



# Information systems – exhibit A

Telephone call mid-afternoon New Year's Day, 1967:

Somewhat uncertain female voice: "I have two questions. The first is sort of an etiquette one. I went to a New Year's Eve party and unexpectedly stayed over. I don't really know the hosts. Ought I to send a thank-you note? Second, when you meet a fellow and you know he's worth twenty-seven million dollars because that's what they told me, twenty-seven million, and you know his nationality, how do you find out his name?"

CS 1/2/67

# Information systems – exhibit A

(N.Y.P.L. archive)

Telephone call mid-afternoon New Year's Day, 1967:

Somewhat uncertain female voice: "I have two questions. The first is sort of an etiquette one. I went to a New Year's Eve party and unexpectedly stayed over. I don't really know the hosts. Ought I to send a thank-you note? Second, when you meet a fellow and you know he's worth twenty-seven million dollars because that's what they told me, twenty-seven million, and you know his nationality, how do you find out his name?"

CS 1/2/67

# Information systems – exhibit A

(N.Y.P.L. archive)

Telephone call mid-afternoon New Year's Day, 1967:

Somewhat uncertain female voice: "I have two questions. The first is sort of an etiquette one. I went to a New Year's Eve party and unexpectedly stayed over. I don't really know the hosts. Ought I to send a thank-you note? Second, when you meet a fellow and you know he's worth twenty-seven million dollars because that's what they told me, twenty-seven million, and you know his nationality, how do you find out his name?"

cs 1/2/67

# Information systems – exhibit A

(N.Y.P.L. archive)

Telephone call mid-afternoon New Year's Day, 1967:

Somewhat uncertain female voice: "I have two questions. The first is sort of an etiquette one. I went to a New Year's Eve party and unexpectedly stayed over. I don't really know the hosts. Ought I to send a thank-you note? Second, when you meet a fellow and you know he's worth twenty-seven million dollars because that's what they told me, twenty-seven million, and you know his nationality, how do you find out his name?"

cs 1/2/67

# Information systems – exhibit A

(N.Y.P.L. archive)

Telephone call mid-afternoon New Year's Day, 1967:

Somewhat uncertain female voice: "I have two questions. The first is sort of an etiquette one. I went to a New Year's Eve party and unexpectedly stayed over. I don't really know the hosts. Ought I to send a thank-you note? Second, when you meet a fellow and you know he's worth twenty-seven million dollars because that's what they told me, twenty-seven million, and you know his nationality, how do you find out his name?"

CS 1/2/67

# Information systems – exhibit B

The Google logo is centered on the page. It consists of the word "Google" in its signature multi-colored font: the 'G' is blue, the first 'o' is red, the second 'o' is yellow, the 'g' is blue, the 'l' is green, and the 'e' is red.



## [INFO/CS 4300 Hall of Fame](#)





# Information systems – exhibit A

(N.Y.P.L. archive)

Telephone call mid-afternoon New Year's Day, 1967:

Somewhat uncertain female voice: "I have two questions. The first is sort of an etiquette one. I went to a New Year's Eve party and unexpectedly stayed over. I don't really know the hosts. Ought I to send a thank-you note? Second, when you meet a fellow and you know he's worth twenty-seven million dollars because that's what they told me, twenty-seven million, and you know his nationality, how do you find out his name?"

CS 1/2/67

# Information systems – exhibit A

(N.Y.P.L. archive)

Telephone call mid-afternoon New Year's Day, 1967:

Somewhat uncertain female voice: "I have two questions. The first is sort of an etiquette one. I went to a New Year's Eve party and unexpectedly stayed over. I don't really know the hosts. Ought I to send a thank-you note? Second, when you meet a fellow and you know he's worth twenty-seven million dollars because that's what they told me, twenty-seven million, and you know his nationality, how do you find out his name?"

cs 1/2/67



# Linguistic style coordination

**Linguistic style:**

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

# Linguistic style coordination

## Linguistic style:

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

## Example:

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

Shopkeeper: “At five o’clock.”

Shopkeeper: “Five o’clock”

# Linguistic style coordination

## Linguistic style:

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

## Example:

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

Client: “What time does your shop close?”

Shopkeeper: “At five o’clock.”

Shopkeeper: “Five o’clock”

# Linguistic style coordination

## Linguistic style:

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

## Example:

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

Client: “What time does your shop close?”

Shopkeeper: “At five o’clock.”

Shopkeeper: “Five o’clock”

[Levelt & Kelter, 1982]



# Linguistic style coordination

## Linguistic style:

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

## Example:

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

Client: “What time does your shop close?”

Shopkeeper: “At five o’clock.”

