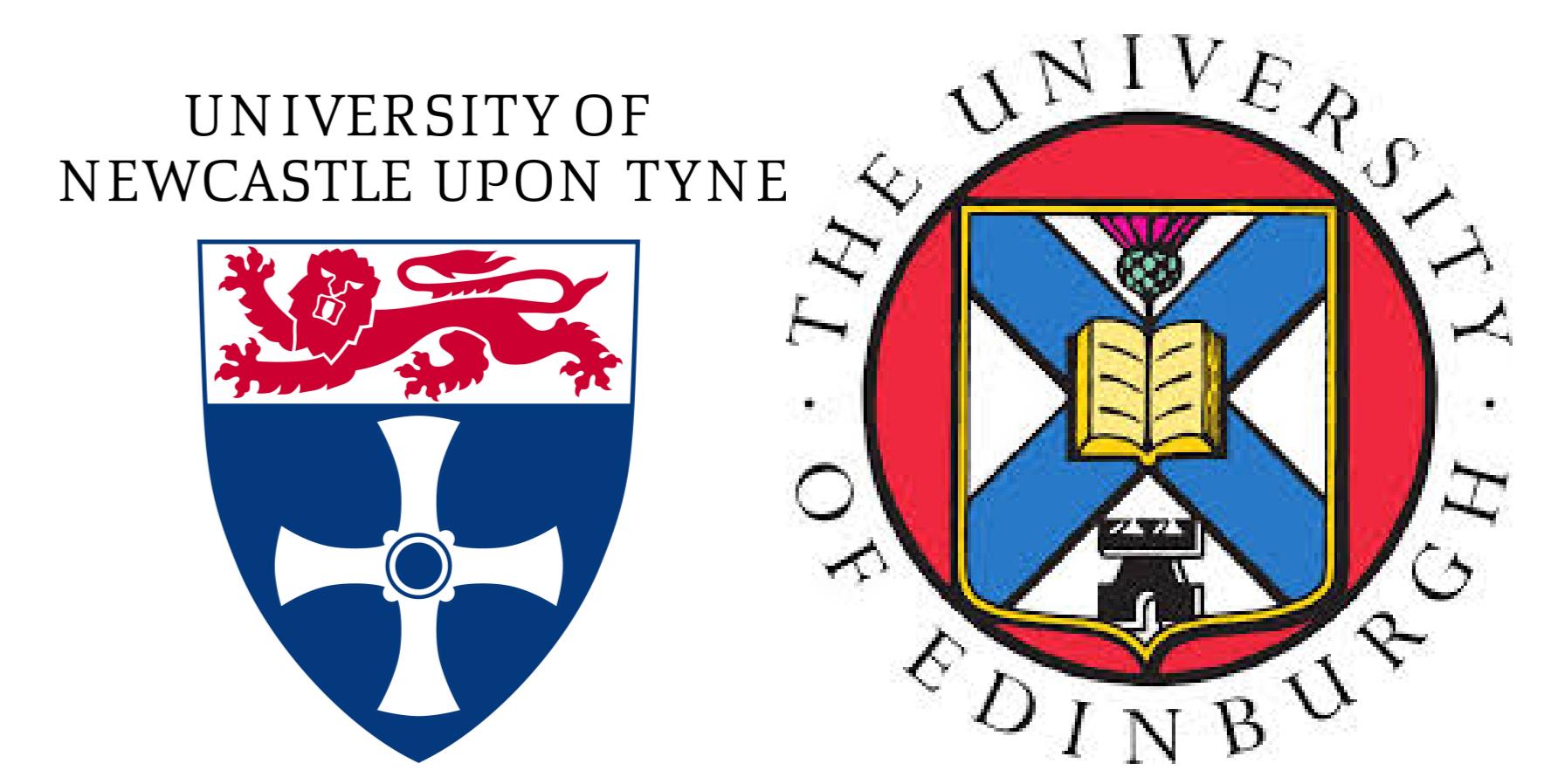


Gender and linguistic variation: a role for hormonal organising effects

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Introduction

Known:

Women tend to lead language change from below.

Why?

