

Let's Talk Politics

A Naive Approach for Measuring Political Sophistication

Patrick W. Kraft

Zurich Text as Data Conference

October 26th 2019



Introduction

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Overview

Theoretical Introduction

Discursive Sophistication and Political Competence

Application: Assessing the Gender Gap

Conclusion

Illustration – Who scores higher on political knowledge?

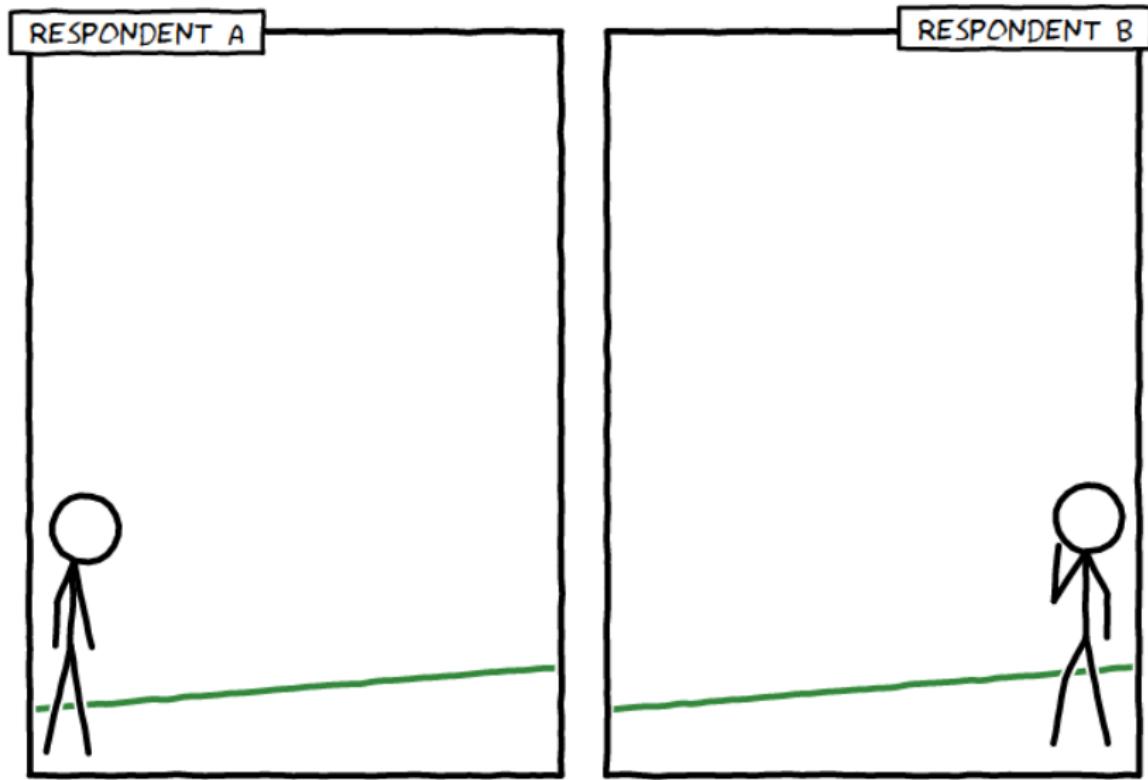


Illustration – Who scores higher on political knowledge?

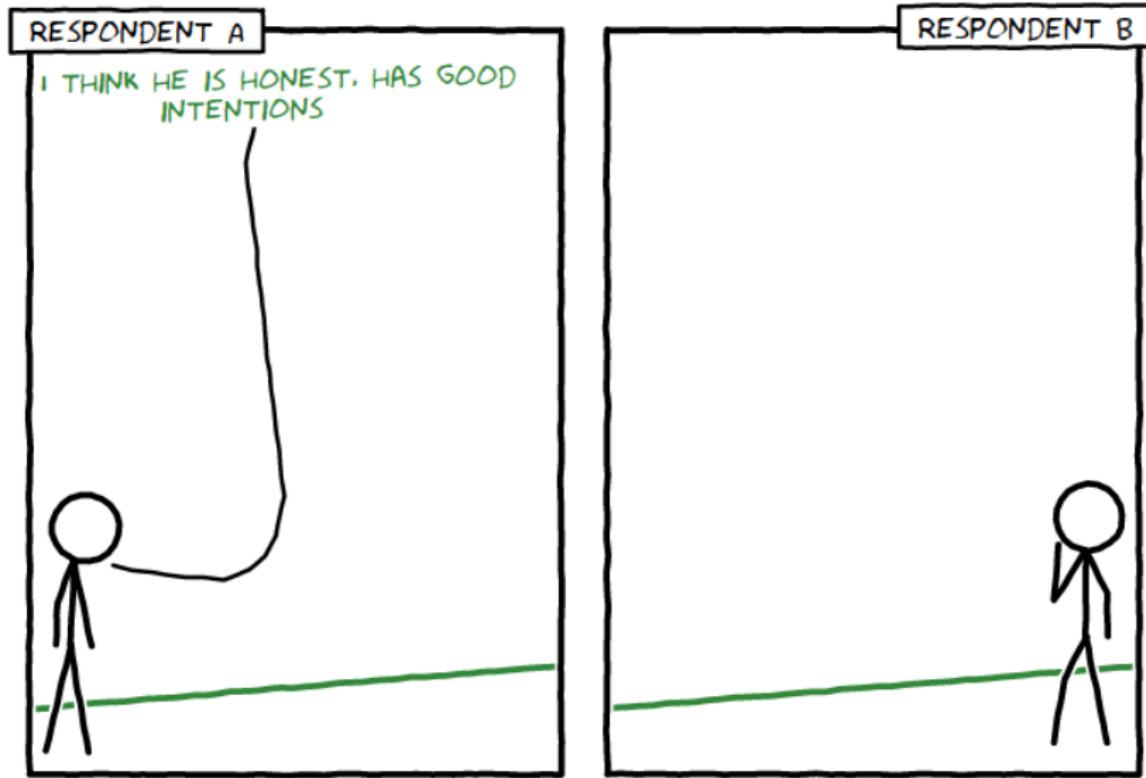


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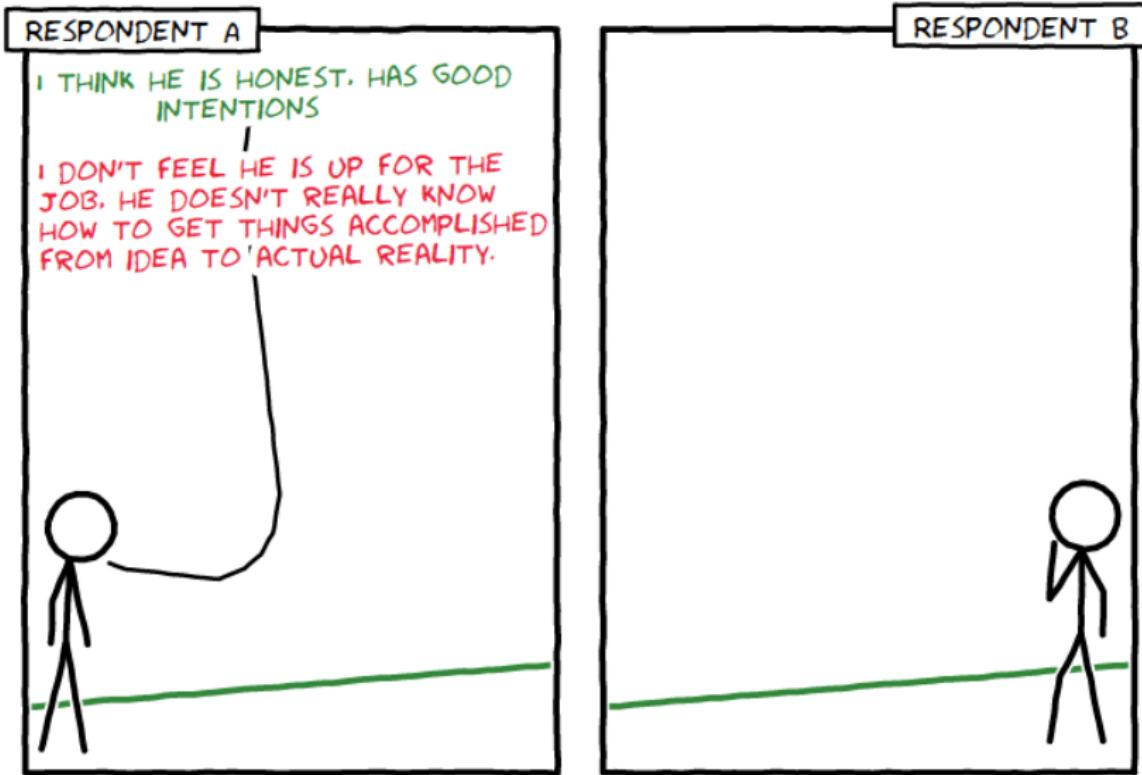


