

# Let's Talk Politics

## A Naive Approach for Measuring Political Sophistication

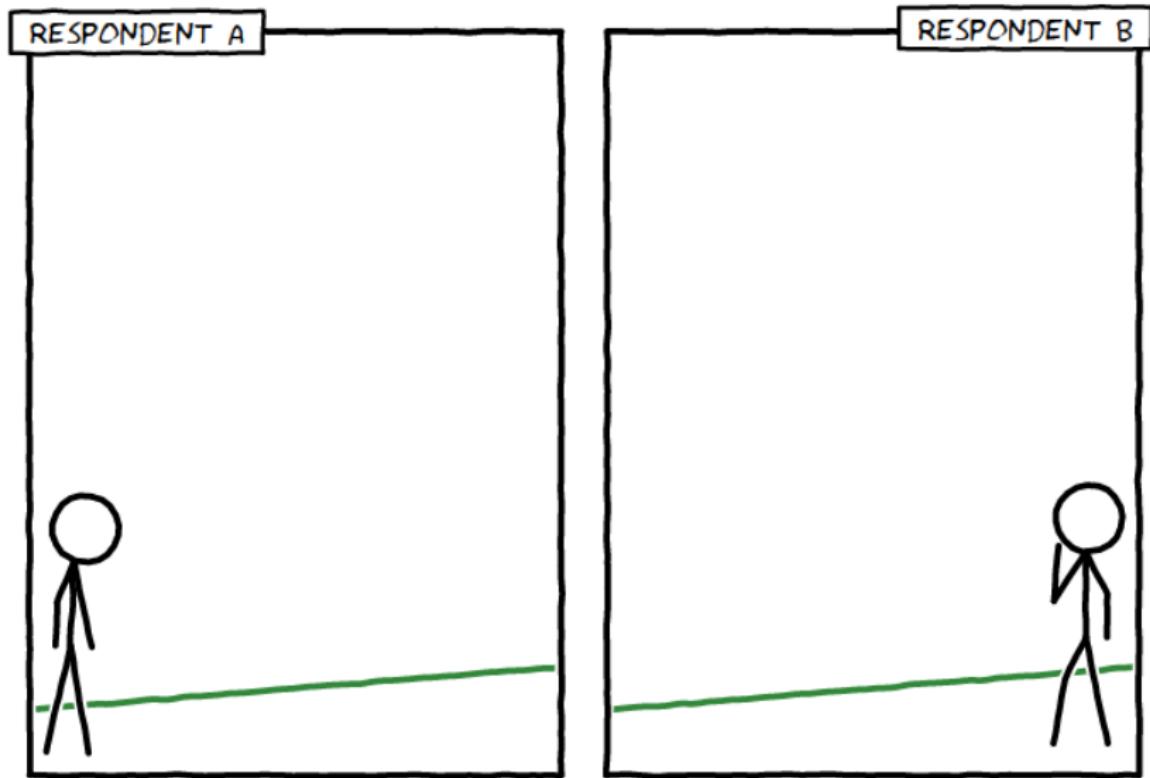
Patrick W. Kraft

Zurich Text as Data Conference

October 26<sup>th</sup> 2019



# Who scores higher on political knowledge?



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RESPONDENT A

I THINK HE IS HONEST, HAS GOOD  
INTENTIONS

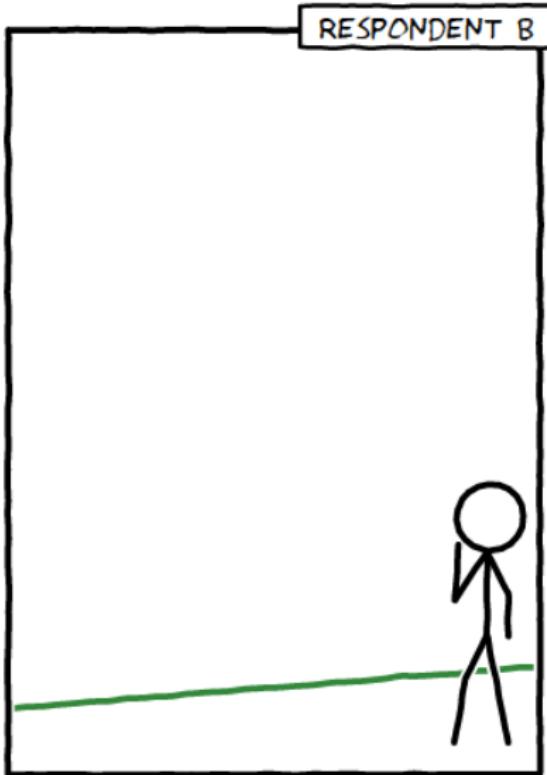
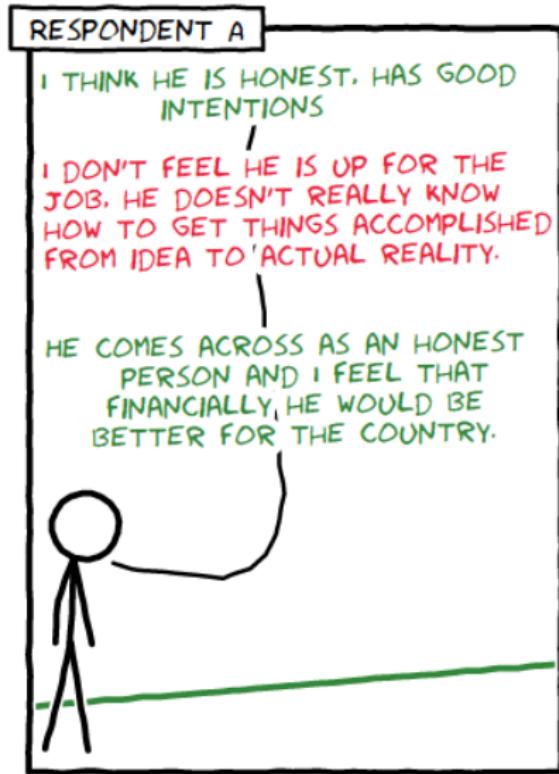
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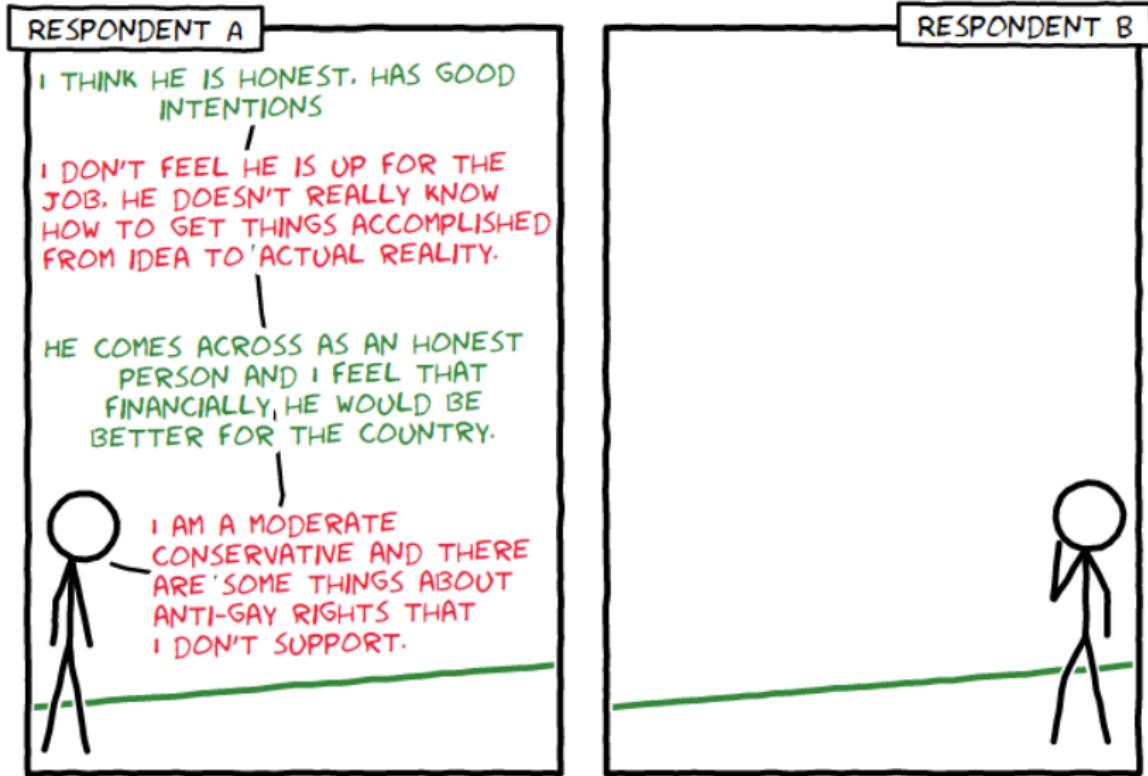
RESPONDENT B



