Scan to access full report and slides

Pronoun Dropping by Spanish-English Bilingual Speakers in Miami

Claudia Clinchard &
Lanxin Xiang

Background

Study Design and Data

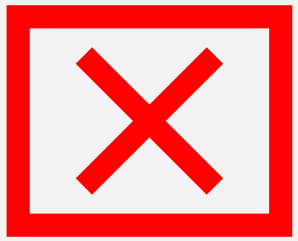
Model and Analysis

Conclusion and Recommendations

Pronoun Dropping – What is it?

I want to run.

Want to run.



Yo quiero correr

Quiero correr

Research Question

- How does age affect the presence of pronoun use in the Spanish language for bilingual speakers?

Background

Study Design and Data

Model and Analysis

Conclusion and Recommendations

Sample Information

21	**TOM**	**Está well estoy de acuerdo.**
		Yes, well, I agree.
62	**MIG**	**Y el trabajo como va al fin ya ya te fuiste del…**
		And work, how's it going now, did you end up leaving

20 tokens (sentences)

Data Source: Deuchar, M., Parafita Couto, M.D.C, Webb-Davies, P., & Donnelly, K. (March 19, 2025). [Data set] https://bangortalk.org.uk/speakers.php?c=miami .

20 Participants

	Younger (< 35 years old)	Older (>= 35 years old)
Man	5	5
Woman	5	5

Variables of Interest

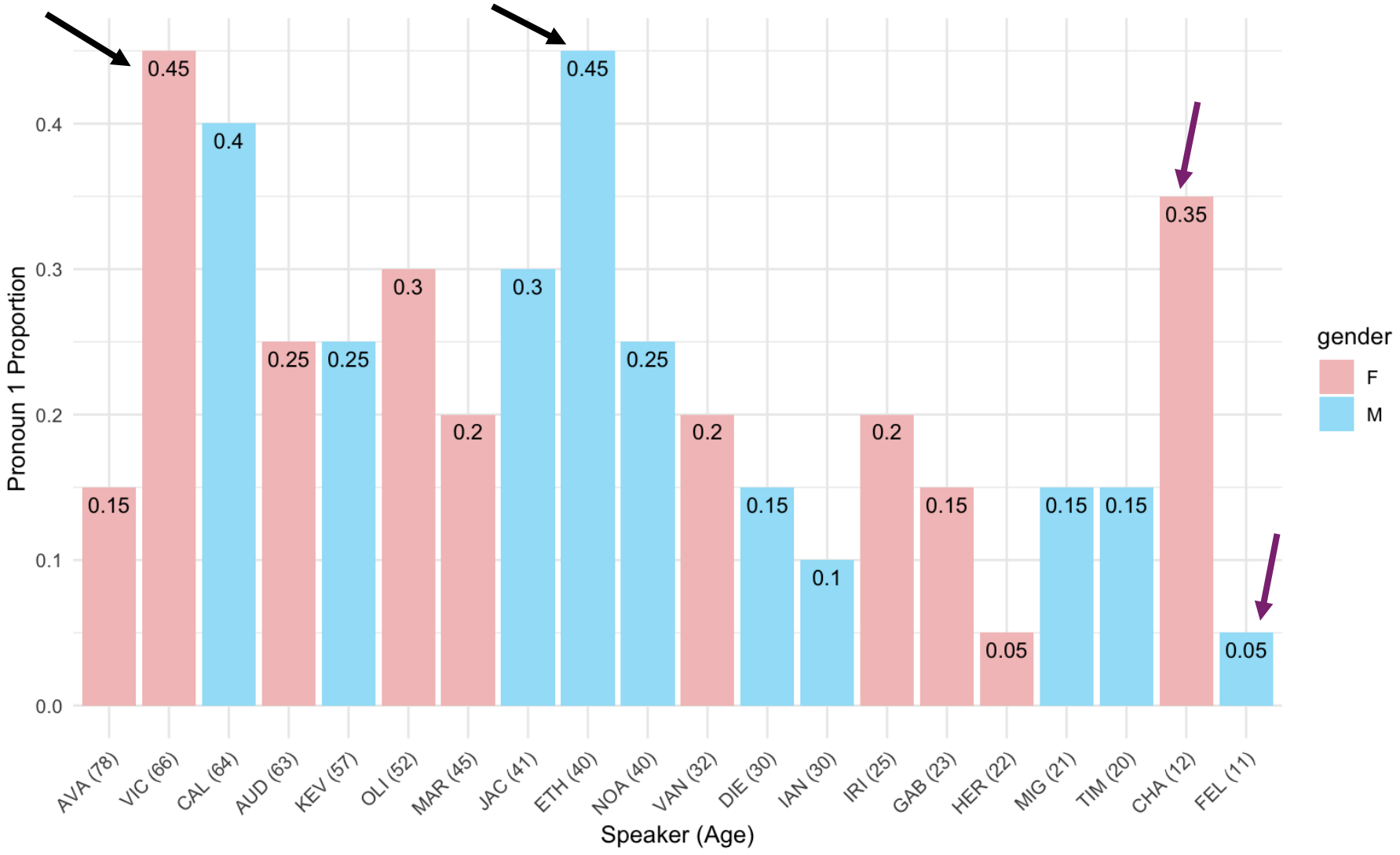
- Age (11-78)
- Gender
- Conjugation
- Preceding Language (English versus Spanish)
- Pronoun use

