

# Language Attitudes and Listener-oriented Properties in Non-native Speech.

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# Listener-Oriented Speech

## Clear Speech

- Acoustic-phonetic modifications in speech are often directed at, or triggered by, **the listener**.
- One such kind of modification, known as *clear speech*, is thought to be accommodating the perceived need for greater intelligibility:
  - Clear speech is produced in noise, when addressing hearing-impaired listeners, and listeners with reduced linguistic ability, such as non-native speakers, infants and children, and even pets.
- However, listener-triggered modifications may have other goals, such as to express solidarity with the listener's social or linguistic group, produce or express emotional affect or involvement (Giles & Ogay, 2007).

# Listener-Oriented Speech

## Native Clear Speech

- Listener-triggered modifications, especially clear speech, are relatively well-studied in *native speakers*, who are often *explicitly instructed* to produce clear speech.
- Modifications typically involve:
  - The reduced **rate of speech** (Bradlow et al., 2003; Picheny et al., 1986)
  - An elevated **pitch** and wider **pitch range** (Bradlow et al., 2003; Picheny et al., 1986)
  - An expanded **vowel space** (Smiljanic & Bradlow, 2005)
- High pitch is also thought to be an expression of *positive affect* in child-directed speech (Trainor & Desjardins, 2002; Singh, Morgan, & Best, 2002; Uther, 2007, *inter alias*).

# Listener-Oriented Speech

## Motivation

- In the present study, we were interested in exploring listener-triggered modifications in *non-native speech*.
- Moreover, our speakers did not receive any explicit instructions to modify their speech.
- Instead, we attempted to trigger the modification by changing *the listener*.
- More specifically, *the listener's native language background* was the factor expected to trigger the modifications.

# The Present Study

## Methods

- Thirteen (13) native speakers of Mandarin, recruited at Purdue University, interacted in a *map task* with three confederate participants:
  - A native speaker of English
  - A non-native speaker, L1 - Mandarin
  - A non-native speaker, L1 – Russian
- The interaction was in English, participants were instructed to explain a route on the map with a number of labelled landmarks.

# The Present Study

## Maps and landmarks

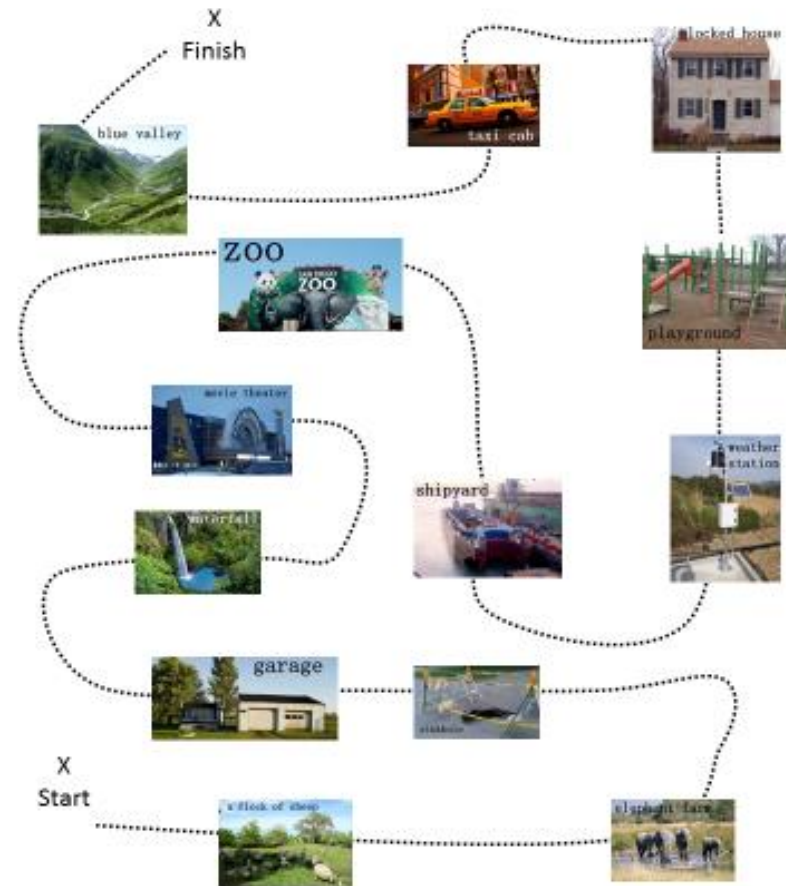
*Blue valley*

*Elephant farm*

*A flock of sheep*

*Locked house*

*Etc...*



# The Present Study

## Measurements

- Global prosodic properties of speech associated with listener-oriented styles were measured in participant's recordings:
  - **Articulation rate:** # of syllables/phonation time; phonation time = total time – silence time.
  - **Pitch:** average per syllable.
  - **Vowel space:** Based on first and second formant frequencies at the midpoint of four corner vowels: [i æ u ɑ] (stressed vowels in landmark labels).