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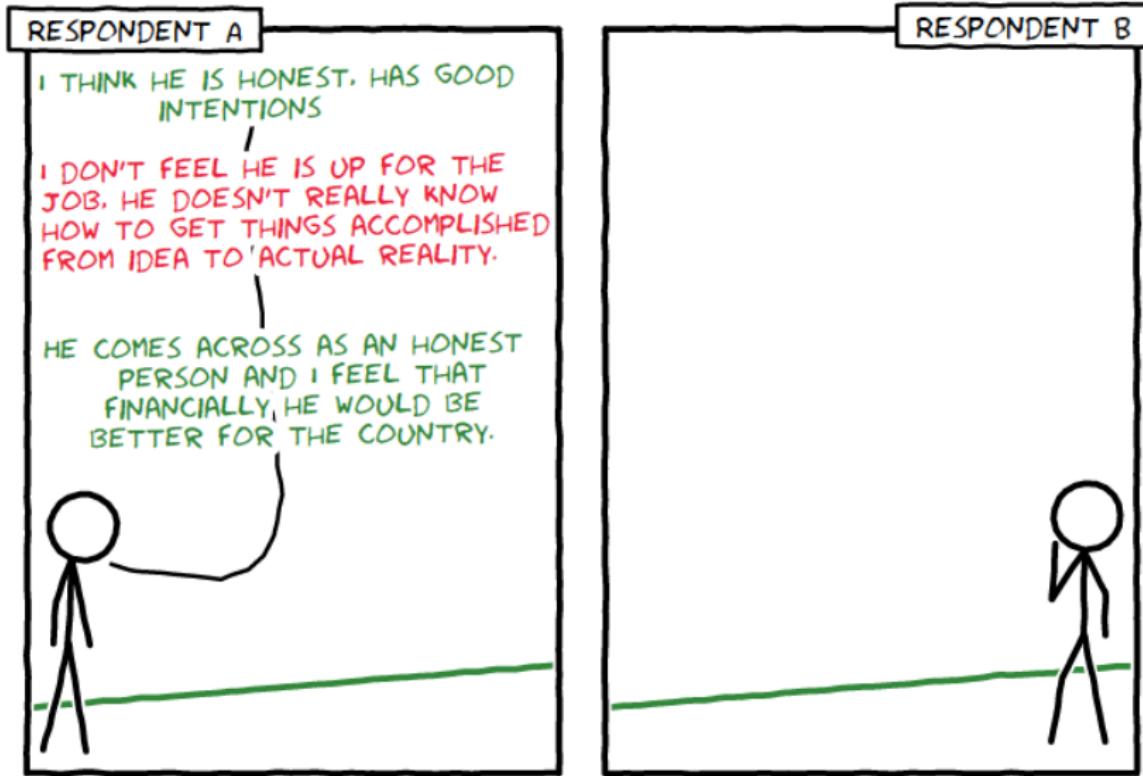


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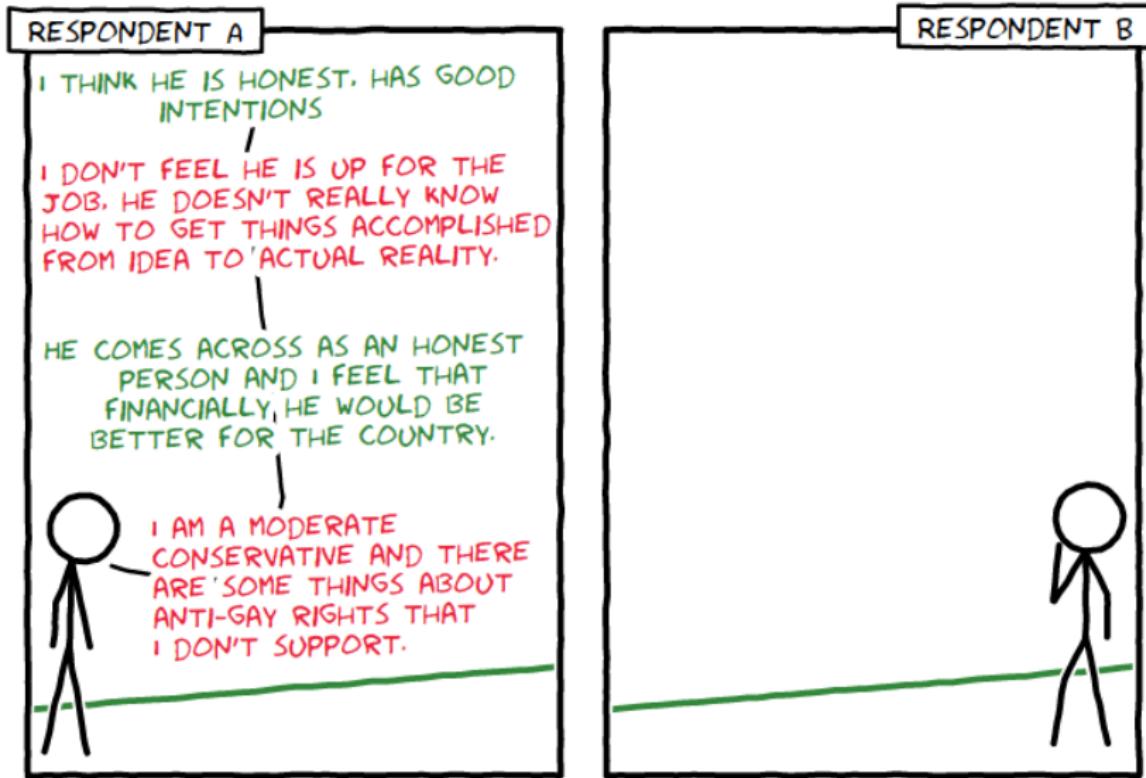


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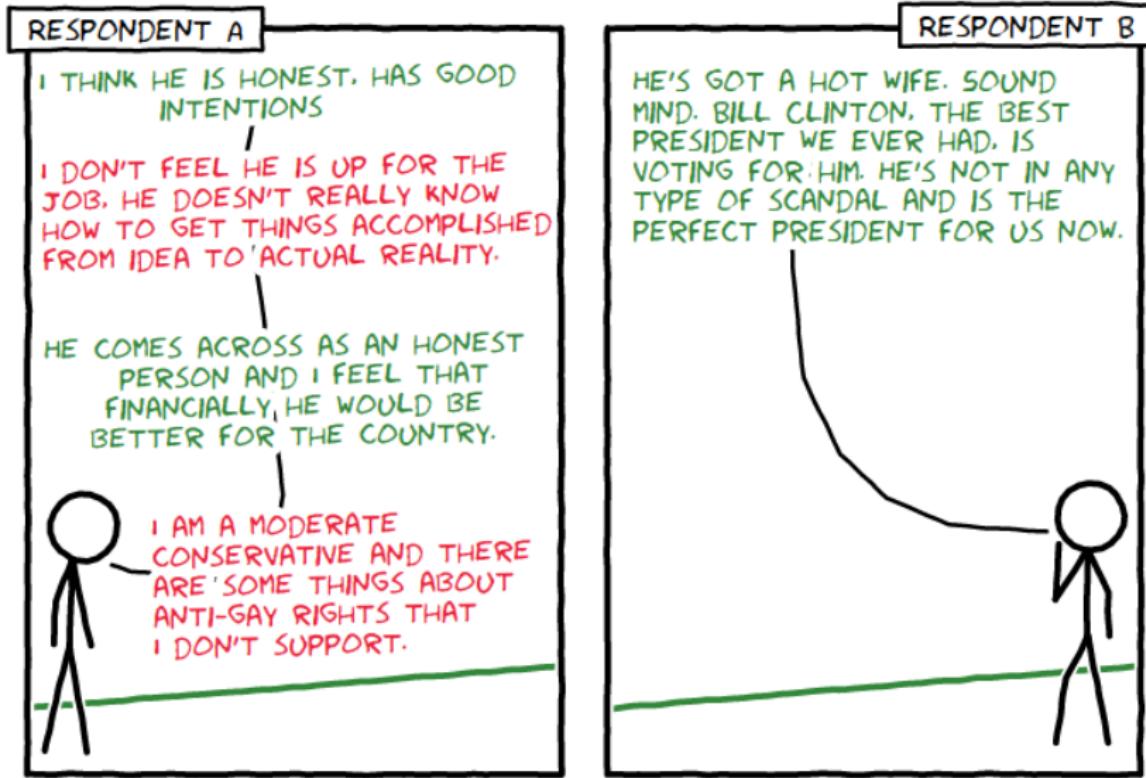


Illustration – Who scores higher on political knowledge?

RESPONDENT A

I THINK HE IS HONEST, HAS GOOD INTENTIONS

I DON'T FEEL HE IS UP FOR THE JOB. HE DOESN'T REALLY KNOW HOW TO GET THINGS ACCOMPLISHED FROM IDEA TO ACTUAL REALITY.

HE COMES ACROSS AS AN HONEST PERSON AND I FEEL THAT FINANCIALLY, HE WOULD BE BETTER FOR THE COUNTRY.

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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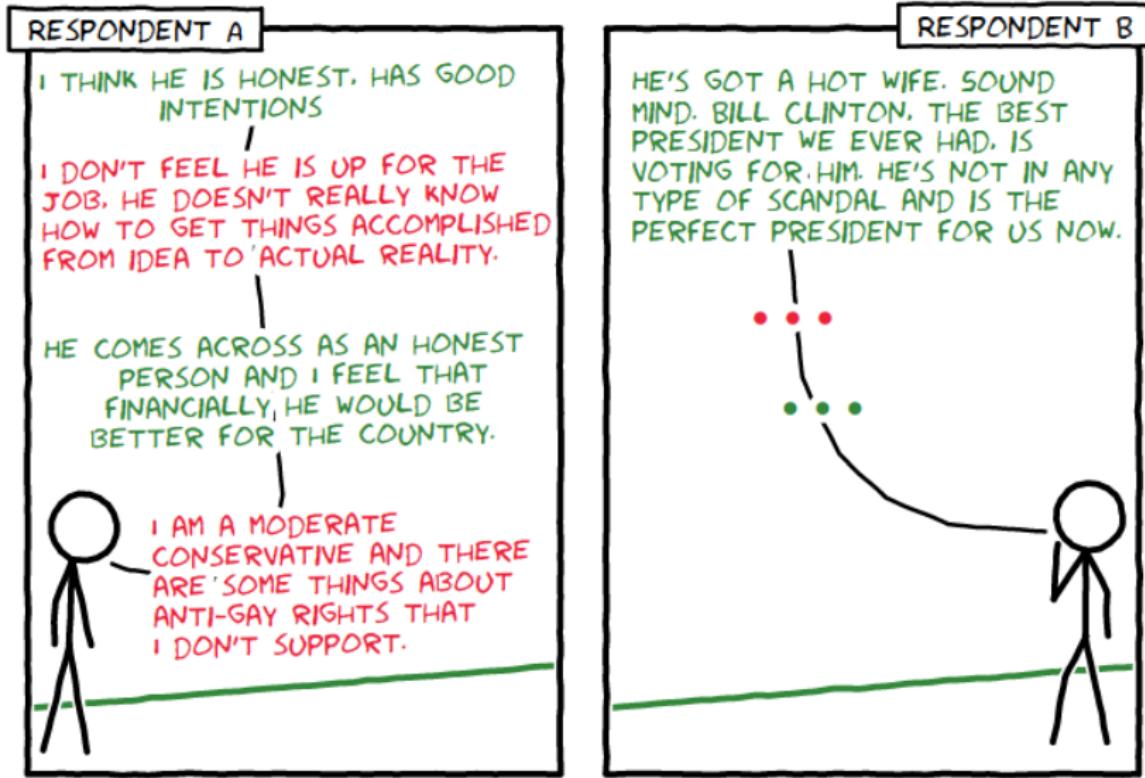


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Both respondents scored
equally

on the conventional political knowledge measure
in the 2012 ANES!