Conjugation

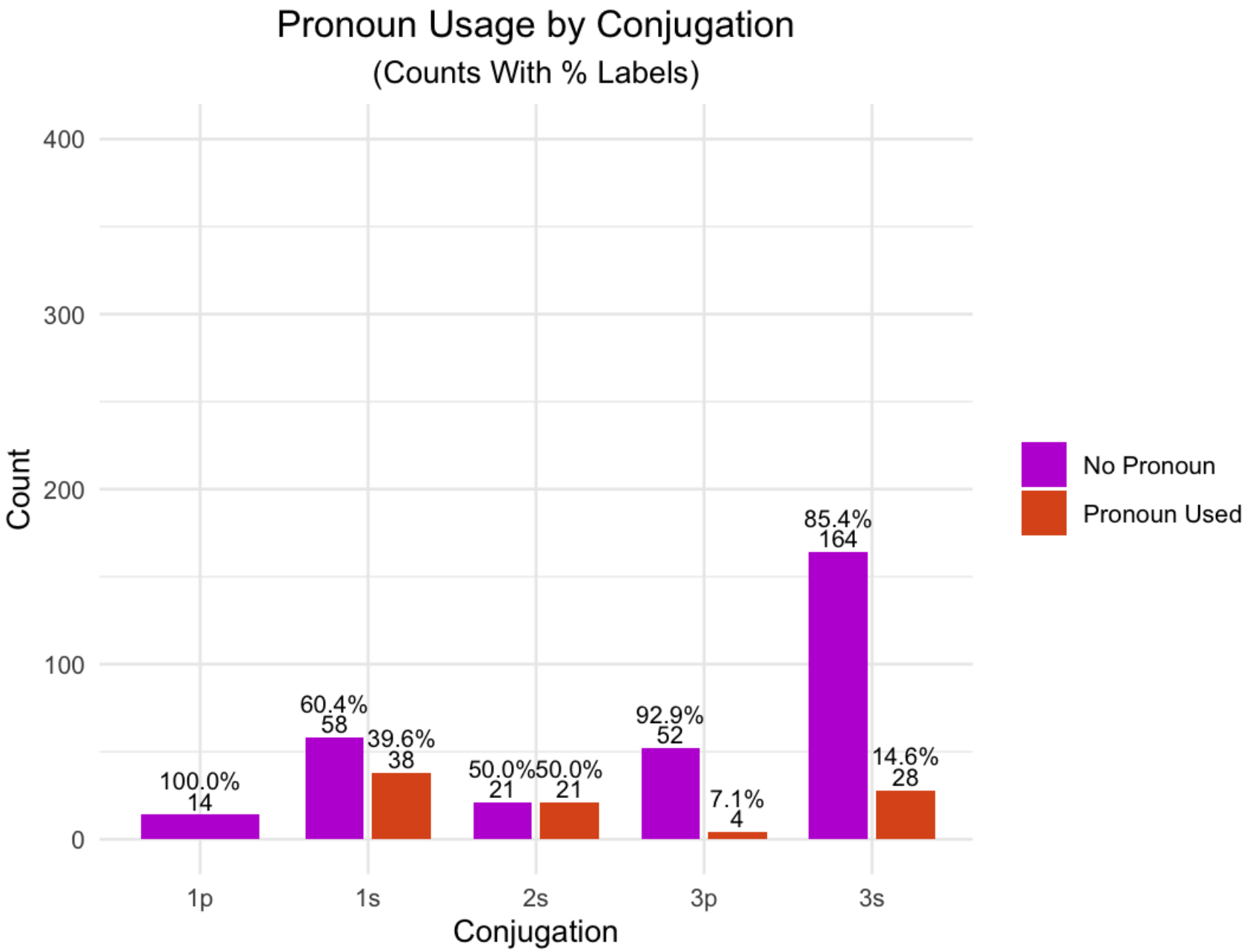
	Singular	Plural
First Person	I	We
Second Person	You	You all
Third Person	She/He	They