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I AM A MODERATE CONSERVATIVE AND THERE ARE SOME THINGS ABOUT ANTI-GAY RIGHTS THAT I DON'T SUPPORT.



RESPONDENT B

HE'S GOT A HOT WIFE. SOUND MIND. BILL CLINTON, THE BEST PRESIDENT WE EVER HAD. IS VOTING FOR HIM. HE'S NOT IN ANY TYPE OF SCANDAL AND IS THE PERFECT PRESIDENT FOR US NOW.



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Both respondents scored  
**equally**

on the conventional political knowledge measure  
in the 2012 ANES!

EVERYTHING.



## Conventional Measures of Political Knowledge

Definition: “The range of factual information about politics that is stored in long-term memory.” (Delli Carpini and Keeter, 1996, 10)

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Caveat 2: Theoretical relevance

# Discursive Sophistication and Competence

Verbatim political attitude expression:

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- A Naive Approach for Measuring Sophistication

RESPONDENT A

RESPONDENT B

## Measuring Discursive Sophistication



## Discursive Sophistication – Components

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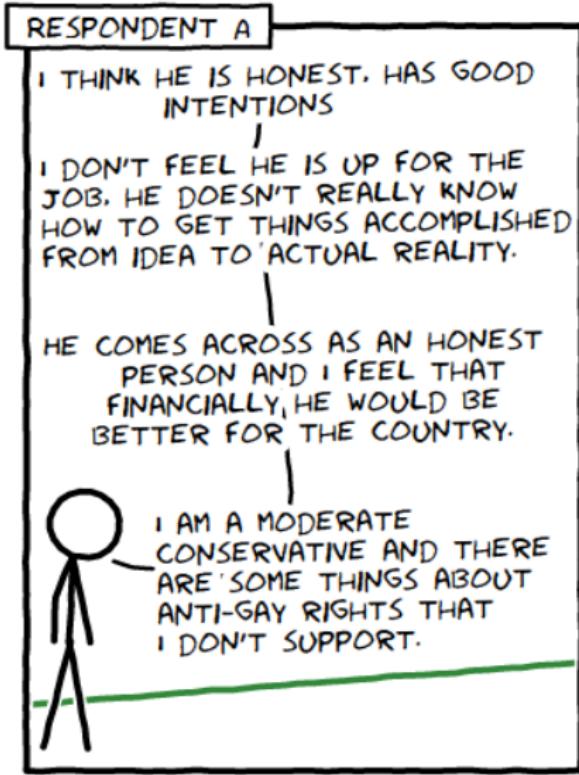
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# Discursive Sophistication – Components



## ► Opinionation

Does a respondent discuss all questions?

# Discursive Sophistication – Components



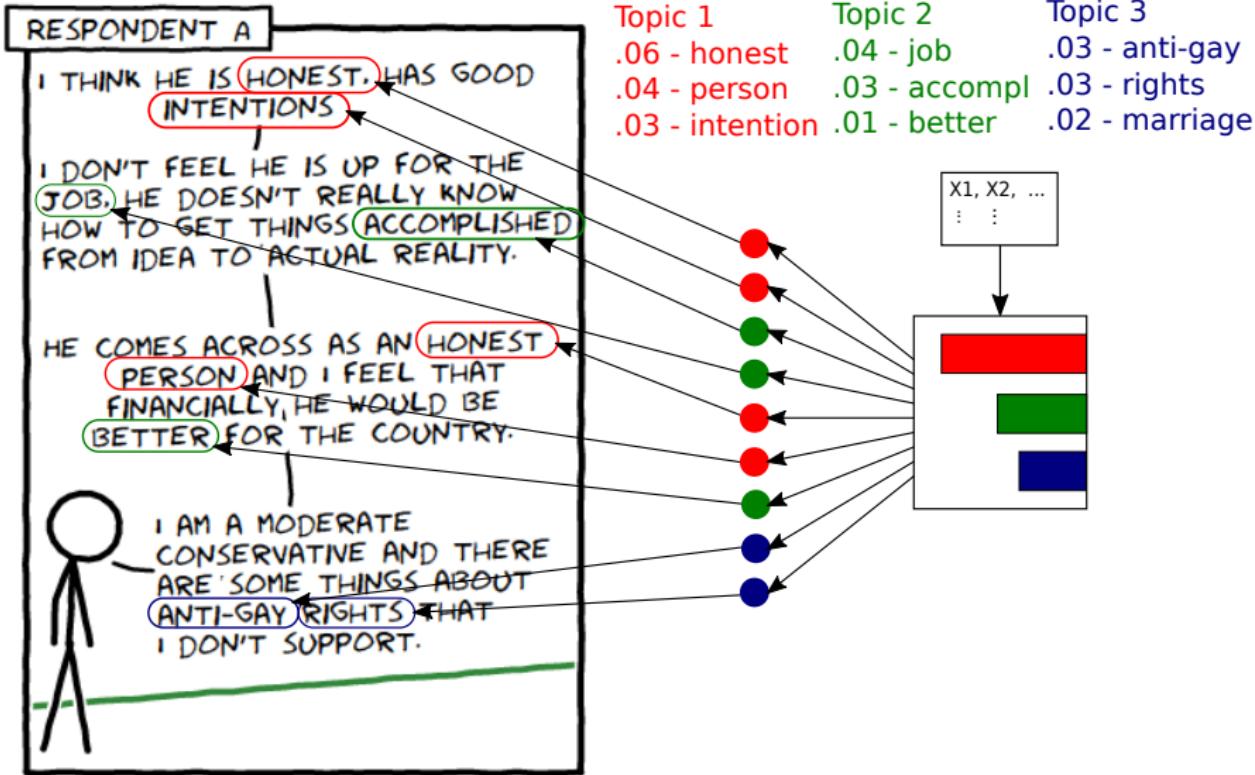
## ► Opinionation

Does a respondent discuss all questions?

## ► Considerations

How many topics are mentioned?

# Discursive Sophistication – Structural Topic Model



# Discursive Sophistication – Components



## ► Opinionation

Does a respondent discuss all questions?

## ► Considerations:

How many topics are mentioned?

