

The Social Meaning of Phonetic and Phonological Variation in Declarative Intonation

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The Social Meaning of Variation

- Sociolinguistic variables are increasingly regarded as resources for constructing social meaning (e.g., Eckert 2000, Zhang 2005).
- To what kind of linguistic material does social meaning attach?
- In the domain of sound, social meanings can attach both to phonological categories and to phonetic qualities.

Two Types of Salience

1. **Categorical Salience**
Salience is determined by the frequency with which a given category of variant occurs. (Infrequent variants are more salient than frequent variants.)
2. **Phonetic Salience**
Salience is determined by the phonetic characteristics of a variant. (Variants exhibiting acoustic extremes are more salient than those with average acoustic values.)

Nuclear Accent Variation in Declaratives

1. Falling

It's pretty similar to a CAT-scan.

2. Rising

They didn't really make friends with, like, the Americans.

3. Level

So I felt kind of bad.

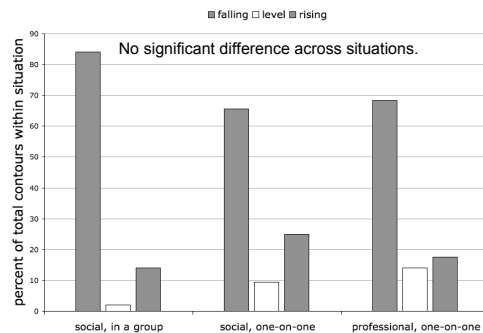
Intraspeaker, Cross-Situational Design

- Part of a larger study on the speech of gay professionals
- 3 speakers
 - Heath: mid-20s medical school student from Long Island
 - Jack: mid-20s medical school student from the DC area
 - Regan: early-30s buyer from Southern California
- 3 situations each
 - social, in a group
 - social, one-on-one
 - professional, one-on-one
- 30 minutes per situation

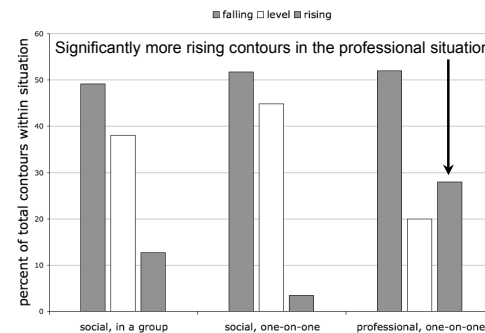
Data Analysis

- Tokens were first coded as having falling, rising, or level contours (based on pitch tracks).
- **Acoustic Analysis**
 - Falling Contour**
 - f0 max
 - f0 min
 - f0 range of fall
 - slope of fall
 - duration of fall
 - Rising Contour**
 - f0 max
 - f0 min
 - f0 range of rise
 - slope of rise
 - duration of rise
 - Level Contour**
 - f0
 - duration

Frequency of Contours by Situation: Regan



Frequency of Contours by Situation: Heath



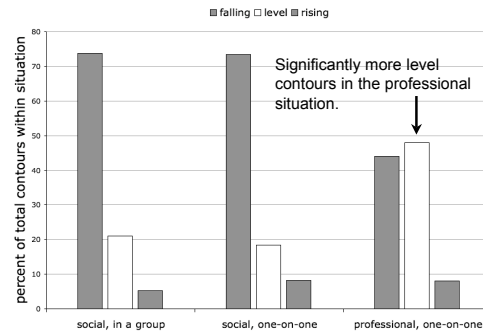
The Meaning of Rising Intonation

- Lakoff (1976)
 - uncertainty, tentativeness
- McConnell-Ginet (1983)
 - polite challenge, desire to continue discourse
- McLemore (1991)
 - encouragement of group involvement
- Heath in professional setting
 - non-threatening to nervous patient

Heath's Rising Contour Utterances

- Asking a Question
 - There's been no change to it since then?
- Explanation
 - Ahh, MRI stands for magnetic resonance imaging.
 - What causes your tremors and stuff like that is the decreased dopamine in your brain, the decreased amount of that chemical.
 - Um, bu-, so what we do is give you the Levidopa and Carbidopa.
 - It checks your reflexes.
- Permission/Warning
 - Alright, I'm gonna ask you some questions.
 - Um, but I'm just gonna do a quick exam.

