

Perceptual Characteristics of Gay-Sounding and Heterosexual- Sounding Speech

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Introduction

- Listeners →
 - Distinguish between self-identified gay and heterosexual male talkers of American English
(Gaudio, 1994; Linville, 1998; Munson, McDonald, DeBoe, & White, 2006; Tracy, Bainter, & Satariano, 2015)
 - Rely on multiple acoustic cues to form judgments
(Campbell-Kibler, 2007; 2011; Tracy et al., 2015)
- Unclear →
 - Which acoustic cues listeners are relying on to form judgments
 - Whether listeners from different geographic areas rely same repertoire of cues

First Objective

- Examine perceptual weights of four acoustic cues as listeners identify sexual orientation
 1. f_0
 2. Bursts
 3. Formants
 4. Fricatives

First Objective

- Selection of speakers (Tracy et al., 2015)
 - 36 native speakers of American English
 - 18 gay and 18 heterosexual speakers
 - From Ohio
 - Age range → 18 – 24
 - Height → 170 – 183 cm
- Listeners identified sexual orientation
- Two speakers chosen
 1. Gay speaker → Identified most often as gay
 2. Heterosexual speaker → Identified most often as heterosexual

First Objective

- Created two series of continua →
 - Resynthesized voices of the two speakers (Mack & Munson, 2012; Tracy et al., 2015)
- Each continua →
 - Morphed between one voice and other
- Series 1 → *Cigarette*
- Series 2 → *Absent*
- Each word →
 - Similar acoustic properties

First Objective

- For each series → Five continua created
- Four of these continua →
 - One acoustic cues varied
 - Remaining cues stayed same

- Cigarette fricative



- Fifth continua →

- All cues varied

- Absent all



Second Objective

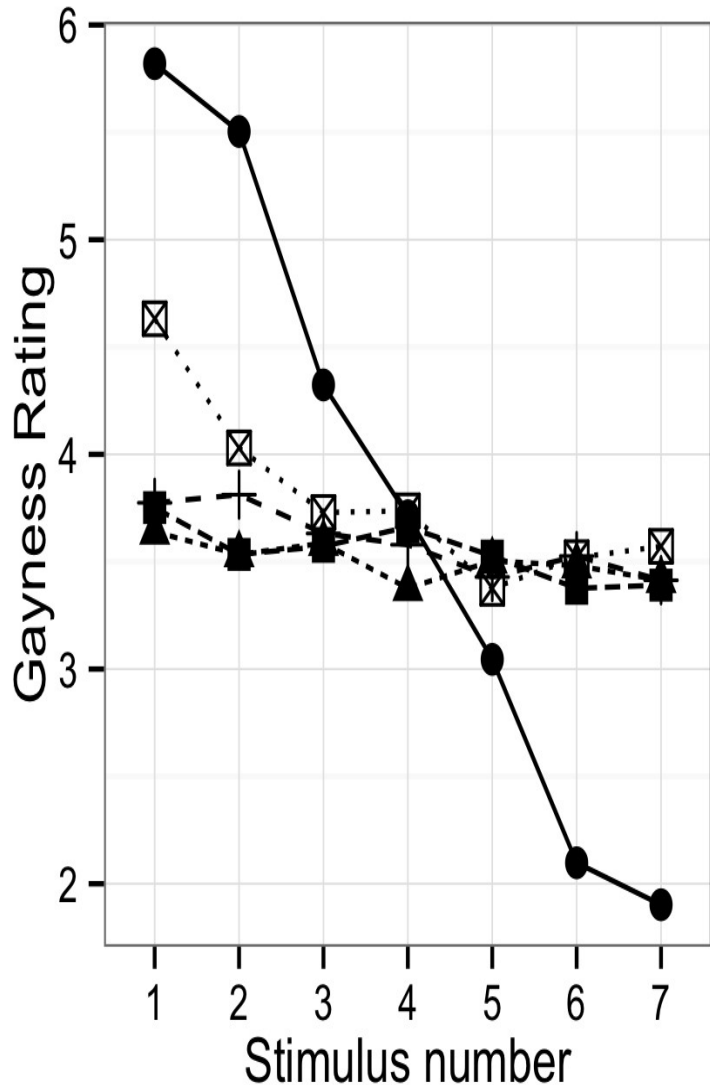
- Examine if listeners from different geographic areas rely on same repertoire of cues
 - Berkeley, CA
 - Pembroke, NC
- Both groups →
 - Presented with *cigarette* and *absent* continua