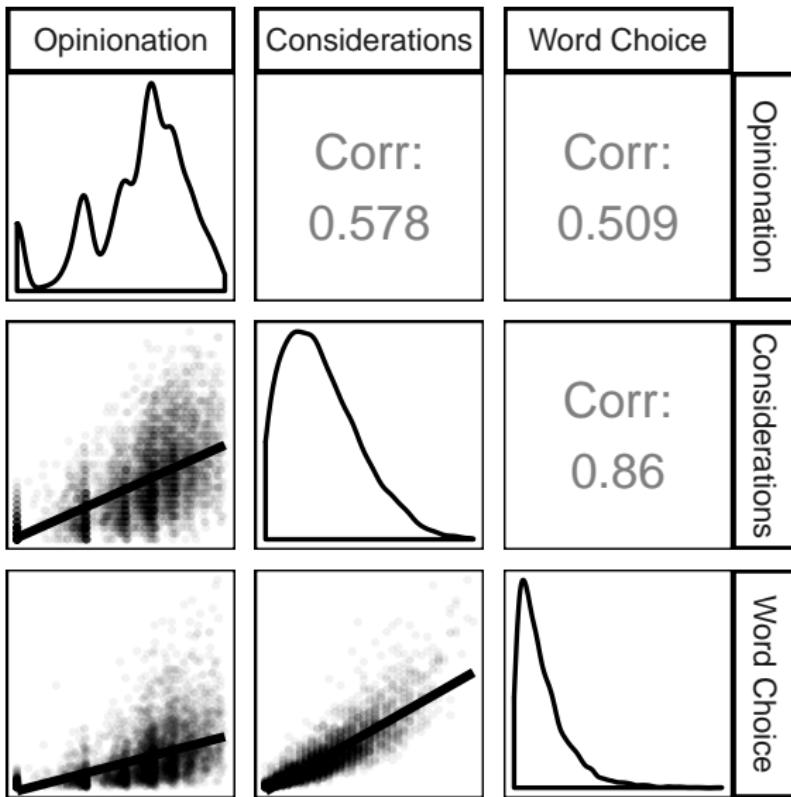
## ► Word Choice:

Are terms highly descriptive of topics?

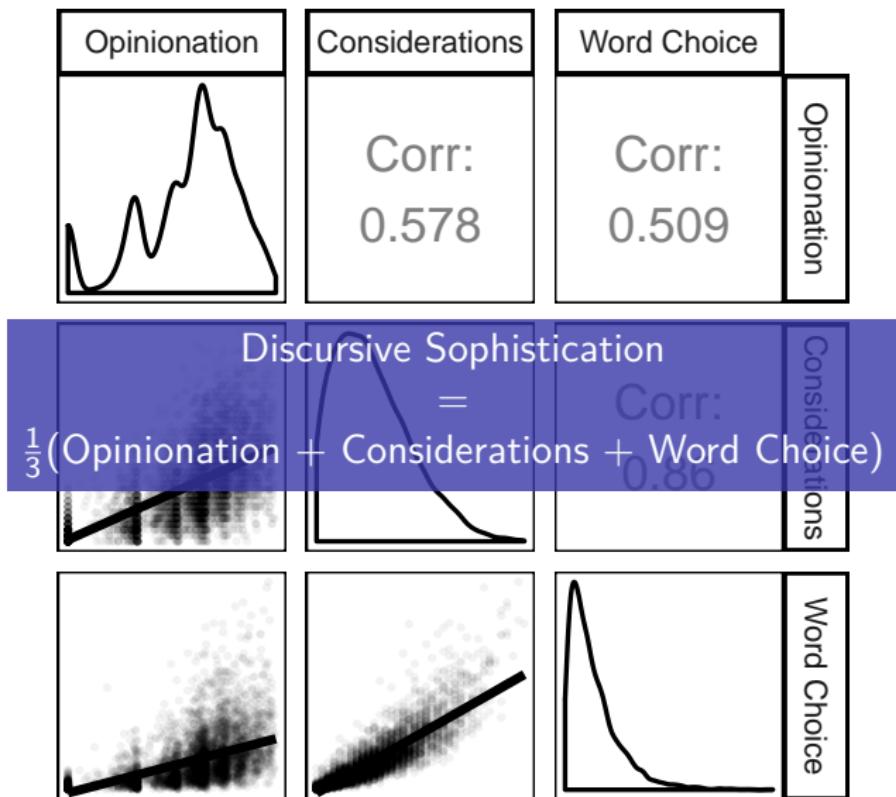
## Discursive Sophistication – Components (2012 ANES)

Opinionation	Considerations	Word Choice	Opinionation
			Considerations
			Word Choice

## Discursive Sophistication – Components (2012 ANES)



## Discursive Sophistication – Components (2012 ANES)



RESPONDENT A

RESPONDENT B



RESPONDENT A

RESPONDENT B



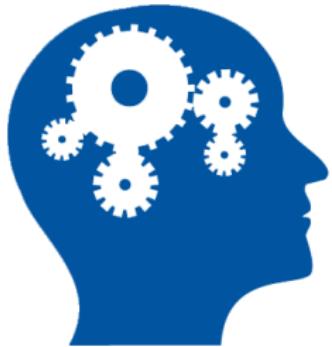
RESPONDENT A

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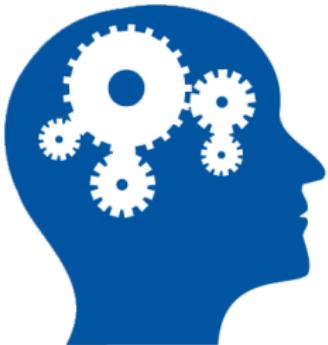
RESPONDENT B



RESPONDENT A



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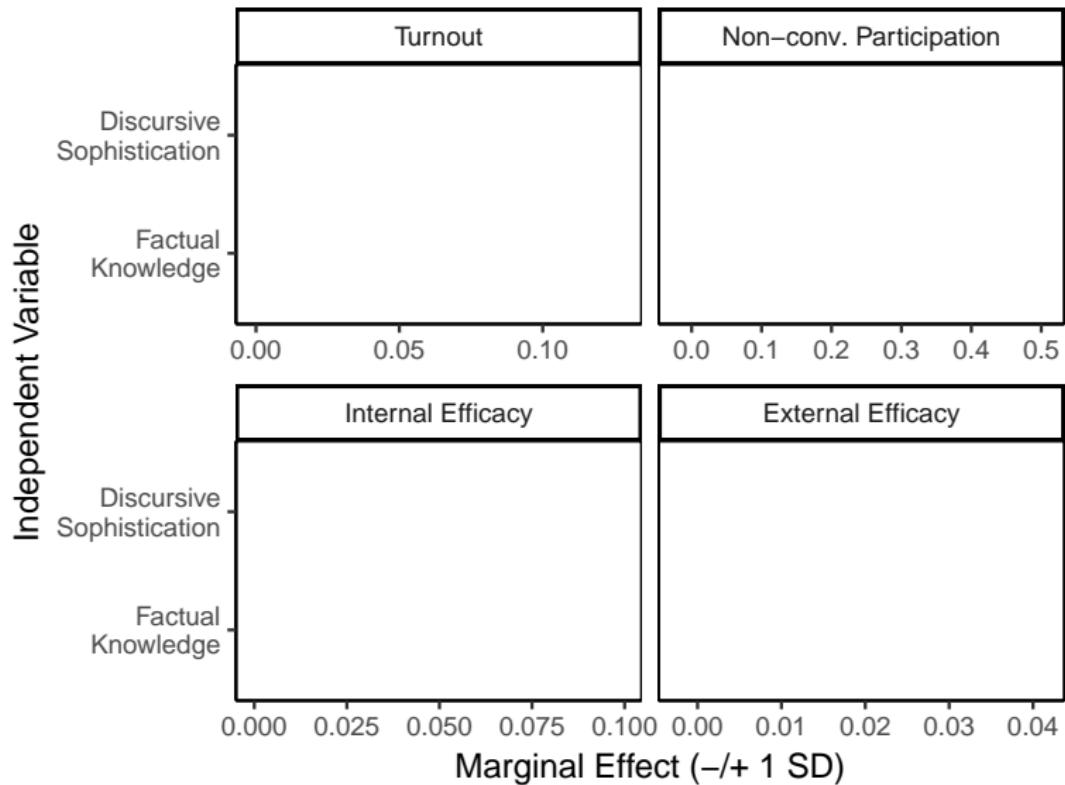


