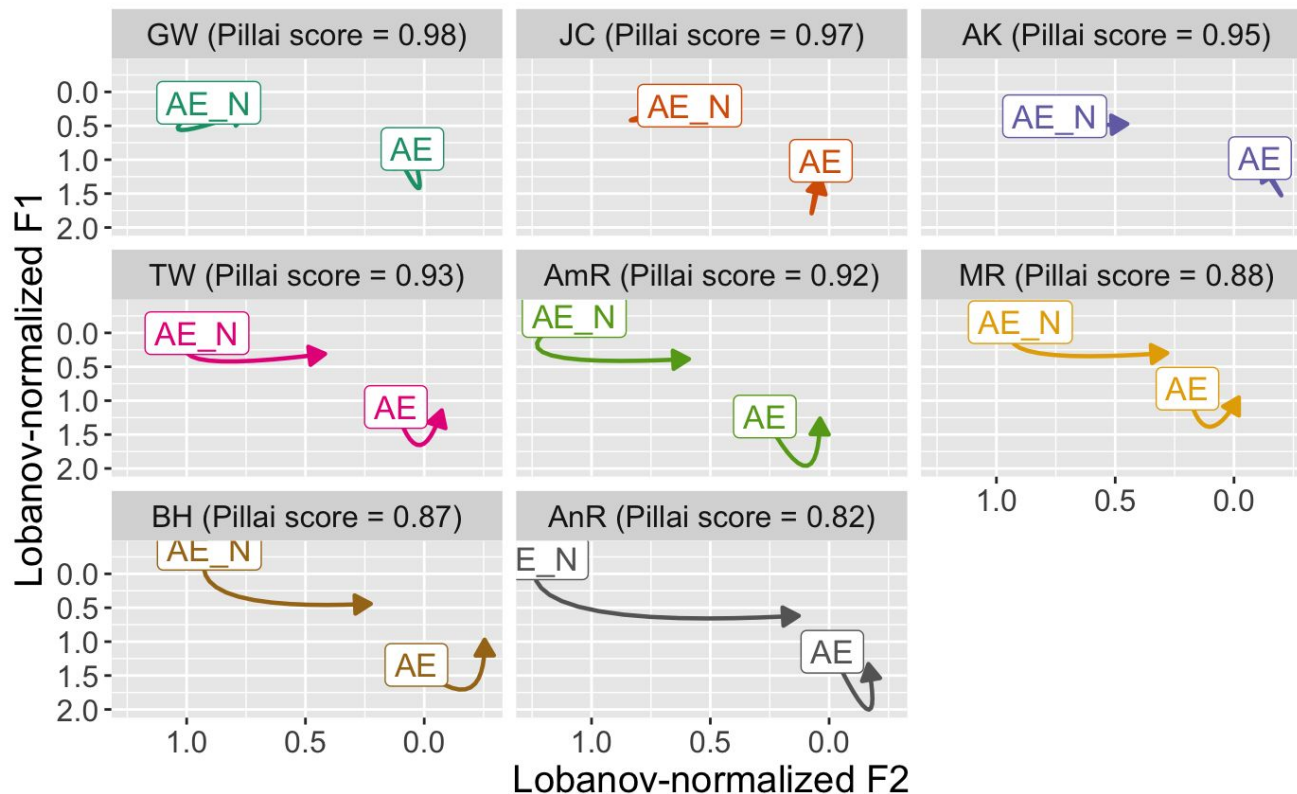
I suppose, technically. I have many friends that are queer. That's probably the length of my community, or the encompassment of it, is close friends. I advocate for different things, but I would not necessarily consider myself part of those communities.



