Do posh ducks say qu[ɑː]ck?
Investigating cognitive representations of dialect variation

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The Ohio State University
Listeners use social information to make linguistic judgments ... 

Strand & Johnson 1996

task: classify token as “sod” or “shod”
Listeners use social information to make linguistic judgments ...

Strand & Johnson 1996

task: classify token as “sod” or “shod”

/s/ - [s+] - “feminine”
... and use linguistic information to make social judgments.

Campbell-Kibler 2011 matched guise task with fronted /s/:

“How masculine does this person sound?”
... and use linguistic information to make social judgments.

Campbell-Kibler 2011 matched guise task with fronted /s/:

“How masculine does this person sound?”

/s/ - [s+] - “feminine”
Big question: Are these the same thing?

e.g. Kleinschmidt et al. 2018, many exemplar models (?)
Big question: Are these the same thing?

- Campbell-Kibler (2018)
  - sod/shod task + social judgment task with /s/
  - Are there correlations in individuals' effect sizes across tasks?
Big question: Are these the same thing?

- Campbell-Kibler (2018)
  - sod/shod task + social judgment task with /s/
  - Are there correlations in individuals' effect sizes across tasks?
  - Answer: nope!
Big question: Are these the same thing?

- Campbell-Kibler (2018)
  - sod/shod task + social judgment task with /s/
  - Are there correlations in individuals' effect sizes across tasks?
  - Answer: nope!
    - … but there could actually be a correlation, & it's obscured by task effects
This Study

• Find a linguistic feature where different individuals should have categorically different representations
  - e.g. imagine if fronted /s/ sounded feminine to some listeners, but masculine to others

• Do individuals have the same representation types across linguistic and sociolinguistic perception tasks?
The TRAP/BATH split

general US English

TRAP → æ
BATH → æ

RP and the south of England

TRAP → æ, a
BATH → ɑ:
The TRAP/BATH split

This split is largely phonologically conditioned:

\( \text{æ} > \alpha: / _\_ \text{voiceless fricatives}^* \)

* e.g. grass, bath, laugh, classy, castle
The TRAP/BATH split

This split is largely phonologically conditioned:  
æ > ɑ: / _ voiceless fricatives*  
e.g. grass, bath, laugh, classy, castle

But some lexical exceptions:  
e.g. gas, asp, classic, hassle
What do Americans know?

accurate representations
know exactly which words SBE
speakers produce with [ɑ:]
What do Americans know?

accurate representations
know exactly which words SBE speakers produce with [ɑ:]

allophonic overgeneralizers
think SBE speakers produce /æ/ as [ɑ:] before voiceless fricatives; don't know lexical exceptions
What do Americans know?

**accurate representations**
know exactly which words SBE speakers produce with [ɑː]

**allophonic overgeneralizers**
think SBE speakers produce /æ/ as [ɑː] before voiceless fricatives; don't know lexical exceptions

**phonemic overgeneralizers**
think SBE speakers always produce /æ/ as [ɑː]

The TRAP/BATH split

Social meaning:

backed \( b[\alpha:]th \) associated with the south of England → posh, higher social class, more educated (e.g. Gupta 2005; Lawrence 2014)
A social meaning joke

hoskas
@hoskas

When your duck is actually really posh
A social meaning joke

When your duck is actually really posh

quack = [kwak]
<quark> = [kwaːk]
quack = [kwak]
<quark> = [kwaːk]

But posh people say [kwak], not [kwaːk]!
Research Question

Do individuals (over)generalize in the same way across linguistic and social perception?
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Do individuals (over)generalize in the same way across linguistic and social perception?

e.g.

- if you think *qu[a:]ck* sounds posh [social perception],
- do you also expect posh southern British speakers to always produce /æ/ as [ɑ:] [linguistic perception]?
Do individuals (over)generalize in the same way across linguistic and social perception?

e.g.

- if you think *qu[a:]ck* sounds posh [social perception],
- do you also expect posh southern British speakers to always produce /æ/ as [ɑ:] [linguistic perception]?

