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M1of /s/ in straight & gay voices in three analysis windows

Introduction

Gay voices

- High M1 in men's/s/ → perceived sexual orientation is gay[1,2]
- Gay sexual orientation ?→ High M1 in /s/ production[3 cf. 1,2]

Measuring M1 in/s/ [4-6]

- M1 peaks near midpoint of /s/[4]
- Gay-straight differences measured in
  - entire /s/[3]
  - not reported[1,2]

Can window size affect detection of gay-straight differences?

Methods

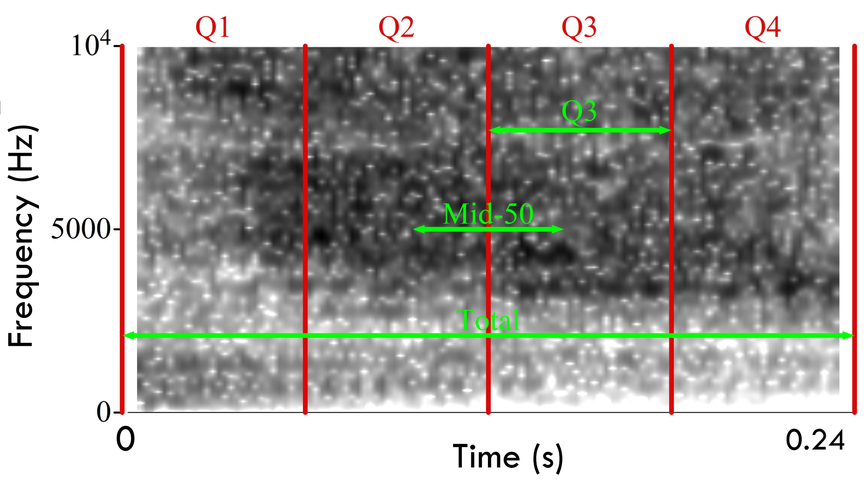
Speakers

- 64 [gay = 36][5]
- Australian English

Material

- *let us rejoice*
- 2 /s/ x speaker
- Phone recording

Figure 1. *Quarters and Windows*



Analysis

- Four quarters
- Three windows

Table 1. *Reference values*

	Q1	Q2	Q3	Q4
Ref. M1 (Hz) [5]	4800	5250	5100	4500
Gay	N.S.	**higher	***higher	
Straight	***lower	N.S.		

Data validation

- One sample t-test

Generalised linear mixed models

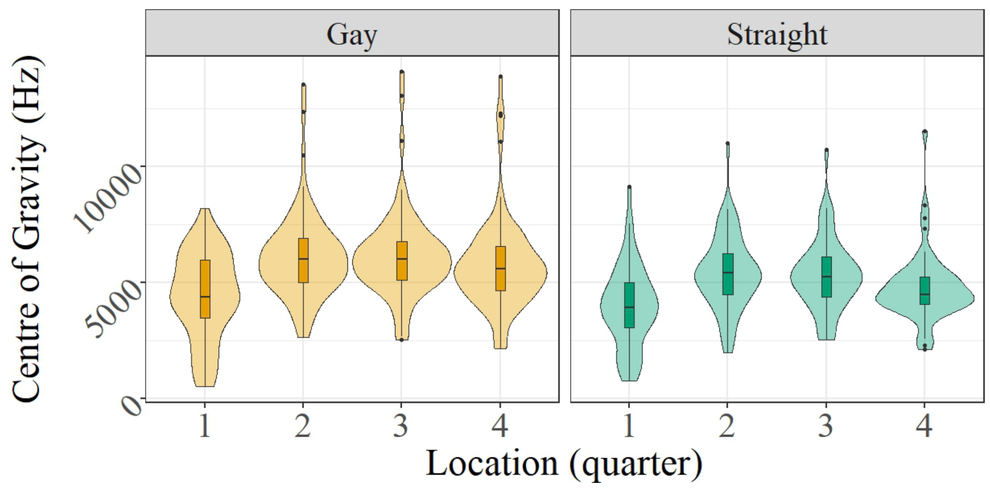
M1 ~ Sexual Orientation * Quarter + (1 | Speaker)

M1 ~ Sexual Orientation * Window + (1 | Speaker)