# The Present Study

## Attitudes Ratio

- As part of the post-recording questionnaire participants rated statements addressing their attitudes towards Mandarin and English:
  - *I feel like myself when I speak Mandarin/English.*
  - *I want others to think I am a native/proficient speaker of Mandarin/English.*
- An attitudes ratio was calculated based on their responses and participants were divided into two groups based on the attitudes ratio:
  - **Mandarin-oriented:** M/E ratio  $> 1$  (7 participants)
  - **English-oriented:** M/E ratio  $\leq 1$  (6 participants)



# The Present Study

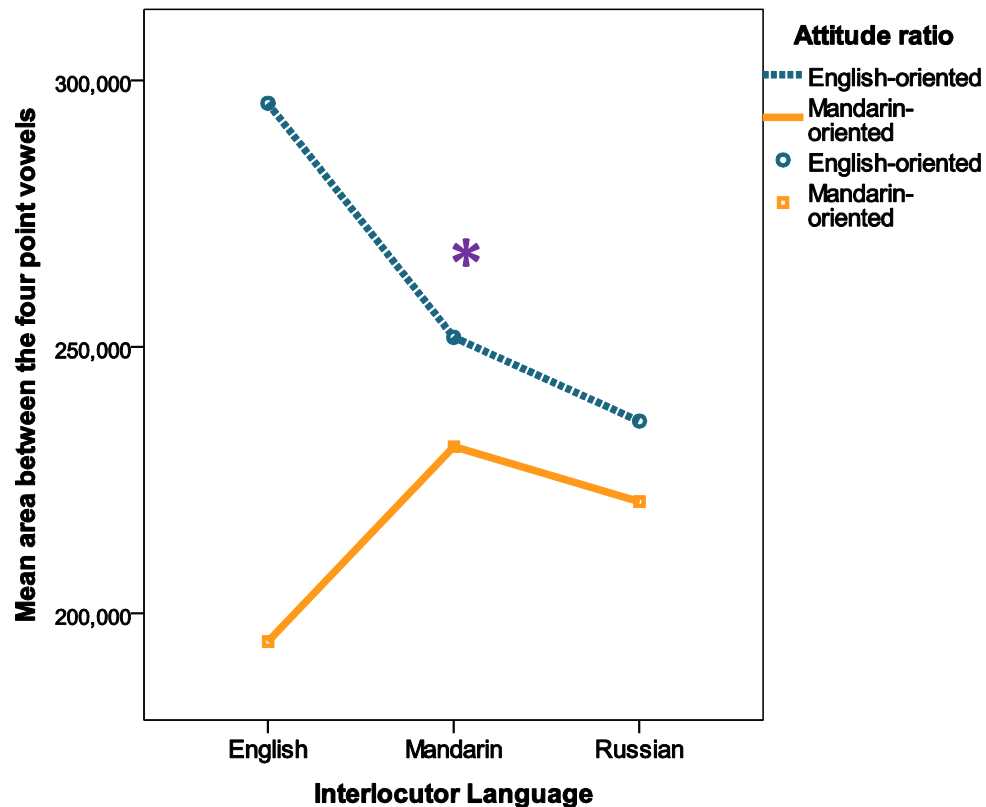
## Analysis

- Acoustic measurements were submitted to a series of repeated measures ANOVAs to test for the effects of the Listener's L1 factor and the Attitudes factor or the interaction between them.

