The loss of rhoticity in Blackburn, Lancashire: Evidence from ultrasound

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We present the first widescale ultrasound analysis of rhotic /r/ in England. We find that speakers use a range of articulation strategies, with non-rhoticity more evident in younger females, and bunched-tongue a common strategy in both initial and word-final positions.

01. Introduction

- Rhoticity remains in only a few small pockets of England (*spar* vs *spa*)
- East Lancashire has been described as an "island of rhoticity" in England (Britain, 2009)
- Sociolinguistic interview data suggests /r/ is weakening in apparent time (Turton & Lennon, in revision):
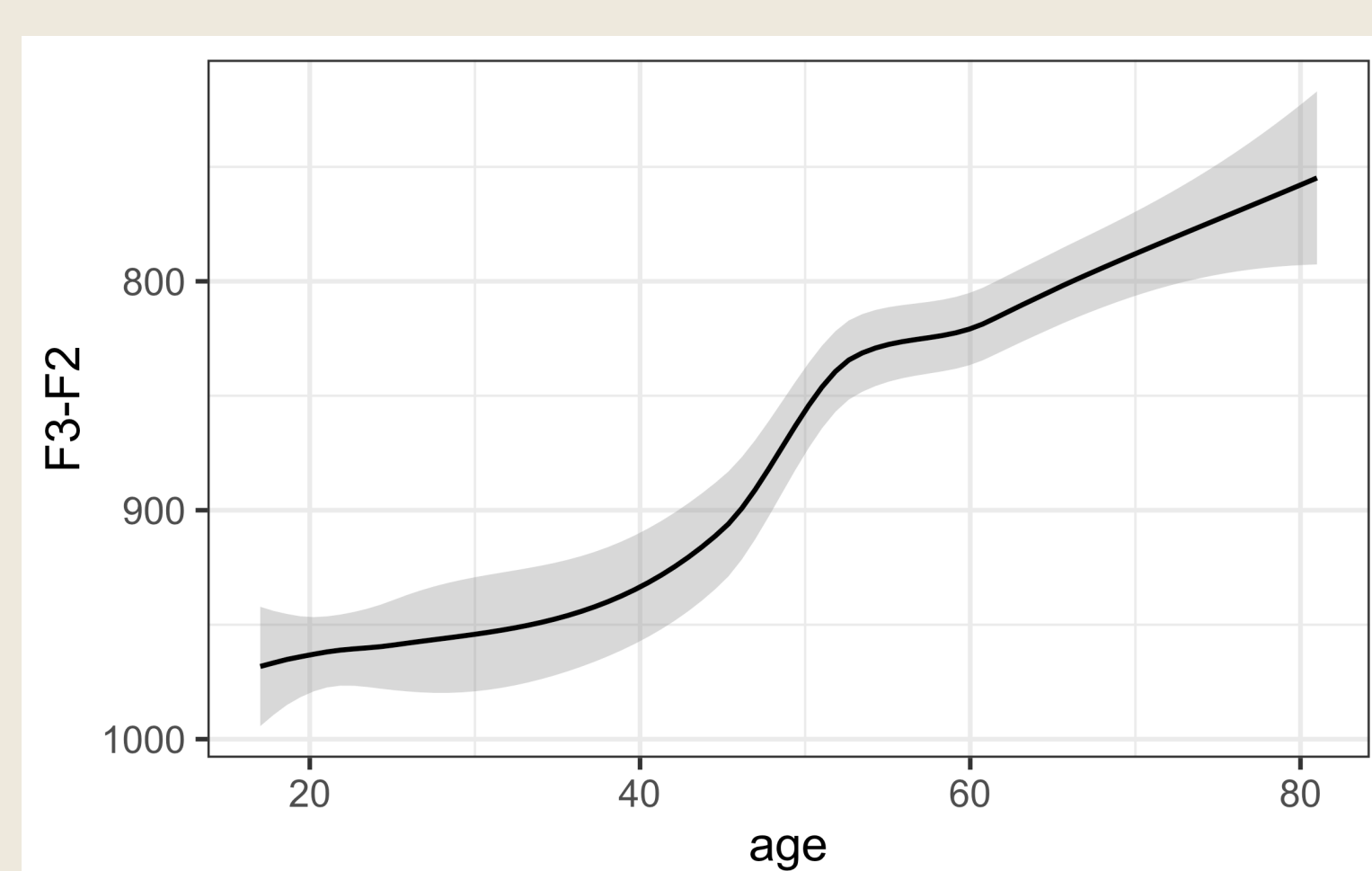
- Some speakers are non-rhotic, but derhoticised /r/ is more common
- Our analysis can provide insight into phonological change over time