Validation  
2012 American National Election Study

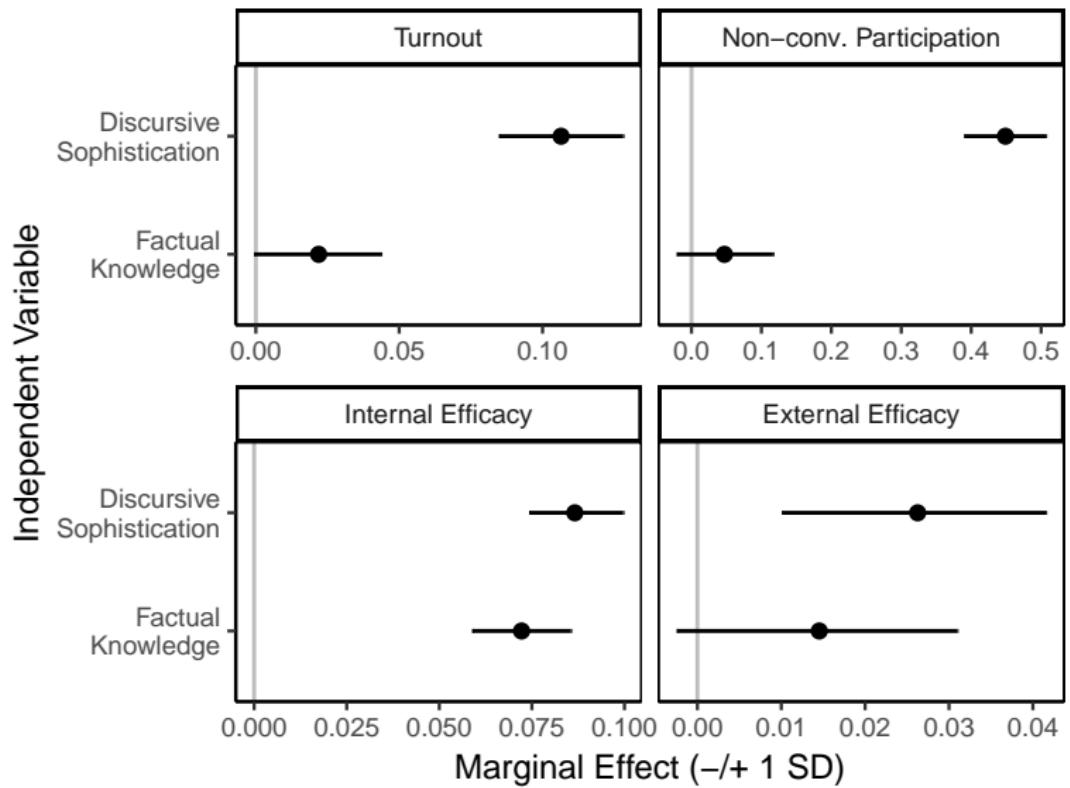
N = 5914 (2054 f2f + 3860 online)



# Engagement and Participation



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RESPONDENT A

RESPONDENT B



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## Previous Research on Gender Differences in Knowledge

General finding: Women score lower than men on conventional measures of political knowledge

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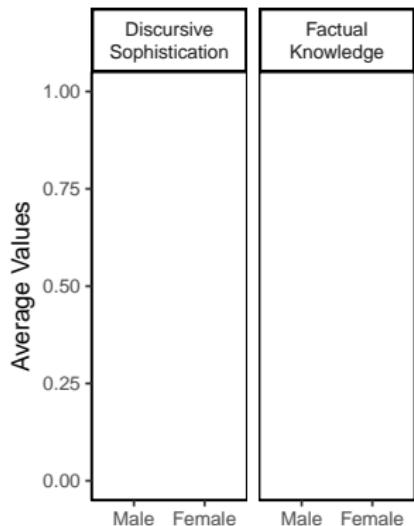
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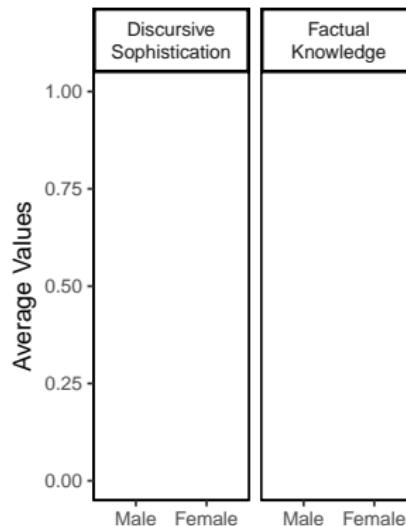
Explanation 2: Question content / gender-relevant knowledge