# Results

## Vowel Space

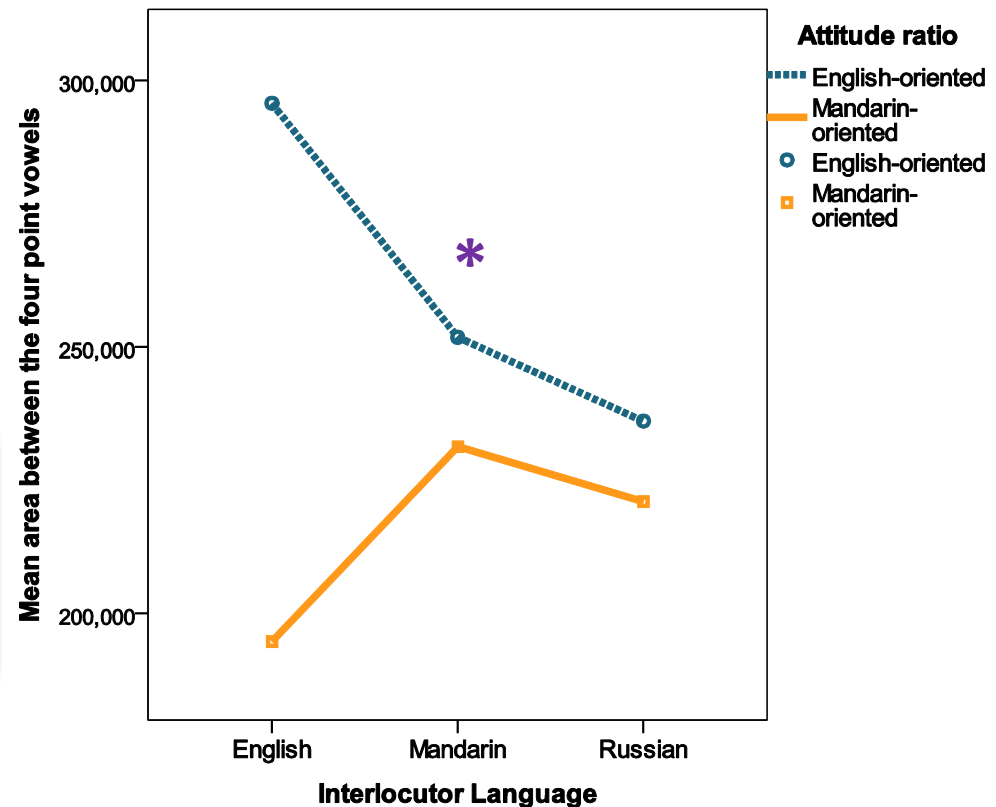
- A significant **interaction** between Listener's L1 and the Attitudes factor:  $F(2,22)=5.907, p<0.01$ 
  - The two groups of participants diverged in the speech directed towards *native listeners*:



# Results

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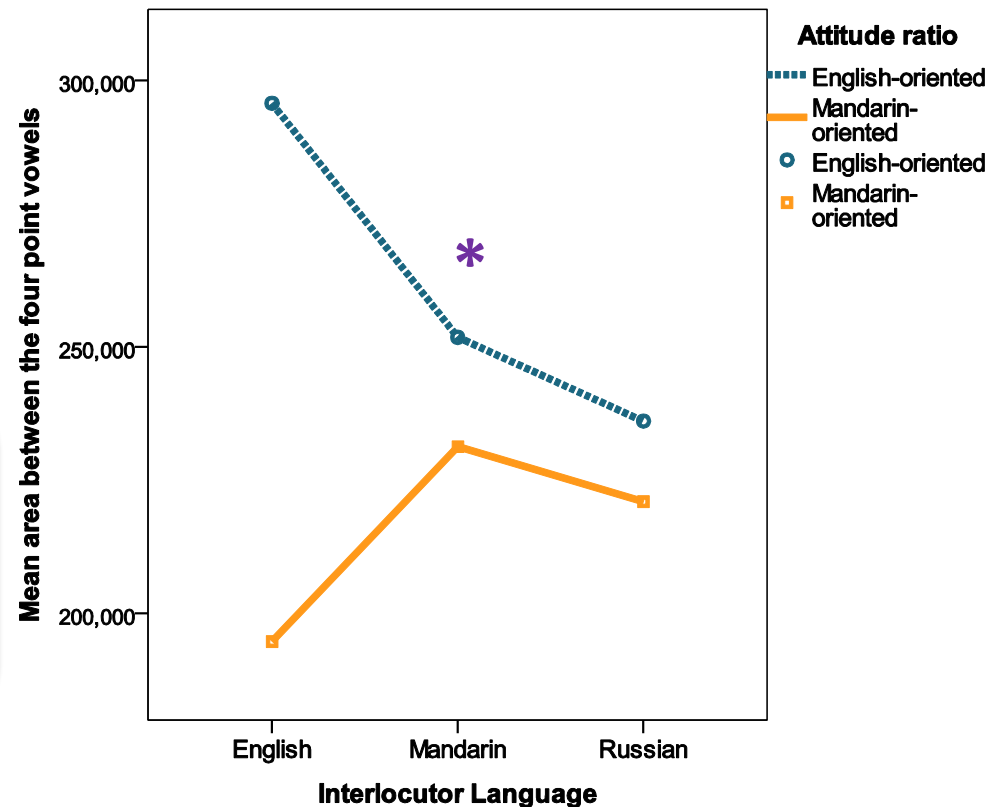
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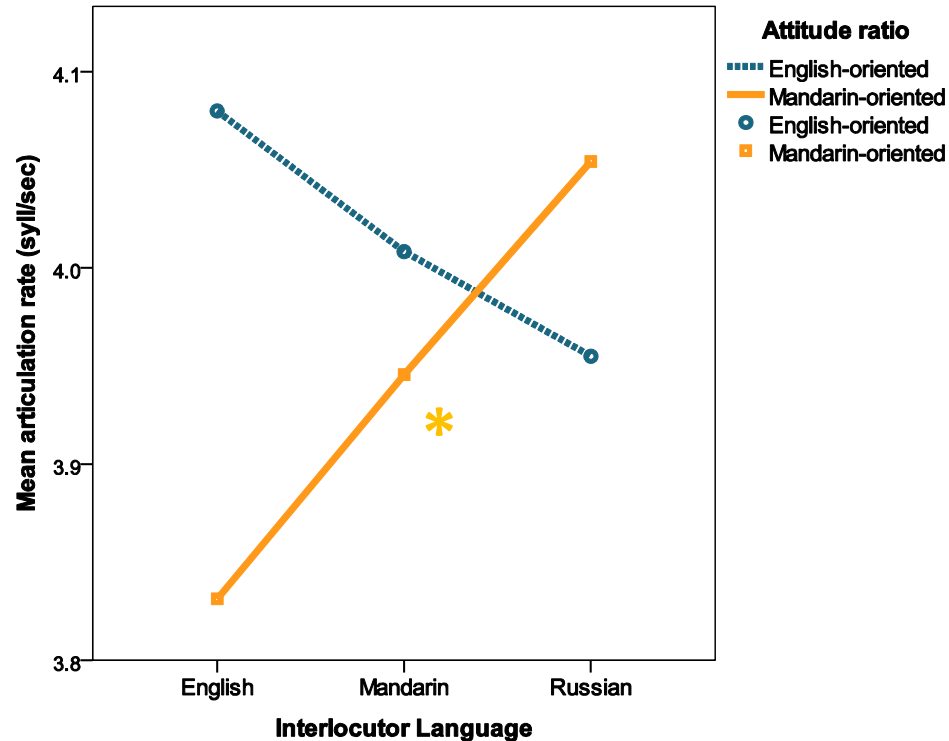


The English-oriented group spoke with a more expanded vowel space to native English listeners.

