Chameleons in imagined conversations:
A new approach to understanding coordination of linguistic style in dialogs

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Non-conscious coordination

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How things are said as opposed to **what** is said

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Example:

Client: “At what time does your shop close?”

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[Levelt & Kelter, 1982]

Linguistic style coordination

Linguistic coordination occurs:

instantaneously

non-consciously

Linguistic style coordination

Linguistic style:

for us: function word class usage

Coordination is not just exact matching:

Client: "At what time does your shop close?"

Shopkeeper: "In two hours."

Linguistic style coordination

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face-to-face settings [Niederhoffer & Pennebaker, 2002]

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- Twitter conversations (involves a wide spectrum of relationship stages)

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Across a wide range of conversational settings.

Linguistic style coordination

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Why does it happen?

Actively debated for the last 40 years.

[Ireland et al. 2011, Branigan et al., 2010]

disclaimer: we are not solving this debate today

Linguistic style coordination

Why does it happen?

Hypotheses:

Social motivation

- to gain the other's social approval [Giles 2008; Street & Giles, 1982]
- audience design [Clark, 1996; Bortfeld & Brennan, 1997]

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Case study: scripted movie dialogs

220,000 **imagined** conversations between 9000 characters from 617 movie scripts

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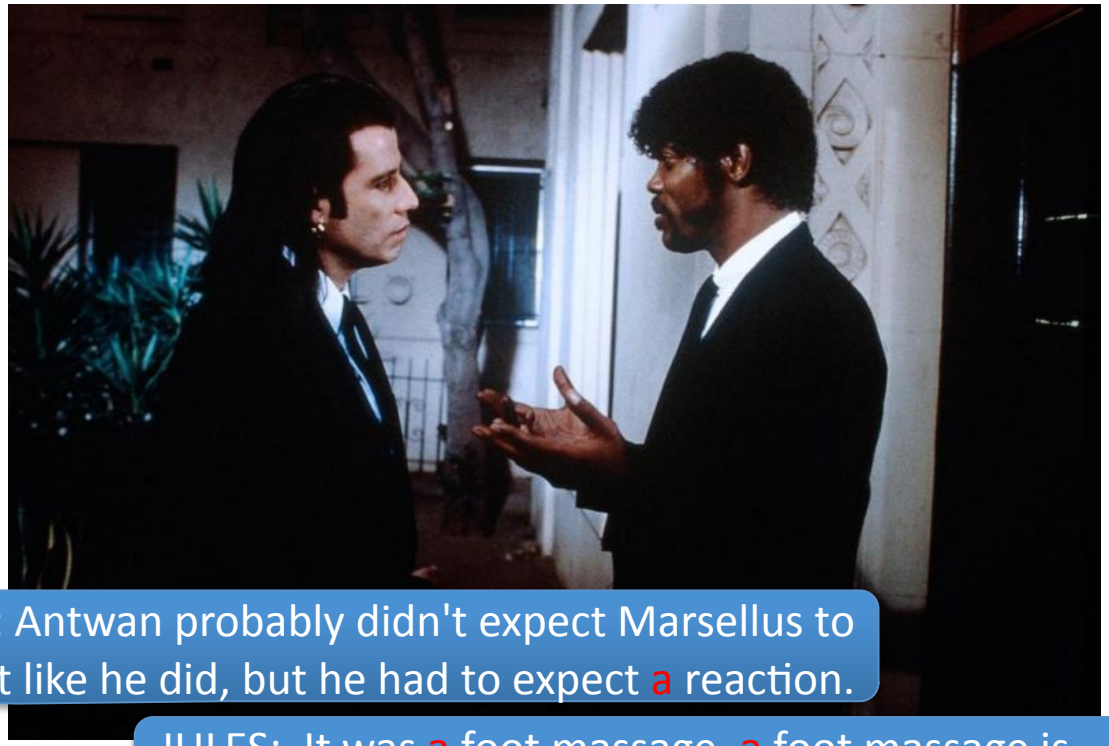

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Matching on article presence.

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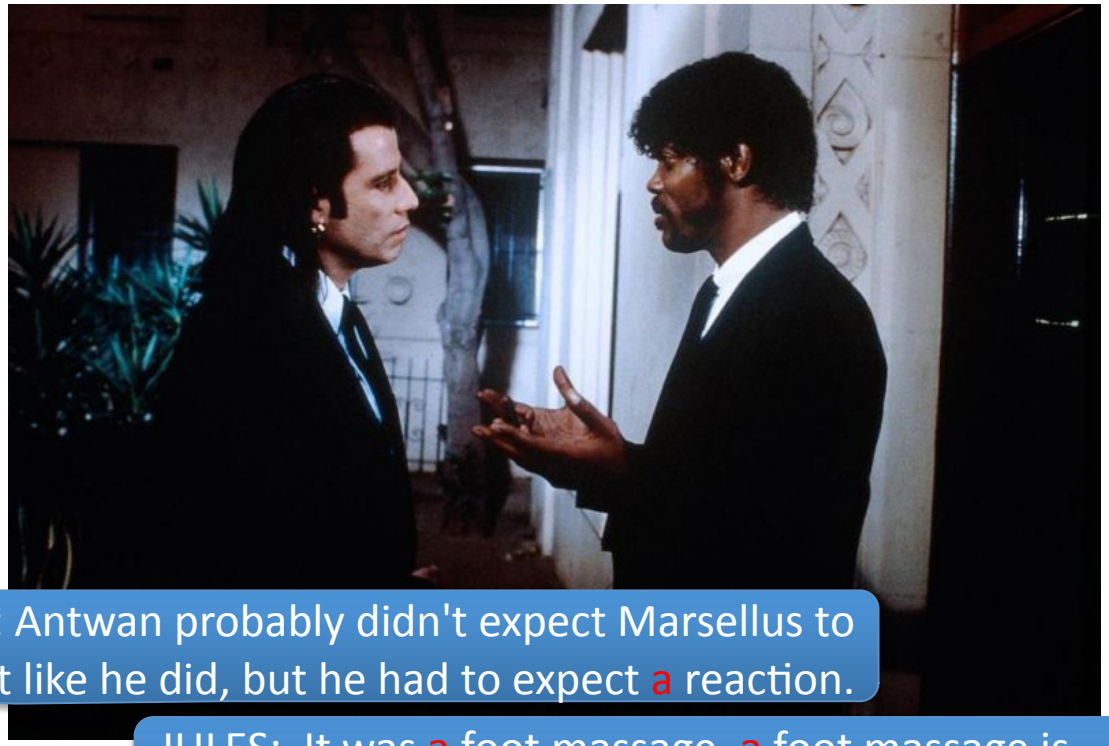

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Matching on article presence.