Shopkeeper: “Five o’clock”

[Levelt & Kelter, 1982]

# Linguistic style coordination

**Linguistic coordination occurs:**

**instantaneously**

**non-consciously**

# Measuring coordination



# Measuring coordination



VINCENT: Antwan probably didn't expect Marsellus to react like he did, but he had to expect a reaction.

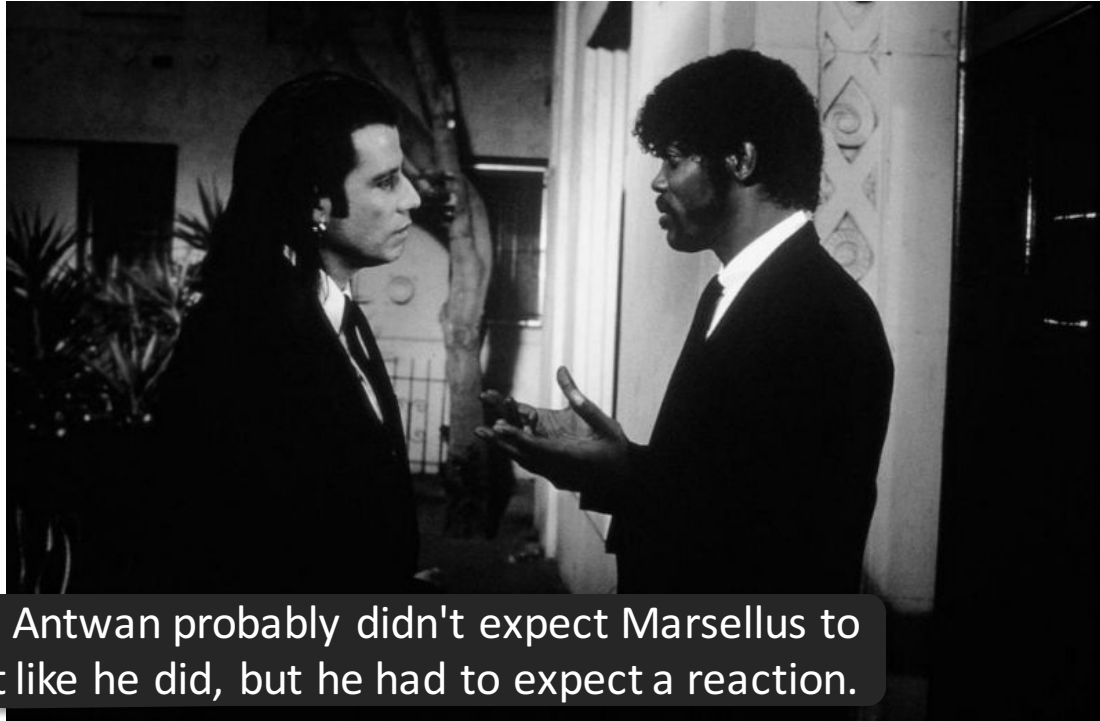
# Measuring coordination



VINCENT: Antwan probably didn't expect Marsellus to react like he did, but he had to expect a reaction.

↙  
JULES: He just massaged her feet, massaging someone's feet is nothing, I massage my mother's feet.

