Gender and the Social Meaning of Non-Modal Phonation Types

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Voice Quality Variation

- The last decade has witnessed an increase in the number of sociolinguistic and sociophonetic studies on variation in voice quality.
  - Many studies both directly and indirectly associate gender with non-modal phonation types.

Phonation

- modal
- creaky
- falsetto
- breathy
- whispery
- harsh

Introduction

twenty-one or -two years ago (Bill, 65, white, male)
there's a lot of variety (Carla, 37, white, female)
that house wasn't like that (Carrie, 30, Afr Am, female)
somebody just got shot (Carrie, 30, Afr Am, female)
Alright talk to you later (Zara, 21, Afr Am, female)
they didn’t (Frank, 40, Afr Am, male)

Gendered Phonation

Creaky Voice and Masculinity
- Observed Correlations
  - males in Glasgow (Stuart-Smith 1999)
  - males with high social status in Edinburgh (Esling 1978)
  - male speakers of RP and 'Modified Northern' English (Henton and Bladon 1988)
- Indirect Associations
  - gang-affiliated Latina adolescents when telling fight narratives (Mendoza-Denton 2007)

Falsetto and Femininity
- Observed Correlations
  - mothers (vs. fathers) in child-directed speech (Blount and Padgug 1976)
- Indirect Associations
  - expressiveness (Podesva 2007)
### Frequency Code

The association of high frequency with smallness and low frequency with largeness (Ohala 1994)

#### Examples
- Geenberg (2010)
  - Adults exhibit higher F0 and F2 levels when telling a stuffed baby pig toy that she is cute.
- Sicoli (2007, 2010)
  - Zapotec speakers use falsetto to communicate respect/deference. Speakers make themselves smaller (e.g. rolling the spine and shoulders forward) when producing ‘small’ falsetto voices.

### Exceptions

#### Introduction
- Creaky voice noted in speech of young women
  - Lefkowitz (2007) - prevalent in college-aged women’s speech
  - Tannen (unpublished) - women use creak to soften assertions
  - Yuasa (2010) - young Californian women use creaky voice more than young men and Japanese women
- Falsetto noted in the speech of African American men
  - Alim (2004) - notes his own use of falsetto when battlin to emphasize a point or challenge an interlocutor
  - Lopez (2010) - male characters in film use falsetto to perform a hip-hop persona
  - Nielsen (2010) - adolescent African American boys use falsetto to express indignation

### Current Study

Phonation Variation Patterns in Washington, DC

#### Main Points
1. It is important to consider the culturally specific ways in which the Frequency Code is interpreted.
2. In spite of robust correlations between phonation patterns and identity categories, the social meanings of particular phonation types should not be reduced to purely iconic or straightforward associations to gender (or race).

#### Goals
1. In exploring the connection between phonation and gender, to show that gender and race cannot be analyzed as independent social factors.
2. Identify linguistic (prosodic, discourse) constraints on phonation

### LCDC Project

Language and Communication in the Washington, DC, Metropolitan Area

- Natalie Schilling, Rob Podesva

Investigate how district residents use variation and discourse to project and construct identities in community.

Seriously understudied, even though it ranks as ninth-largest metropolitan area in United States.

Largely Black/African American (56%) and white (36%). Small but growing Hispanic and Asian American populations.
Data

32 Speakers

<table>
<thead>
<tr>
<th></th>
<th>African American</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td>female</td>
<td>21, 30, 40, 65</td>
<td>29, 30</td>
</tr>
<tr>
<td>male</td>
<td>30, 40, 55, 69</td>
<td>23, 25</td>
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</tbody>
</table>

Sociolinguistic Interviews
- Given potential for wide variation across topics, we considered only talk about the local community, a topic well represented in all interviews.

Analysis

Utterances were exhaustively parsed into intonational phrases (N = 9,879), excluding filled pauses in isolation and back-channeling.

Coding
Each syllable (N = 55,496) was coded for the realization of phonation type and double-checked by a second researcher.