But matching ≠ coordination !

(e.g., chance, Tarantino likes articles, bad guys like articles)

Measuring coordination

What we want: how much *Jules'* inclusion of an article (say) immediately triggers the usage of articles in *Vincent's* reply?

What we don't want: how similar *Jules'* style is to *Vincent's* style in general or how consistent Tarantino's style is.

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$$Coordination_{(V\ to\ J)}(art.) = P(V^{art.} \mid V \text{ replied to } J, J^{art}) - P(V^{art.} \mid V \text{ replied to } J)$$

Control (for inherent similarity)

Measuring coordination

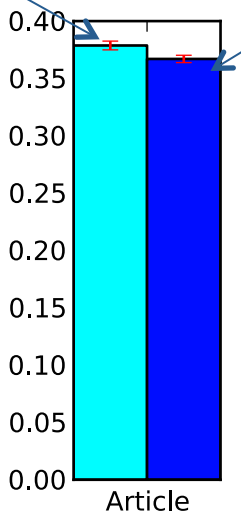
Overall coordination: average over all pairs of characters (*B*,*A*)

"Triggered" probability

$P(B^{art.} \mid B \text{ replied to } A, A^{art})$

Control probability

$P(B^{art.} \mid B \text{ replied to } A)$



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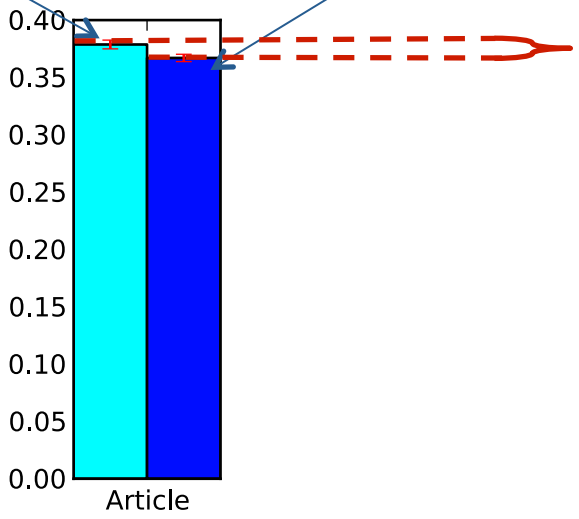

Movie characters coordinate!

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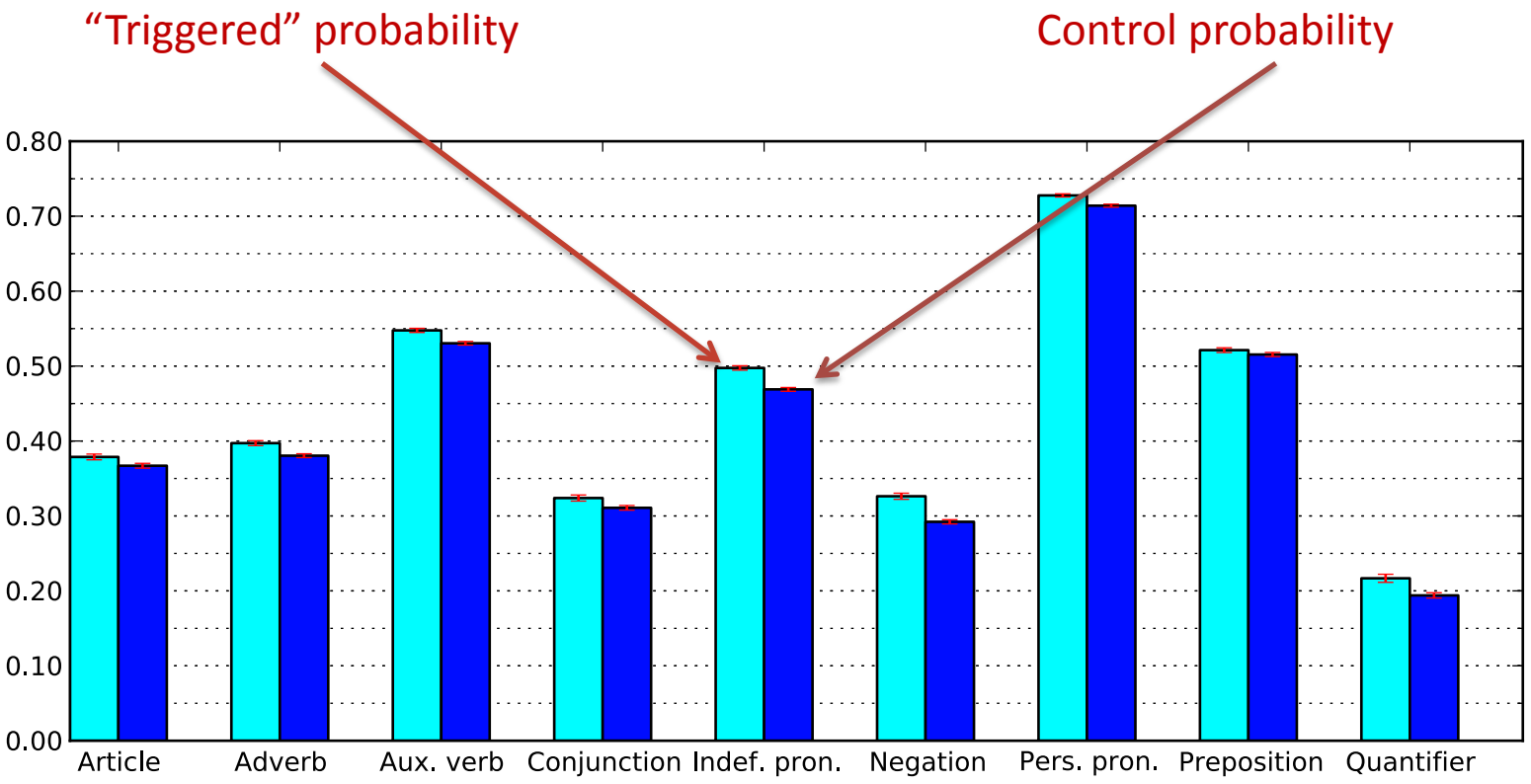