Hypotheses

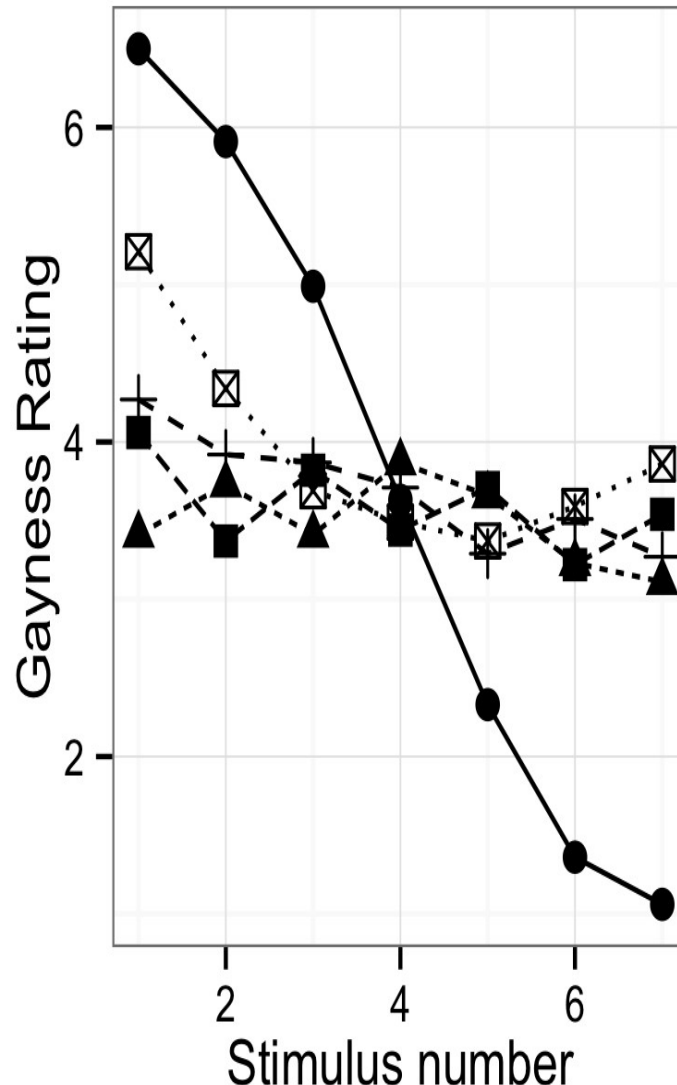
- Stronger impression of sexual orientation →
 - When all cues varied (Campbell-Kibler, 2007; 2011; Linville, 1998; Tracy et al., 2015)
- Unclear how California and North Carolina listeners would perform
 - To identify race →
 - Listeners from North Carolina and West Virginia used different cues (Thomas, Lass, & Carpenter, 2010)

