A computational approach to politeness with applications to social factors

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Moritz Sudhof
Dan Jurafsky
Jure Leskovec
Christopher Potts

Stanford University
Max Planck Institute SWS
"I only sniffed his ass to be polite."
"We are sorry to inform you that submission nr. 100 was not selected by the program committee to appear at Conference X. [...] Due to time and space limitations, we could only choose a small number of the submitted papers to appear on the program."
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Politeness

» important force shaping our language

» essential for NL understanding
Politeness

- important force shaping our language
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This work:
- a computational approach to politeness
- Detect and measure politeness (& rudeness)
- Refine sociolinguistic theories of politeness
- Relation between politeness and social factors
But what is politeness?

Politeness is subtle, far beyond "Please" and "Thanks"
But what is politeness?

Politeness is subtle, far beyond "Please" and "Thanks"

Option 1: "Do you have any code that we can look at?"

Option 2: "Any code? Or do I have to guess at how you did it?"
35k requests on Wikipedia talk pages

373k requests on question-answer forums
"Any code? or do we have to guess at how you did it?"
"Any code? or do we have to guess at how you did it?"
Politeness Corpus

"Any code? or do we have to guess at how you did it?"
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Politeness Corpus

-1  P=-0.78  1

Very impolite  Impolite  Somewhat impolite  Neutral  Somewhat polite  Polite  Very polite
Politeness Corpus

Wikipedia

35k requests on Wikipedia talk pages
4.5k annotated, 219 annotators, 0.7 MPC

Stack Exchange

373k requests on question-answer forums
6.5k annotated, 212 annotators, 0.6 MPC
Politeness Corpus

**Wikipedia**
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+ meta-data

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Largest corpus with politeness annotations:
www.mpi-Sws.org/~cristian/Politeness.html
Politeness strategies

Politeness addresses two basic desires:
[Brown and Levinson, 1978]
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(1) Desire not to be told what to do
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Politeness addresses two basic desires:
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1. Desire not to be told what to do
   "You should focus on your thesis."
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"Negative Politeness"
Politeness strategies

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"I was thinking, maybe we could focus on the thesis."
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"I was thinking, maybe we could focus on...."
"by the way, you should rewrite this sentence."
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<tbody>
<tr>
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[***=“p<0.001”]
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<tr>
<td>factuality</td>
<td></td>
<td></td>
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new interactions between strategies and context
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"Please focus on your thesis."
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"Please focus on your thesis."

Politeness

initial please  -0.30*  0.49***  medial please
Politeness strategies

Politeness addresses two basic desires:
[Brown and Levinson, 1978]

(2) Desire to be paid respect

> “Positive Politeness”
Politeness strategies

Politeness addresses two basic desires:
[Brown and Levinson, 1978]

(2) Desire to be paid respect
>
"Positive Politeness"

"Hey, nice work on the abstract! Thanks!"

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<tr>
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</tr>
<tr>
<td>deference</td>
<td>0.78***</td>
</tr>
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<td>gratitude</td>
<td>0.87***</td>
</tr>
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</table>

...
Politeness classifier

A polite/impolite classifier.
Politeness classifier

A polite/impolite classifier. Why?
Politeness classifier

A polite/impolite classifier. Why?

> observations are robust and generalizable

> also in a cross-domain setting

> extend politeness labels to very large data
Politeness classifier

A polite/impolite classifier. Why?

> observations are robust and generalizable

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SVM classifier: polite vs. impolite

Features:

› politeness strategies from dependency parses
› bag of words
Politeness classifier

A polite/impolite classifier

- observations are robust and generalizable

<table>
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- also across multiple domains

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<tr>
<td>Linguistic</td>
<td>67.53%</td>
<td>75.43%</td>
</tr>
<tr>
<td>BOW</td>
<td>64.23%</td>
<td>72.17%</td>
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Politeness classifier

A polite/impolite classifier

- observations are robust and generalizable
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- extend politeness labels to very large data
  - 400,000 requests annotated
  - enables fine-grained analysis of interactions with social factors
Social factors

(1) Politeness is costly in terms of communication efficiency; does it pay off?
Social factors: eventual status

In the Wikipedia community, editors gain high status through public elections.

- **Elections**
  - Successful (gains high status)
  - Failed (keeps low status)
Social factors: eventual status

Before  
Elections  
After
Social factors: eventual status

Before

After

Elections

Politeness score

46

37
Social factors: eventual status

Politeness score

46

eventually successful

37

eventually failed
Social factors: eventual status

(1) Politeness is costly in terms of communication efficiency; does it pay off?

> correlated with future social status.
Social factors

(1) Politeness is costly in terms of communication efficiency; does it pay off?

> correlated with future social status.

(2) How does politeness relate to social status?
Social factors: status change

Politeness score

Successful candidates

Elections

After

Before
Social factors: status change

**Before**

**Elections**

**After**

Politeness score

- Before: 46
- Elections: 37
- After: 41

Successful candidates

- Before: 46
- Elections: 37
- After: 41
Social factors: status change

Politeness score

Before | Elections | After

Failed candidates
Social factors: reputation

Another type of status difference:

reputation scores on Stack Overflow

Politeness of low-reputation users: 67
Politeness of mid-reputation users: 65
Politeness of high-reputation users: 58

*p < 0.001
Social factors: situational power

Yet another type of status difference:

Situational power on Stack Overflow

Politeness of question-askers 65 > Politeness of answer-givers 52

[p < 0.001]
Social factors

(1) Politeness is costly in terms of communication efficiency; does it pay off?
  > correlated with future social status.

(2) How does politeness relate to social status?
  > inversely correlated with social status
    (holds across different types of status)
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     (holds across different types of status)

(3) How politeness relates to group identity?
   Anecdotal evidence
Social factors: group identity

Programming languages sub-communities on Stack Overflow

puts "Hello Dog!"  print "Hello Dog!"
Social factors: group identity

Programming languages sub-communities on Stack Overflow

puts "Hello Dog!"

print "Hello Dog!"

Politeness in the Ruby sub-community: 59

Politeness in the Python sub-community: 47

*p<0.001*

"Ruby: A Programmer’s BeSt Friend"
### Social factors: group identity

Scripting languages communities

<table>
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<tr>
<td>Python</td>
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<td>49</td>
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   > correlated with eventual social status.

(2) How does politeness relate to social status?
   > inversely correlated with social status

(3) How politeness relates to group identity?
   > norms tied to community sub-cultures
Conclusions

» the Stanford Politeness Corpus

» evaluate & refine politeness theory

» effective politeness classifier

» new interactions with social factors
Thank you

The Stanford Politeness Corpus is available at: www.mpi-sws.org/~cristian/Politeness.html