Statistically significant ($p<0.001$) effect of coordination on all 9 function word categories considered

Movie characters coordinate!

Does coordination occur when the interlocutors have no social motivations?

Proxy question:
Does coordination occur when the dialog is **not generated** by the interlocutors (i.e., by the ones gathering social benefits)?

Yes!
Scriptwriters produce coordination despite not being the beneficiaries of the presumed social benefits

But what if …

… we are only observing the effect of scriptwriters self-coordinating?

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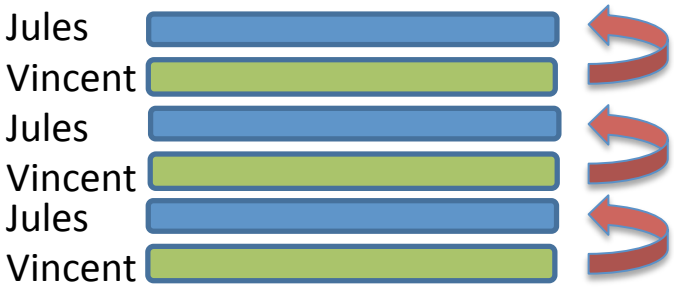
(we know people self-coordinate [Reitter et al. 2006])

Author self-coordination hypothesis

Coordination of Vincent to Jules:



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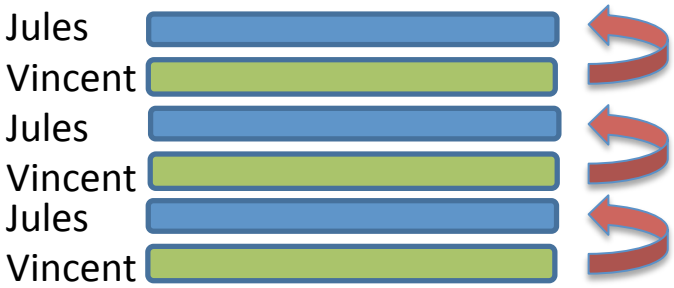

Self-coordination of the scriptwriter:

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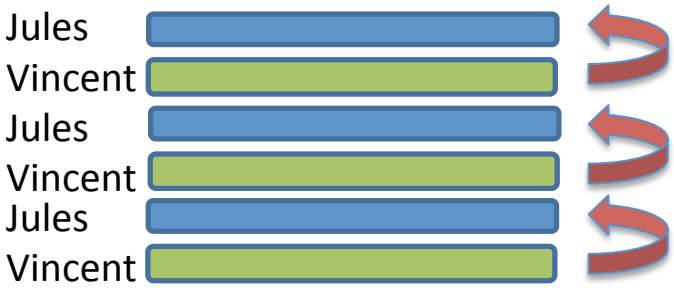

Self-coordination of the scriptwriter:

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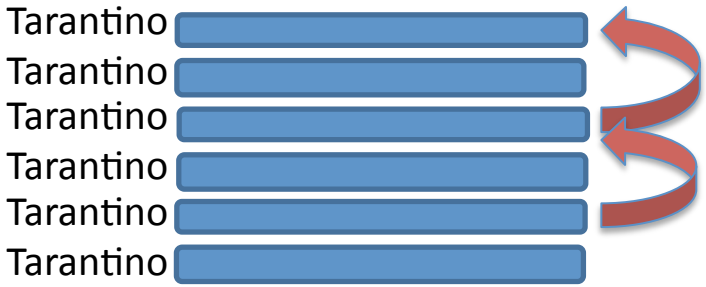

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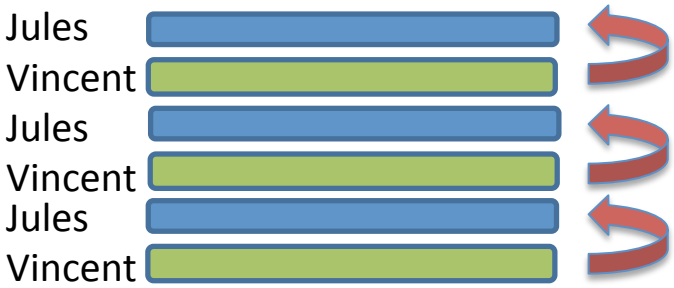
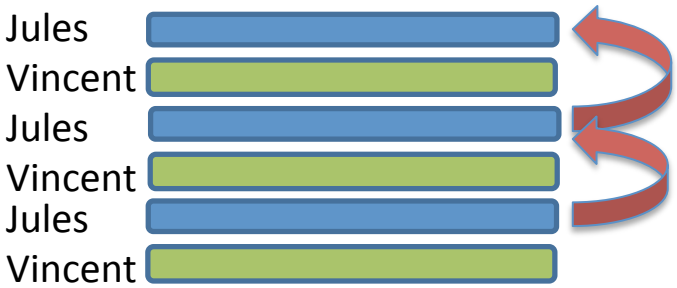