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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 1: Measurement issues

Caveat 2: Theoretical relevance

Discursive Sophistication and Competence

Verbatim political attitude expression:

- ▶ Communication and information diffusion

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→ A Naive Approach for Measuring Sophistication

RESPONDENT A

RESPONDENT B

Measuring Discursive Sophistication



Discursive Sophistication

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Attributes of Sophistication:

- ▶ Political Belief System
- ▶ Accuracy motivation

Discursive Sophistication – Structural Topic Model

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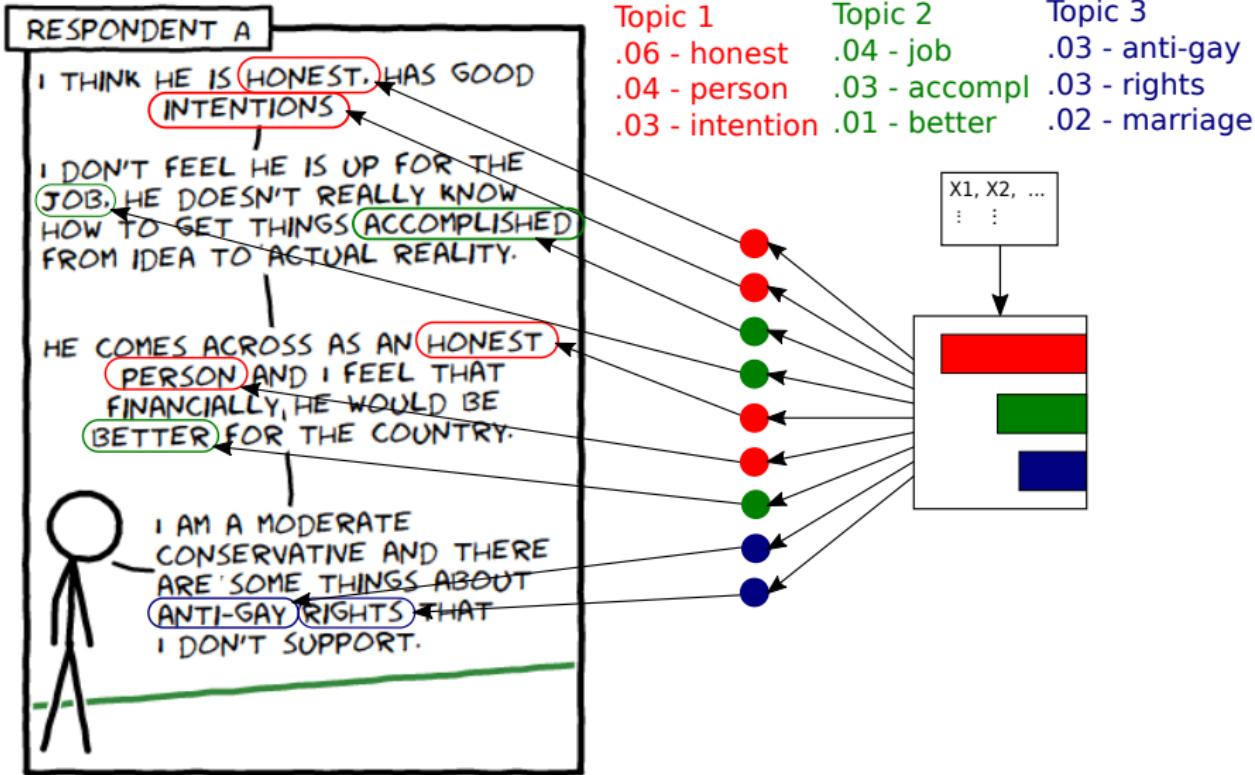
Processing open-ended responses:

- ▶ Automatic spell checking
- ▶ Lower case
- ▶ Stopwords, Numbers, Punctuation
- ▶ Stemming
- ▶ Infrequent terms
- ▶ Aggregation

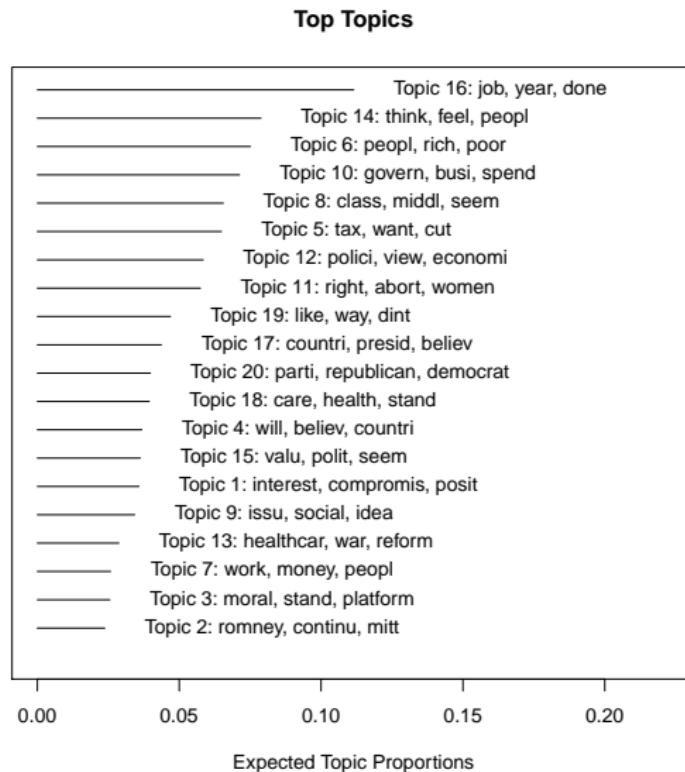
→ Structural topic model

(Roberts et al., 2014)

Discursive Sophistication – Structural Topic Model



Topic Proportions – 2012 ANES



Discursive Sophistication – Components

Extracted Quantities:

1. Considerations: How many topics are mentioned?

Discursive Sophistication – Components

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1. Considerations: How many topics are mentioned?

Few Considerations

Represents all people.

Represent the rich.

Represents the working class.

Represents the wealthy.

Many Considerations

Everything.

Attitude toward women's rights,
view on taxes mainly.

Has more people that I trust.

Too conservative.

Discursive Sophistication – Components

Extracted Quantities:

1. Considerations: How many topics are mentioned?
2. Word Choice: Are terms highly descriptive of topics?

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Low Descriptiveness

enthus
standoffish
endless

High Descriptiveness

health
tax
economi

Discursive Sophistication – Components

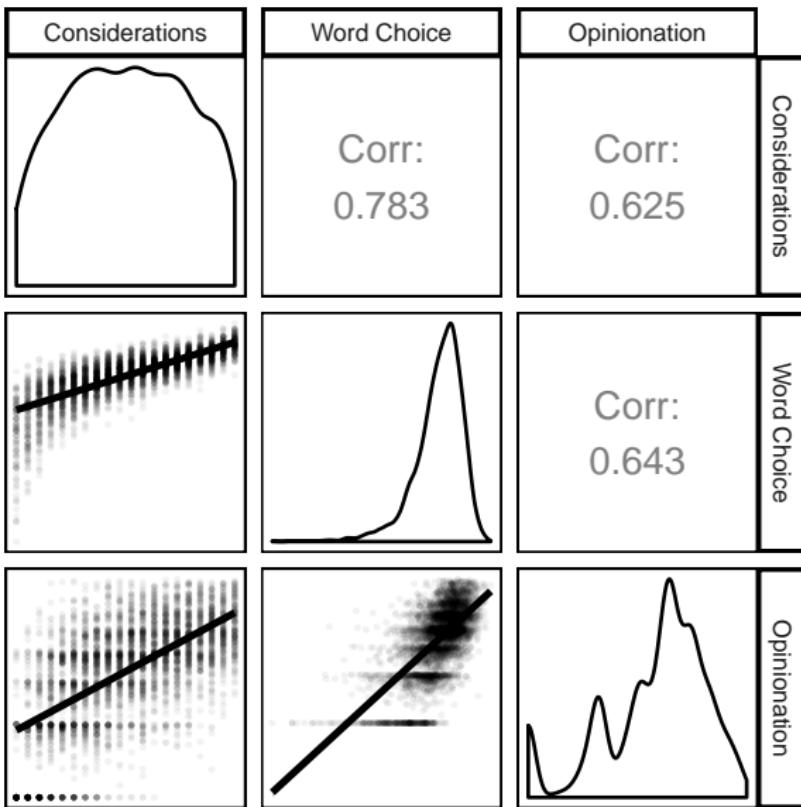
Extracted Quantities:

1. Considerations: How many topics are mentioned?
2. Word Choice: Are terms highly descriptive of topics?
3. Opinionation: Does a respondent discuss all questions?