Answers Vary (e.g. ??).

A Problem

- Most macro-level studies of language change assume a gender binary.
- Most research that doesn't assume a gender binary doesn't address itself to macro-level language change (e.g. ?).

Sociobiology

There is a growing literature on the connection between fetal testosterone exposure (hormonal organising effects) and gender identity (??), and gendered behaviour (??). See ?? for reviews, and related work on sexuality.

This Study

- We interviewed 10 speakers who would be classified as belonging to just one sex/gender group in most sociolinguistic studies (age matched assigned-female-at-birth and female-identifying).
- We analyzed gender according to a continuous measure known to correlate with fetal testosterone exposure (index finger:ring finger ratio).
- We looked for a correlation between this continuous gender variation and inter-speaker differences for a change in progress.

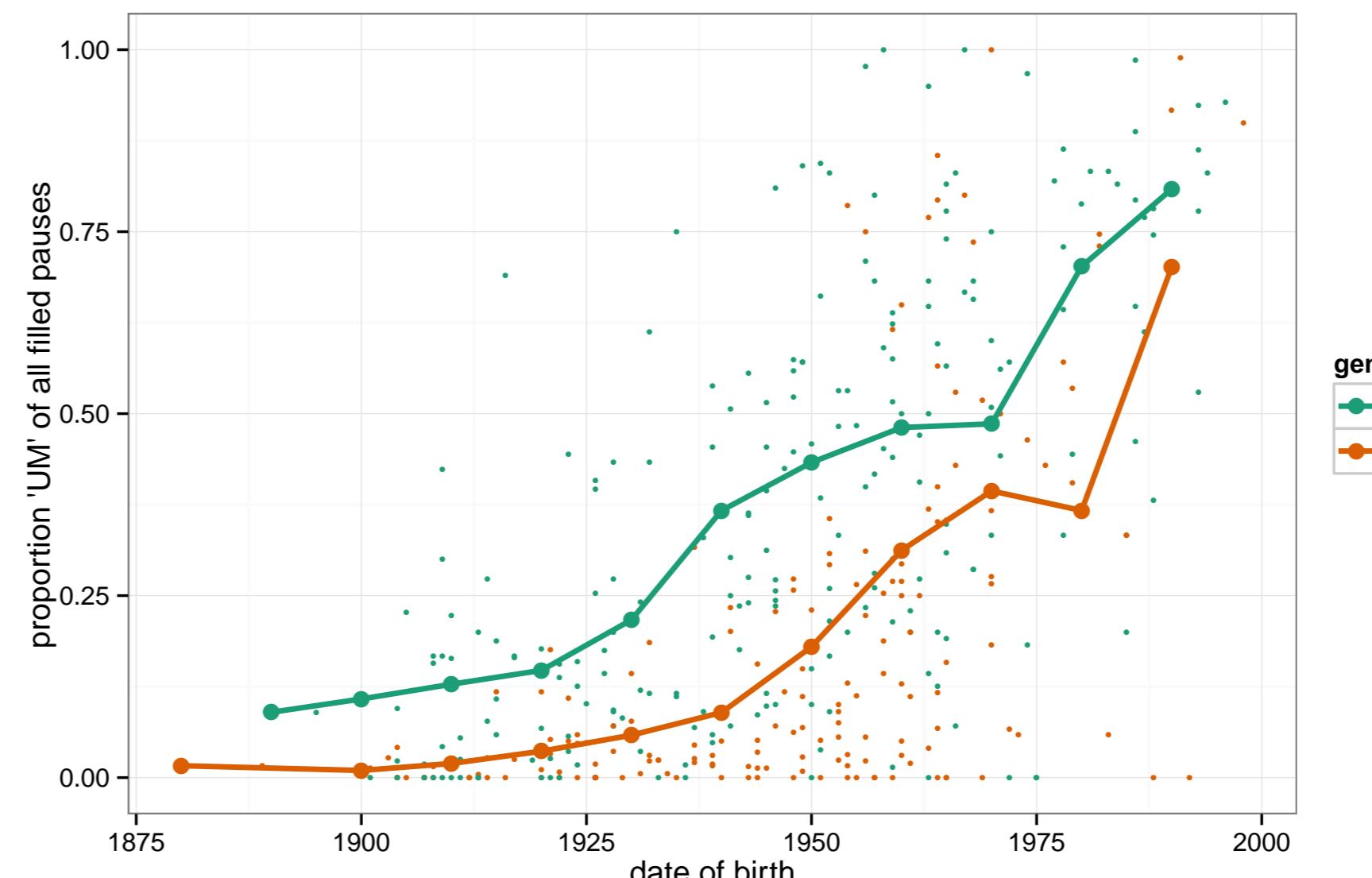
2D:4D Ratio

Generally (in humans and non-humans):

- smaller ratio, greater perinatal Testosterone exposure.
- larger ratio, less perinatal Testosterone exposure.