… would be the same or more than the character self-coordination of J to J:



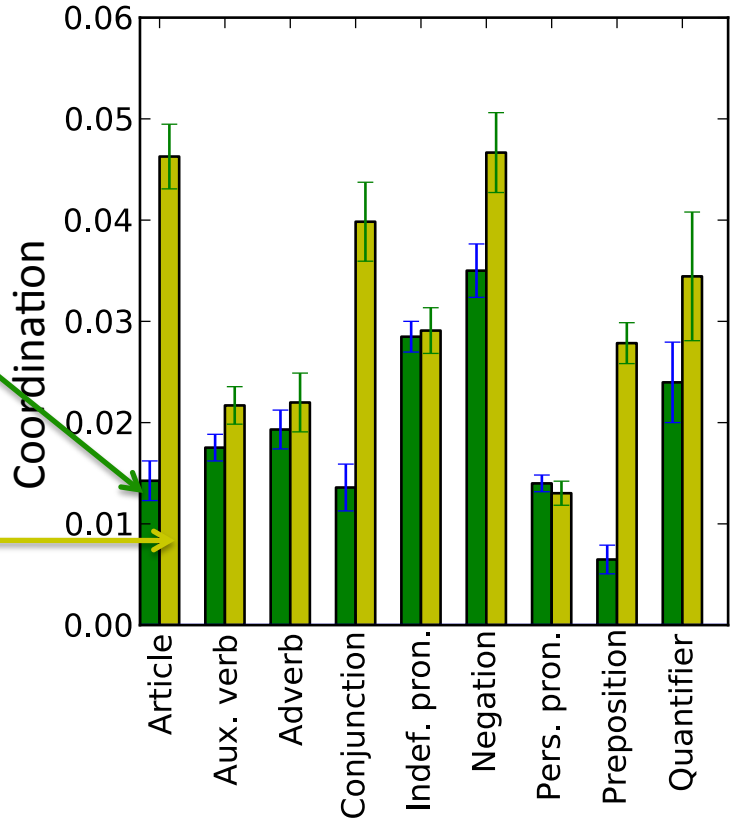
Self-coordination of the scriptwriter:

… would be the same or more than:

It is not author self-coordination !

Coordination

… it's actually less than
the **character self-coordination**



Movie characters vs. real people

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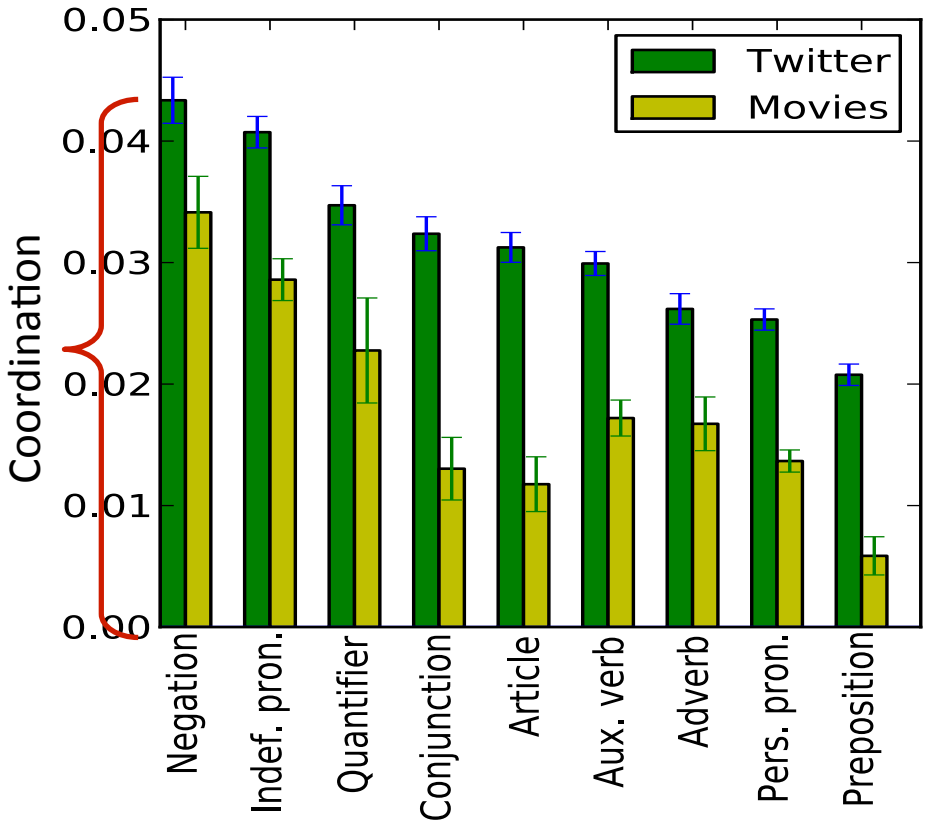