Older speakers generally used pronouns more frequently

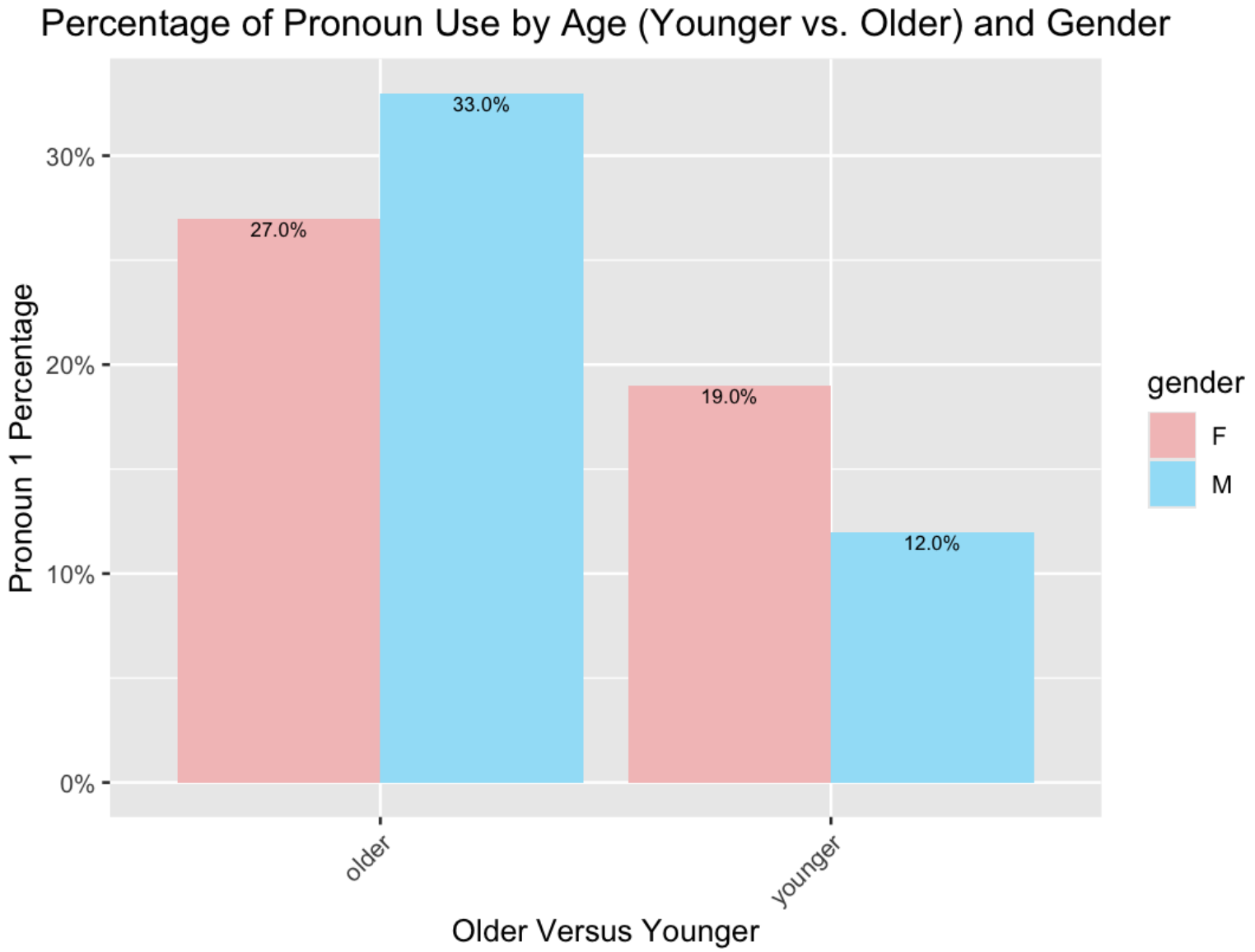
Proportion of using pronoun by s**peaker, age (descending), and gender**



Third person singular conjugations used most frequently



Signs of a Potential Interaction Between Age and Gender



Background

Study Design and Data

Model and Analysis

Conclusion and Recommendations

Why a Generalized Linear Mixed Model?

