The Social and Pragmatic Meaning of Non-Rising Terminal Contours in Yes-No Questions

Sunwoo Jeong
Department of Linguistics
Stanford University
Introduction: previous literature

• The multi-faceted nature of intonation

• Intonation may signal pragmatic meanings
  – e.g. Lisa (L*+H) came. (Ward and Hirschberg 1985)

• Intonation may signal social meanings
  – e.g. We can go swimming tomorrow (H-H%).
    (McLemore 1991, Lakoff 1973)
Introduction: emerging questions

• What features of intonation signal pragmatic meanings? What features index social meanings?
  – Is there a qualitative difference between the two types of intonational features?

• How are the pragmatic meanings and the social meanings connected, especially with respect to intonation?
  – Is the connection between the two in some way mediated by intonation?
Introduction: target phenomenon

• Non-rising terminal contours (NRTs) in English Yes-No questions (Standard American)
  
  – e.g. *Have you lost your mind (*H L-L%)/(H H-L%)?
  
  – Mismatch between tune and sentence type
    cf. HRTs
  
  – Not as much (sociolinguistic) studies in the literature
Introduction: target phenomenon

- Non-rising terminal contours in English Yes-No questions
  - Robust occurrences in corpus studies: signal non-genuine questions such as assertions, rhetorical questions, indirect requests, etc. (e.g. Hedberg et al. 2004)
  - Some findings on their potential social meanings: e.g. being challenging (Scherer et al. 1984)
The study

• A perception experiment using an English Yes-No question sentence
  – Manipulated in terminal contours
  – Embedded in different contexts
The sentence for the stimuli

Do you wanna do the laundry?

– Chosen based on a separate pilot experiment

– Spoken by a Caucasian male native English speaker from the Midwest region of the U.S.
Do you wanna do the laundry?
## Stimuli: contexts

### • Contexts for the stimuli

<table>
<thead>
<tr>
<th>No context</th>
<th>M: Do you wanna do the laundry?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invitation context</td>
<td>F: I just bought a new batch of fabric softener and it smells so good. I can’t wait to try it out.</td>
</tr>
<tr>
<td></td>
<td>M: Do you wanna do the laundry?</td>
</tr>
<tr>
<td>Command / request context</td>
<td>F: I’m going outside to hang out with my friends.</td>
</tr>
<tr>
<td></td>
<td>M: Do you wanna do the laundry?</td>
</tr>
</tbody>
</table>
Sample trial

(Spoken stimulus played) Listeners responded to:

• Q1: What did the speaker say?

• Q2: How well do the following paraphrases capture the utterance that you’ve just heard?
  
  – I want to know whether you want to do the laundry or not.
  – Let’s do the laundry together.
  – Do the laundry. (or) You should do the laundry.

• Any other interpretations about the utterance?
Sample trial (continued)

• Q3: Now answer the following questions (rate from 0-100).
  – Q3-1: How annoyed does the speaker sound?
  – Q3-2: How authoritative does the speaker sound?
  – Q3-3: How polite does the speaker sound?
  – Q3-4: What kind of attitude does the speaker have towards the listener (from very negative to very positive)?

• Any other impressions about the speaker?
Methodology

• Conditions: 8 terminal contours * 3 contexts
  – 24 conditions

• Between-subjects design
  – Each subject participated in a single condition
  – 35 ~ 50 subjects for each condition

• A total of 840 subjects recruited from Amazon Mechanical Turk
Caveat

• In this study, ‘pragmatic’ and ‘social’ refer to:

  – **Pragmatic** meanings: *speech acts*, bring about changes to the immediate discourse context

  – **Social** meanings: impressions about the **speaker’s affective states** and personalities, may persist outside the immediate discourse context

• Operational distinction
Results: Social meanings - annoyance

![Graph showing annoyance levels across different contexts and conditions.]