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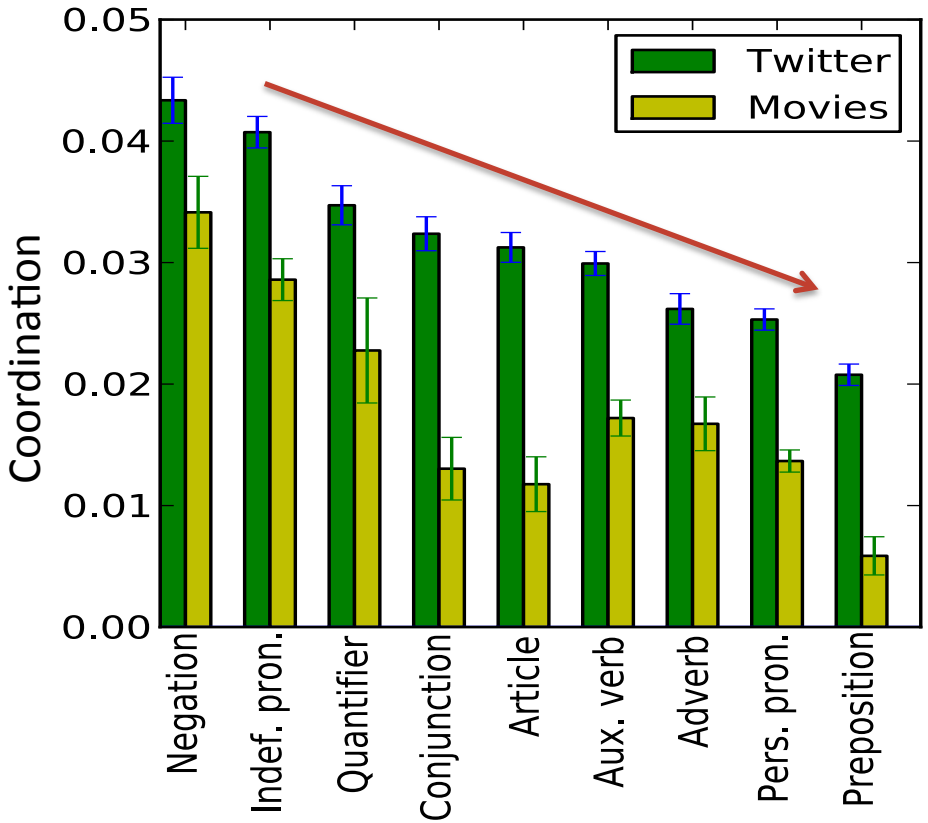

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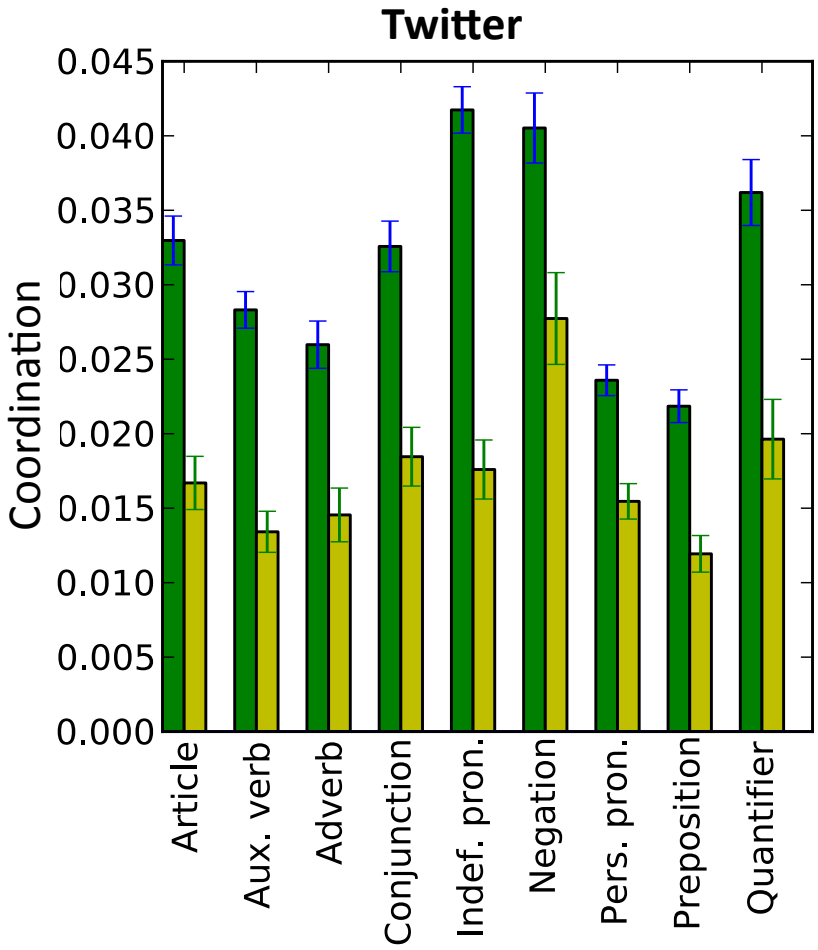