- **Random Effect:**

  Speaker (accounts for individual variability)

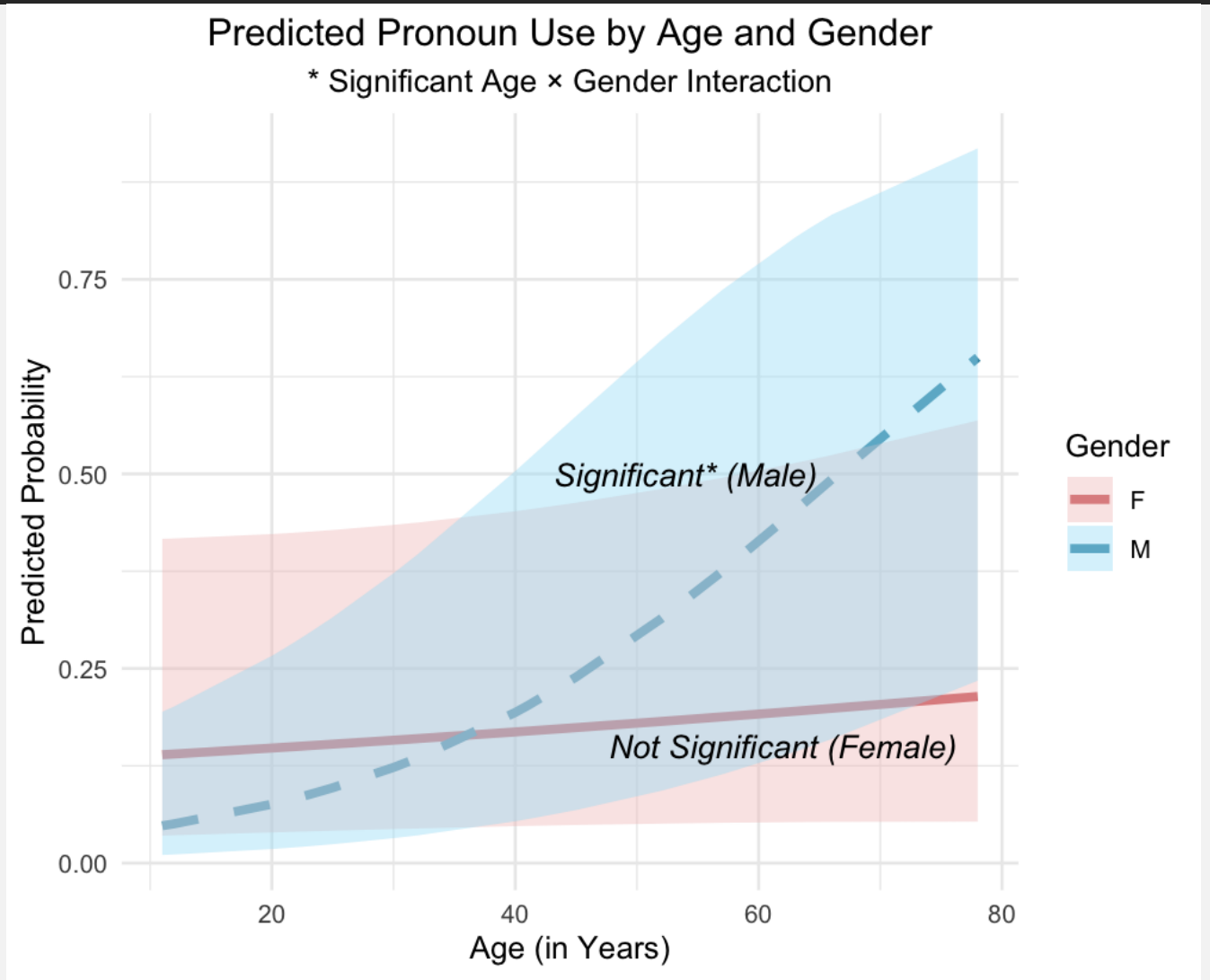
- **Fixed Effects:**

  Age, gender, age x gender interaction, conjugation (person), conjugation (plural vs. singular), language before the token