# Gender Differences in Sophistication

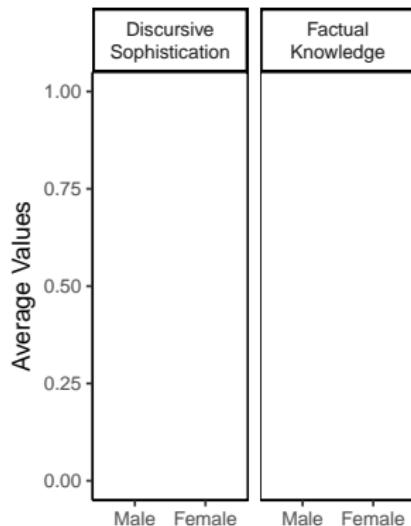
2012 ANES



2016 ANES

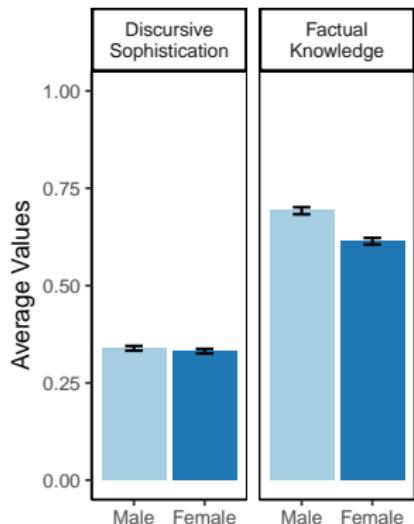


2015 YouGov Survey

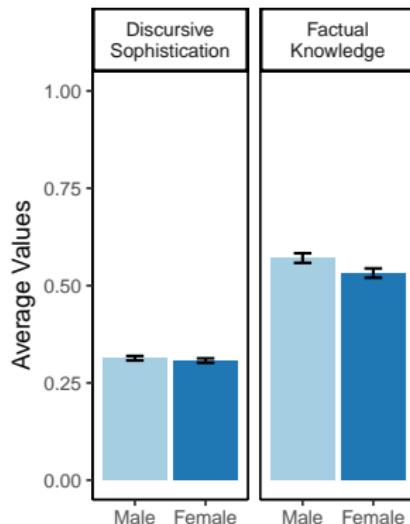


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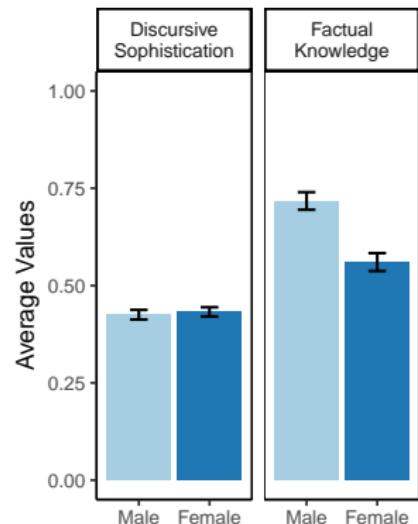
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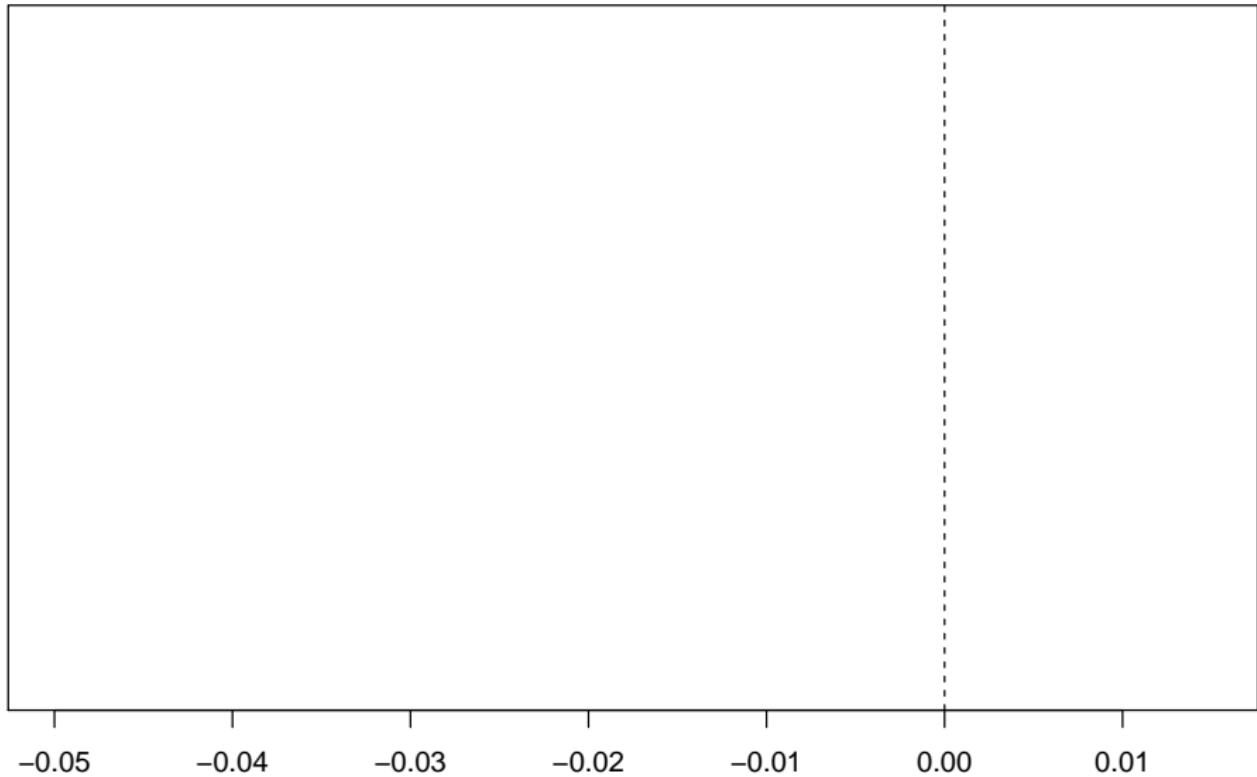


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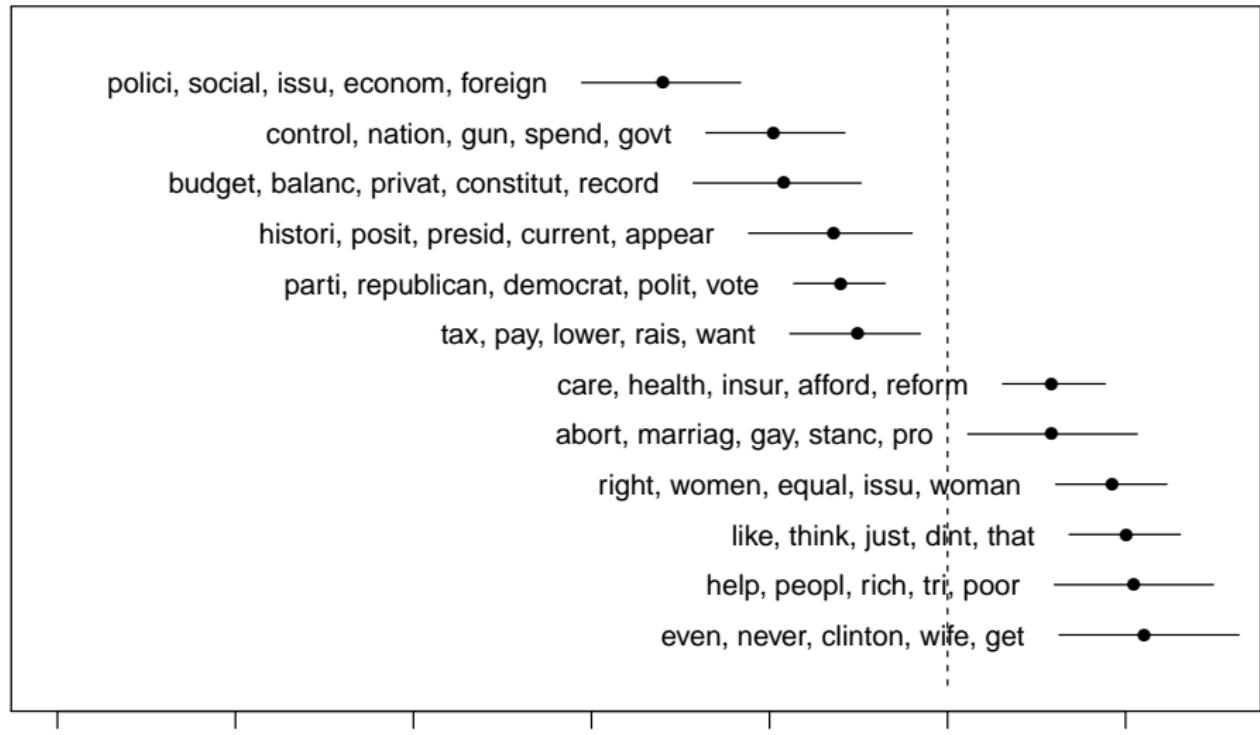
# Explaining the Gender Gap in Political Knowledge

## Gender Differences in Topic Proportions (2012 ANES)



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RESPONDENT A

RESPONDENT B

## Conclusion



## General Discussion

- We observe theoretically meaningful variation in the complexity of verbatim open-ended responses.

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- ▶ We observe theoretically meaningful variation in the complexity of verbatim open-ended responses.
- ▶ By directly examining how individuals justify their attitudes, we can measure sophistication related to specific political tasks.
- ▶ Discursive sophistication is conceptually closer to the structure of belief systems than conventional measures.
  
- ▶ Women might score lower than men on factual knowledge about political institutions, but there are no differences in the sophistication of expressed political attitudes.