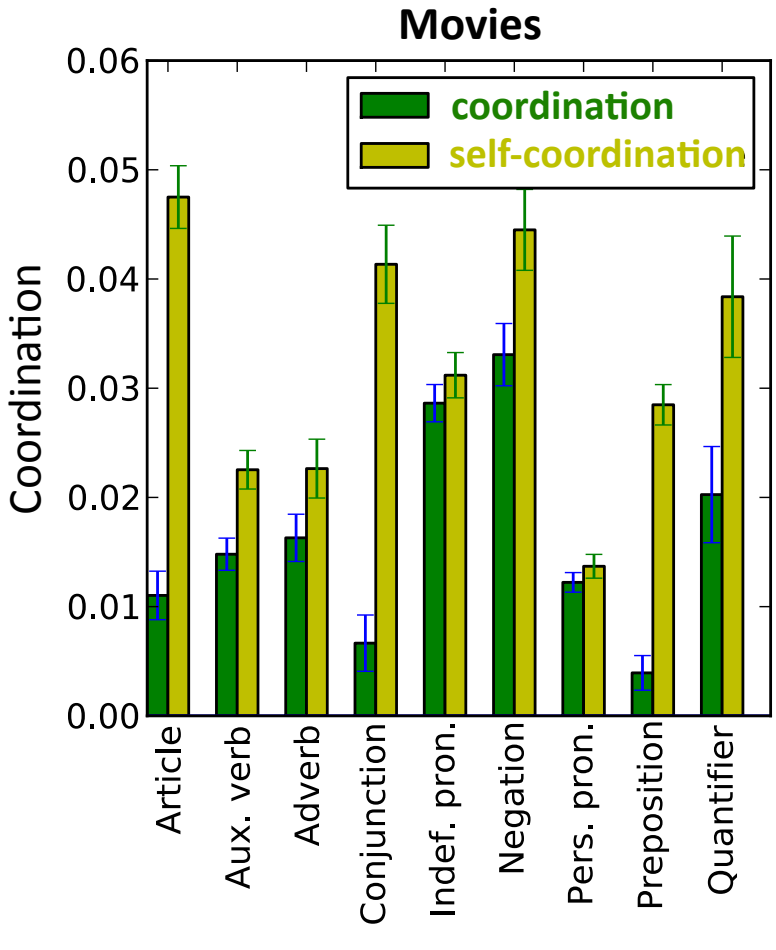

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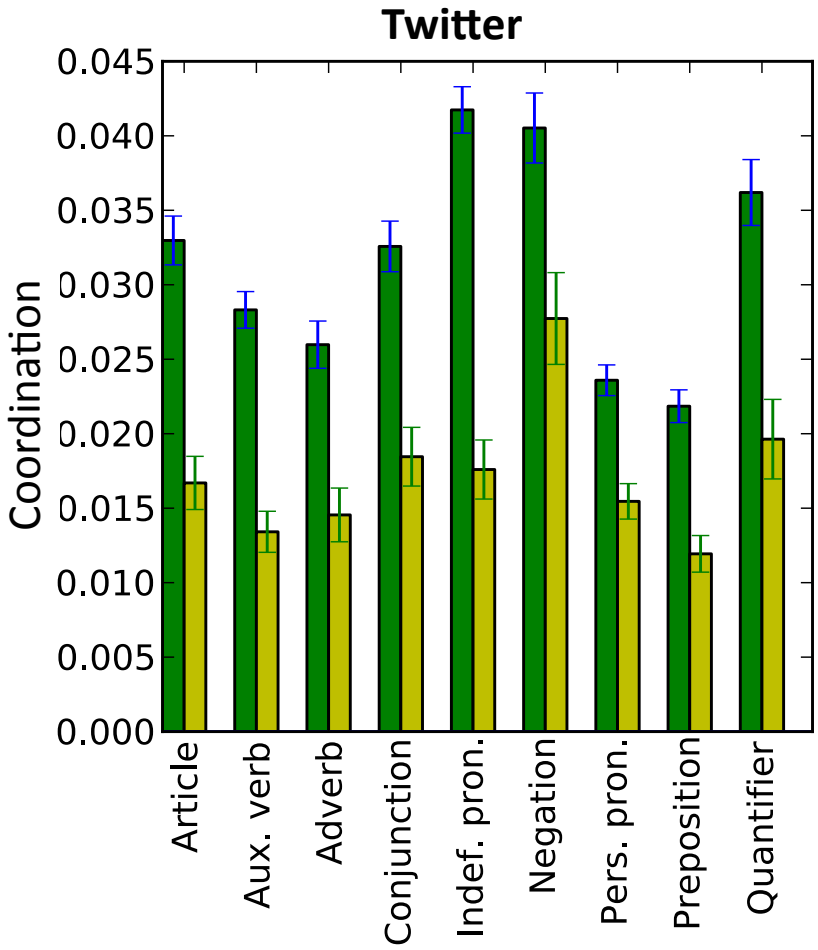

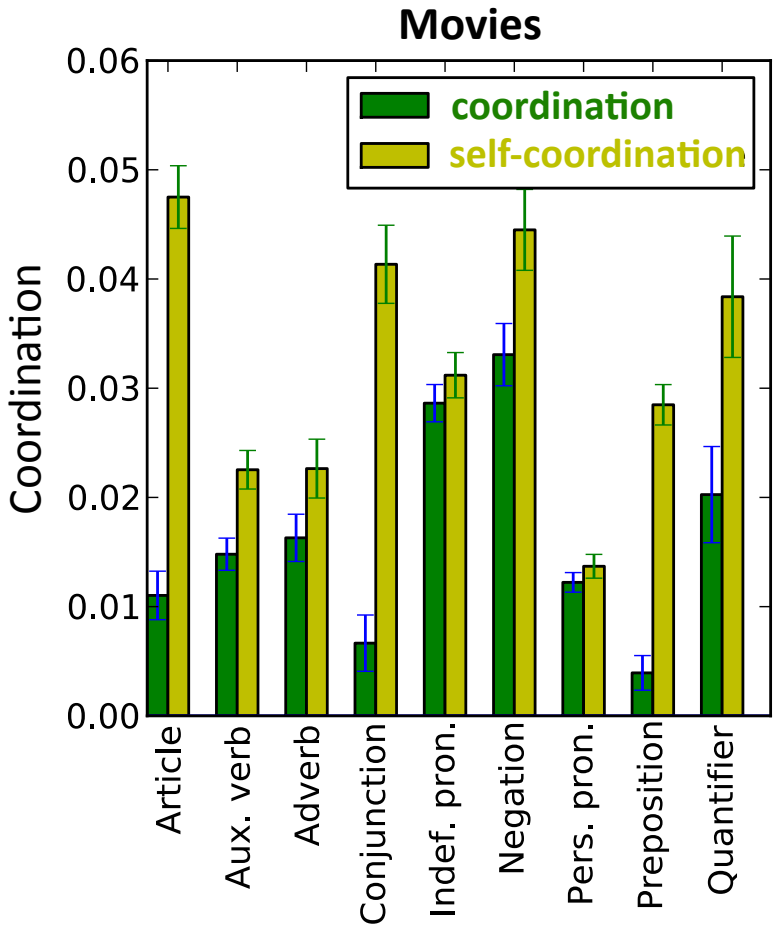

Potential application in detecting faked conversations.