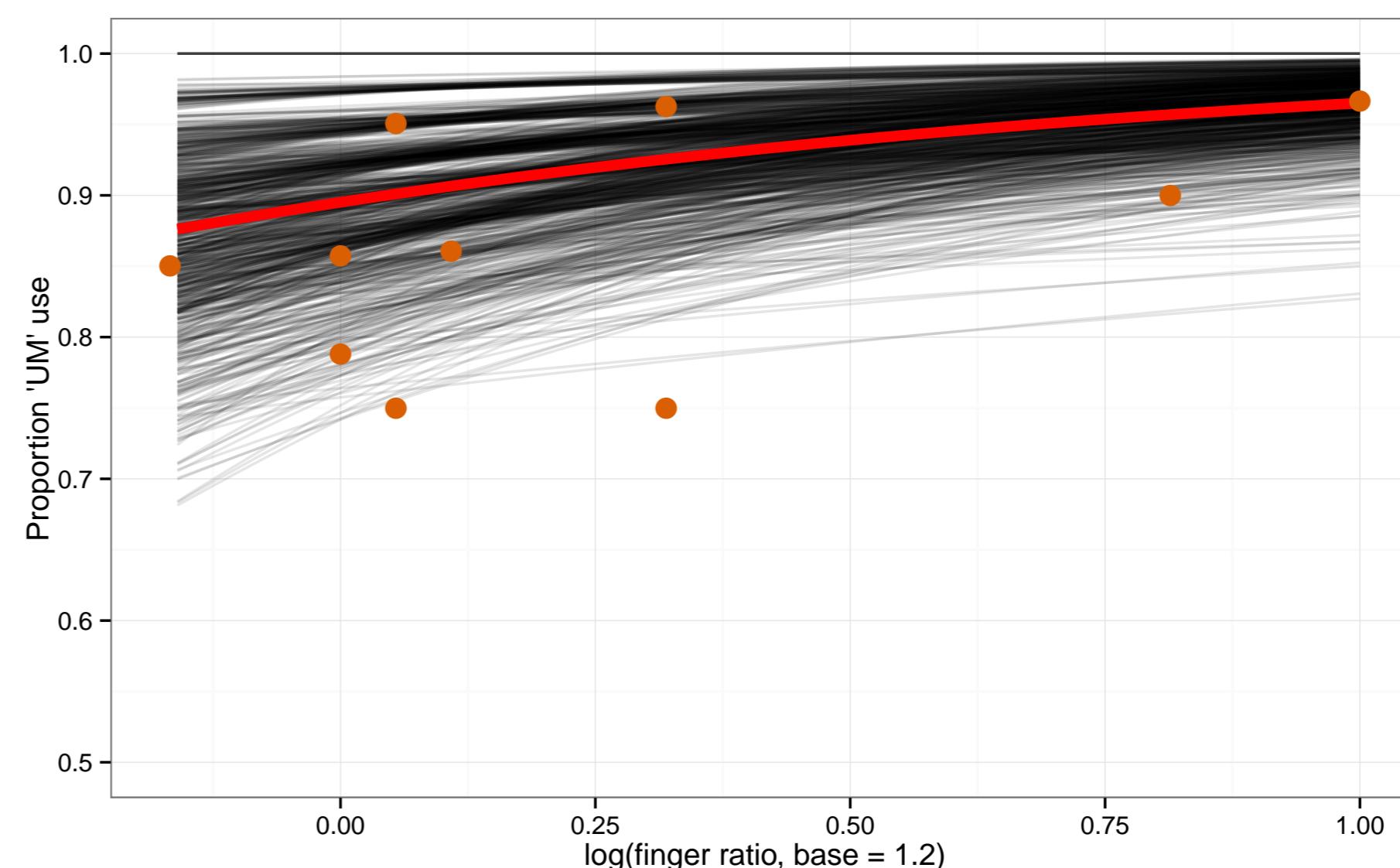


The Filled Pause Change in Progress



When speakers use a filled pause, they are more likely to use “um” than they used to be (Wieling et al, forthcoming).

Results



Preliminary results suggest that greater 2D:4D ratio (less testosterone exposure) is correlated with more advanced UM usage.

Interpretation: less pre-natal testosterone → more um.

Stats

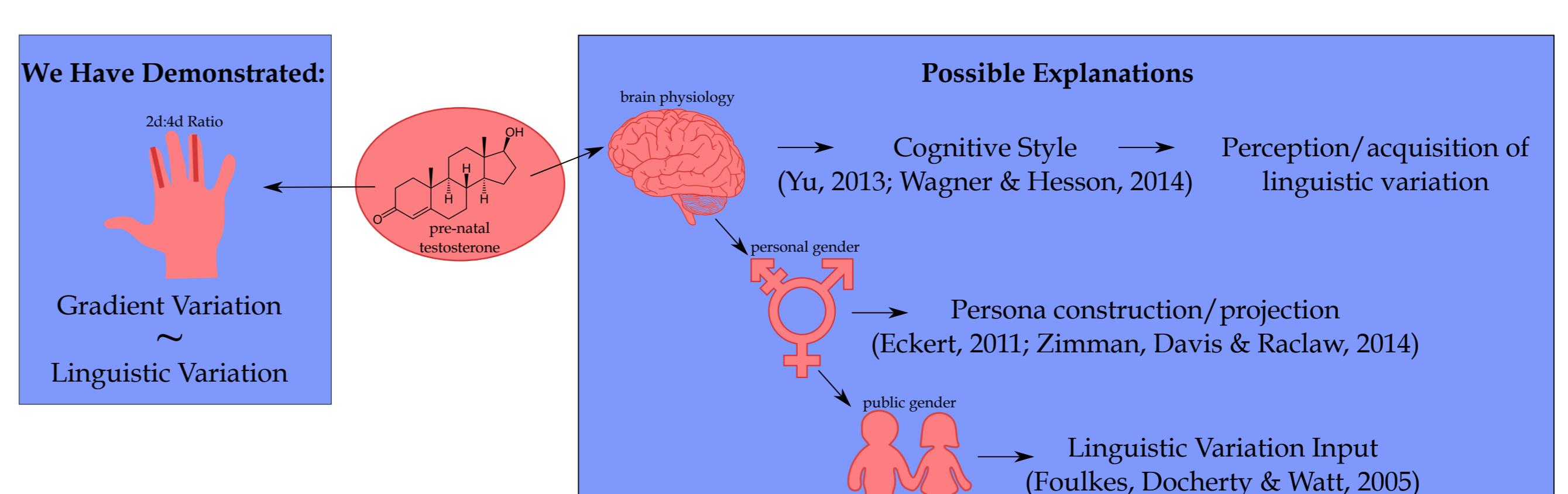
1000 bootstrap replicates produce a CI that excludes 0: (0.34, 2.17), but a permutation test yields $p = 0.163$.

model	AIC	BIC	LR	p-value
without ratio	292.04	316.39		—
with ratio	289.11	317.52		0.03

Effect size in the same order of magnitude as female effect in other spoken corpora.

Sample	Effect Size
Female effect, HCRC Maptask	2.3
Female effect, Fischer Corpus	1.37
Female effect, PNC	1.31
Finger Ratio, our Pilot 1	1.17
Female effect, Switchboard Corpus	1.03
Female effect, British National Corpus	0.45

Conclusions



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