Experiment 1 - Cigarette

California Listeners

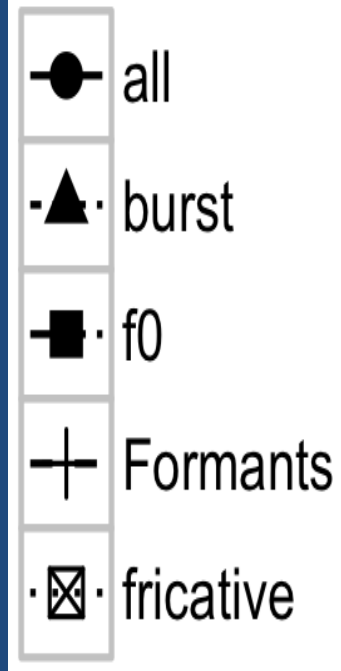


North Carolina Listeners



Ratings
7 = Gay
1 = Heterosexual

condition



Experiment 2 - Absent

California Listeners

North Carolina Listeners

Ratings

7 = Gay

1 = Heterosexual

condition

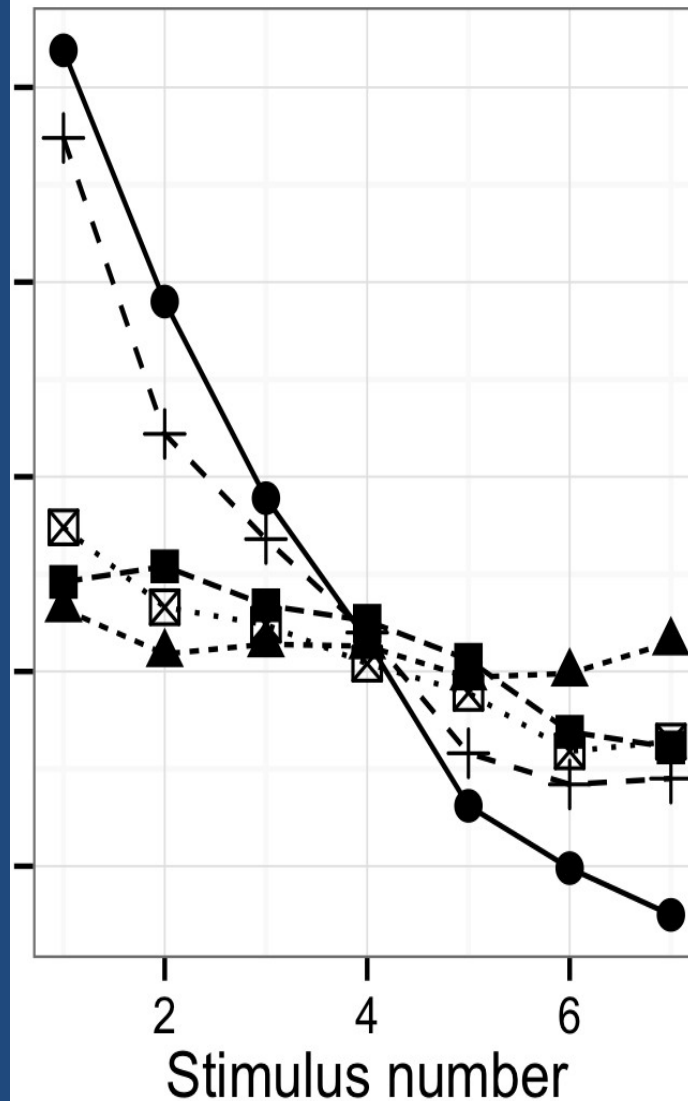
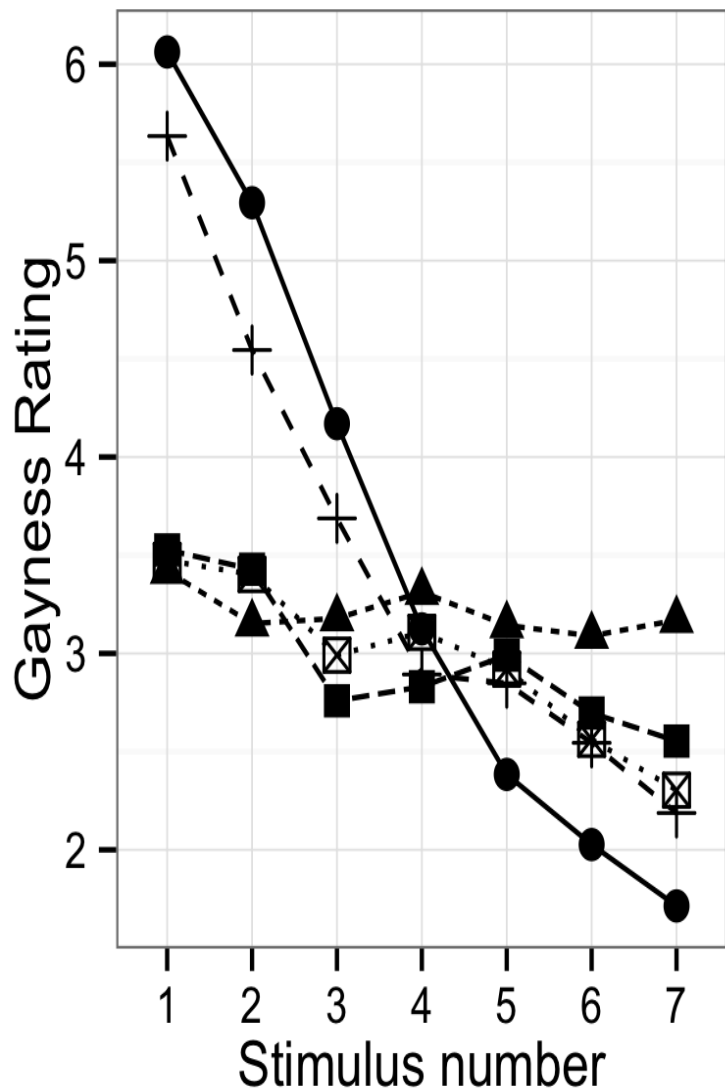
● all