Change over time

- Gay men have higher M1 than straight men ($p < 0.001$)
- Q1: low M1 ($p < 0.001$)
  - with less increase in gay men ($p < 0.001$)
- Q2 & Q3: high M1 ($p < 0.001$)
  - with more increase in gay men ($p = 0.014$ and $p < 0.001$)

Figure2. *Change in M1 over time*



Analysis window

- Straight men: M1 is higher when measured in the mid-50ms and the third quarter windows
- Gay men have higher M1 than straight men in all windows

Figure 3. *Effect of analysis window on M1 measurements*

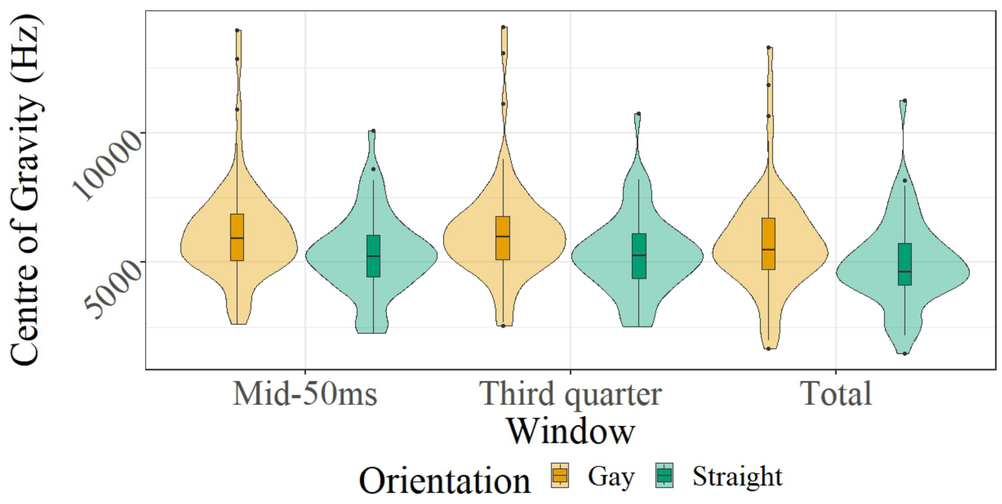
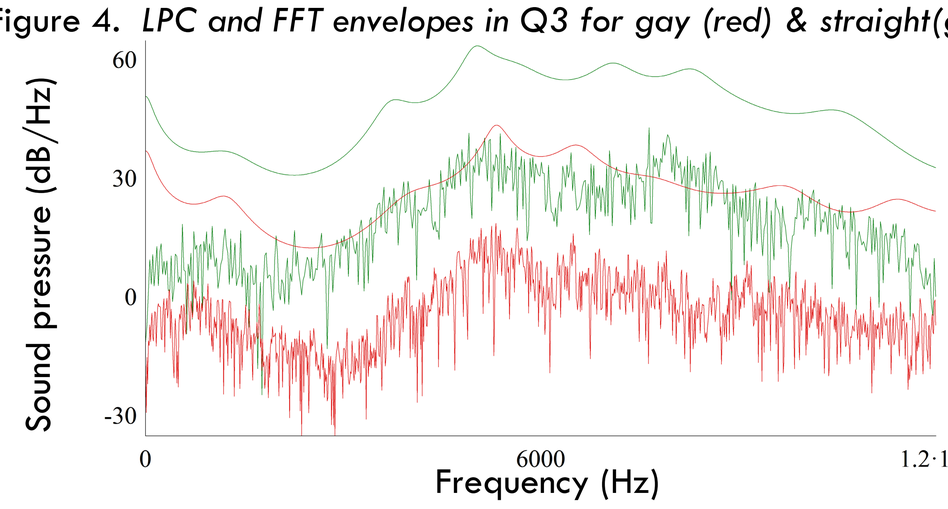


Figure 4. *LPC and FFT envelopes in Q3 for gay (red) & straight(green) /s/*



Discussion & Conclusion

M1 change over time

- M1 peaks in Q2 and Q3[4]
- Larger increase from Q1 to Q2 in gay than in straight speakers

Effect of analysis window

- M1 is higher in the mid-50ms and the Q3 window than overall[4]
- Gay men produce /s/ with a consistently higher M1
- No evidence for analysis window affecting gay-straight differences

Implications for phonetic analysis of clinical data

- Clinical data: phonetically not balanced, recorded in quiet room
- Phonetic analysis is possible if reference values are available[5]

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References

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