---

Research Question

- yes
- not necessarily
Methods
Participants

controls: 35 from the south of England

60 Americans living in the US

+ 16 Americans living in the UK
Lexical decision task with:

- BATH,
- GAS (lexical exceptions),
- and TRAP words

all produced with [ɑː]
Lexical decision task with:

BATH,

GAS (lexical exceptions),

and TRAP words

all produced with [ɑː]
## Linguistic Perception

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STIMULI

- read by a Standard Southern British English speaker
  - 24 TRAP words
  - 24 BATH words
  - 12 GAS words
  - 60 filler real words (e.g. lemon)
  - 67 filler non-words (e.g. shipple)
  - 13 filler “close” non-words (e.g. spl\[ɛ]sh 'splash')

- **pre-task**: listen to short story read by the same speaker
Social Perception

Please turn on the g[a]s.

Please turn on the g[ɑː]s.

Which version sounds more...
- ... educated?
  - A
  - B
- ... working class?
  - A
  - B
- ... correct?
  - A
  - B
- ... like the person wants to sound posh?
  - A
  - B
- ... like the person is from the south of England?
  - A
  - B
- ... like the person is faking an accent?
  - A
  - B
- ... like the person comes from a wealthy background?
  - A
  - B

Comments (optional):

Which version sounds more: sentences with:
- BATH
- GAS
- TRAP
pronounced once with [a] and once with [ɑː]
Please turn on the g[a]s.

Social Perception

Please turn on the g[a:]s.

Which version sounds more...

... educated?

A  B

... working class?

A  B

... correct?

A  B

... like the person wants to sound posh?

A  B

... like the person is from the south of England?

A  B

... like the person is faking an accent?

A  B

... like the person comes from a wealthy background?

A  B

Comments (optional):

Next

sentences with: BATH GAS and TRAP pronounced once with [a] and once with [ɑ:]
Social Perception

In BATH words, [ɑː] should sound more prestigious than [a]:

MORE
• educated
• from a wealthy background
• wants to sound posh
In BATH words, [ɑːː] should sound more prestigious than [a]:

MORE
- educated
- from a wealthy background
- wants to sound posh

But for listeners with “accurate” representations, in GAS and TRAP words [ɑːː] should sound less prestigious than [a]:

LESS
- educated
- from a wealthy background

...wants to sound posh???
# Social Perception

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Social Perception

- 6 talkers reading [a] & [ɑ:] guises
  - 4 southerners, 2 northerners
  - generally perceived as well-educated & middle class, except for one southern “Cockney” speaker

- vowels cross-spliced so that stimuli pairs identical except for vowel

- 6 BATH, 6 GAS, & 6 TRAP stimuli + 6 (ING) fillers and 6 (TH) fillers
Results
Lexical decision task:
Southern Brit controls behave as expected
Lexical decision task:
Americans
Lexical decision task: Americans

- more accepting of variability in general
Lexical decision task: Americans

- more accepting of variability in general
- more likely to accept GAS words
Lexical decision task: Americans

• more accepting of variability in general
• more likely to accept GAS words
• but little generalization to TRAP
Lexical decision task: American individual patterns

- almost everyone shows the same gradient pattern:
  
  TRAP < GAS < BATH

- TRAP is always less than GAS
- 1 in 5 have GAS >= BATH
Lexical decision task: American individual patterns

- almost everyone shows the same gradient pattern:
  
  TRAP < GAS < BATH

- TRAP is *always* less than GAS

- most Americans are “allophonic overgeneralizers”, but the extent to which they overgeneralize in this environment varies
Lexical decision task: American individual patterns

- almost everyone shows the same gradient pattern:
  \[ \text{TRAP} < \text{GAS} < \text{BATH} \]
- TRAP is \emph{always} less than GAS

- most Americans are “allophonic overgeneralizers”, but the extent to which they overgeneralize in this environment varies
- no signs of phonemic overgeneralizers
## Lexical decision task: American individual patterns

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Social perception: Southern Brit controls behave as expected for BATH words.
... and mostly as expected for GAS and TRAP words.
Americans: Social perception of BATH

Educated

From a wealthy background

Wants to sound posh

Percent [a:] responses

[a:] sounds more X

[a] sounds more X
Americans: Social perception of BATH

- same social meanings as S. British controls, but less consistent
Americans: Social perception of BATH

- same social meanings as S. British controls, but less consistent

- sizeable portion of Americans DON'T hear b[ɑː]th as educated or wealthy
Americans: Social perception of BATH