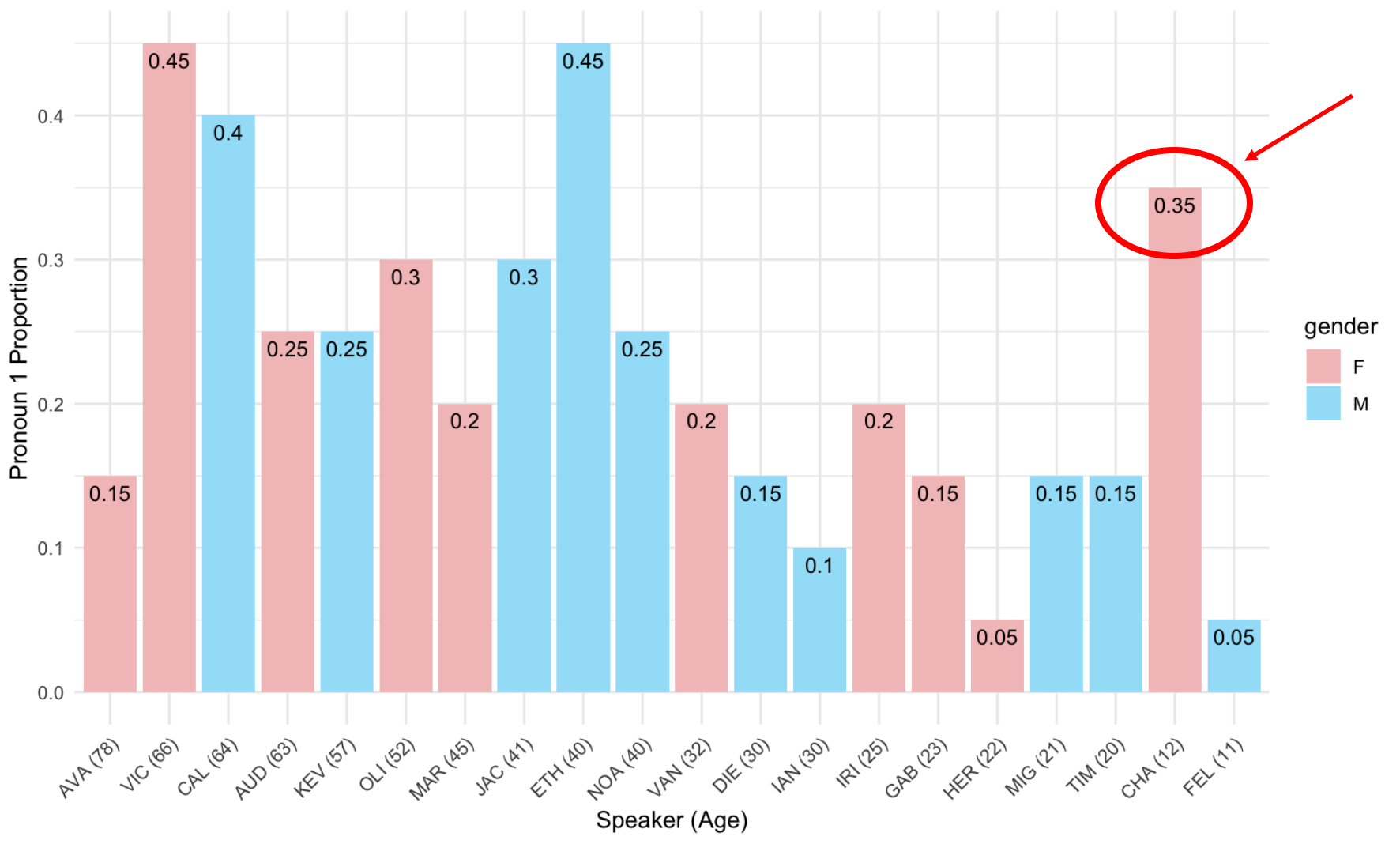
- **Response Variable:**

  Pronoun used (yes vs. no)