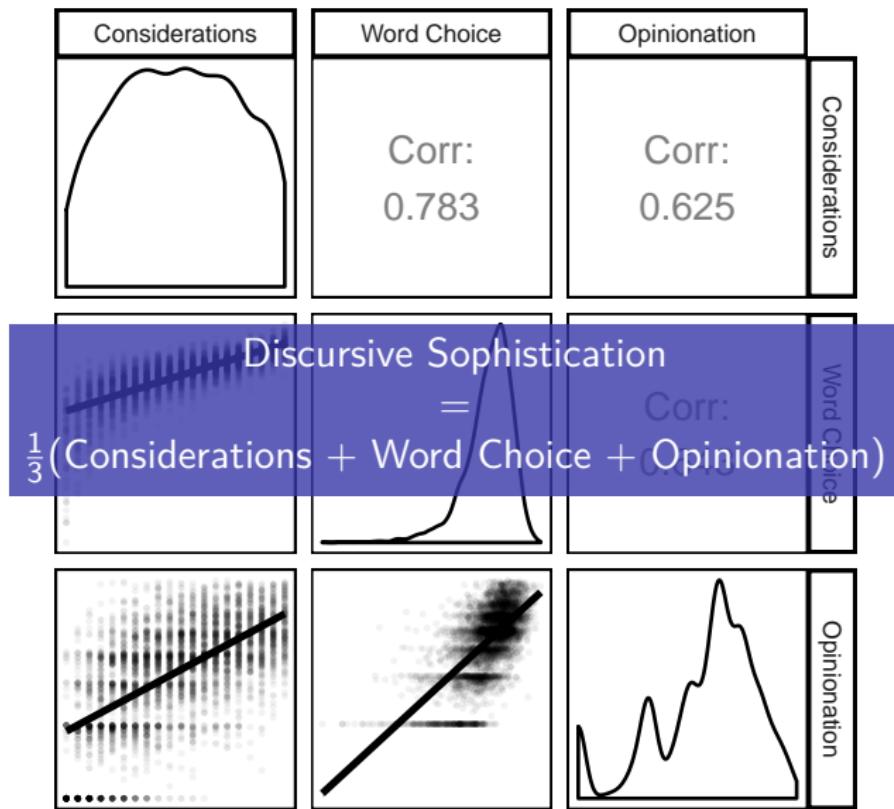
Discursive Sophistication – Components (2012 ANES)

Considerations	Word Choice	Opinionation

Discursive Sophistication – Components (2012 ANES)



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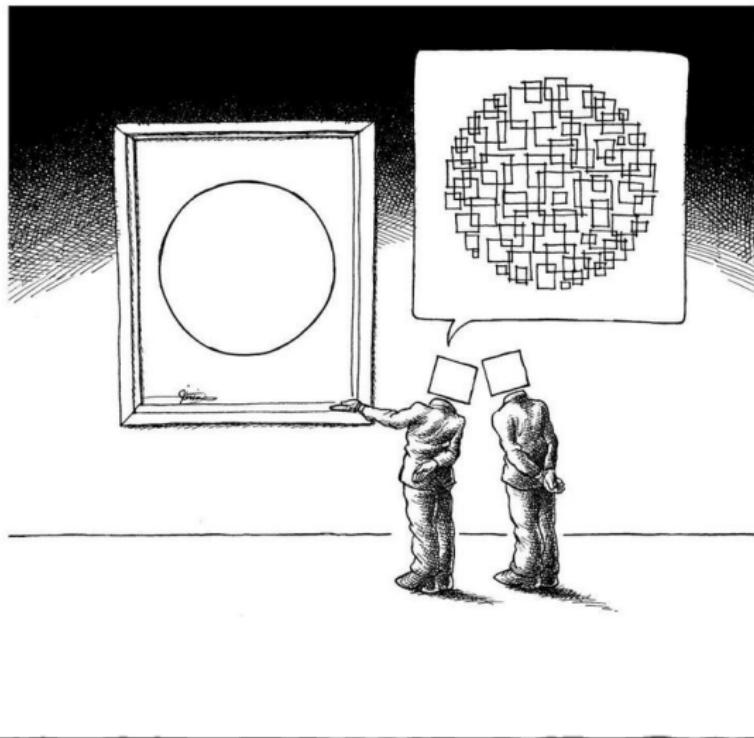
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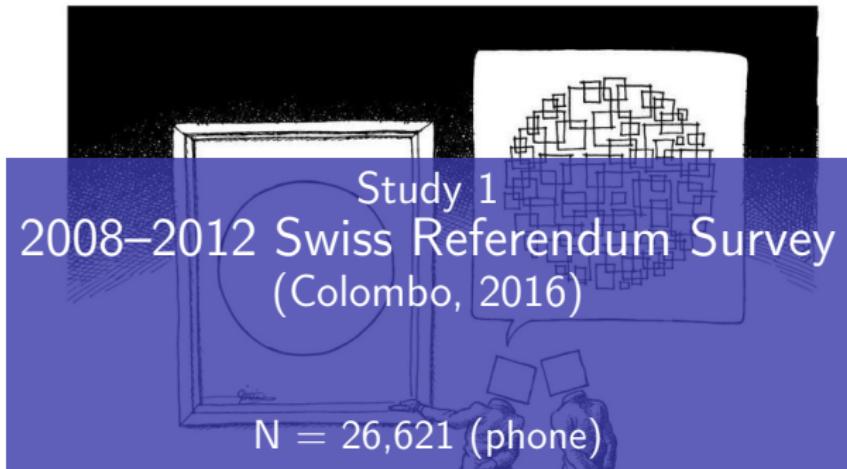
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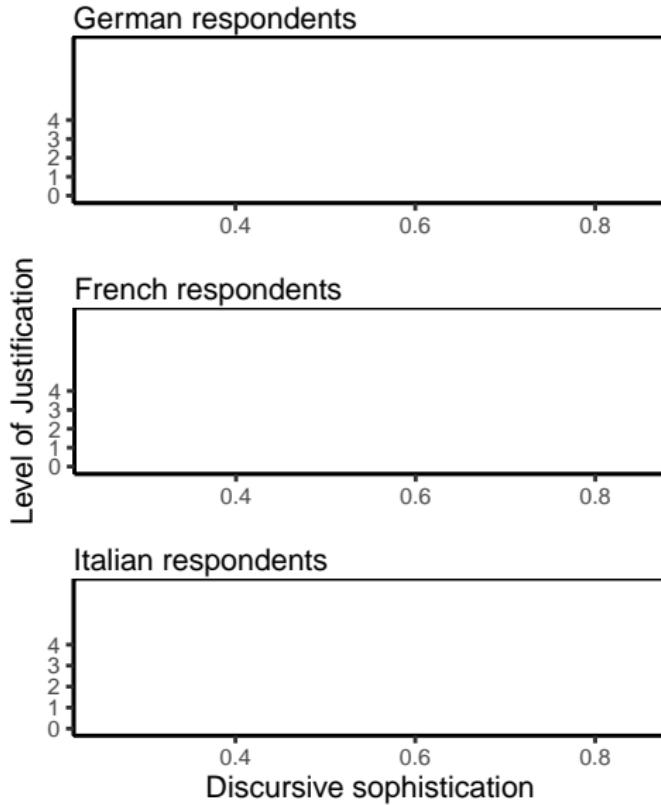


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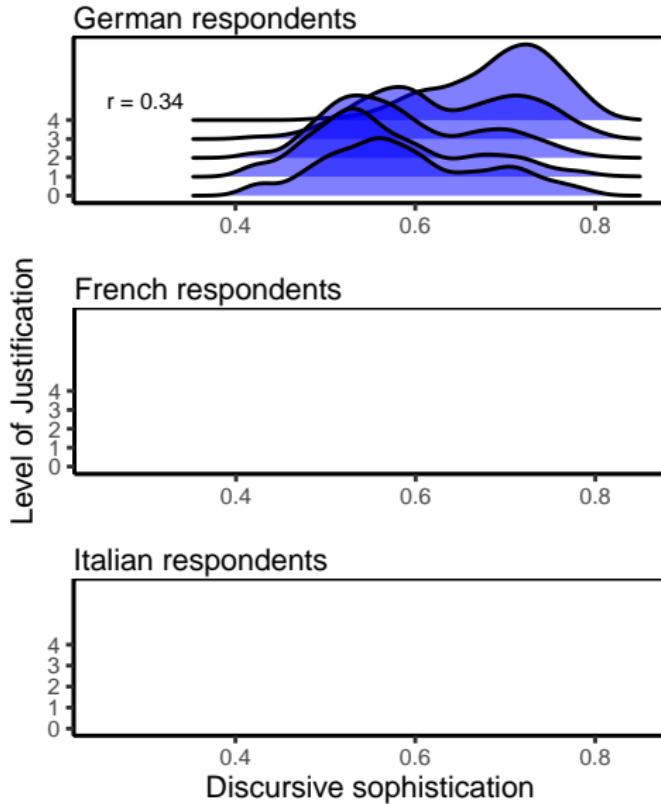
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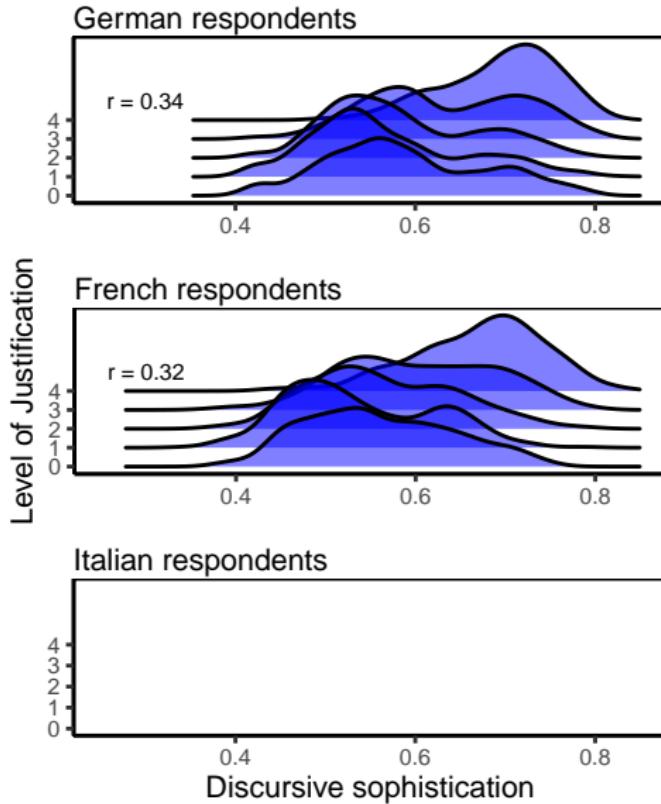
Comparison with Manually Coded Levels of Justification



