Nasality as Non-Aggressiveness

AN ARTICULATORY SOCIOPHONETIC STUDY

Robert J. Podesva, Katherine Hilton, Kyuwon Moon, and Anita Szakay

Stanford University
Introduction

Most work on the social indexicality of voice quality has focused on phonation type variation (e.g., Stuart-Smith 1999, Podesva 2007, Yuasa 2010, Mendoza-Denton 2011).

Few sociophonetic investigations have taken nasality as the object of study (cf. Plichta 2006, De Decker and Nycz 2012), perhaps due to methodological challenges.

But nasality is sociolinguistically meaningful!

- The term “nasal” figures prominently in lay descriptions of/commentary about speech styles.
- Nasality is recruited in parodies of uncool, white personas (Bucholtz 2011, Rahman 2007, Fought 2006).
Overview

Objective
• Use articulatory methods to uncover conventionalized meanings of nasality, as drawn on by actors while portraying a variety of character types.

Two Components
• Production – correlation between particular characters and nasality
• Perception – correlation between nasality and success of performance

Claims
• Nasality indexes a “non-aggressive” stance.
• This stance can be recruited to enact certain stereotypical forms of whiteness that stand in opposition to other, more aggressive forms of whiteness.
Challenges of Quantifying Nasality

Auditory Methods
• Listener percepts may be unreliable (Goberman et al. 2001), or listeners may attribute other marked phonetic features (e.g., tenseness) to nasality.

Acoustic Methods
• The robustness of acoustic measures (A1-P0) is unclear (cf. Chen 1997, Scarborough 2004); studies may require large data sets, collected in quiet recording contexts.

Articulatory Methods
• The recording techniques needed for articulatory investigation (e.g., Bassett et al. 2001) have the potential to inhibit the production of vernacular speech.
Performance and Actors

Vernacular features in high performance
- highly self-conscious speech (Schilling-Estes 1998)
- high performance (Coupland 2007)
- staged performance (Bell and Gibson 2011)
- dialect enregisterment in performance (Johnstone 2011)

Actors
- have experience disregarding immediate speaking context (e.g., crew, lighting, microphones)
- are uniquely suited to delivering successful performances in spite of unnatural contexts
- will draw on most conventionalized features that evoke characters
Character Types

Meaningful ways of speaking are about types of people (Agha 2007).

Character types can be conceptualized as the vehicles through which conventionalized meanings circulate.

<table>
<thead>
<tr>
<th>Speech Variety</th>
<th>Character Type</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received Pronunciation</td>
<td>Refined Gentleman</td>
<td>Agha 2007</td>
</tr>
<tr>
<td>Pittsburghese</td>
<td>Steel Worker</td>
<td>Johnstone 2011</td>
</tr>
<tr>
<td>Beijing Mandarin</td>
<td>Smooth Operator</td>
<td>Zhang 2005</td>
</tr>
<tr>
<td>Copper Country English</td>
<td>Michigan UP Yooper</td>
<td>Remlinger 2009</td>
</tr>
<tr>
<td>California English</td>
<td>Surfers, Valley Girls, Slackers</td>
<td>Podesva 2011</td>
</tr>
</tbody>
</table>
Selection of Character Types

Goals
• Set of familiar and prominent characters in American society
• Varied in terms of gender, age, class, and ethnicity

Criteria
• Performable (e.g., not MODEL ASIAN AMERICAN)
• Visualizable (e.g., not STONER)
• Not too heterogeneous (e.g., not DIVA)
• Distinct from other types (e.g., not SEX KITTEN, because of COUGAR)
• Not L2 Accent (e.g., not CHINESE TOURIST)

Strategies
• Informal focus groups
• Internet representations (e.g., Shit Xs Say, Urban Dictionary)
• Pilot study (N = 6 actors)
Production Study

CORRELATIONS BETWEEN NASALITY AND CHARACTER TYPES
Participants

10 actors (data collection ongoing)

- **Gender**
  - 8 men
  - 2 women
- **Age**
  - 22 – 60 years old
- **Ethnicity**
  - European American (4)
  - Asian or Pacific Islander (3)
  - African American (2)
  - Hispanic (1)
- **Residence**
  - San Francisco Bay Area (9)
  - Upstate NY (1)