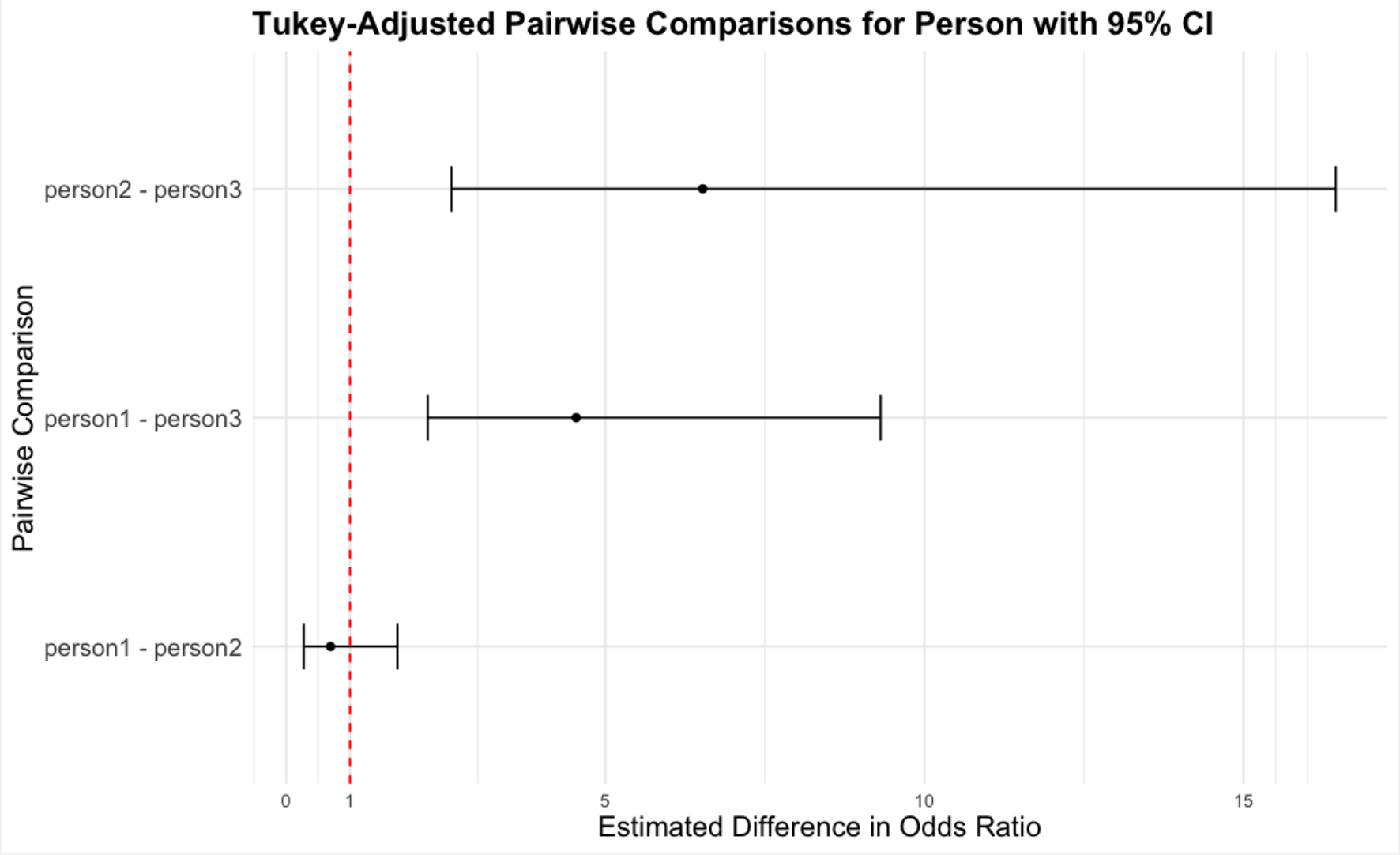
A Significant Age X Gender Interaction Emerged (95% CI for odds ratio: [1.01 - 1.08]; p = .004)