# Results

## Results: Articulation rate

- A significant **interaction** between Listener's L1 and the Attitudes factor:  
 $F(2,22)=5.631, p<0.05$ 
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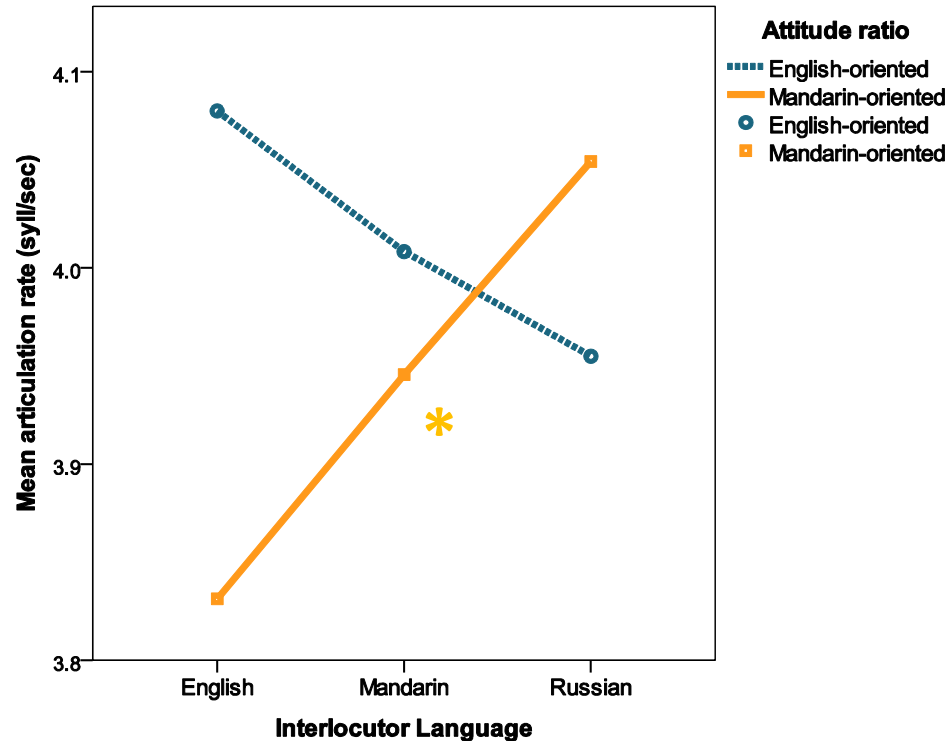


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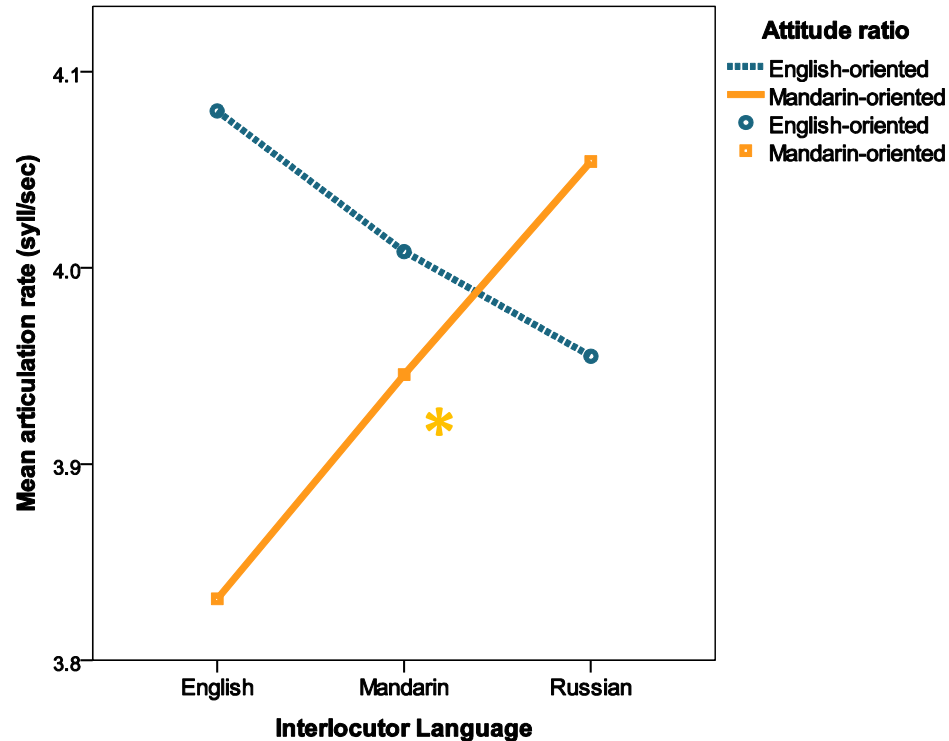