**Recruitment**

- Craigslist advertisements
- Varied in terms of acting experience
- Paid $20, up to $10 for transportation
Materials

20 Character Types

| Bratty Kid | Ditz | Librarian | Rich Snob |
| Bro        | Gangsta | Mean Old Lady | Sassy Gay Guy |
| Corporate Yes Man | Guido | Nerd | Sassy Latina |
| Cougar     | Hippie | Party Girl | Strong Black Woman |
| Cranky Old Man | Hipster | Redneck | Teacher’s Pet |

Scripts

- To better evoke character
- Extensive revision process
- No attention paid to phonological content

Target lines

- Where are you going? What did you say? See you later.
- Basis of phonetic study
- Natural for any of the 20 characters to say
- 2 utterances contain no phonological nasals

Stanford University
Recording Procedure

• Interactional Sociophonetics Laboratory
• Airflow unit calibrated for each actor
• Data collected
  • Airflow, via dual-chamber mask, using DualView
  • EGG signal, via electrode and directional table microphone, using WaveView on different PC
  • Audio recording of entire session with Zoom H2n to capture commentary
Nerd

Why yes, I do have plans this weekend. After completing my linear algebra assignment, I will be moderating a World of Warcraft advanced users message board.

Where are you going?
What did you say?
See you later.

Recording Protocol

Script
1. practice without mask (audio only)
2. record with mask (airflow, audio, EGG)

Target Lines
3. record with mask (airflow, audio, EGG)

Stanford University
Airflow Measurements

oral channel

nasal channel

nasalance

Where are you going?
What did you say?
Acoustic Features Measured

1. duration
2. mean f0
3. max f0
4. min f0
5. f0 range
6. f0 stdev
7. mean intensity
8. max intensity
9. min intensity
10. intensity range
11. intensity stdev

Where are you going? What did you say? See you later.
**Mixed Effects Linear Regression on Nasalance**

**Response:** Nasalance (normalized)
**Random Effect:** Actor
**Fixed Effects:** f0 mean, Line, Character Type

|                      | Estimate | Std Error | DFDen | t Ratio | Prob>|t| |
|----------------------|----------|-----------|-------|---------|--------|
| Intercept            | 39.421179| 5.737599  | 23.65 | 6.87    | <.0001*|
| Line [see you later] | -12.52948| 1.172145  | 536.8 | -10.69  | <.0001*|
| Line [what did you say]| -9.311923| 1.175584  | 536.8 | -7.92   | <.0001*|
| f0 mean              | -0.042358| 0.017093  | 543.2 | -2.48   | 0.0135*|
Effect of Character Type on Nasality

Stanford University
Cluster Analysis

low nasality cluster

high nasality cluster
Perception Study

CORRELATION BETWEEN NASALITY AND SUCCESS OF PERFORMANCE
Evaluation of Performances

Amazon Mechanical Turk

• Participants evaluated all 10 performances for a single character type on a visual analog scale
• How “convincing” is the performance?
• Heard either the target lines or the scripts
• 419 raters total
  • 209 for target lines
  • 210 for scripts

Stanford University
Results for Scripts

Nasalance (normalized)

Success of Performance

Stanford University
Summary of Findings

High Nasality Characters
- NERD
- PARTY GIRL
- REDNECK
- DITZ
- LIBRARIAN
- RICH SNOB
- GUIDO

Low Nasality Characters
- BRO
- CRANKY OLD MAN
- STRONG BLACK WOMAN
- COUGAR
- MEAN OLD LADY
- HIPSTER
- GANGSTA
- SASSY GAY GUY
Nasality and Non-Aggressiveness

The scripts for characters that exhibited low nasalance levels were aggressive or imposing.

• Bro: chiding fellow pro for not partying hard enough
• Cranky old man: berating youngsters for being lazy, ungrateful
• Strong black woman: calling someone’s integrity into question

Possible interpretations

• The content of scripts encouraged actors to adopt stances (non-)aggressive stances portrayed in the scripts.
• Stances and attitudes are integral to the characters themselves.