02. Research questions

1. **What do these /r/s look like from an articulatory perspective?**
2. **Can this give us insight into how they might be being lost?**
3. **What conditions the variation?**
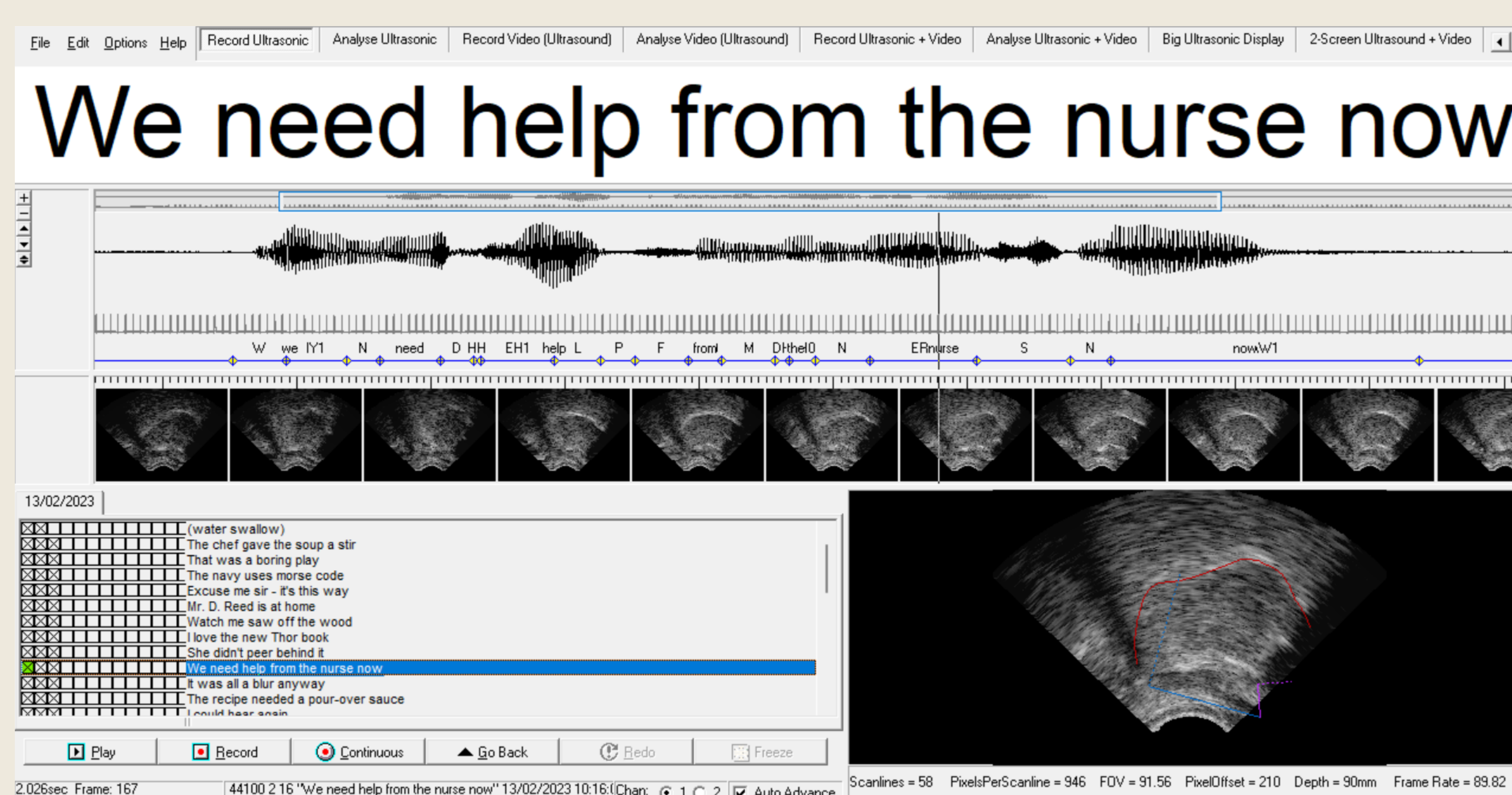
- Screenshot from AAA: 62 year old female with auditorily weakly-rhotic NURSE, despite some visible bunching