Social Factors
- sex
- race
- age
- speaker

Linguistic Factors
- constructed dialogue vs. not
- distance from end of IP (# syllables)
- distance from beginning of IP (# syllables)
- length of IP (# syllables)

Statistics

The percentage of each phonation type produced in each IP was calculated (e.g. 3 creaky syllables out of 9 total syllables in IP = 33.33% creaky IP).

Mixed effects linear regression treating each IP as a token
- Dependent variable: percentage of creaky voice (plus a separate regression for each of the other non-modal phonation types)
- Independent variables: age, sex, and race (factorially crossed), constructed dialogue, length of IP, and speaker (random effect)

Binomial logistic regression treating each syllable as a token
- Dependent variable: whether a token was creaky (plus a separate regression for each of the other non-modal phonation types)
- Independent variables: distance from beginning of IP, distance from end of IP, length of IP

Distribution

The graph shows the mean percentage of each phonation type across different categories of variables.
Linguistic Factors

Position in IP

<table>
<thead>
<tr>
<th>Creaky Voice</th>
<th>Creaky voice more likely to occur at ends of IPs (p &lt; 0.0001).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falsetto</td>
<td>Falsetto more likely to occur at beginnings of IPs (p &lt; 0.00001).</td>
</tr>
<tr>
<td>Breathy Voice</td>
<td>Breathy voice more likely to occur at beginnings of IPs (p &lt; 0.00003).</td>
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</tbody>
</table>

This phenomenon may relate to declination, which many believe to be a consequence of respiration. Creaky voice at the ends of IPs may also serve as a means of marking turn ends.

Non-Modal Phonation

Functions in Constructed Dialogue

1. Mark a shift in footing, whereby a speaker distinguishes his or her voice in the present interaction from that of either another speaker or a past or future self
   - First day, for about half an hour, they had me mopping up floors. And after that, they was like, “Cassius, you don’t have to mop floors no more.” (Cassius, 29, Afr Am, male)
2. Take a stance relating to the quotation itself, its speaker, or events in the narrative.
   - It was three hundred dollars a person for dinner to start with. And I was like, “That’s insane.” (Carla, 37, white, female)

Social Factors

Gender and Race

- Creaky Voice
  - Females use creaky voice more than males (p < 0.0003), and gender does not interact with race.
- Falsetto
  - Females use falsetto more than males (p < 0.0297), and this pattern is attributable to African American females, as there was a significant gender*race interaction (p < 0.201).
- Whispery Voice
  - Gender and race interact significantly (p < 0.0362), such that white females use more whispery voice than white males. White females are no more whispery than African American females or males.

Neither gender nor race has an effect on the use of breathy voice or harsh voice.
Whispery Voice & White Men

**Discussion**

Pattern: whispery voice least common in the speech of white men

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>African American</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>White Masculinity</strong></td>
<td><img src="chart1.png" alt="Bar Chart" /></td>
<td></td>
</tr>
<tr>
<td><strong>Whispery Voice</strong></td>
<td><img src="chart2.png" alt="Bar Chart" /></td>
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<tr>
<td><strong>Femininity</strong></td>
<td><img src="chart3.png" alt="Bar Chart" /></td>
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Creaky Voice & Women

**Discussion**

Pattern: creaky voice more common in the speech of women

<table>
<thead>
<tr>
<th></th>
<th>Creaky Voice</th>
<th>Masculinity</th>
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</thead>
<tbody>
<tr>
<td><strong>Creaky Voice</strong></td>
<td><img src="chart4.png" alt="Bar Chart" /></td>
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<tr>
<td><strong>Masculinity</strong></td>
<td><img src="chart5.png" alt="Bar Chart" /></td>
<td></td>
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</tbody>
</table>

Social Meaning of Creaky Voice

**Discussion**

- gang-affiliated Latina
- tough
- young professional woman
- authoritative
- commiserating
- complaining
- non-aggressive