Frequency of Contours by Situation: Jack



The Meaning of Level Intonation

- Jack in professional situation
 - Meeting with professor to practice interpreting EKGs
 - Informal testing situation in which the professor is asking a lot of questions
 - Jack does not know many of the answers
- Attractive alternative to the falling and rising contours. Using the falling contour could result in Jack sounding more certain than he really is, and using the rising contour could result in Jack sounding too unsure of his answers.

Jack's Level Contour Utterances

- Admission of Uncertainty
 - I don't know.
 - I made it up.
- Answer to a Question
 - Normally the standardization is two blocks.
 - So it's not LBH.
 - Two is the one to look for.
 - I think that was the same patient you saw a little earlier.
 - We can still interpret the prechordials.

Summary of Categorical Variation

- None of the speakers use the most frequent variant – the falling contour – with different frequencies across situations.
- Heath uses the rising contour, and Jack the level contour more often in their respective professional situations, taking advantage of the social meanings they can index.
- Because the rising and level variants appear less frequently in general, they can be used stylistically to do social work.

Variation in Phonetic Character

- Although Heath's rising contour and Jack's level contour appear with different frequencies across situations, neither speaker exhibits phonetic variation within these categories of variant. (Categorical salience is sufficient).
- The place to look for phonetic variation is among tokens of the most common variant. Since such tokens cannot be categorically salient, the only way they can index social meaning is phonetically.
- The phonetic analysis will focus on the common variant: the falling contour.

Regan: Falling Contours by Situation

	social in a group	social one-on-one	professional one-on-one
f0 max	224 Hz	191 Hz	150 Hz
f0 min	163 Hz	136 Hz	112 Hz
f0 range	60 Hz	56 Hz	38 Hz
slope	0.431 Hz/ms	0.413 Hz/ms	0.237 Hz/ms



Regan uses significantly higher f0 levels in the group social situation than the other two situations. The range and slope of the f0 fall is higher in the group social setting than the professional situation.

Heath: Falling Contours by Situation

	social in a group	social one-on-one	professional one-on-one
f0 max	190 Hz	119 Hz	128 Hz
f0 min	121 Hz	95 Hz	93 Hz
f0 range	69 Hz	24 Hz	35 Hz
slope	0.408 Hz/ms	0.153 Hz/ms	0.156 Hz/ms



Heath uses significantly higher f0 levels, wider f0 ranges, and steeper f0 slopes in the group social situation than the other two situations.

The Meaning of Extreme Falls

- The results suggest that both Regan and Heath are performing in their group social situations.
- The social meaning of extreme falls can be tapped into by looking for trends in the conversational contexts in which outliers are used.

Regan - Falling Contour Outliers

- Performing his 'life of the party' persona:
 - They had a tequila bar. It's like all different kinds of tequila. It was so classy . you know?
- Expressing surprise:
 - That [train] service is pretty nice, that non-stop one....I was pretty surprised. Like, I could commute that way.
- Offering an opinion, referring to an upcoming trip:
 - It'll be fun.

Heath - Falling Contour Outliers

- Performing his 'diva' persona:
 - It'll survive with salon quality hair gel in it.
 - You wanna rotate your shampoos.
- Expressing surprise:
 - Ooh, ooh, a little vent thing. Oh cool. I like it. I'm so excited by your little vent thing.
- Offering an opinion:
 - I like it.
 - There's a cute little park.

The Meaning of Extreme Falls

- In their group social situations, both Regan and Heath exhibit falling contours with higher f0 levels, wider f0 ranges, and steeper f0 slopes.
- Extreme falls are not a necessary part of group interactions, as Jack's falls are acoustically less distinct in group settings than one-on-one settings.
- The extreme falls aid Regan and Heath in constructing their 'life of the party' and 'diva' personae.
- These personae may be built by drawing on a more general meaning of acoustically extreme falls, such as 'expressiveness.'
- Heath and Regan construct these different personae by exhibiting distinctive variation patterns at the level of the segment and in phonation type.

Conclusions

- In order to tap into a variable's full range of social meanings, both categorical and phonetic aspects of the variable should be considered.
- Accessing the social meaning of variables requires an understanding of how speakers position themselves in particular (situational and discourse) contexts.
- Future directions: additional speakers, perception experiment
- Whereas merely using a (categorically) salient rising contour is sufficient for indexing social meanings like 'non-threatening,' doing other kinds of social work with falling variants requires phonetic creativity.

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