03. Methodology

- 17 Blackburn speakers, recorded on AAA portable ultrasound (2012)
- 6 older females; 6 older males; 5 younger females
- Alignment & tongue splining automated using Montreal Forced Aligner (McAuliffe et al 2017), & DeepLabCut (Wrench et al 2022)
- 108 /r/s per speaker

04. Auditory analysis

- All speakers coded for /r/ presence & strength by **first** & **second** authors:
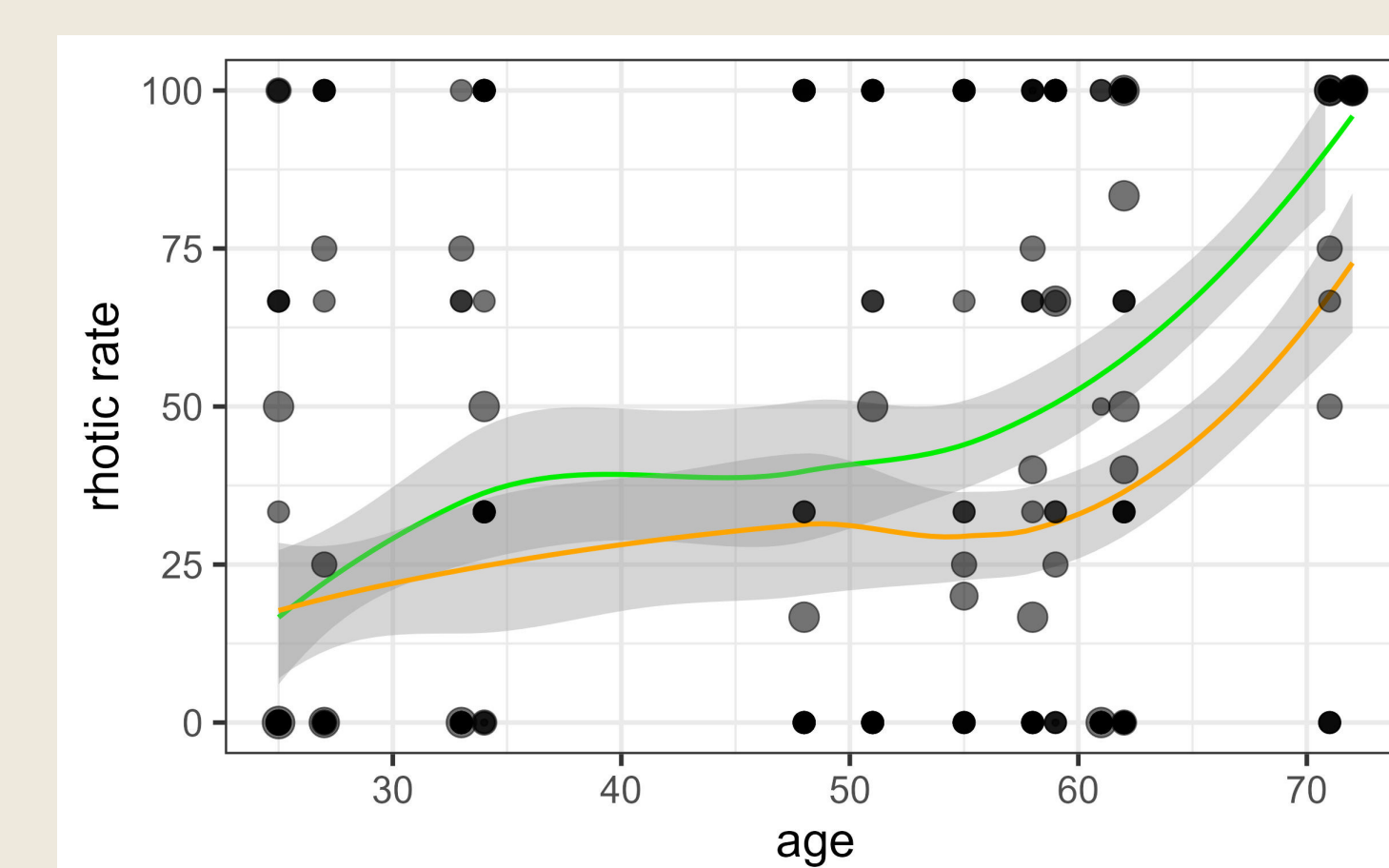