# Measuring coordination

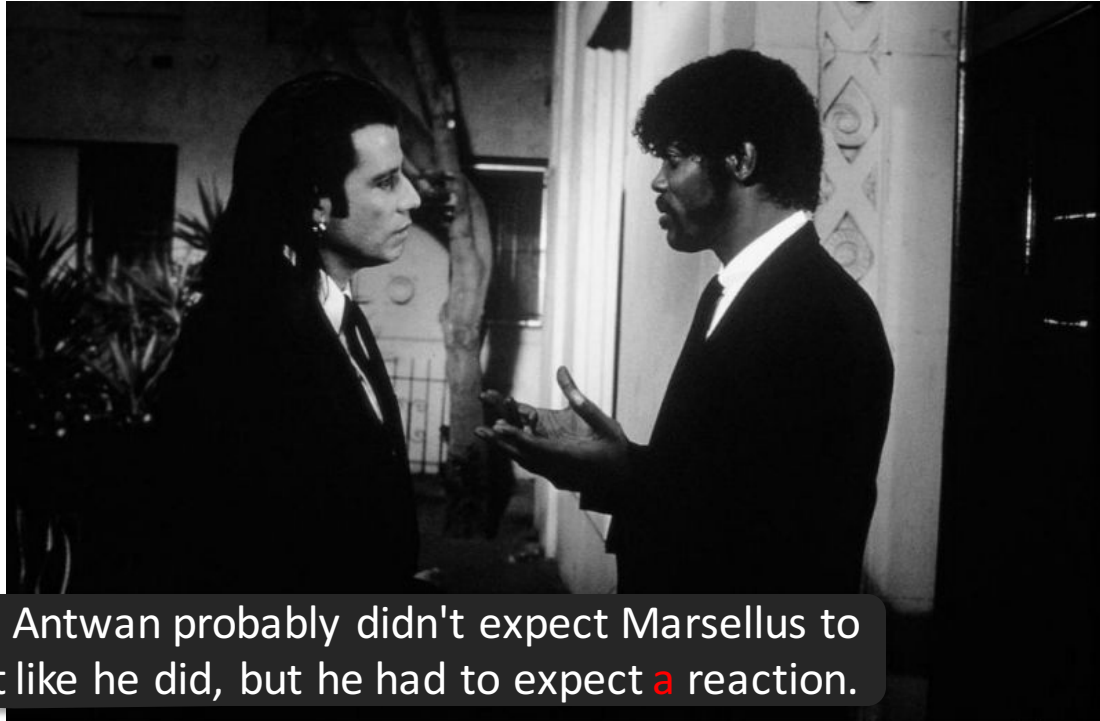


VINCENT: Antwan probably didn't expect Marsellus to react like he did, but he had to expect a reaction.

JULES: It was a foot massage, a foot massage is nothing, I give my mother a foot massage.

JULES: He just massaged her feet, massaging someone's feet is nothing, I massage my mother's feet.

# Measuring coordination

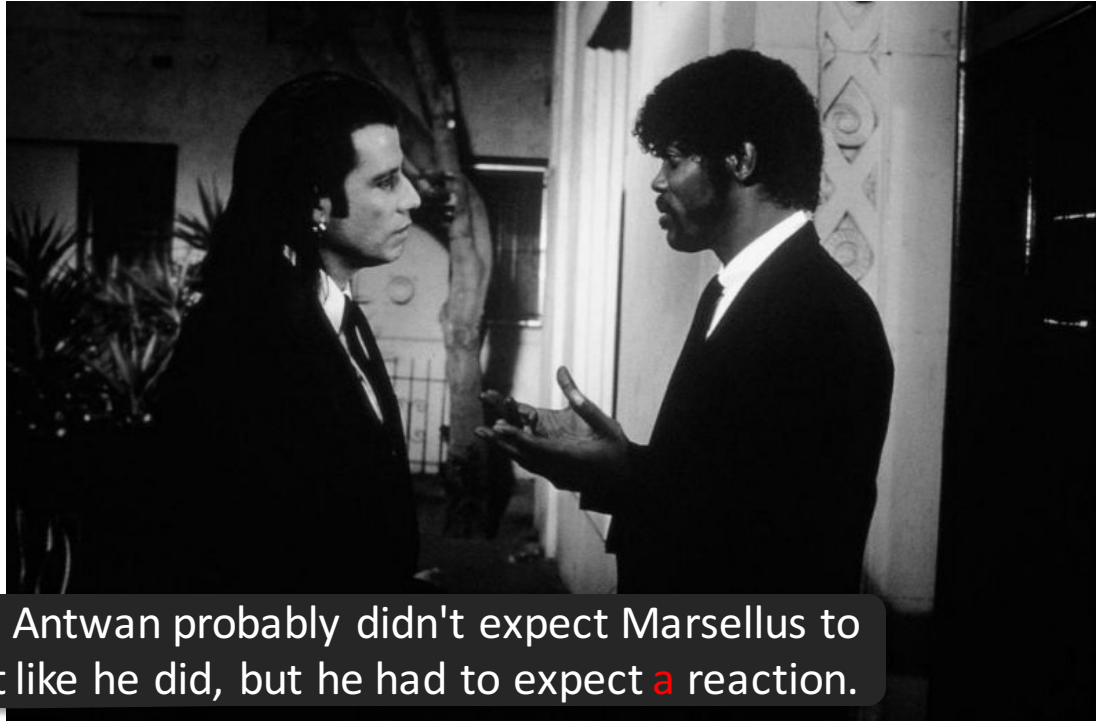


VINCENT: Antwan probably didn't expect Marsellus to react like he did, but he had to expect **a** reaction.

JULES: It was **a** foot massage, **a** foot massage is nothing, I give my mother **a** foot massage.

**Matching on article presence.**

# Measuring coordination



VINCENT: Antwan probably didn't expect Marsellus to react like he did, but he had to expect **a** reaction.

JULES: It was **a** foot massage, **a** foot massage is nothing, I give my mother **a** foot massage.