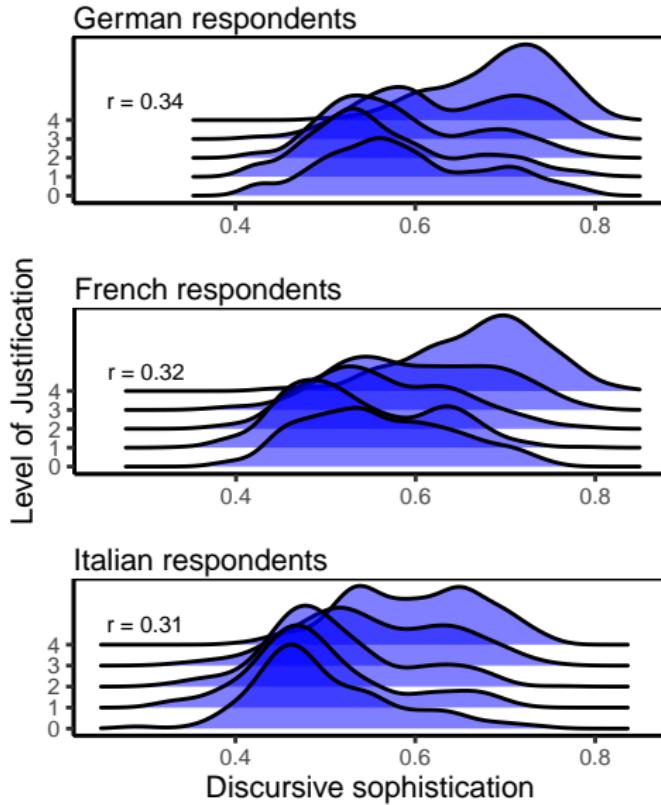
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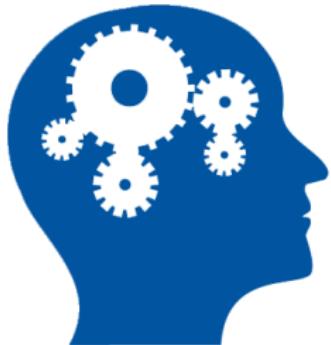
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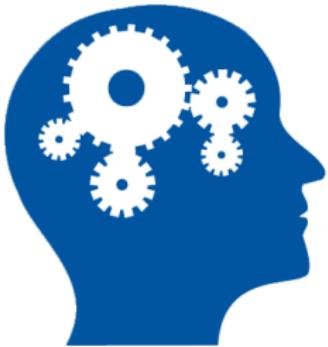
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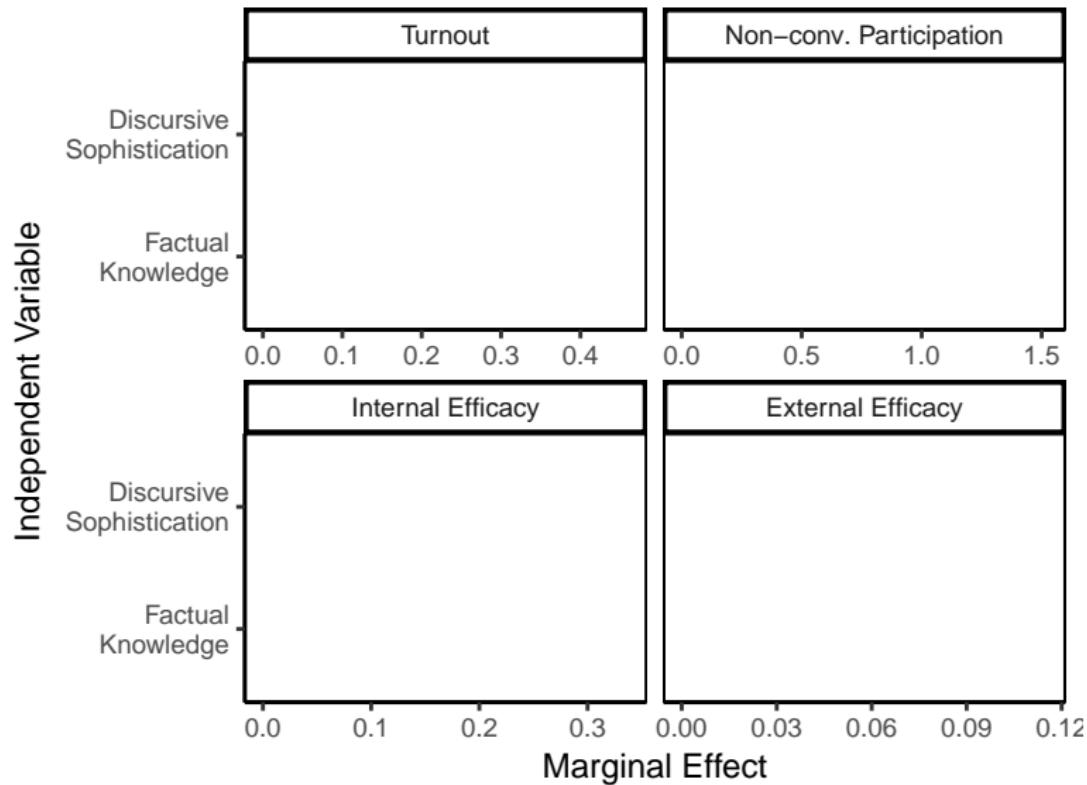


Study 2
2012 American National Election Study

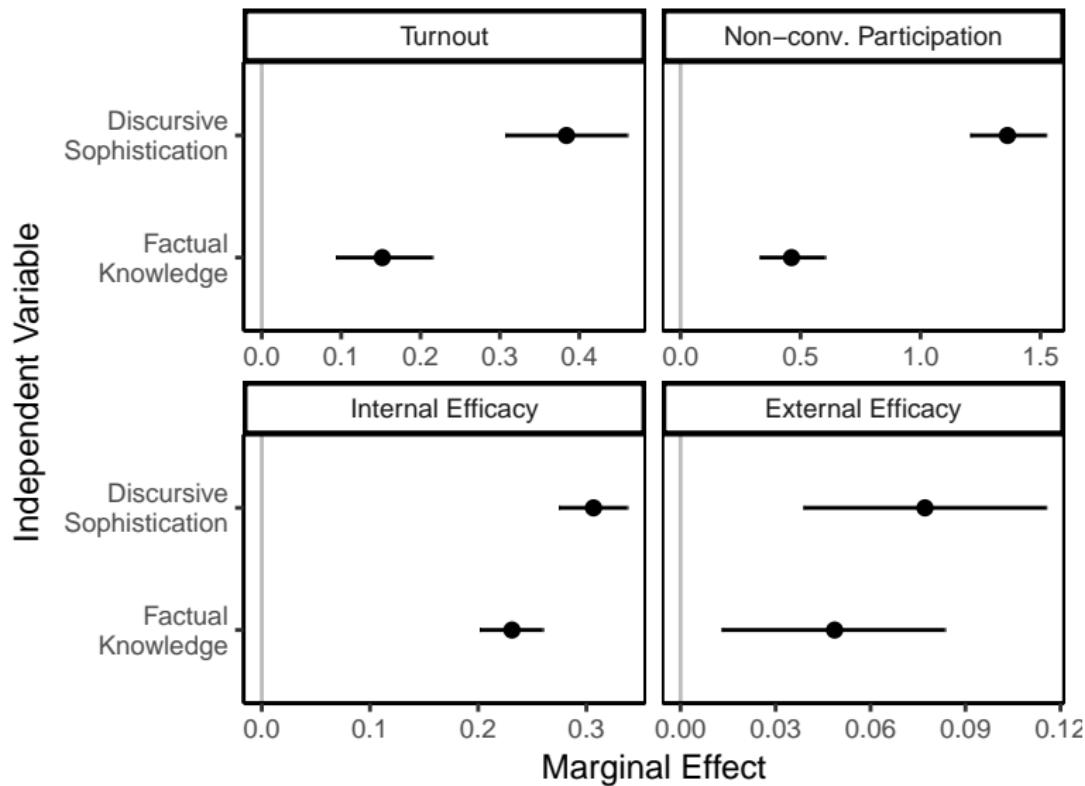
N = 5914 (2054 f2f + 3860 online)