05. Results

- Most speakers show rhotic final /r/s (**blue** final, **red** initial)
- This is subject to variability for some speakers, but not for others
- At least one young female seems to be entirely non-rhotic
- NEAR contexts show much less positional difference than FORCE

- Speakers who sound weakly rhotic might still produce /r/s
- Further analyses may reveal the role of the vowel+/r/ sequence
- Implications for phonology and sound change
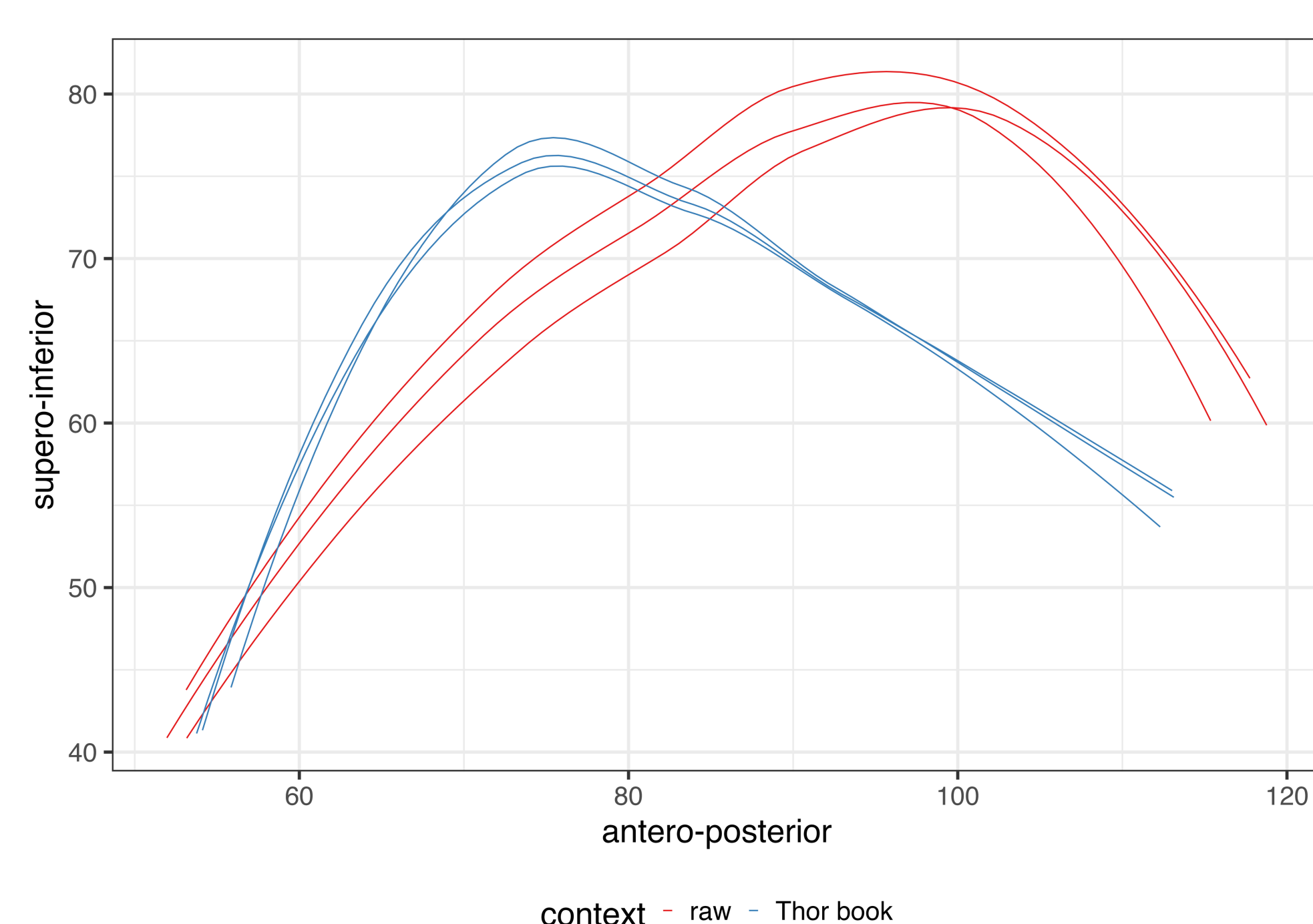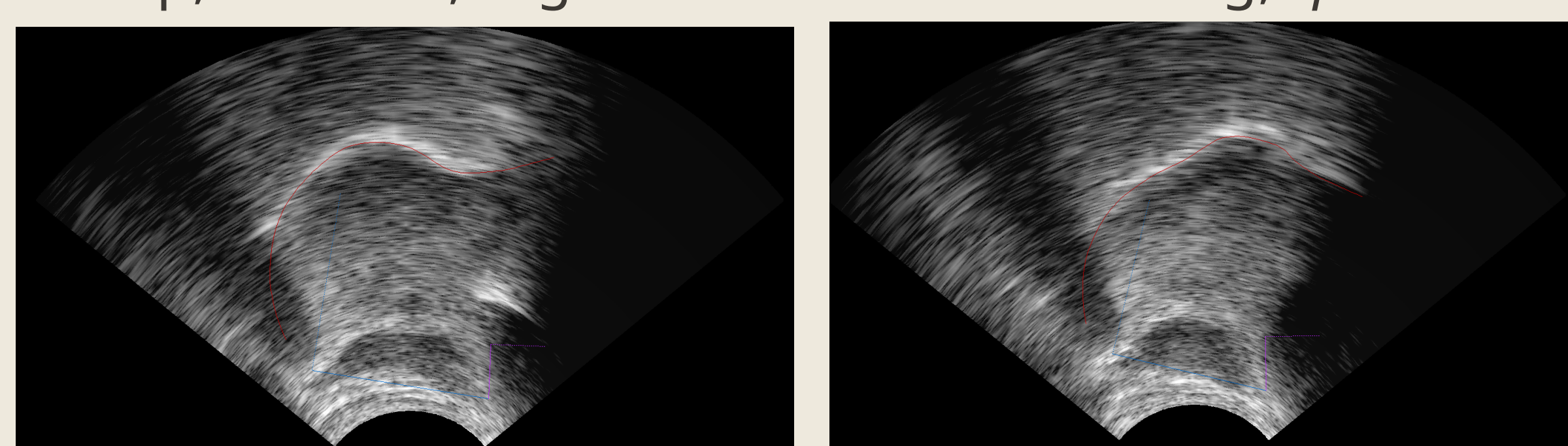