**Matching on article presence.**

**But matching  $\neq$  coordination !**

**(e.g., chance or bad guys like articles)**



# Measuring coordination

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

**NOT:** how similar Vincent's style is to Jules' style in general ...  
or even in this particular conversation

# Measuring coordination

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

*Compare rate of article usage in Vincent's and Jules' utterances?*

# Measuring coordination

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

~~*Compare rate of article usage in Vincent's and Jules' utterances?*~~

not capturing **immediate** triggering

# Measuring coordination

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

*Correlation of article usage?*

# Measuring coordination

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

~~*Correlation of article usage?*~~

Symmetric, so not measuring a **directed triggering** effect

# Measuring coordination

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

$$\text{Coordination}_{(J \text{ to } V)}(\text{art.}) = P(J^{\text{art.}} \mid J \text{ replied to } V, \overset{\text{Trigger}}{\underbrace{V^{\text{art.}}}})$$

# Measuring coordination

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

$$\text{Coordination}_{(J \text{ to } V)}(\text{art.}) = \cancel{P(J^{\text{art.}} | J \text{ replied to } V, \overset{\text{Trigger}}{\underbrace{V^{\text{art.}}}})}$$

does not control for style similarity

# Measuring coordination

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

$$\text{Coordination}_{(J \text{ to } V)}(\text{art.}) = P(J^{\text{art.}} \mid J \text{ replied to } V, \overbrace{V^{\text{art.}}}^{\text{Trigger}}) - \underbrace{P(J^{\text{art.}} \mid J \text{ replied to } V)}_{\text{Control (for inherent similarity)}}$$



# Measuring coordination

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

$$\text{Coordination}_{(J \text{ to } V)}(\text{art.}) = \underbrace{P(J^{\text{art.}} | J \text{ replied to } V, V^{\text{art.}})}_{\text{Trigger}} - \underbrace{P(J^{\text{art.}} | J \text{ replied to } V)}_{\text{Control (for inherent similarity)}}$$

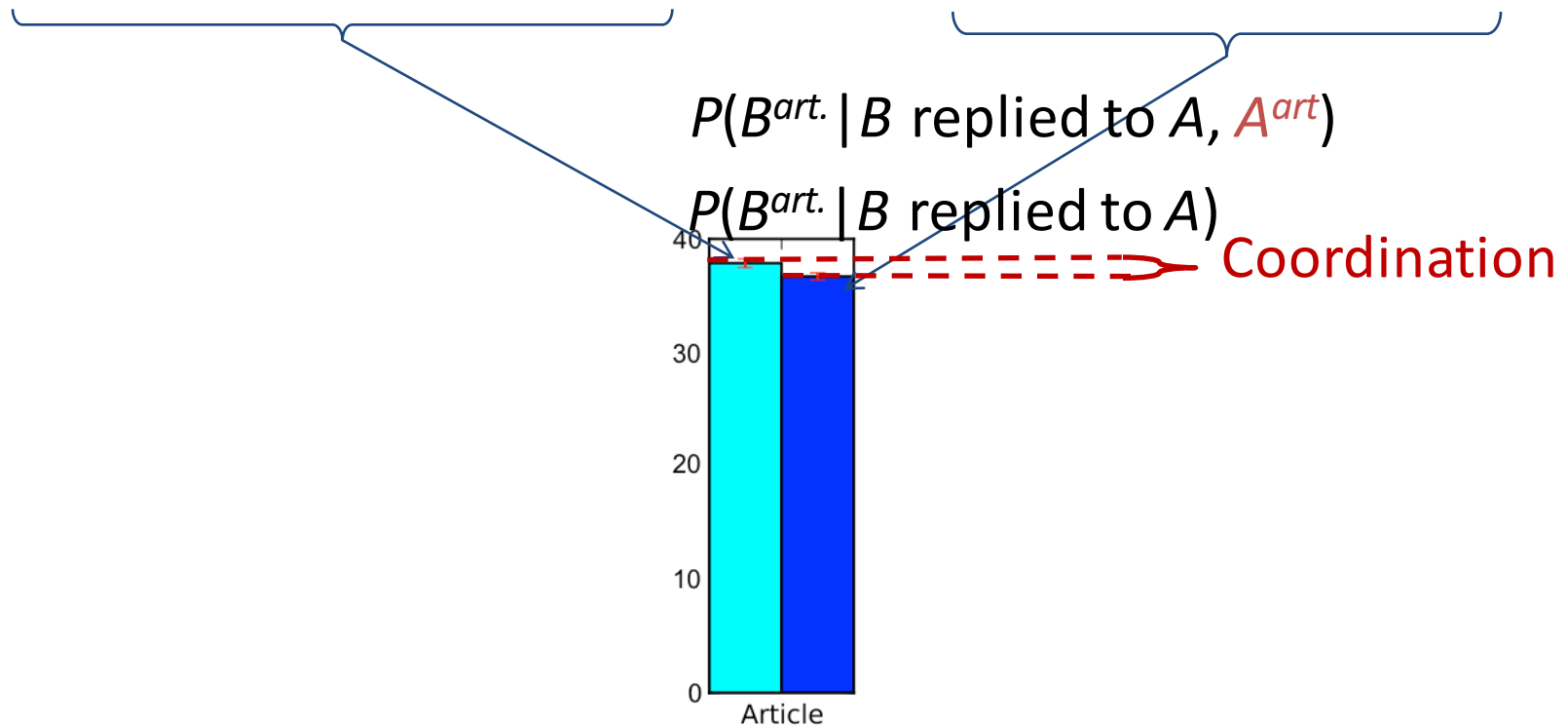
In words: “How much does the probability of Jules using an article increase as a direct consequence of Vincent using an article”