Engagement and Participation



Engagement and Participation



RESPONDENT A

RESPONDENT B



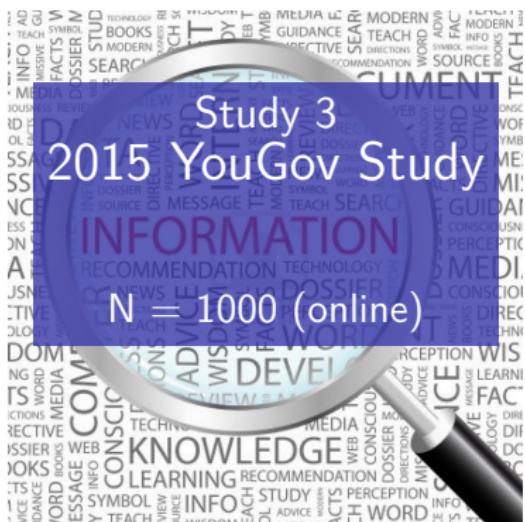
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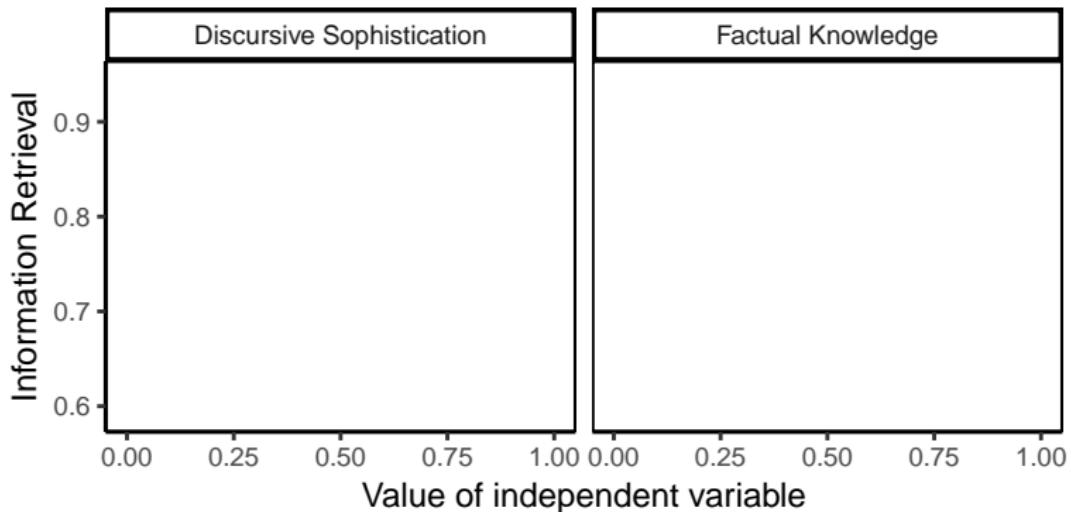


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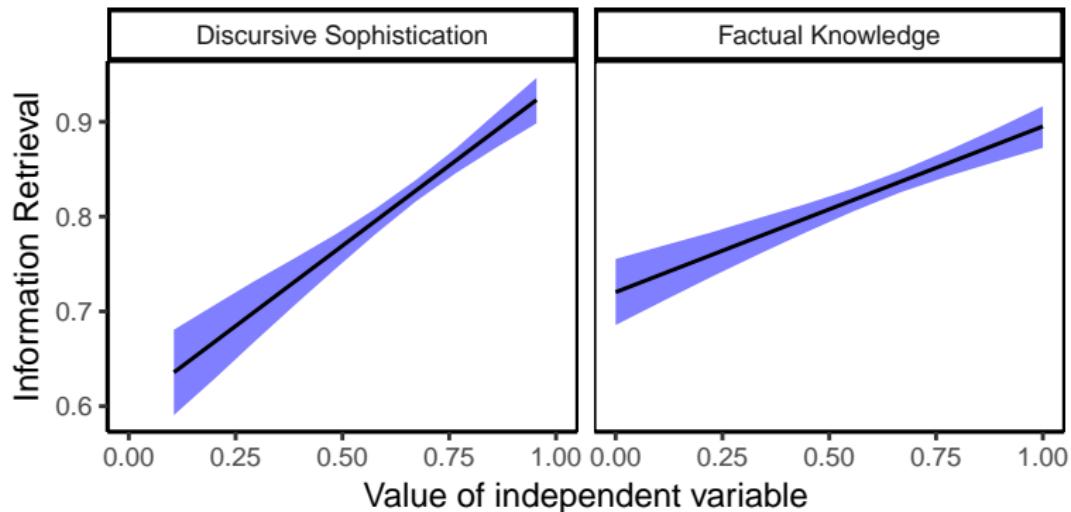
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Accurate Information Retrieval



Accurate Information Retrieval



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Previous Research on Gender Differences in Knowledge

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Explanation 1: Personality characteristics

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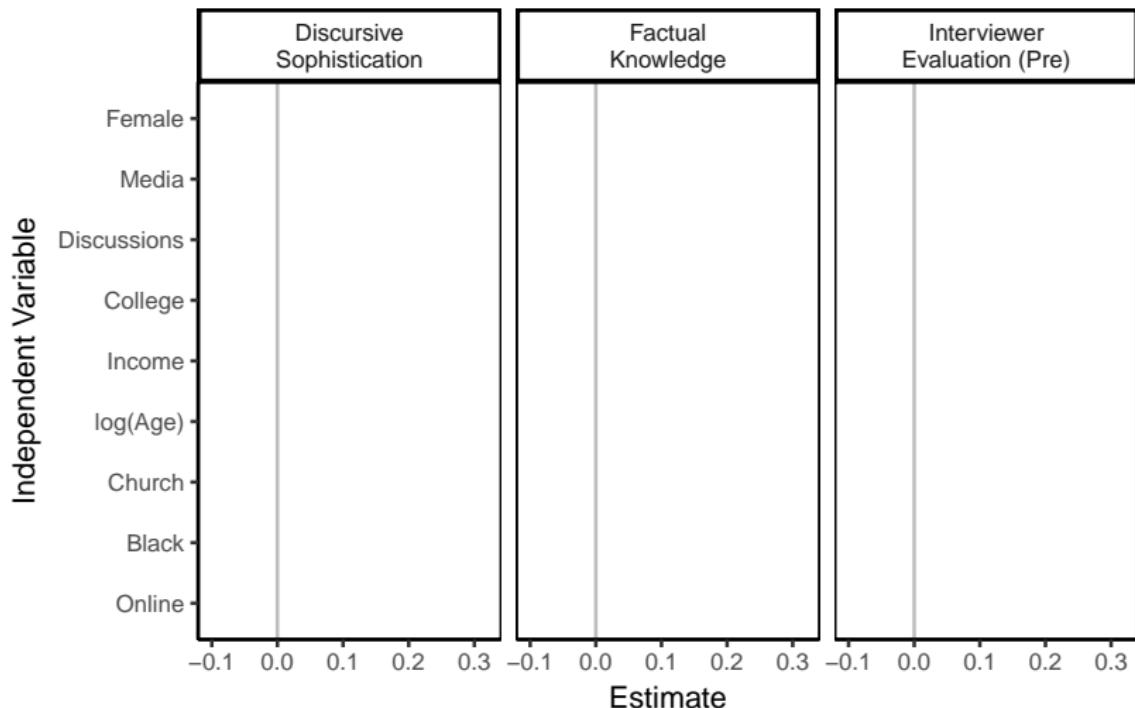
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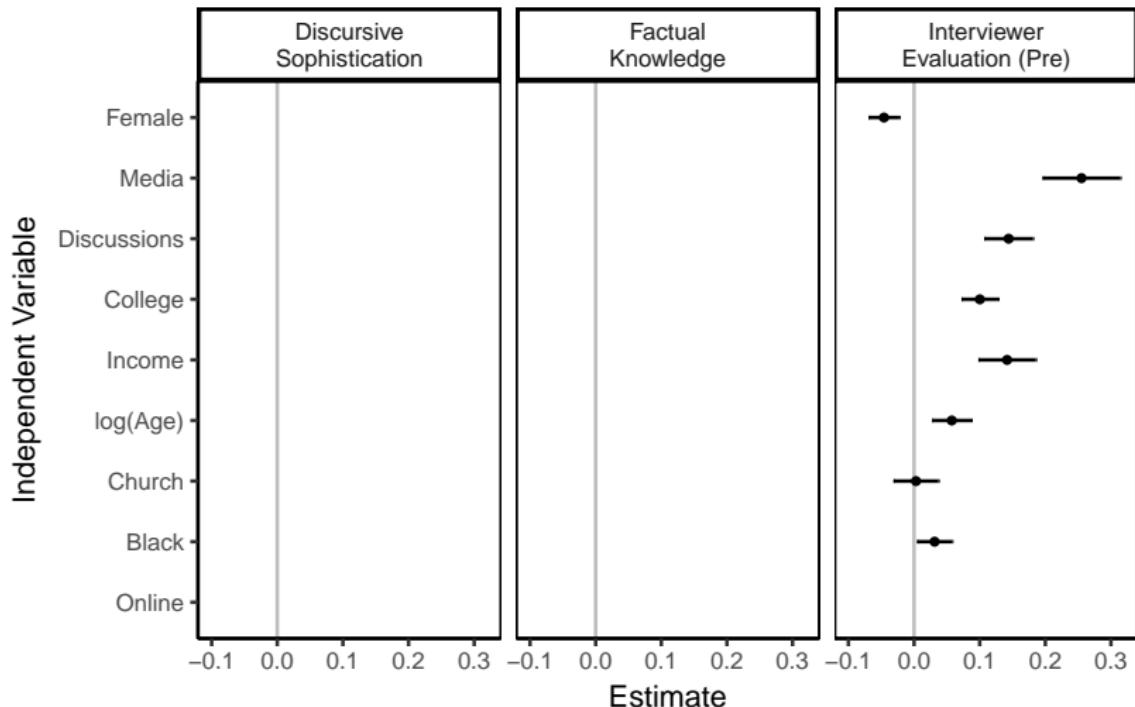
Explanation 1: Personality characteristics