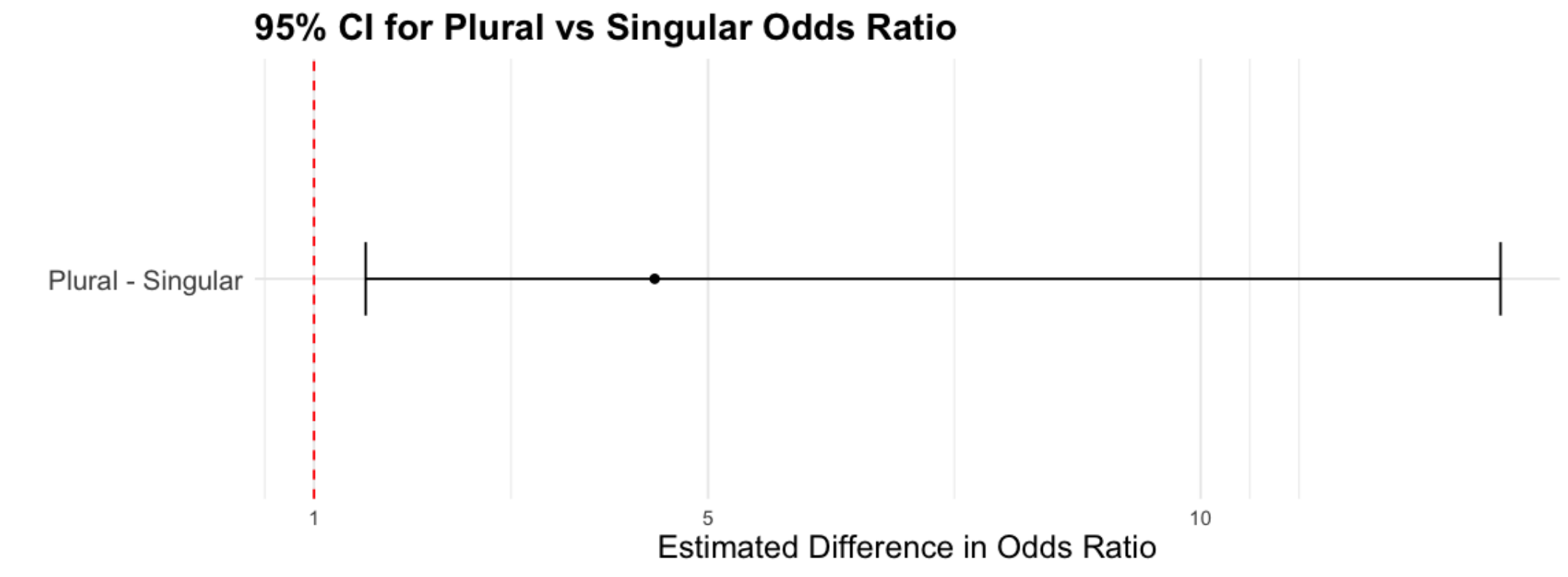
Potential Outlier?



Conjugation Matters: Pronouns are less frequently used with third person conjugations



Conjugation Matters: Pronouns are more frequently used with plural conjugations



Background

Study Design and Data

Model and Analysis

Conclusion and Recommendations

Conclusions and Recommendations

- Main Takeaways:
  - Older males used pronouns more than younger males
  - Third person conjugations associated with less pronoun use
  - Singular conjugations associated with less pronoun use
- Recommendations:
  - Collect additional data
  - Consider balanced design

Future Directions

Verb	Pronoun Used	Times Used	% Time Pronoun Used
creer	8	10	80.0%
querer	7	10	70.0%
empezar	3	6	50.0%
gustar	2	5	40.0%
poder	4	10	40.0%
venir	2	7	28.6%
decir	5	19	26.3%
ser	15	59	25.4%
hacer	4	19	21.1%
llevar	1	5	20.0%
tener	5	32	16.6%
estar	6	39	15.4%
veer	1	8	12.5%
haber	1	9	11.1%
saber	1	12	8.3%
ir	2	29	6.7%

Questions?

- Reminder of key takeaways:
  - Younger males → less pronouns used
  - Third person conjugations → less pronouns used
  - Singular conjugations → less pronouns used