## Illustration – Who scores higher on political knowledge?

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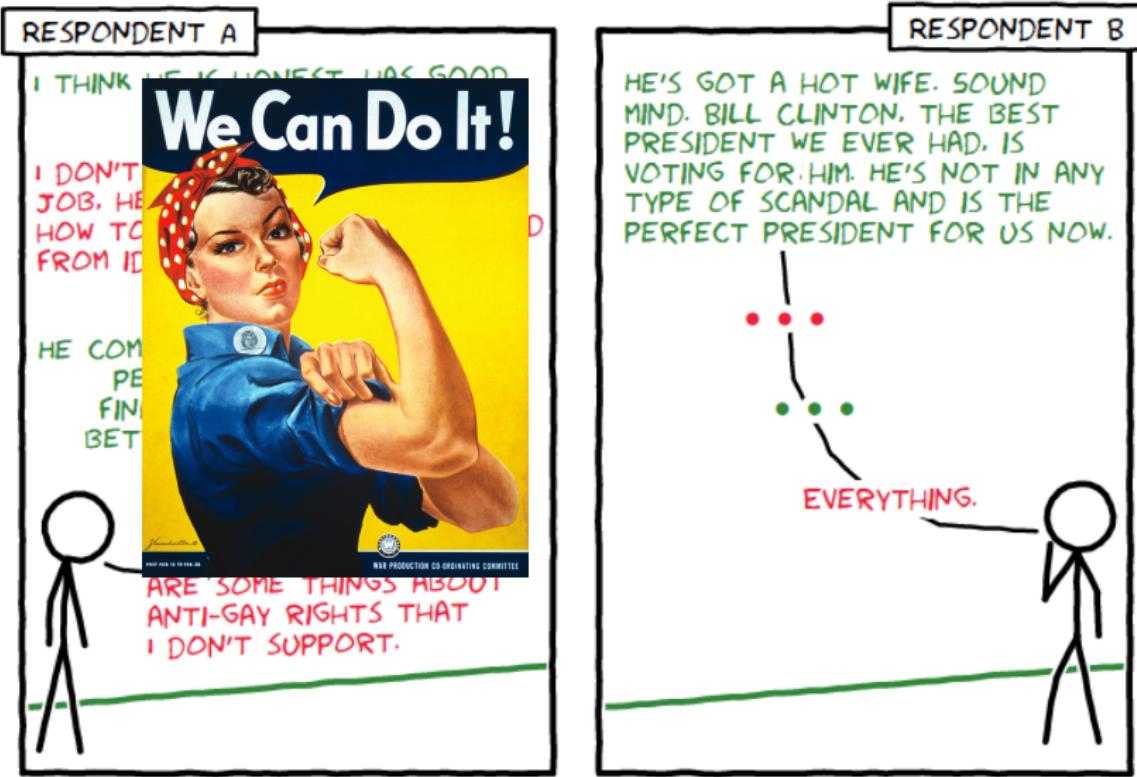
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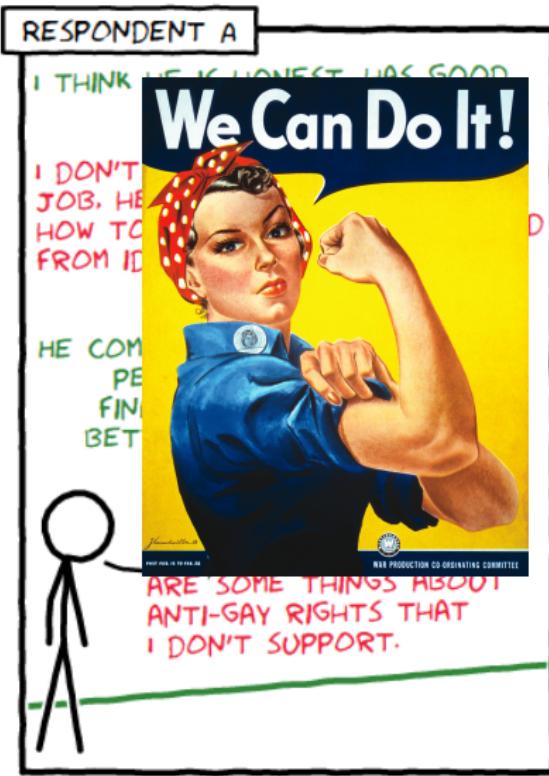
EVERYTHING.



# Illustration – Who scores higher on political knowledge?



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Thank you very much for your attention!

Manuscript and code available at:

<https://github.com/pwkraft/knowledge>

Comments, questions?

✉️ [kraftp@uwm.edu](mailto:kraftp@uwm.edu)

🌐 [pwkraft.github.io](https://pwkraft.github.io)  
🐦 [@patrickwkraft](https://twitter.com/patrickwkraft)

# Content

## Theoretical Introduction

Knowledge, Sophistication, and Competence

Measuring Discursive Sophistication

## Discursive Sophistication and Political Competence

Validation using 2012 ANES

## Application: Assessing the Gender Gap

Previous Research on Gender Differences in Knowledge

Gender Differences in Sophistication

## Conclusion

General Discussion

# Appendix Content

## Measuring Discursive Sophistication

- Item Wording
- Opinionation
- Considerations
- Word Choice

## Additional Results

- Topic Proportions – 2012 & 2016 ANES
- 2008–2012 Swiss Referendum Survey
- 2015 YouGov Study

## Robustness Checks

- Control for Word Count
- Control for Personality
- Determinants of Sophistication

## Factual Knowledge Questions

- ▶ **Carpini and Keeter (1993)**: House majority, veto override percent, party ideological location, judicial review, identifying the vice president
- ▶ **2012 ANES**: Number of times president can be elected, size of federal deficit, full term of senator, meaning of medicare, federal government spending
- ▶ **2015 YouGov**: Speaker of the House, TTIP, Chair of Federal Reserve Board, unemployment rate, veto override percent, common core, largest electricity source, Senate majority

## Open-Ended Items: 2012 ANES

- ▶ Is there anything in particular about [CANDIDATE] that might make you want to vote for him? [...] What is that?
- ▶ Is there anything in particular about [CANDIDATE] that might make you want to vote against him? [...] What is that?
- ▶ Is there anything in particular that you like about [PARTY]? [...] What is that?
- ▶ Is there anything in particular that you don't like about [PARTY]? [...] What is that?

## Open-Ended Items: 2015 YouGov

- ▶ Do you favor or oppose stricter gun control laws? [...] Still thinking about the question you just answered, what thoughts came to mind while you were answering that question? Please try to list everything that came to mind.
- ▶ Thinking about the mass shootings that have occurred in the U.S. in the last few years, what factors do you think are responsible for the shootings?
- ▶ Do you support or oppose the health care law passed by the President and Congress in 2010? [...] Still thinking about the question you just answered, what thoughts came to mind while you were answering that question? Please try to list everything that came to mind.
- ▶ For decades, experts have observed that the United States spends far more per person on health care than any other country. However, the U.S. falls behind on most measures of health care outcomes, such as life expectancy. What factors do you think are responsible for the state of our health care system?

## Open-Ended Items: 2008–2012 Swiss Referenda

- ▶ Which are your main reasons for accepting/rejecting the proposal [X]?
- ▶ What are additional reasons for accepting/rejecting the proposal [X]?