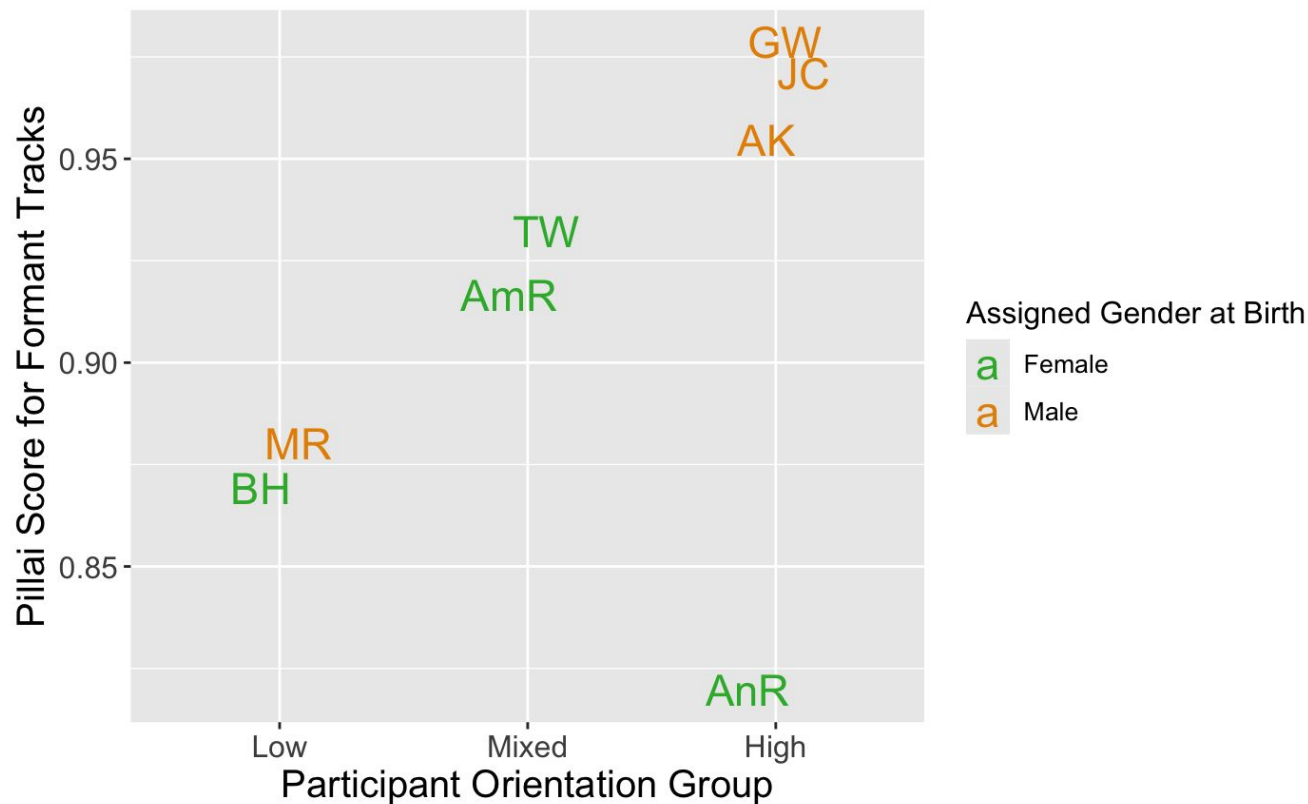
# Results

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# Vowel Formant Track Plots

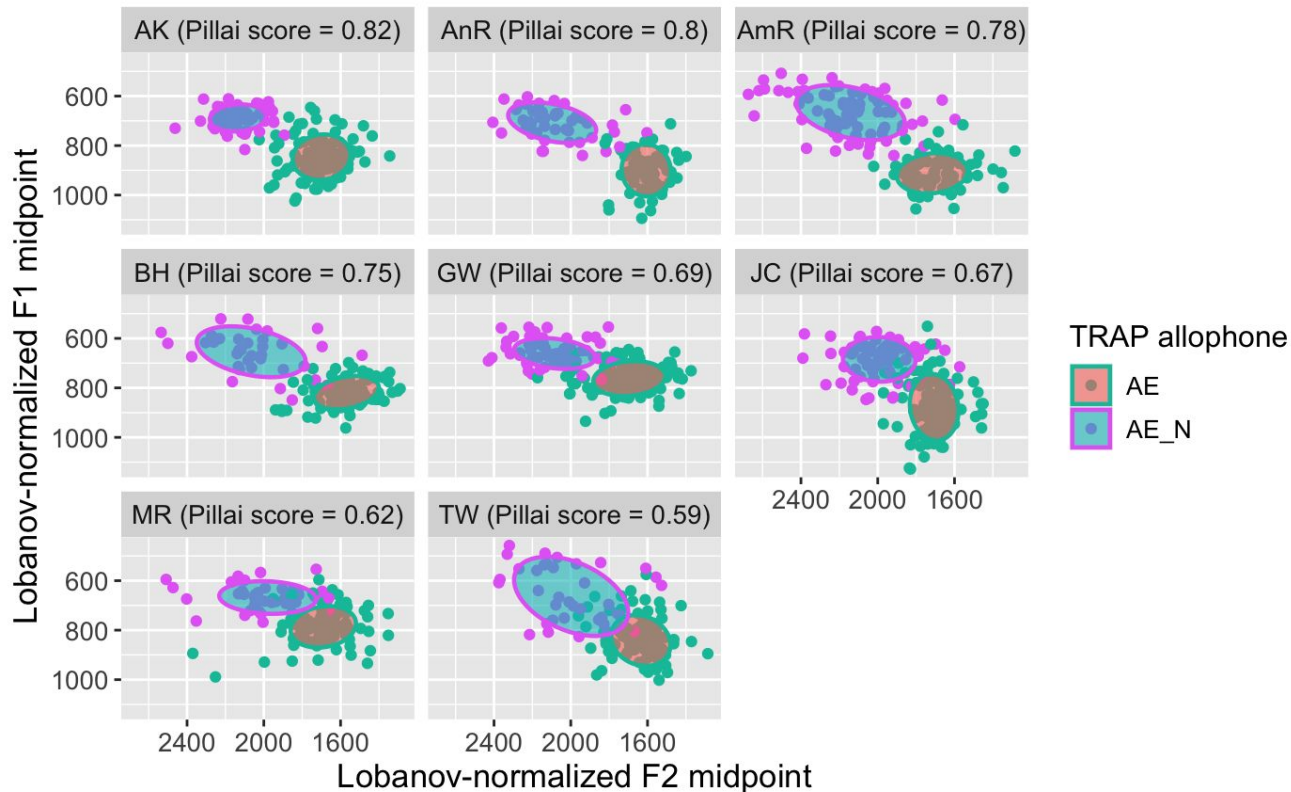


# Vowel Formant Pillai Scores