25 year old female with vocalised final /r/ (**blue**)
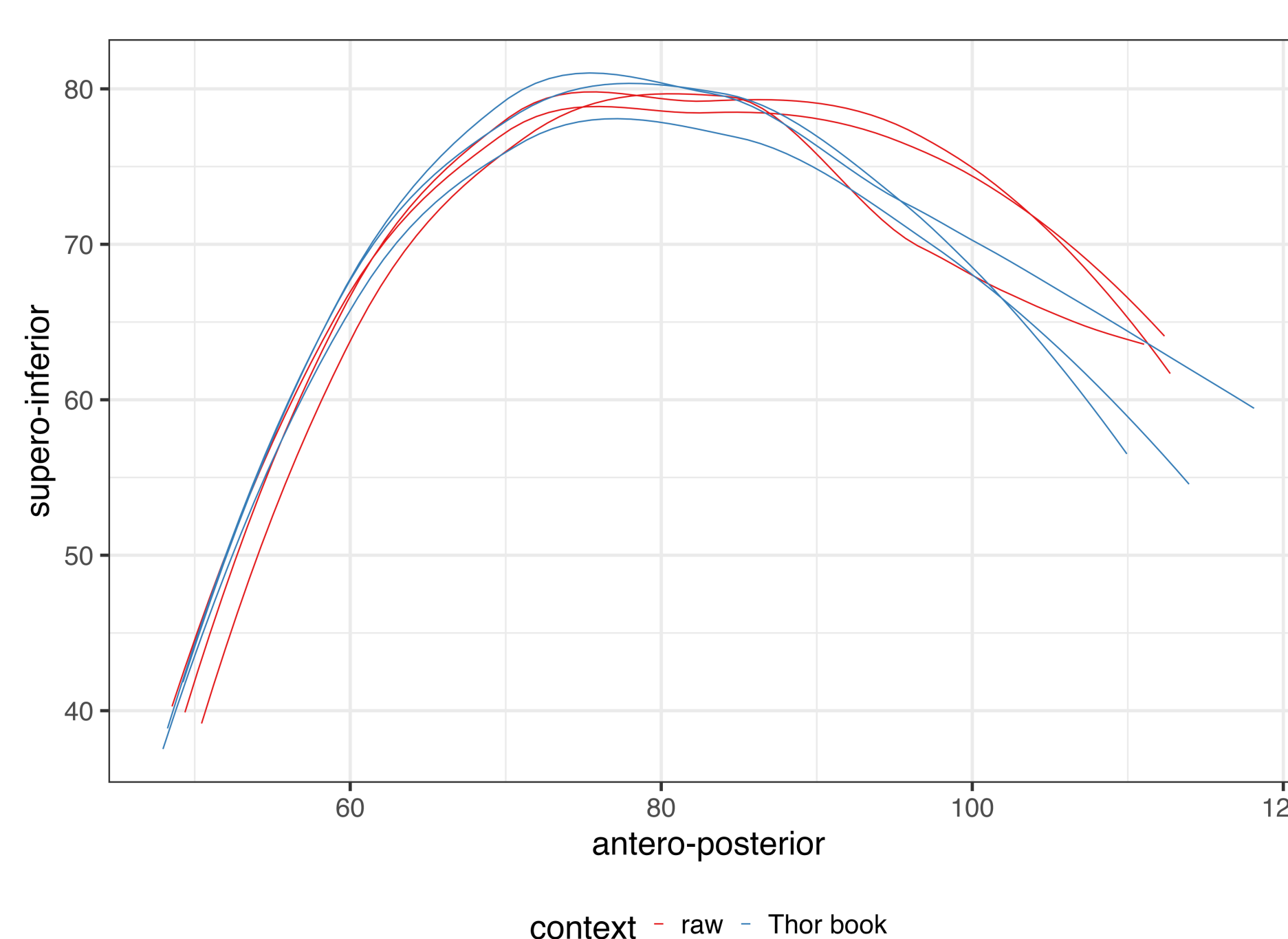
71 year old male: similar midpoint realisations
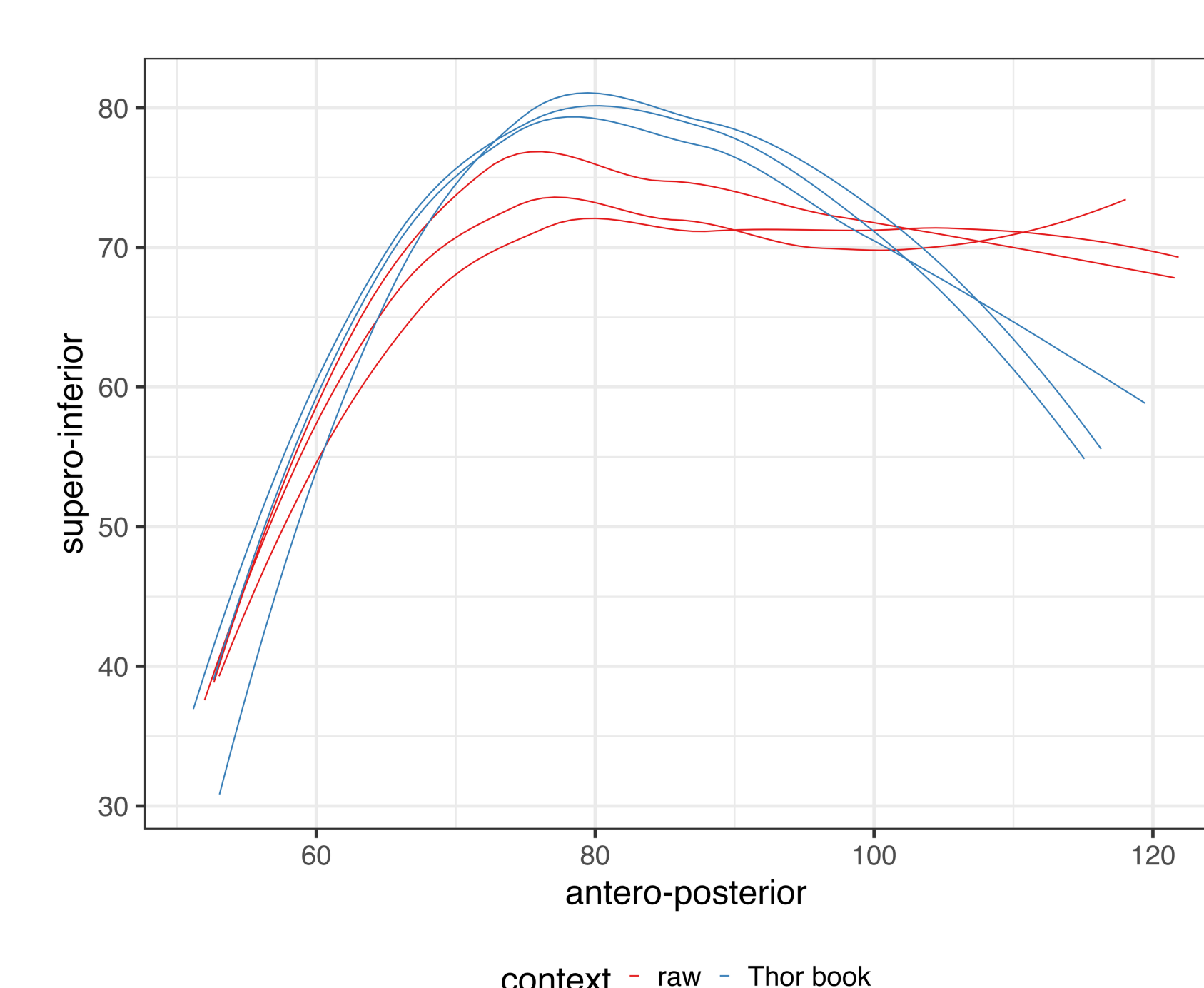
Variation in initial and final position despite rhoticity finally (72 year old male)

06. Individual variation

- Frames from 72 year old male. Left = intervocalic flap, *"moron"*; right = word-final bunching, *"pier"*

07. Summary and next steps

- Tongue shape in Blackburn is variable, but younger females are least rhotic
- Indications of influence of social class
- Upcoming analyses will delve into role of V+/r/ dynamics

08. References

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