Effects of social features

In real life, some people coordinate more than others:

e.g.,

effects of gender [Ireland & Pennebacker, 2010, Bilous and Krauss, 1988]

effects of social status [Thakerar et al., 1982; Gregory and Webster, 1996]

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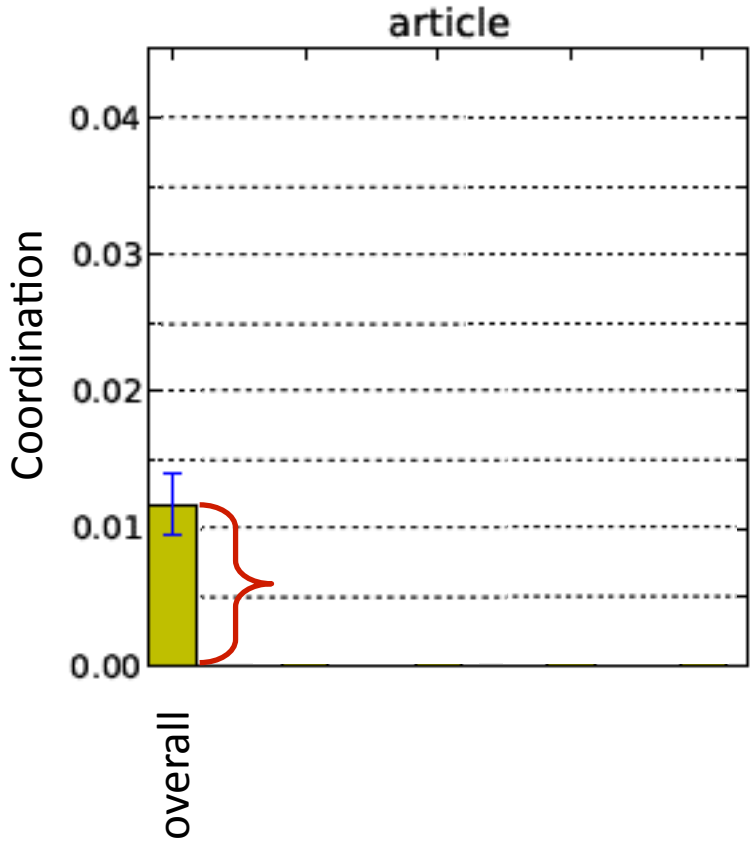
Have preconceptions about how certain people coordinate become embedded in this reflex?

Effects of imagined gender

Proxy for the gender of movie characters:

gender of the respective actors

Effects of imagined gender



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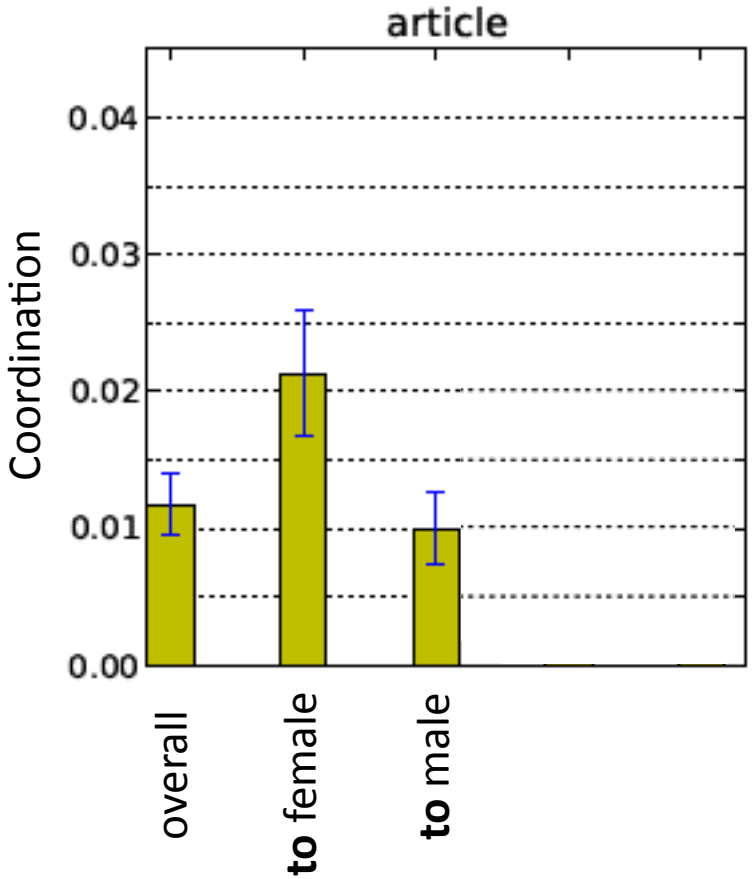

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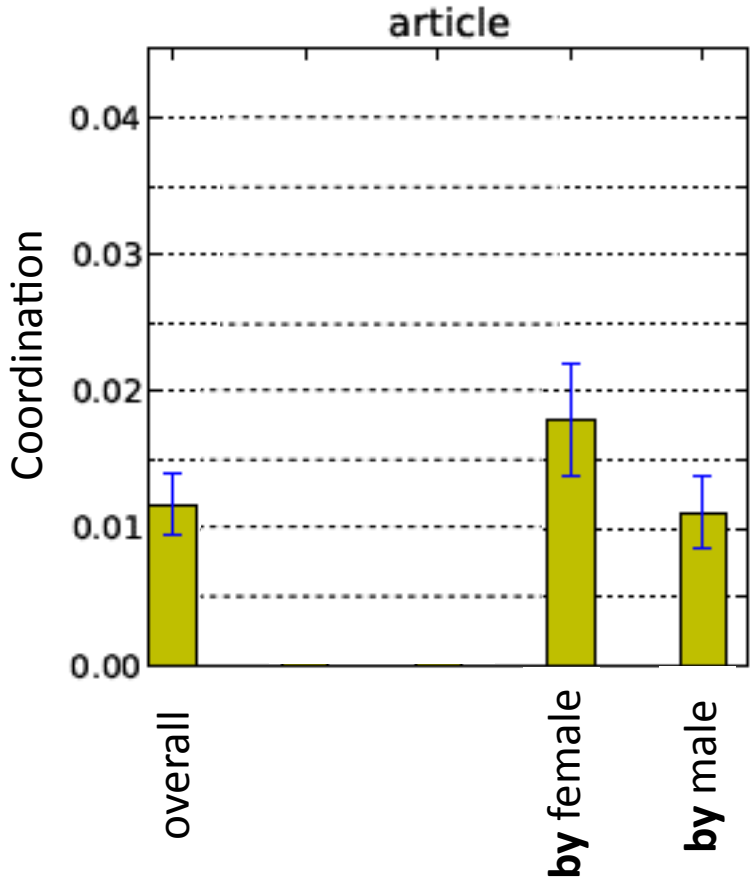