# Measuring coordination

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

“Triggered” probability

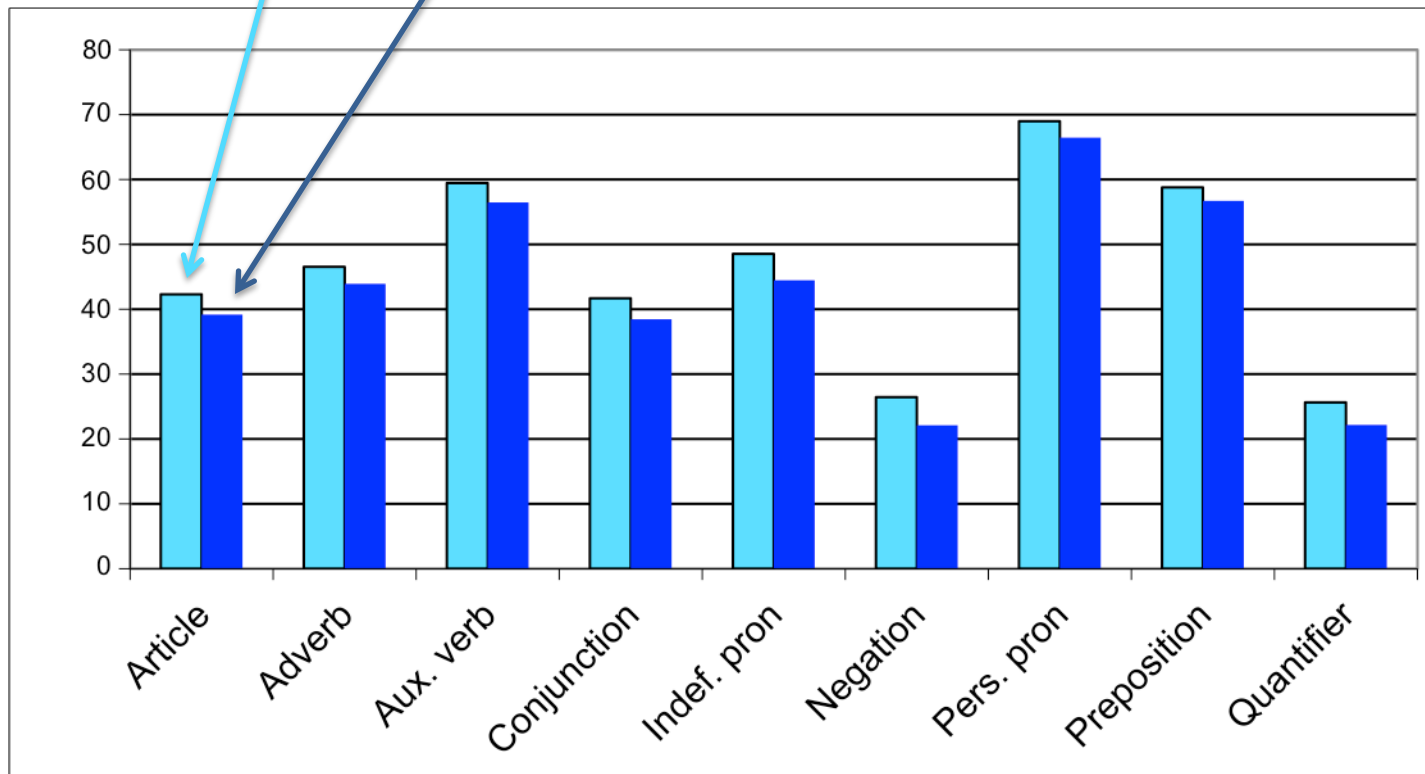
Control probability



# Coordination effect in social networks!

“Triggered” probability  $P(B^{art.} | B \text{ replied to } A, A^{art})$

Control probability  $P(B^{art.} | B \text{ replied to } A)$



# Symmetric?

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

$$\text{Coordination}_{(J \text{ to } V)}(\text{art.}) = \underbrace{P(J^{\text{art.}} | J \text{ replied to } V, \overset{\text{Trigger}}{V^{\text{art.}}})}_{\text{Control (for inherent similarity)}} - \underbrace{P(J^{\text{art.}} | J \text{ replied to } V)}$$