Support from open-ended survey (Hilton in progress) on character types themselves (independent of language):

• Low nasality characters here described as arrogant, cocky, intimidating, pushy, and aggressive.
Nasality and Phonetic Style

Nasalance

\( f_0 \) mean (Hz)

bro  cranky old man  party girl  redneck  nerd

Nasalance (normalized)

Stanford University
Nasality and Ethnicity

“In using super-standard English, then, nerds at Bay City High came to embody for their cool peers not simply whiteness but hyperwhiteness, a marked and exaggerated form of whiteness that was uncool precisely because it was so completely unblack. This ideology of nerdy as whiteness could be seen, for example, in cool teenagers’ imitations of nerdy speech with a nasal, exaggerated rhotic quality that has long been associated with European American speech (Rahman 2007).”

Bucholtz (2011: 162)

Exaggerated whiteness in most nasal character types:

NERD      PARTY GIRL      REDNECK

But, exaggerated whiteness in some non-nasal character types, too:

BRO      CRANKY OLD MAN
Conclusions

Main Points
• Fruitful combination of performance and articulatory sociophonetics to study the social meaning of a “difficult” variable
• Even stereotypical forms of whiteness are multidimensional.
• Stances, like non-aggressiveness, mediate the construction of ethnic identity categories.

Future Work
• Perception study with attributes (to explicitly test our “non-aggressiveness” proposal)
• Other voice quality features (breathy voice, creaky voice, harsh voice)
• Expand to other cultural contexts where nasality may have similar or contrasting indexical values
Thank You!

Many thanks to our actors for their outstanding performances and patience with the articulation equipment. Thanks also to the School of Humanities and Sciences, whose financial assistance enabled the purchase of equipment.

Questions?

podesva@stanford.edu
Random Forest

sort(data.cforest.varimp)

Actor
Character.Type
f0_mean

Line

0 100 200 300 400 500
## Parameter Estimates for Character Types

| Character Type                      | Estimate | Std Error | DFDen | t Ratio | Prob>|t | |
|-------------------------------------|----------|-----------|-------|---------|------|-----|
| bratty kid                          | 3.3901988| 3.471363  | 536.5 | 0.98    | 0.3292 |
| bro                                 | -9.308262| 3.429307  | 535.2 | -2.71   | 0.0069*|
| corporate yes-man                   | -2.563333| 3.250511  | 535.1 | -0.79   | 0.4307 |
| cougar                              | -5.703068| 3.416559  | 536.2 | -1.67   | 0.0957 |
| cranky old man                      | -7.496432| 3.255353  | 535.1 | -2.3    | 0.0217*|
| ditz                                | 5.9599724| 3.284613  | 535.3 | 1.81    | 0.0702 |
| gangsta                             | -4.93093 | 3.43733   | 535.1 | -1.43   | 0.152  |
| guido                               | -2.189617| 3.45058   | 535.4 | -0.63   | 0.526  |
| hippie                              | -1.704484| 3.509019  | 535.8 | -0.49   | 0.6273 |
| hipster                             | -6.622537| 3.403563  | 536.1 | -1.95   | 0.0522 |
| librarian                           | 3.2599651| 3.248379  | 535   | 1       | 0.316  |
| mean old lady                       | 3.3118955| 3.65537   | 535.5 | 0.91    | 0.3653 |
| nerd                                | 13.624518| 3.258065  | 535.1 | 4.18    | <.0001*|
| party girl                          | 9.7121536| 3.310276  | 535.5 | 2.93    | 0.0035*|
| redneck                             | 9.534597 | 3.419635  | 535.2 | 2.79    | 0.0055*|
| rich snob                           | 1.4655059| 3.639341  | 535.4 | 0.4     | 0.6873 |
| sassy gay guy                       | -0.638627| 3.299762  | 535   | -0.19   | 0.8466 |
| sassy latina                        | -3.785784| 3.429821  | 535.2 | -1.1    | 0.2702 |
| strong black woman                  | -3.701076| 3.267962  | 535.2 | -1.13   | 0.2579 |
| bratty kid                          | 3.3901988| 3.471363  | 536.5 | 0.98    | 0.3292 |