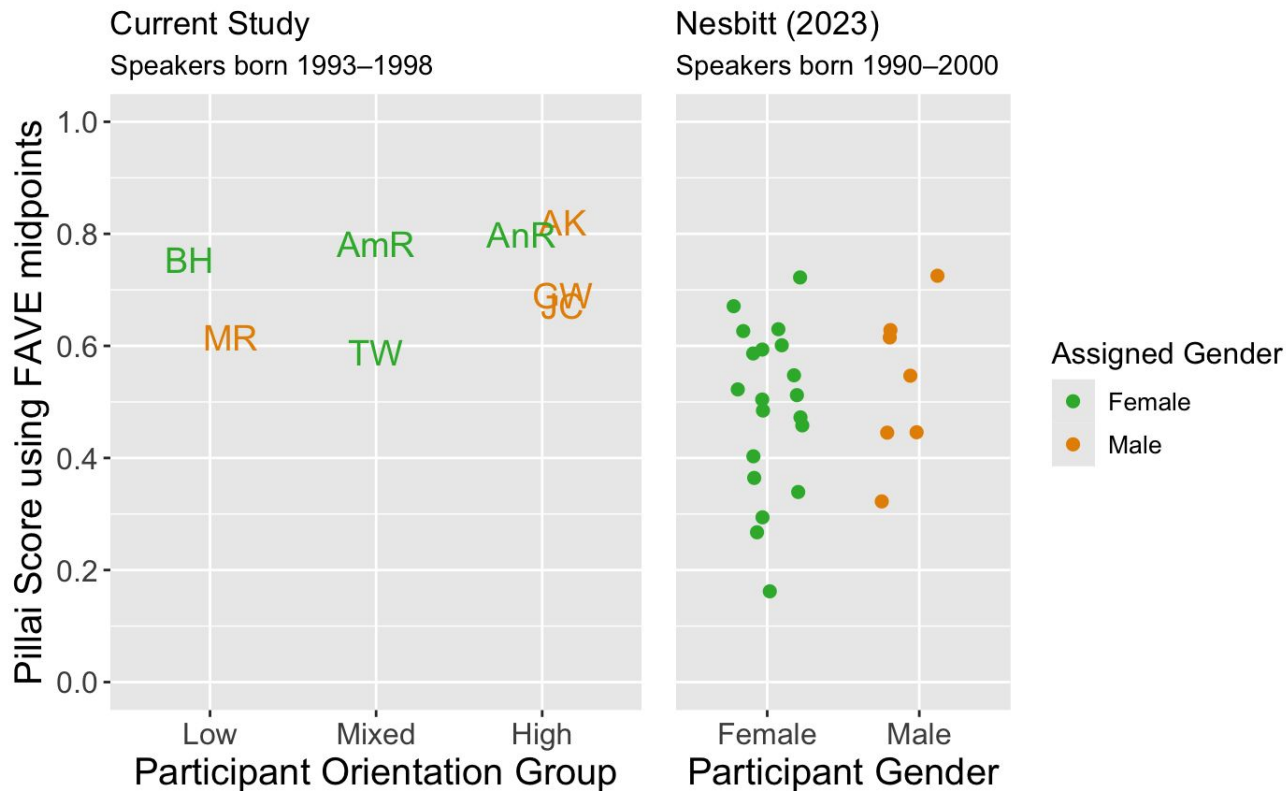




# FAVE Midpoint Overlap Plots



# FAVE Midpoint Pillai Score Plots



# Discussion

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# Discussion: Answers to Research Questions