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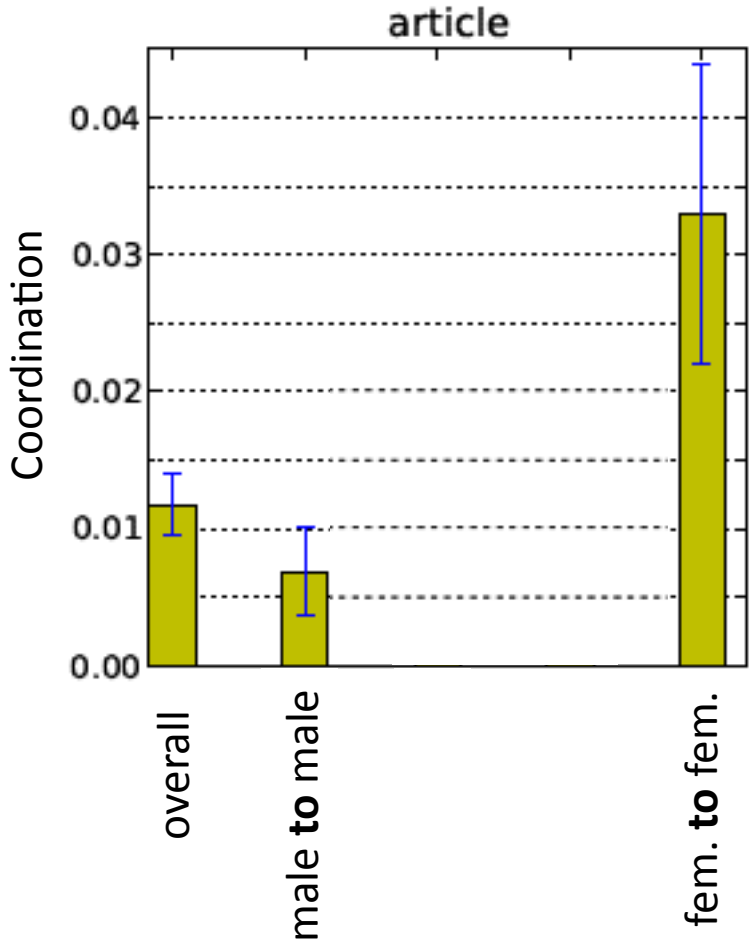

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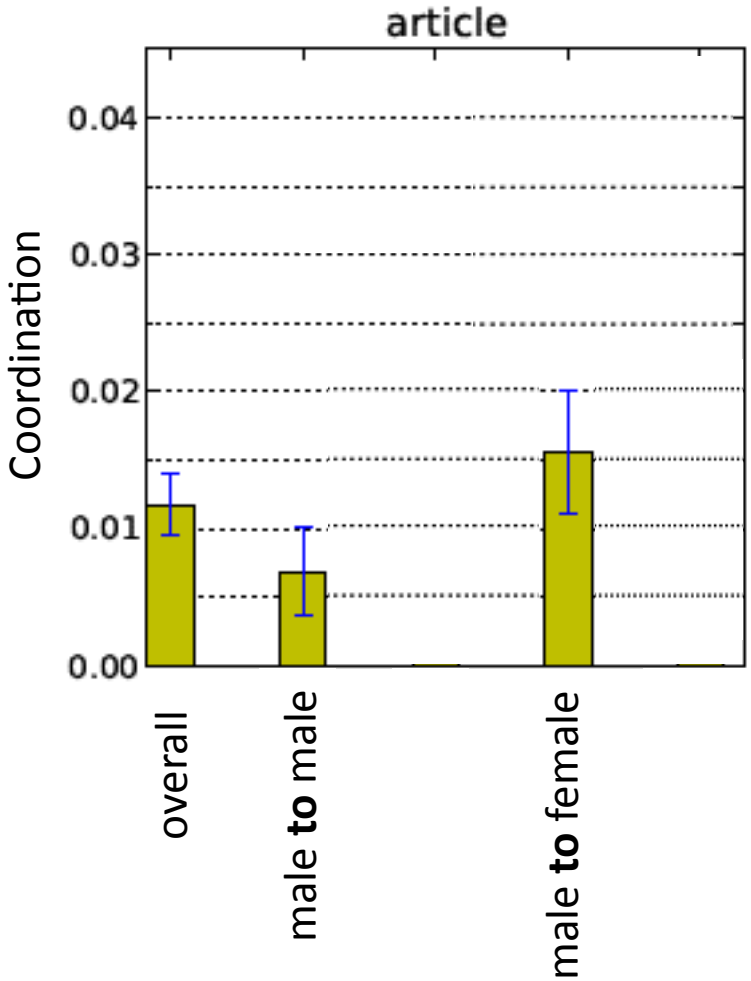

Contributions

Discovered coordination effects in imagined conversations

Insight into the mechanism behind coordination

Preliminary evidence regarding preconceptions relating coordination to various social features

Large-scale, metadata rich corpus of imagined conversations

publicly available!

Thank you!

VINCENT: I think we oughta leave.

JULES: That's probably a good idea.