# Opinionation

$$\text{Opinionation}_i = \frac{-\sum_{j=1}^J p_{ij} \ln p_{ij}}{\ln J}$$

---

$i$	Respondent
$j \in \{1, \dots, J\}$	Open-ended items
$p_{ij}$	Proportion of words in the response of individual $i$ to question $j$ relative to the overall size of the individual's response

# Considerations

$$\text{Considerations}_i = \frac{|\mathcal{T}_i^*|}{\max |\mathcal{T}_i^*|}$$

---

$i$	Respondent
$\mathcal{T}_i^*$	Topic representation of response set $\mathcal{W}_i$ , such that $w \rightarrow t^* \forall w \in \mathcal{W}_i$
$w \in \mathcal{W}_i$	Individual word $w$ in response set $\mathcal{W}_i$
$t^* \in \{1, \dots, T\}$	Topic $t^*$ out of total number of topics $T$ assigned to $w$ such that $P(t^* w, X_i) > P(t w, X_i) \forall t \neq t^*$ $P(t w, X_i) = \frac{P(w t)P(t X_i)}{P(w X_i)}$
$X_i$	Covariates used in structural topic model

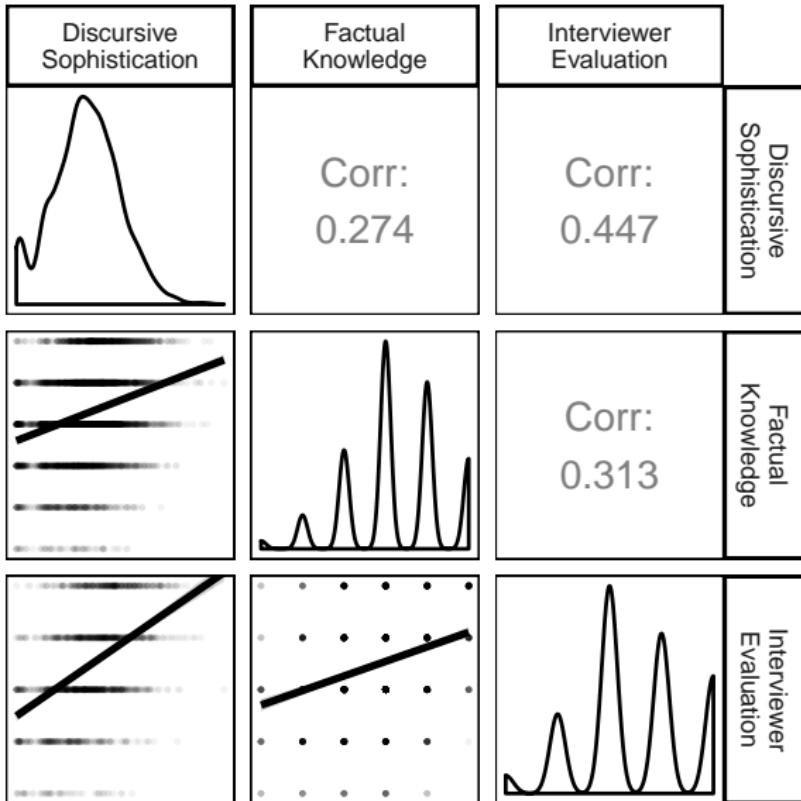
## Word Choice

$$\text{Word Choice}_i = \frac{\log \sum_{\mathcal{W}_i} P(w|t^*)}{\max \left[ \log \sum_{\mathcal{W}_i} P(w|t^*) \right]}$$

---

$i$	Respondent
$w \in \mathcal{W}_i$	Individual word $w$ in response set $\mathcal{W}_i$
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	$P(t w, X_i) = \frac{P(w t)P(t X_i)}{P(w X_i)}$
$X_i$	Covariates used in structural topic model

# Comparison with Conventional Measures – 2012 ANES



# Topic Proportions – 2012 & 2016 ANES

2012 ANES (k = 49)



0.00 0.02 0.04 0.06 0.08 0.10

Expected Topic Proportions

2016 ANES (k = 47)

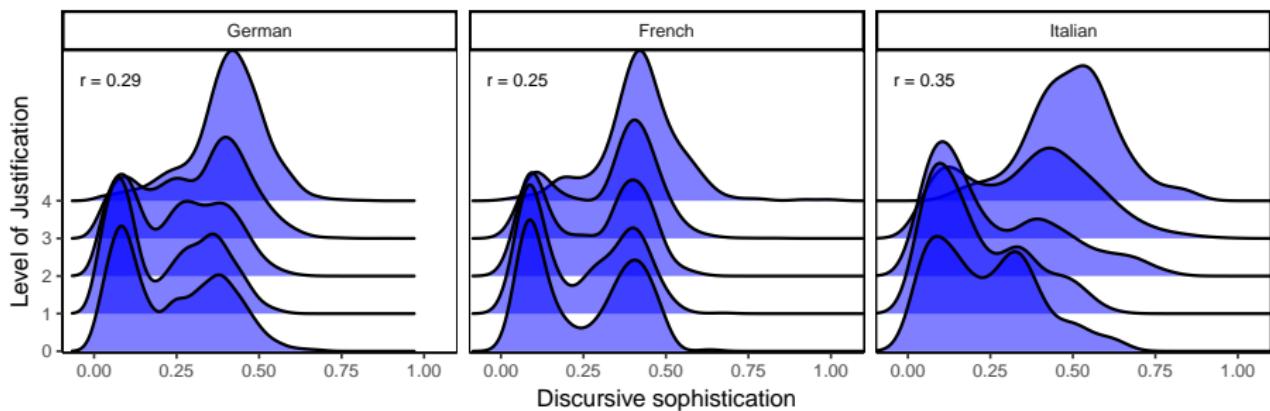


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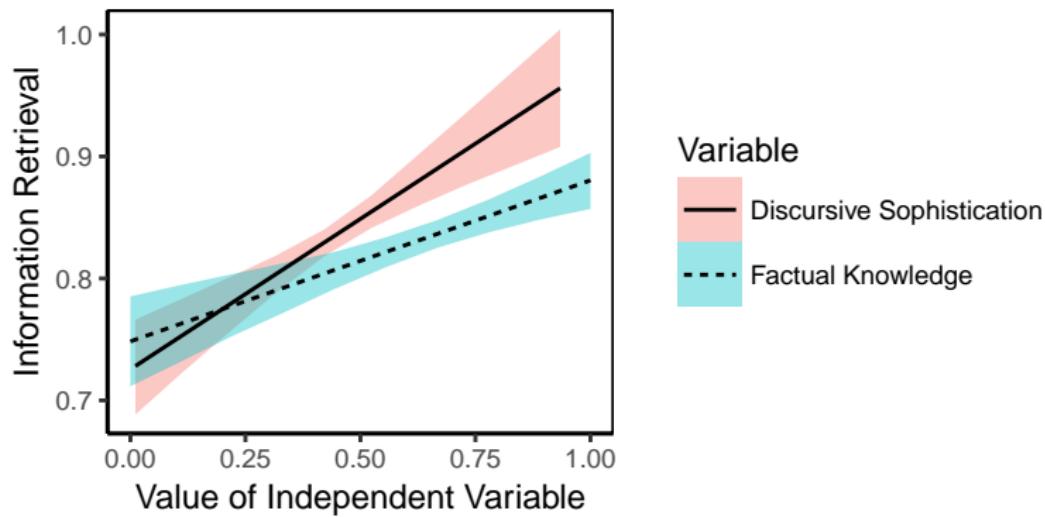
# Comparison with Manually Coded Levels of Justification

Data source: 2008–2012 Swiss Referendum Survey, N = 26,621 (phone)