Falsetto & African American Women

**Discussion**

Pattern: falsetto more common in the speech of African American women

<table>
<thead>
<tr>
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<th>African American Masculinity</th>
<th>Falsetto</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Masculinity</strong></td>
<td><img src="chart6.png" alt="Bar Chart" /></td>
<td></td>
</tr>
<tr>
<td><strong>Falsetto</strong></td>
<td><img src="chart7.png" alt="Bar Chart" /></td>
<td></td>
</tr>
<tr>
<td><strong>White Femininity</strong></td>
<td><img src="chart8.png" alt="Bar Chart" /></td>
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</table>
Falsetto as a Feature of African American Identity

you know like slavery and oppression has like messed us up (but) we have never lost our culture like it's- it's different but it's still there like the way we practice religion the way we talk to our friends even- even in the way we talk like I was telling my mom how she used to always get on me for how I talked cos I talk like this when I'm at home and I be talking to my dad like see 'I be talking' I be talking to my dad like 'suck-teeth' I mean, dad.' '<incomprehensible> I don't understand' (Zara, 21, Afr Am, female)

Social Meaning of Falsetto

African American
  oppositional
  expressive
  entertaining
  Gay Diva
  excited

Operationalizing Stance

stance: a speaker’s evaluation of ‘some object of discourse or an interlocutor’ (Clift 2010: 518).

stance triangle (Du Bois 2007)

Heath subject 1

Eliza subject 2

object dress

Heath: Oh cool. I like it.

Selection of Data

Assumption: the most telling examples are those in which falsetto is most prominent

We examined turns meeting the following criteria:

• two or more utterances contained falsetto
• falsetto utterances contained three or more falsetto syllables

Turn: stretch of speech on the same topic in which interviewer utters nothing more than a minimal response

These criteria yielded 17 “highly falsetto” turns for closer analysis.
Generalizations

Alignment
• Speakers used falsetto when expressing disalignment in all cases.

Stancetaking Subjects
• 13 of 17 produced by African Americans
• 10 of these 13 produced by African American women

Stance Objects
• 5 of 10 are about gentrification
• 3 of 10 are about racism

Discussion

Gentrification

1. the property taxes are going up
2. and people are on their fixed incomes
3. and
4. you can’t afford (502 Hz)
5. to repair your house
6. and pay your taxes
7. so you just kind of have to choose (407 Hz)
8. which one
9. so
10. I think it’s (470 Hz) happening
11. but I don’t think it’s (392 Hz) happening all of the time on purpose
12. I think in some of the communities
13. I think it does (543 Hz) happen on purpose

(Mona, 40, Afr Am, female)

Intersectionality

• African American Woman ≠ African American + woman
• emphasizes the power relations in the marginalization of the multiply oppressed
• places a focus on the unique lived experiences of those we study

Most Vociferous Falsetto Users
• Zara - student at Howard university
• Carrie - audio technician at radio station
• Mona - works for a local non-profit
• Olivia - president of her neighborhood association

Phonation and Gender

Frequency Code
Finding
Creaky voice used more commonly by women
Falsetto used more commonly by African American women

Problem(s)
Creaky voice characterized by low f0, not typical of women’s voices relative to those of men.
Falsetto not particularly common among white women; falsetto functions as a powerful feature.

Explanation
Long closed phase gives impression of discontinuous speech.
High intensity or dynamism in f0 may convey powerfulness (Gussenhoven and Chen’s 2000 Effort Code).

Phonetic Multidimensionality of Phonation
Frequency is only one of the phonetic dimensions that characterizes phonation. It is likely that different phonetic dimensions of phonation index different meanings. Decomposing the phonetic dimensions of particular voice qualities will facilitate the semantic decomposition of the meanings they convey.
Future Directions

- Comparative study with community with different racial composition
- Scalar phonetic properties of phonation
- Phony historical change?
- Additional linguistic constraints - e.g. (-t) glottalization
  - In DC, women both use creaky voice and glottalize (-t) more than men, which may be indicative of more general tendency toward laryngealization.
- Perceptual approach to studying social meaning of creak and false start

References