Explanation 2: Question content / gender-relevant knowledge

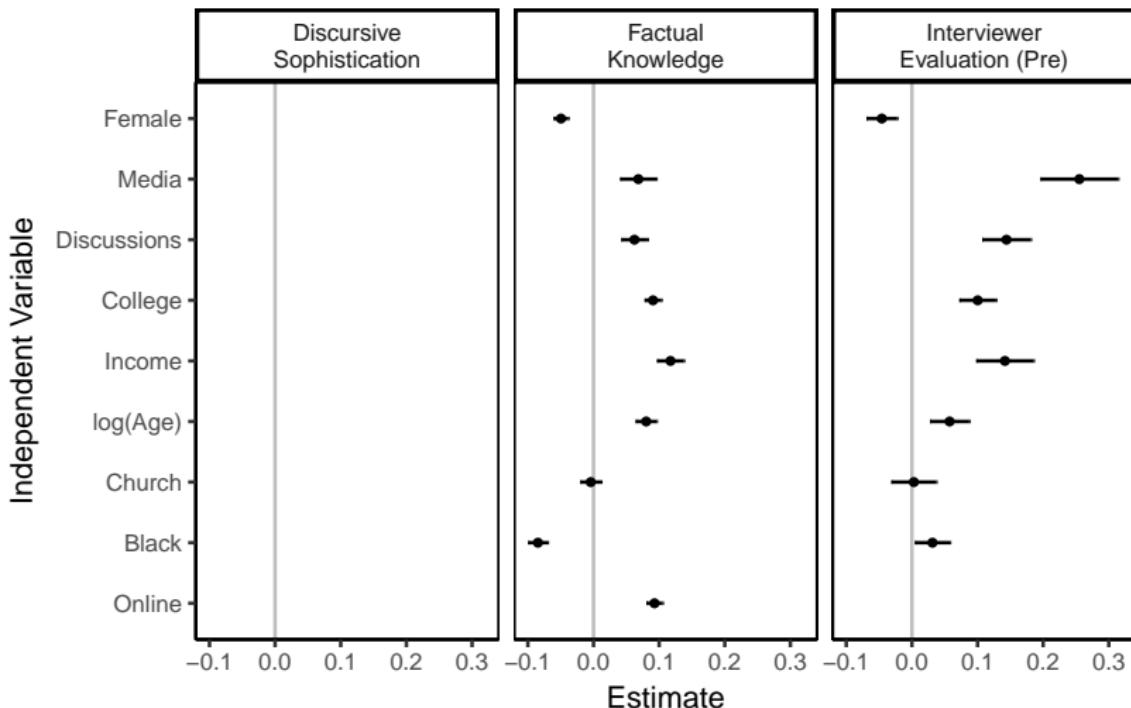
Gender Differences in Sophistication – 2012 ANES



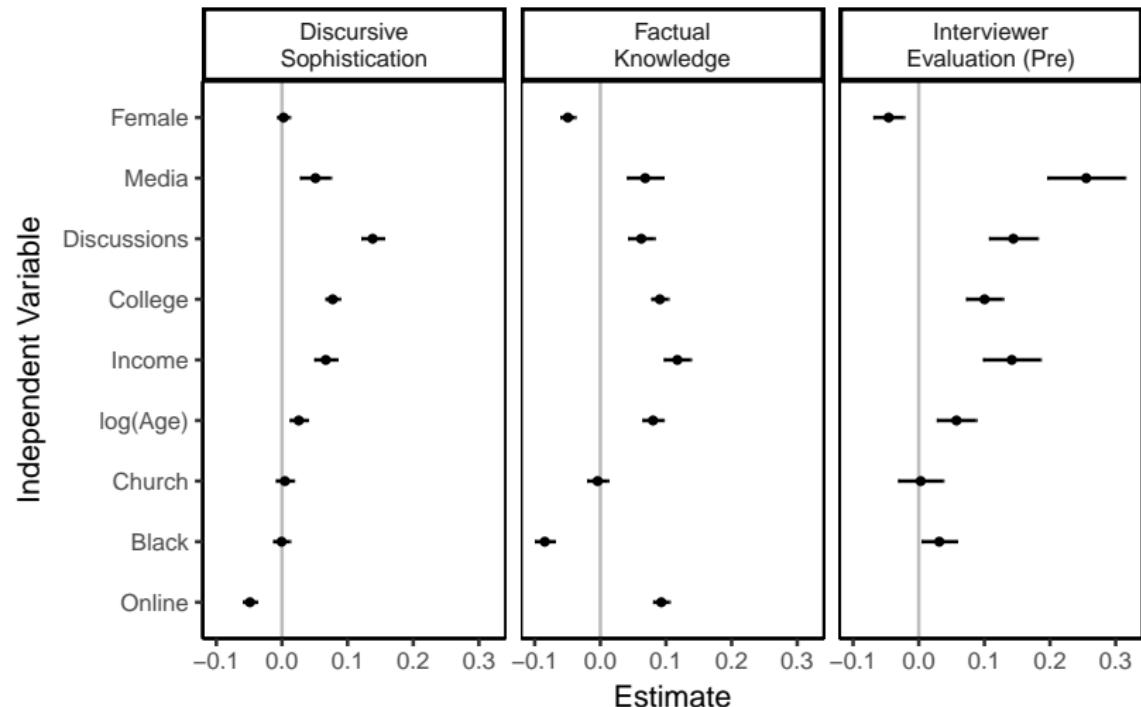
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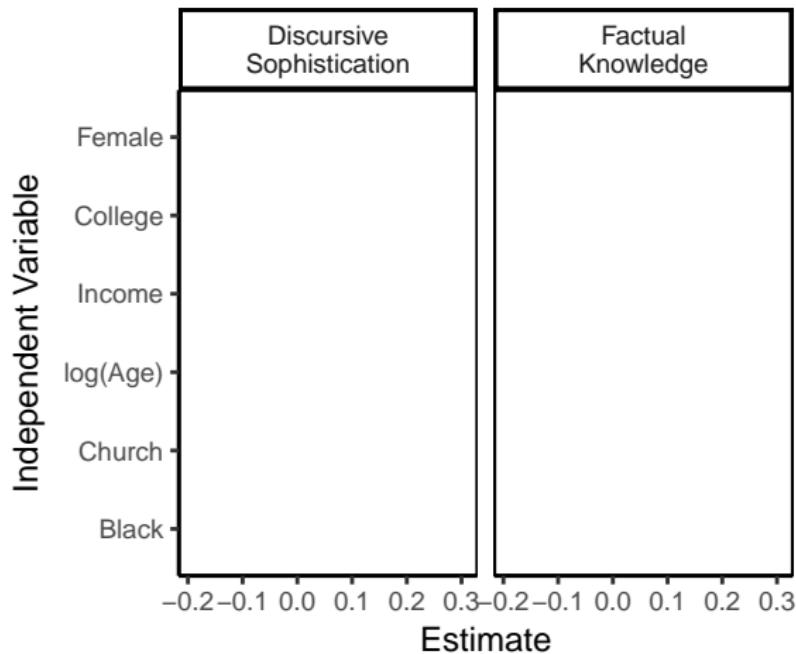
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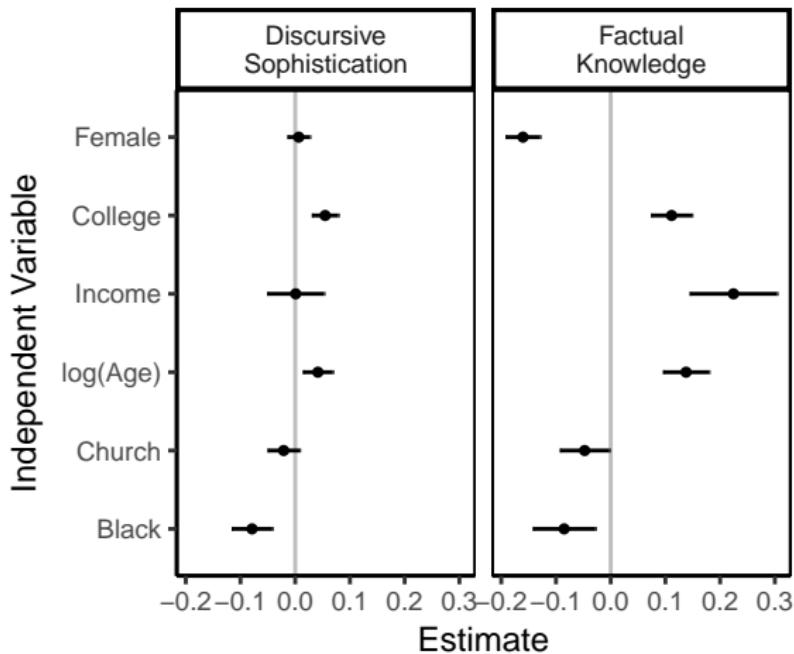
Gender Differences in Sophistication – 2012 ANES



Gender Differences in Sophistication – 2015 YouGov



Gender Differences in Sophistication – 2015 YouGov



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General Discussion

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- ▶ 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?