In words: “How much does the probability of Jules using an article increase as a direct consequence of Vincent using an article”

# Asymmetry -> Who's got the upper hand?



RANDOM  
CORNER  
OF THE  
INTERNET

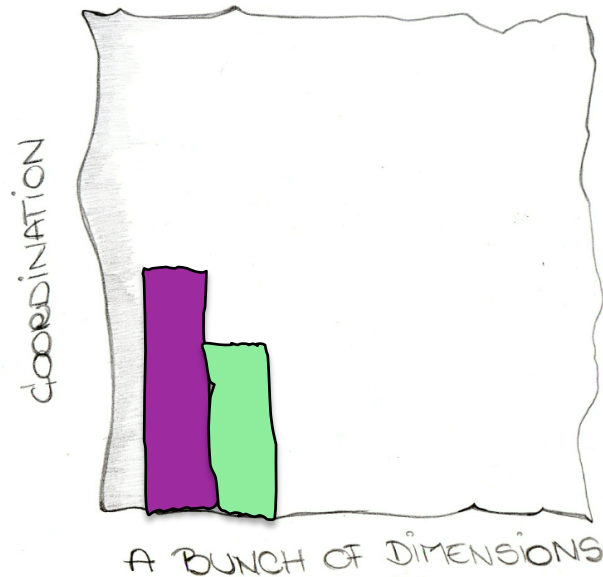


# Coordination and power differences

**Hypothesis:** Higher power → others coordinate more towards you

Coordination towards  
high-power people  
(purple)

Coordination towards  
low-power people  
(green)





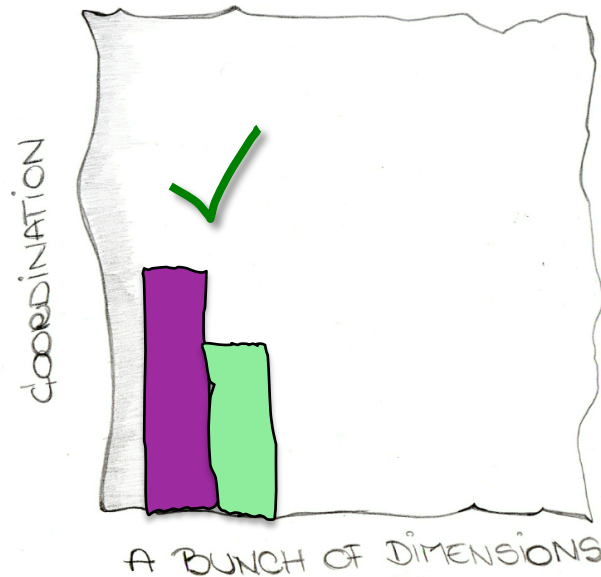
# Coordination and power differences

**Hypothesis:** Higher power → others coordinate more towards you

purple > green ?

Coordination towards  
high-power people  
(purple)

Coordination towards  
low-power people  
(green)



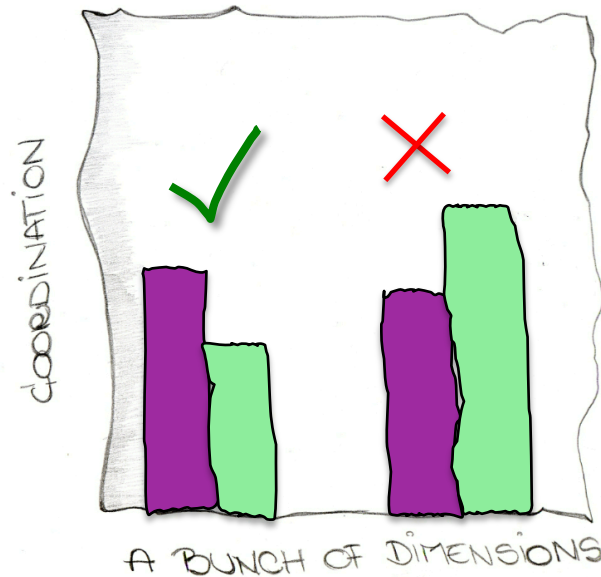
# Coordination and power differences

**Hypothesis:** Higher power → others coordinate more towards you

purple > green ?

