Echoes of Power: Language effects & power differences in social interaction

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Joint with Cristian Danescu-Niculescu-Mizil, Bo Pang, & Jon Kleinberg
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From influence to language

Can subtle, *domain-independent* linguistic cues reveal (situational) power?

Who’s in charge?
Language reveals power: “easy” cases

What about general (domain-independent) signals?

[Gilbert 2012; Diehl et al. 2007, Scholand et al. 2010]
Who has the (conversational) lead?

Communicative behaviors are “patterned and coordinated, like a dance” [Niederhoffer and Pennebaker 2002]

Look for adaptation/coordination of linguistic style
Defining linguistic style coordination

Direct repetition: under speaker’s control, could just be choice of topic. 😞

Function-class matching: unconscious & frequent
[Niederhoffer and Pennebaker 2002]

At least you were outside.

It doesn’t make much difference…

Doesn’t really matter …

It’s not important …
blue: prepositions; red: articles; etc.
Measuring immediate influence

How much does speaker $x_1$ immediately trigger $x_2$’s use of function-word class $c$?

= how much does $x_2$ coordinate to $x_1$ on $c$?

\[ \Pr(x_2 \text{ uses } c \mid x_1 \text{ uses } c, x_2 \text{ immediately replies}) \]

\[ - \Pr(x_2 \text{ uses } c \mid x_2 \text{ immediately replies to } x_1) \]

(reported as % (multiplied by 100) in the following)

[Danescu-Niculescu-Mizil, Dumais, Gamon 2011]
Status in US Supreme Court transcripts
50,000 exchanges + metadata (download from my webpage)
Status change in Wikipedia
240,000 exchanges + metadata (download from my webpage)
Dependence in Supreme Court transcripts

Power differences can arise from dependence [Emerson 1962]

“needed to change” J’s mind

J “had your opinion”
Evidence of domain independence

SVM classification with various features

- difference from 50%
- bag of words (20,000 features)
- coordination (9 features)
- "stylistic" (18 features)
Evidence of domain independence

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Evidence of domain independence

SVM classification with various features

- bag of words (20,000 features)
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Subtle, *domain-independent* linguistic cues reveal power relationships.

- static status & status change
- situational dependence

Thanks!