- Social meanings
- Annoyance

Conditions:
- Falling 2
- Falling 1
- Level
- Rising 1
- Rising 2
- Rising 3
- Rising 4
- Rising 5

Contexts:
- No context
- Invitation context
- Command context
Results: Social meanings - authority
Results: Social meanings - politeness

[Bar chart showing the impact of context and condition on politeness levels.]
Results: Social meanings - stance

![Bar chart showing positive attitude towards the listener across different conditions and contexts.](chart.png)
Results: Social meanings - analysis

• A series of regression models with:
  – Each of the social ratings as the main dependent variables
  – Intonation, context manipulations, and subject gender as independent variables

• A three-way distinction between canonical falling vs. canonical level vs. canonical rising contours

• Additional significant differences between intermediate contours as well
Results: Social meanings

- Level contours in Yes-No questions:
  - annoyance / negative attitude towards the listener
  - impoliteness

- Falling contours in Yes-No questions:
  - authority

- Rising contours in Yes-No questions:
  - positive attitude towards the listener
  - politeness
Results: Pragmatic meanings – invitation interpretation

![Graph showing invitation interpretation across different conditions and contexts.]

The graph illustrates the invitation interpretation under various conditions and contexts. The y-axis represents the invitation interpretation, while the x-axis shows the different contexts: No context, Invitation context, and Command context. The conditions are represented by different colors, including Falling 2, Falling 1, Level, Rising 1, Rising 2, Rising 3, Rising 4, and Rising 5. The graph highlights significant differences in interpretation across the conditions and contexts.
Results: Pragmatic meanings – command interpretation

![Bar chart showing command interpretation across different contexts and conditions.](chart.jpg)
Results: Pragmatic meanings - analysis

• A series of regression models with:
  – Each of the pragmatic interpretation ratings as the main dependent variables
  – Intonation, context manipulations, and subject gender as independent variables

• A two-way distinction between canonical falling, canonical level vs. canonical rising

• A lot of noise for intermediate contours
  – mismatch between pragmatic / social meanings
Results: Pragmatic meanings

- Rising contours in Yes-No questions:
  - more invitation interpretations

- Level and falling contours in Yes-No questions:
  - more command (request) interpretations

- Heavily influenced by context manipulations
Conclusion

• Phonetic, incremental differences overlay phonological, qualitative differences when intonation signals social meanings

  – No simple generalization between social meanings and F0
Conclusion

• Relationship between intonation and some aspects of pragmatic meanings (speech acts): less clear-cut
  
  – Intonation nonetheless has a predictable effect
  
  – May have arisen from positing wrong levels of granularity in thinking about pragmatic interpretations: cf. commitment-based approaches (e.g. Gunlogson 2004)
Conclusion

• Correlations between intonations that signal pragmatic interpretations, and intonations that signal social meanings
  
  – Command interpretation and impoliteness, negative attitude towards the listener pattern together (level)
  
  – Invitation interpretation and politeness, positive attitude towards the listener pattern together (rising)
Conclusion

• One existing view (cf. Austin 1962)

- Context
  - Makes request / command
  - Is annoyed, authoritative, negative stance
  - Father, Older person

- Speech acts
  - Stance, attitudinal meanings
  - Social identities

• The arrows likely flow in all directions
• Connections between the first and the second
Future directions

• Where does the effect of intonation come from?
  – Mismatch between tune and sentence type?: other dialects such as AAVE

• What about other kinds of yes-no questions?
Selected bibliography


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sunwooj@stanford.edu
Appendix: request context, falling
Appendix: no context, level
Appendix: no context, rise

sounds

Friendly

Curious

Speaker

Seemed

Optimistic

Cooperative

Just

Inquisitive
Other sentences

![Graph showing the relationship between bias and annoyance for different intonations (Falling, Level, Rising). The x-axis represents bias categories: information, invitation, request, ambiguous. The y-axis represents annoyance. The graph illustrates the impact of different intonations on the level of annoyance for each bias category.](image-url)