Coordination towards  
high-power people  
(purple)

Coordination towards  
low-power people  
(green)

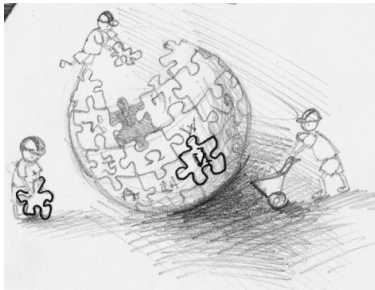


# Coordination and power differences

Higher power (by **status**) → others coordinate more towards you

**Wikipedia:**

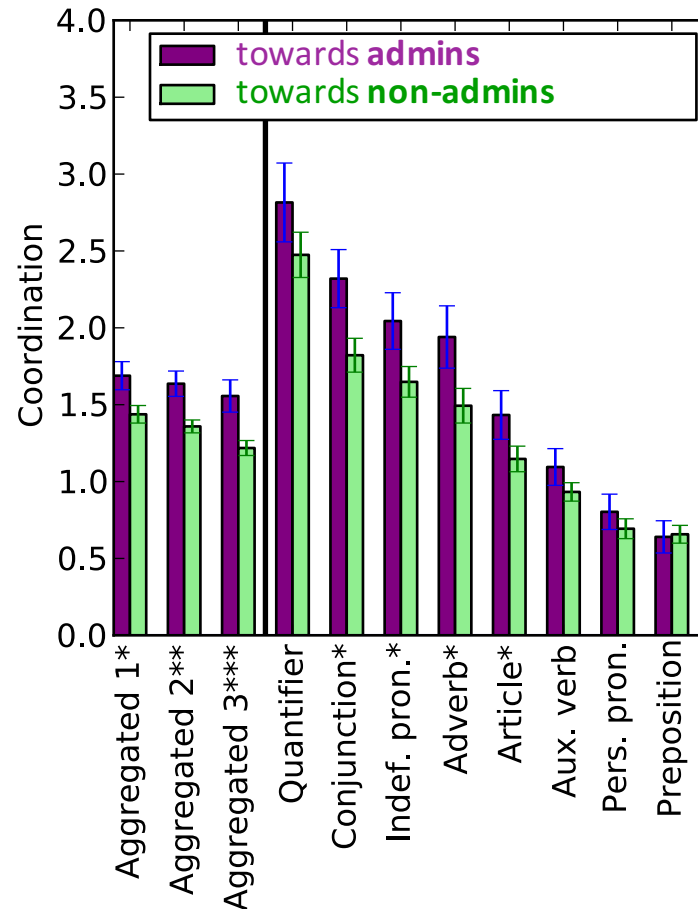
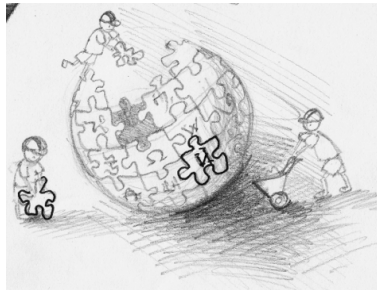
purple > green ?



# Coordination and power differences

Higher power (by **status**) → others coordinate more towards you

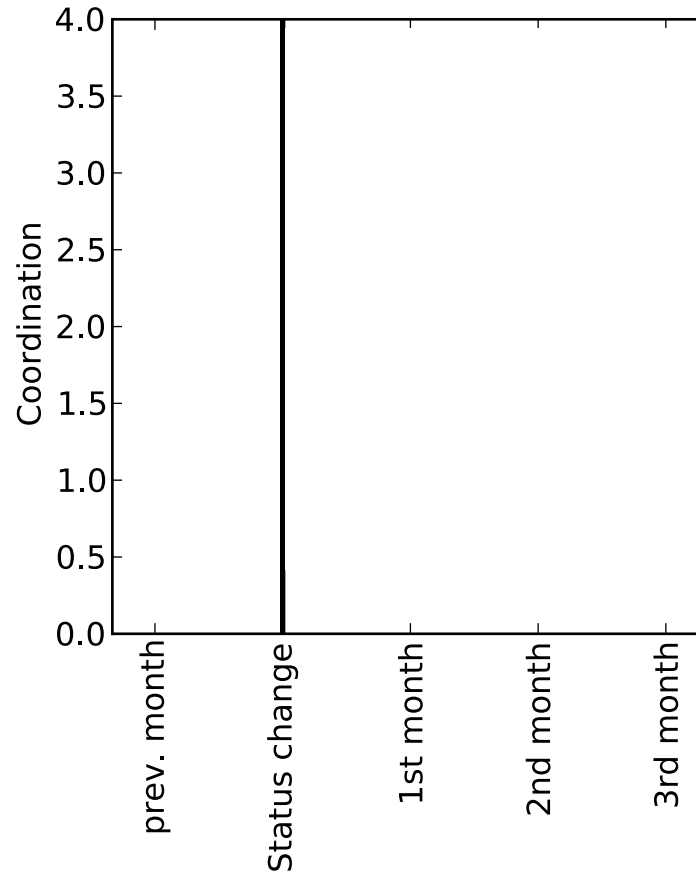
Wikipedia:



purple > green ?