▲ burst

■ f0

+ Formants

⊠ fricative



Discussion

- Listeners relied on multiple acoustic cues
 - All cues varied →
 - Strong impression of sexual orientation
- Listeners from different areas relied on same repertoire of cues
 - Both groups →
 - Relied on multiple cues
 - Identify gay talkers
 - *Cigarette* → Fricative cue
 - *Absent* → Formants cue
 - Initial phoneme?

Conclusions

1. Listeners form stronger impressions of speaker's sexual orientation when all cues vary
2. Listeners from different geographic areas rely on same repertoire of cues

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Acoustic Measurements

- Why do listeners rely on vowel formant cue in *absent*, but not *cigarette*?
- Differences in vowel formants for both *cigarette* and *absent*
 - For *cigarette*, differences are present →
 - Listeners not relying on these differences

Acoustic Measurements

- Cigarette 1 (gay) → Cigarette 7 (heterosexual)
 - /s/ peak frequency
 - 7500 Hz → 4600 Hz
 - /E/ vowel formants
 - 720 → 1310 → 1820 → 2463
 - 490 → 1140 → 1520 → 2490
 - /E/ low pitch
 - 92 → 96

Acoustic Measurements

- Absent 1 (gay) → Absent 7 (heterosexual)
 - /s/ peak frequency
 - 6500 Hz → 4600 Hz
 - /E/ vowels formants
 - 430 → 1700 → 2370 → 3510
 - 360 → 1400 → 2730 → 3900
 - /E/ low pitch
 - 93 → 72

Other Talkers?

- Gay Danish talkers →
 - Fronted /s/ (Pharao, Maegaard, Møller, & Kristiansen, 2014)
- Hungarian male talkers →
 - Higher frequency sibilants associated with femininity (Rácz & Shepácz, 2013)
- Canadian talkers →
 - Gay and heterosexual male talkers produce some vowels differently (Rendall, Vasey, & McKenzie, 2008)
 - /i:/, /ɪ/, /oʊ/, /u:/, /ə/