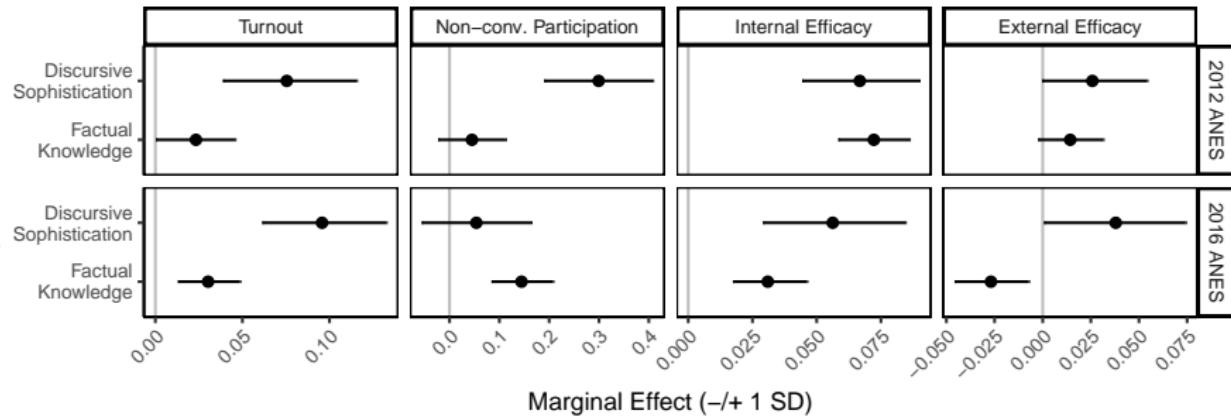
# Accurate Information Retrieval

Data source: 2015 YouGov Study, N = 1000 (online)



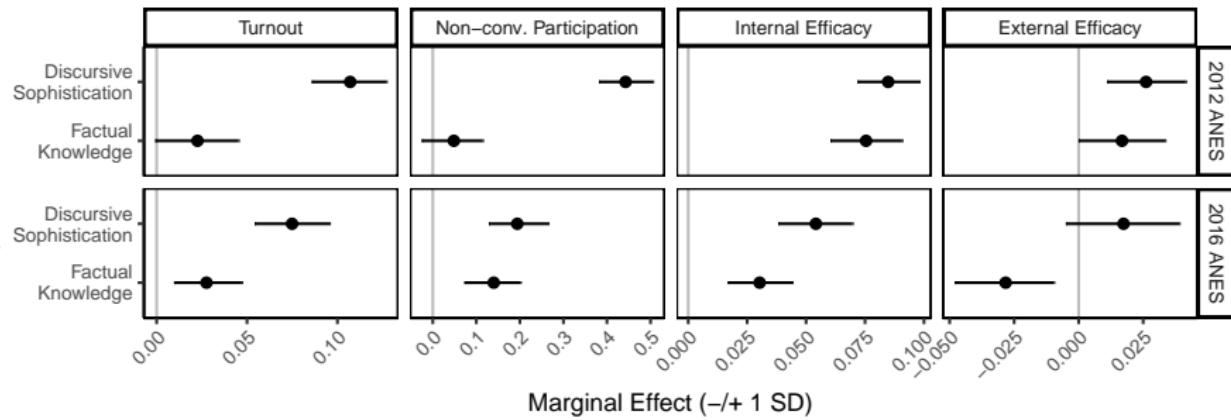
# Engagement and Participation – Control for Word Count

Independent Variable

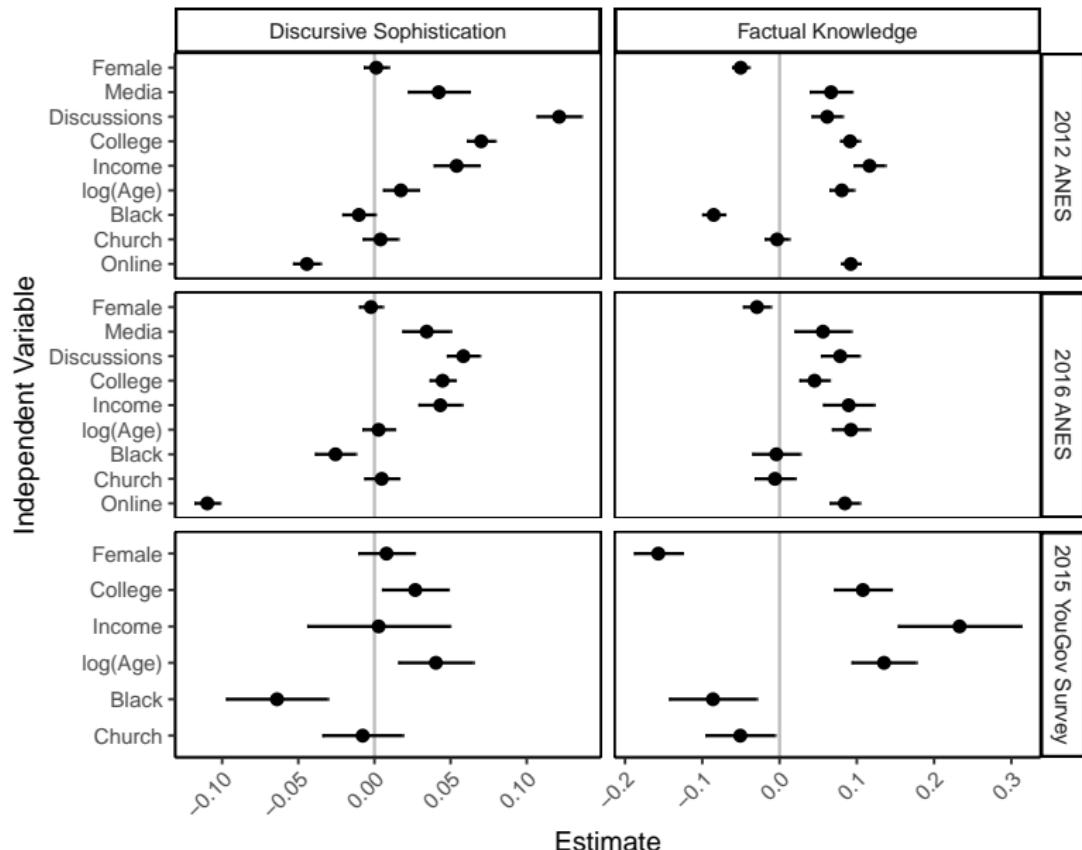


# Engagement and Participation – Control for Personality

Independent Variable



# Determinants of Sophistication



## References

- Carpini, Michael X Delli, and Scott Keeter. 1993. "Measuring political knowledge: Putting first things first." *American Journal of Political Science* 37 (4): 1179–1206.
- Colombo, Céline. 2016. "Justifications and Citizen Competence in Direct Democracy: A Multilevel Analysis." *British Journal of Political Science*: 1–20.
- Delli Carpini, Michael X., and Scott Keeter. 1996. *What Americans Know about Politics and Why It Matters*. New Haven, London: Yale University Press.
- Dow, Jay K. 2009. "Gender differences in political knowledge: Distinguishing characteristics-based and returns-based differences." *Political Behavior* 31 (1): 117–136.
- Graham, Jesse, Jonathan Haidt, and Brian A. Nosek. 2009. "Liberals and Conservatives Rely on Different Sets of Moral Foundations." *Journal of Personality and Social Psychology* 96 (5): 1029–1046.
- Roberts, Margaret E., Brandon M. Stewart, Dustin Tingley, Christopher Lucas, Jetson Leder-Luis, Shana Kushner Gadarian, Bethany Albertson, and David G. Rand. 2014. "Structural Topic Models for Open-Ended Survey Responses." *American Journal of Political Science* 58 (4): 1064–1082.