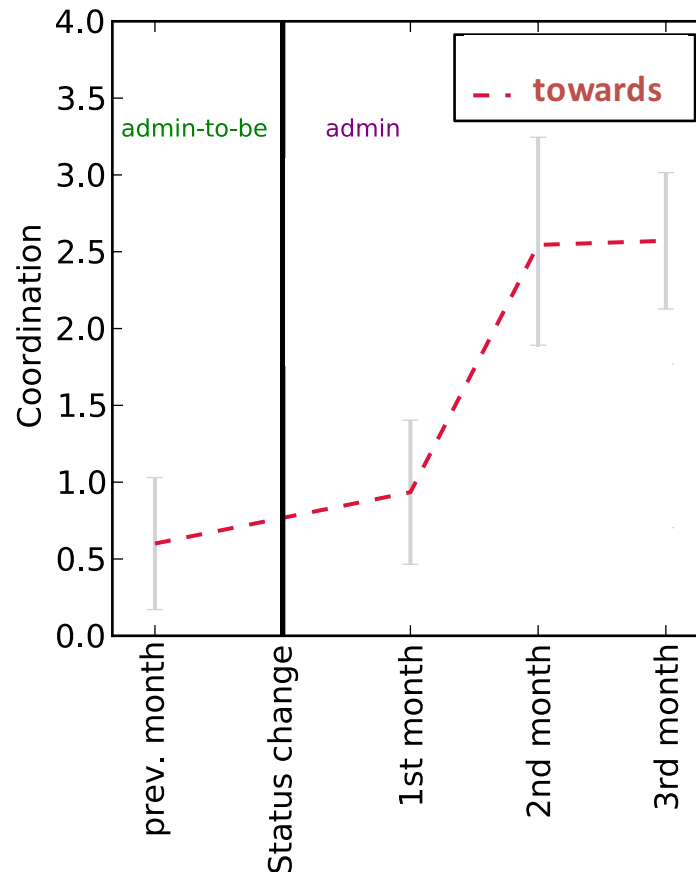
# Coordination and status change

Track a fixed group of users as they undergo **status change**



# Coordination and status change

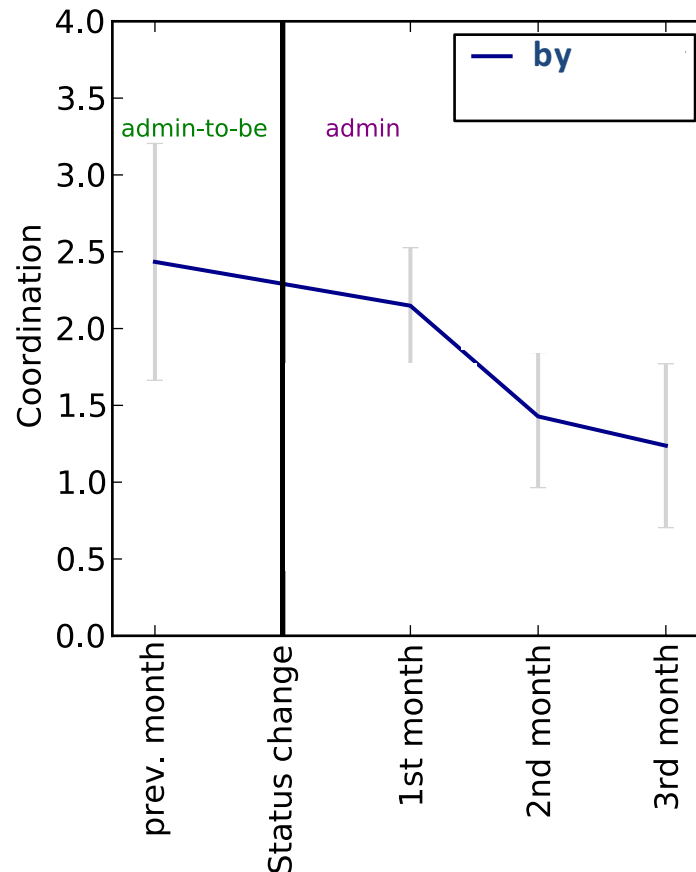
Track a fixed group of users as they undergo **status change**



Coordination **towards** users increases after these gain higher status

# Coordination and status change

Track a fixed group of users as they undergo **status change**



Coordination **by** users decreases after these gain higher status