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1. 4 of 8 participant Pillai scores are higher than the scores seen in previous research
  - Average Pillai score here (0.716) is nearly equal to the *highest* Pillai score of 0.722 from Nesbitt (2023)
  - All these participants have Pillai scores higher than the average seen for speakers born in similar years
2. Within-group differences in pre-nasal TRAP trajectories almost exactly correlates with participant orientations
  - AnR is the exception, but AnR identifies with transmasculinity to a greater degree than other participants (see Gratton, 2016; Cordoba, 2023)

# Discussion: Interpretation of Results

1. These nonbinary speakers have a greater TRAP distinction than binary-gender speakers from similar years of birth
  - Groups with less societal power tend to lead language change (argued by Tagliamonte & D'Arcy, 2009)
  - These speakers possibly have a higher “degree of investment in the social values of linguistic variation” (Labov, 2006, p. 321)
  - Interview content shows that these speakers are actively aware of the role that speech has in identity construction
2. Speakers' qualitatively determined orientations are better predictors of TRAP trajectory differences than AGAB

# Considerations and Limitations

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- Small participant pool:
  - This research was intended as an exploratory study before collecting data from more speakers.
- Results not generalizable because of the controlled demographics:
  - e.g., age, level of education, region, race
- Not much precedent for using Pillai scores with formant tracks:
  - Further testing needed to see if the combination of these two methods is statistically sound enough for other researchers to use

# Key Takeaways

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- The nonbinary speakers in this study have more advanced split TRAP systems than speakers in previous studies
- Identity-based orientations > assigned gender at birth
  - Especially for understanding speakers who are seemingly “outliers”
- Gender *is* an important social influence on linguistic change, but we still have much to learn about *why* and *how* gender is important
  - Integrating nonbinary into sociolinguistics as a “third gender” obscures meaningful distinctions

# Future Directions

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- Analyze nonbinary speakers with other in-progress sound changes to see if the patterns found here occur in other sociolinguistic contexts.
  - Important to consider nonbinary usage of gendered linguistic variables within the context of the community of practice (in agreement with Calder & Steele, 2025)
- Gather data from a larger pool of nonbinary Michigan English speakers to conduct a more robust inquiry into NCS reversal by nonbinary speakers



# Thank you!

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# Additional Slides

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# Bonus Overview

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# Language and Gender

- Linguistic sound changes pattern by (binary) gender (Eckert, 1989; Labov, 1990)
  - Quantitative research with nonbinary speakers has mainly focused on stable linguistic variants (e.g., Gratton, 2016; Rechsteiner & Sneller, 2023; Schmid & Bradley, 2019)
  - Nonbinary speakers are underrepresented in studies on sound changes in progress
- If we have an idea of the trends for men and women in sound change, then what are people who *aren't* men or women doing?

# Hypotheses

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- If participating in change is about indexing a progressive social identity → nonbinary speakers likely to use incoming form
  - Social goals likely play a role too:
    - Desire to be seen as nonbinary → more in lead, potentially very in lead
    - Desire to not be seen as nonbinary → might lag in order to not “stand out”
- Speaker alignment with queerness and desire to be seen as nonbinary will be a more significant predictor than assigned gender at birth.

# Social Characteristics and NCS Reversal Trends

- **age** (Nesbitt, 2023; Wagner et al., 2016)
  - younger speakers > older speakers
- **gender** (Driscoll & Lape, 2015; Gehringer, 2022)
  - women > men
- **class** (Benheim & D'Onofrio, 2023)
  - speakers in higher class neighborhoods > speakers in lower class neighborhoods
- **education** (Thiel & Dinkin, 2020)
  - speakers with college education > speakers without college education
- **style** (Dinkin, 2024)
  - wordlist style > spontaneous speech
- **social networks** (D'Onofrio & Benheim, 2020)
  - networks supportive of diversity > networks resistant to diversity
- **persona** (King, 2021)
  - speakers constructing a Mobile Black Professional persona > other speakers



# Bonus Methodology

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# Interviews

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Modular interview guide was developed based on Labov (1984)

- Participants were encouraged to discuss any topics that interested them
- All participants responded to questions about nonbinary identity and queer community

Interviews were conducted virtually on Zoom

- Participants recorded audio locally using Audacity, or, when that was not an option, with Cleanfeed which uses the Opus codec

Interviews ranged in length from 41 to 75 minutes

Interviews conducted between 2020 and 2022

# Bonus Results

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# Preliminary Analysis w/ Pronoun Categories