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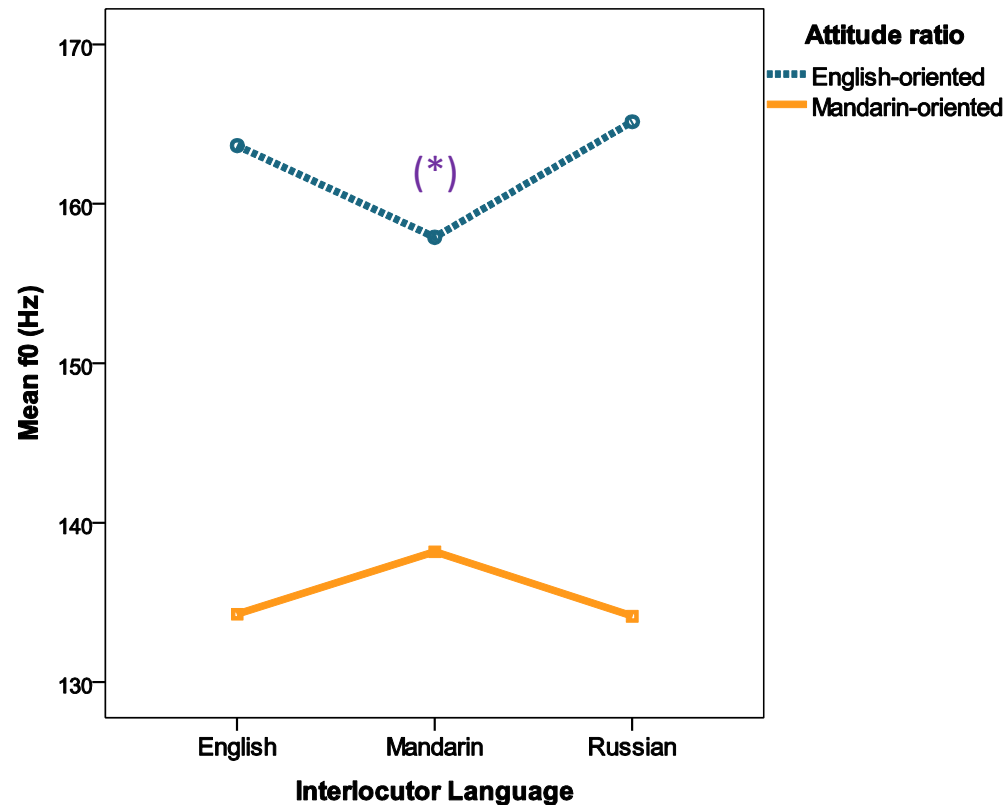


Mandarin-oriented group spoke slower to native English listener.

# Results

## Mean Pitch

- A significant **interaction** between Listener's L1 and the Attitudes factor:  $F(2,22)=5.512, p<0.05$ 
  - The two groups of participants diverged in the speech directed towards *English and Russian listeners*:



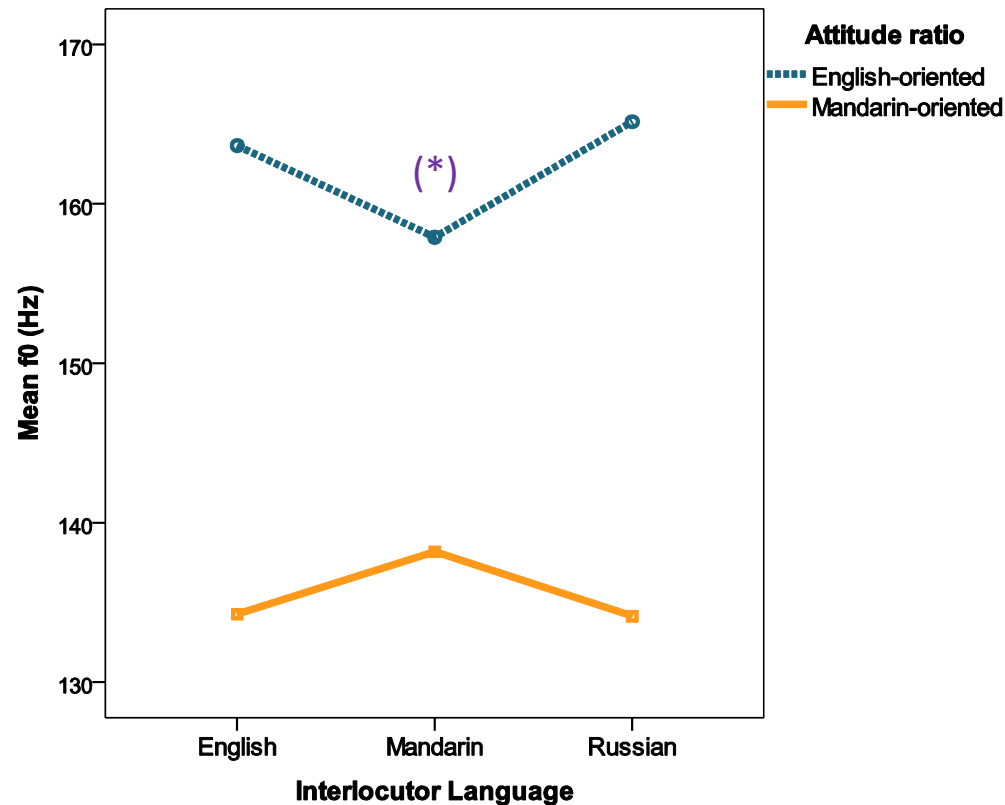


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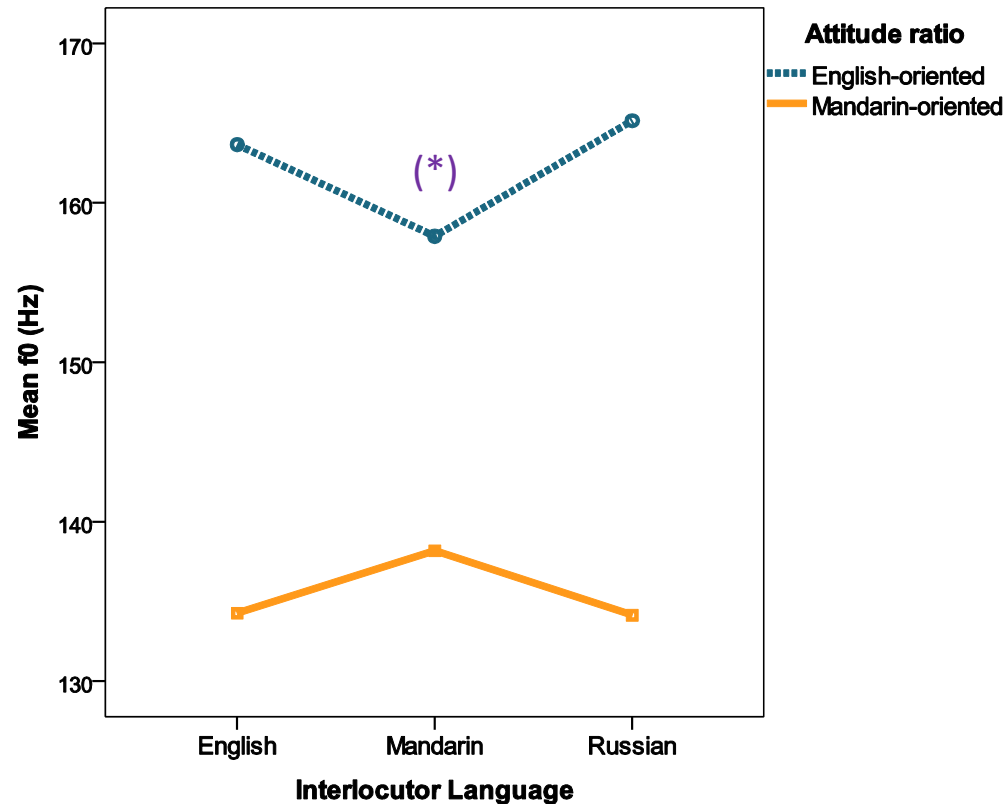


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English-oriented participants adopted a higher average pitch when addressing English (and Russian)-speaking listeners.

# Conclusions and Discussion

- Non-native speakers *do* produce modifications in their speech based on the L1 of the listener and their own attitudes towards the languages involved:
- English-oriented participants speak *faster*, with *higher* pitch and a *more expanded* vowel space to native listeners.
- Mandarin-oriented participants speak *slower*, with *lower* pitch, and *less expanded* vowel space to native listeners.

# Conclusions and Discussion

- These modifications do not appear to be of the clear speech nature.
- Instead, they are more compatible with findings concerning the degree and nature of emotional involvement in the interaction:
  - Expanded vowel space and faster rate of speech have been shown to correlate with a *stronger stance* in speech (Freeman, 2014).
  - Elevated pitch is one of the correlates of *positive affect* and positive emotions in speech (Singh, Morgan, & Best, 2002; Trainor & Desjardins, 2002).
- It is possible that English-oriented participants were more positively involved, while Mandarin-oriented participants distanced themselves, in the interactions with native speakers.

**THANK YOU!**

# Acknowledgments

- We thank David Dull and the Purdue SLC Media Center for help with data collection.
- Thank you to all participants for their time and interest.