- Same social meanings as S. British controls, but less consistent
- Sizeable portion of Americans DON'T hear b[ɑː]th as educated or wealthy
- Most consistent with "wants to sound posh" responses
Americans:
Social perception of GAS/TRAP
Americans: Individual Patterns ("wealthy")

- 76 Americans hear both as wealthy
- 21 Americans don't hear both as wealthy
- 45 hear both as wealthy
Americans: Individual Patterns ("wealthy")

76 Americans

- 45 hear b[ɑː]th as wealthy
- 15 don't hear g[ɑː]s or tr[ɑːp] as wealthy
  - "accurate listeners"

21 don't hear b[ɑː]th as wealthy
Americans: Individual Patterns ("wealthy")

- 76 Americans hear both as wealthy
- 15 don't hear g[aː]s or tr[ɑːp] as wealthy "accurate listeners"
- 10 hear g[aː]s but not tr[ɑːp] as wealthy "allophonic overgeneralizers"
- 21 don't hear b[ɑː]th as wealthy
Americans: Individual Patterns ("wealthy")

- 76 Americans
- 45 hear \(b[a:]th\) as wealthy
- 15 don't hear \(g[a:]s\) or \(tr[a:p]\) as wealthy
- 10 hear \(g[a:]s\) but not \(tr[a:p]\)
- 18 hear \(g[a:]s\) and \(tr[a:p]\) as wealthy
- 2 don't hear \(b[a:]th\) as wealthy
- 21 don't hear \(b[a:]th\) as wealthy

"accurate listeners"
"phonemic overgeneralizers"
"allophonic overgeneralizers"
### Social Perception

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Cross-Task Correlations

Are people who are more likely to think \( g[a:s] \) is a word also more likely to think that \( g[a:s] \) sounds wealthy and educated?
Are people who are more likely to think $g[\alpha:]s$ is a word also more likely to think that $g[\alpha:s]$ sounds wealthy and educated?

“” for $tr[\alpha:]p$
Cross-Task Correlations

Are people who are more likely to think \textit{g[ɑ:][s]} is a word also more likely to think that \textit{g[ɑ:s]} sounds \textbf{wealthy} and \textbf{educated}? \\

""" for \textit{tr[ɑ:]p}

• Consider only the subset of Americans who think \textit{b[ɑ:]th} sounds \textbf{wealthy} (n=45) or \textbf{educated} (n=40)
Cross-Task Correlations

Measure of generalization in **linguistic perception**:

\[
\text{(% GAS words accepted - \% close words accepted)}
\]

\[
\text{(\% BATH words accepted - \% close words accepted)}
\]
Cross-Task Correlations

Measure of generalization in **linguistic perception**:

\[
\frac{\% \text{ GAS words accepted} - \% \text{ close words accepted}}{\% \text{ BATH words accepted} - \% \text{ close words accepted}}
\]

Measure of generalization in **social perception**:

\% [ɑː] responses for GAS items to question “Which version sounds more like the person comes from a wealthy background?”
Cross-Task Correlations

4 linear models, predicting % [ɑ:] responses for...

• GAS items to wealthy question
• GAS items to educated question
• TRAP items to wealthy question
• TRAP items to educated question
Cross-Task Correlations

4 linear models, predicting % [ɑ:] responses for…:

- **GAS** items to *wealthy* question
- **GAS** items to *educated* question
- **TRAP** items to *wealthy* question
- **TRAP** items to *educated* question

**Predictors:**
- GAS generalization score (lexical decision task)
- TRAP generalization score (lexical decision task)
- % [ɑ:] responses to BATH items for relevant question (baseline social meaning)
Cross-Task Correlations: Nope!

No correlations!
No correlations! (e.g. 'wealthy' GAS:)

Cross-Task Correlations: Nope!
Back to our models...

Model A

perception

Model B

linguistic perception

social perception

\(\text{\textit{feminine}}\)
Back to our models...

Model A

Model B

linguistic perception

social perception

\[ /s/ - [s^+] - \text{“feminine”} \]
1) overgeneralization at the phonemic level in social perception, but not in linguistic perception

2) no cross-task correlation in how much individuals generalize
Conclusions

Social perception seems to be more phonologically general than linguistic perception.
• but this is only true at a population level, NOT at an individual level!

Researchers shouldn't take for granted that linguistic and sociolinguistic perception are “the same thing”.
Thanks!