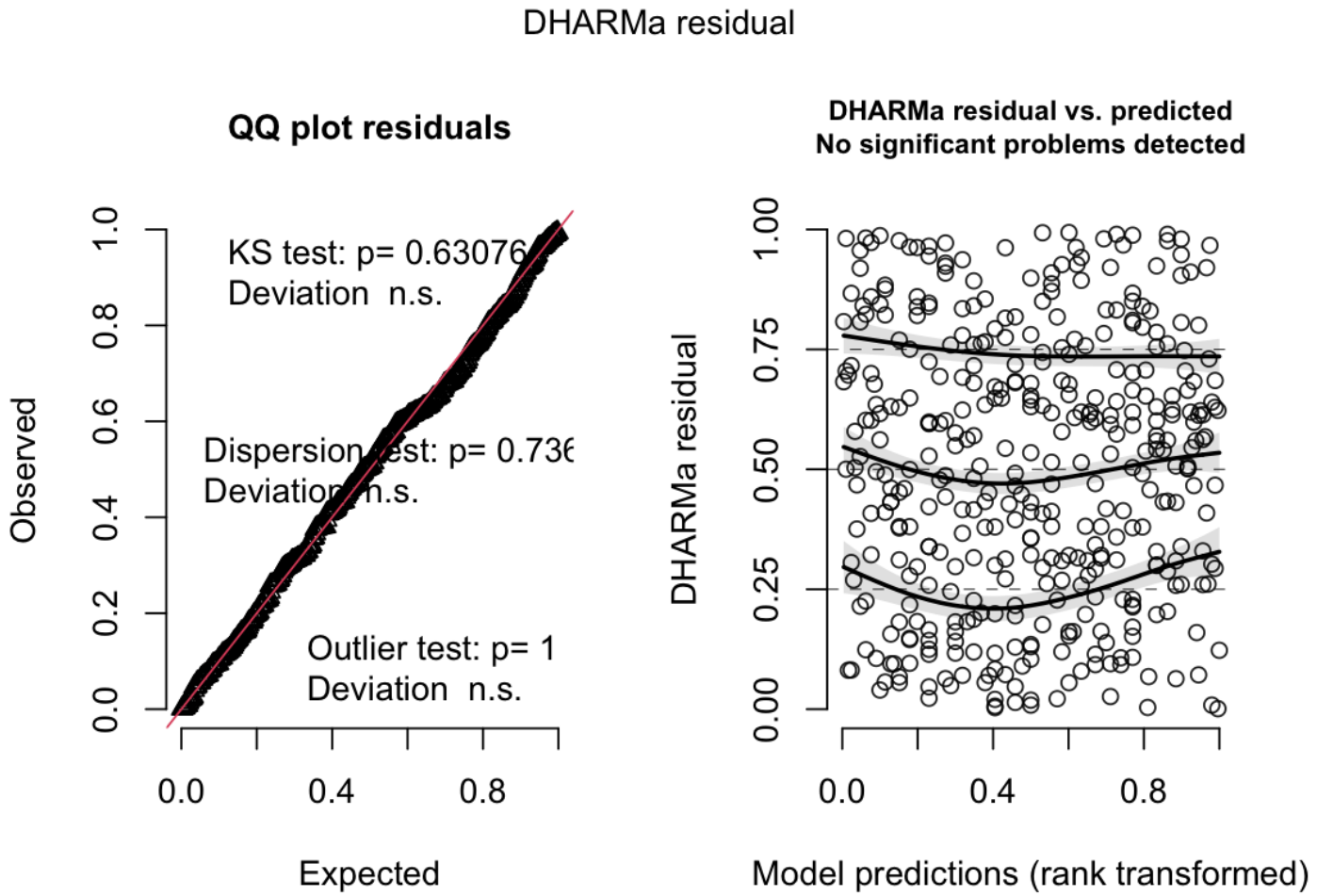
Appendix

Model Output

pronoun

Predictors	*Odds Ratios*	*CI*	*p*
(Intercept)	0.15	0.03 – 0.71	**0.017**
age	1.01	0.99 – 1.03	0.400
gender [M]	0.19	0.05 – 0.75	**0.018**
before [spanish]	0.76	0.31 – 1.86	0.546
before [start]	1.03	0.07 – 14.86	0.984
person [2]	1.44	0.67 – 3.10	0.356
person [3]	0.22	0.12 – 0.40	**<0.001**
pr [s]	4.46	1.52 – 13.04	**0.006**
age × gender [M]	1.05	1.01 – 1.08	**0.004**
Random Effects			
σ^2	3.29		
$\tau_{00\ speaker}$	0.03		
ICC	0.01		
$N_{\ speaker}$	20		
Observations	400		
Marginal R^2 / Conditional R^2	0.284 / 0.290		

Assumptions



Hartig, F. (2024). DHARMa: Residual Diagnostics for Hierarchical (Multi-Level / Mixed) Regression Models. R package version 0.4.7, <https://CRAN.R-project.org/package=DHARMa>.

Dichotomous Age Model Output

```
     AIC      BIC   logLik deviance df.resid
   379.9    419.8   -179.9    359.9      390

Scaled residuals:
    Min      1Q  Median      3Q     Max
-1.4027 -0.5156 -0.3393 -0.1670  8.1602

Random effects:
 Groups  Name        Variance Std.Dev.
 speaker (Intercept) 0.02539  0.1593
Number of obs: 400, groups:  speaker, 20

Fixed effects:
                           Estimate Std. Error z value Pr(>|z|)
(Intercept)                 -1.3349     0.7544  -1.770  0.07681 .
ACyounger                   -0.5039     0.3865  -1.304  0.19234
factor(gender)M              0.4643     0.3638   1.276  0.20181
factor(before)spanish       -0.3237     0.4648  -0.697  0.48610
factor(before)start         -0.1955     1.4036  -0.139  0.88925
factor(person)2              0.4142     0.3980   1.041  0.29801
factor(person)3             -1.3777     0.3074  -4.481 7.42e-06 ***
factor(pr)s                  1.4657     0.5472   2.679  0.00739 **
ACyounger:factor(gender)M   -1.1399     0.5667  -2.011  0.04430 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```