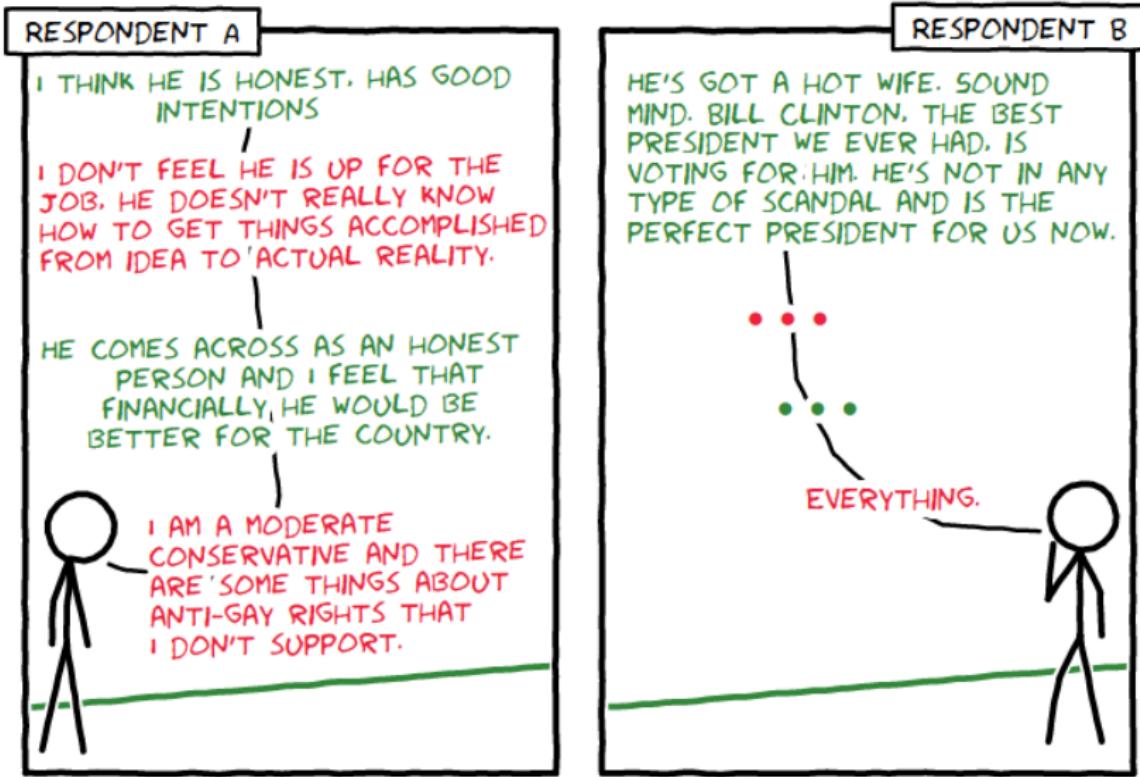


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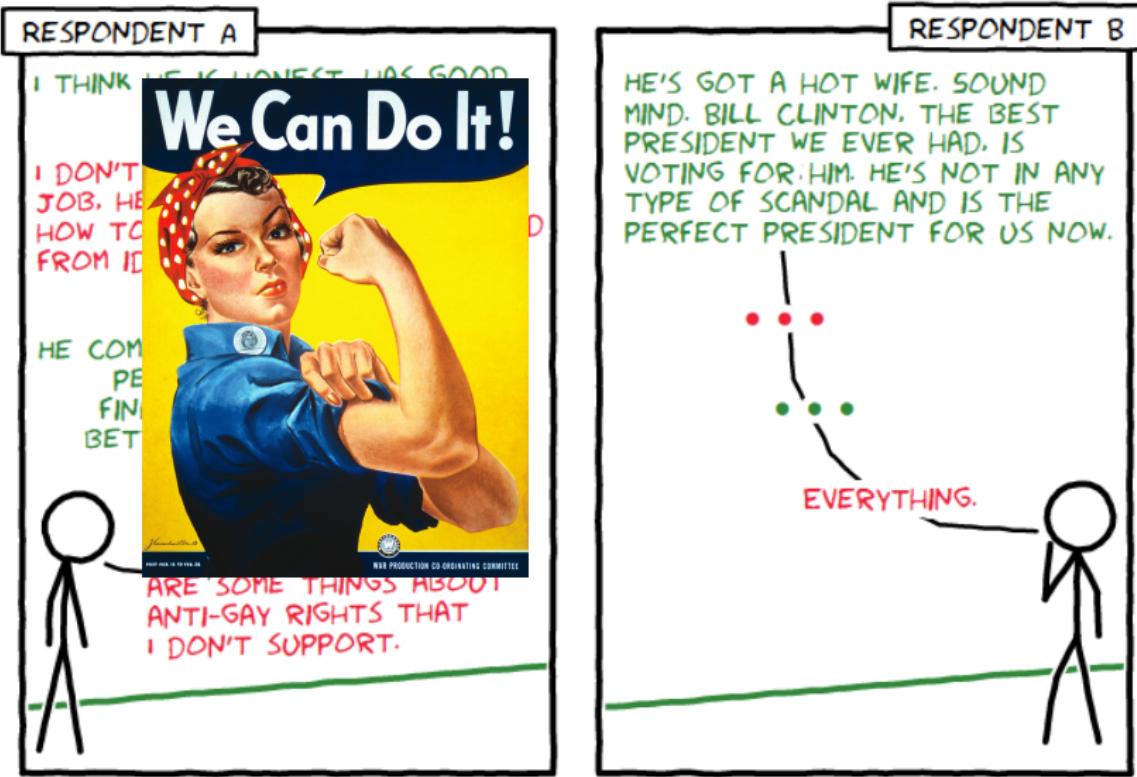
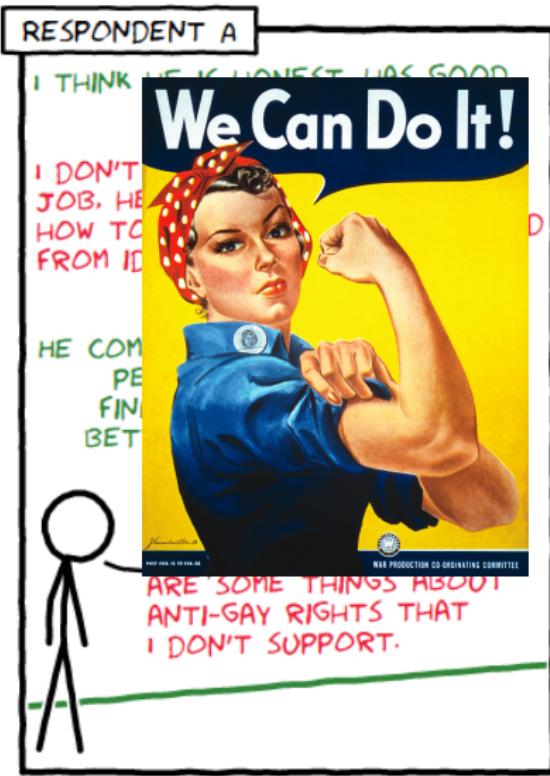


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Thank you very much for your attention!

Manuscript and code available at:

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

Comments, questions?

 kraftp@uwm.edu

 [pkraft.github.io](https://github.com/pwkraft)

 [@patrickwkraft](https://twitter.com/patrickwkraft)

Content

Theoretical Introduction

Knowledge, Sophistication, and Competence

Measuring Discursive Sophistication

Discursive Sophistication and Political Competence

2008–2012 Swiss Referendum Survey

2012 ANES

2015 YouGov Study

Application: Assessing the Gender Gap

Previous Research on Gender Differences in Knowledge

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2015 YouGov

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Appendix Content

Measuring Discursive Sophistication

- Item Wording
- Considerations
- Word Choice
- Opinionation

Robustness Checks

- Choosing the Number of Topics
- Gender Differences in Topic Proportions
- Engagement and Participation – Joint Model
- Control for WORDSUM
- Control for Word Count
- Control for Personality
- Accurate Information Retrieval – Joint Model

Additional Analyses

- Precision in Perceived Ideological Position
- Consistency with Initial Vote Intention
- Issue-Consistency: Support for Redistribution

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]?

Considerations

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

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

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

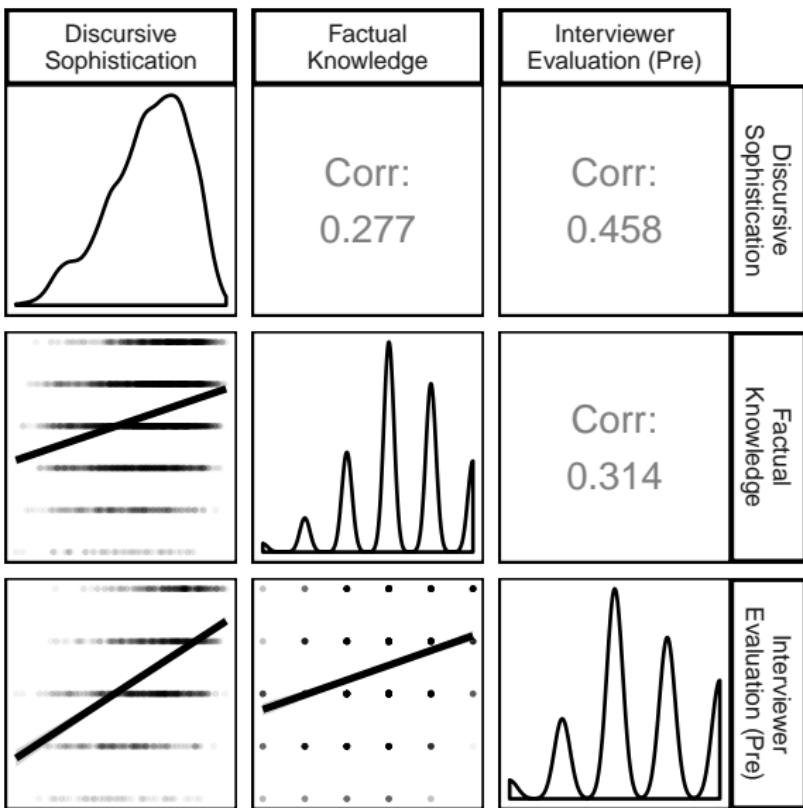
i	Respondent
$w \in \mathcal{W}_i$	Individual word w in response set \mathcal{W}_i
$t^* \in \{1, \dots, T\}$	Topic t^* out of total number of topics T assigned to w such that $P(t^* w, X_i) > P(t w, X_i) \forall t \neq t^*$
	$P(t w, X_i) = \frac{P(w t)P(t X_i)}{P(w X_i)}$
X_i	Covariates used in structural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

Opinionation

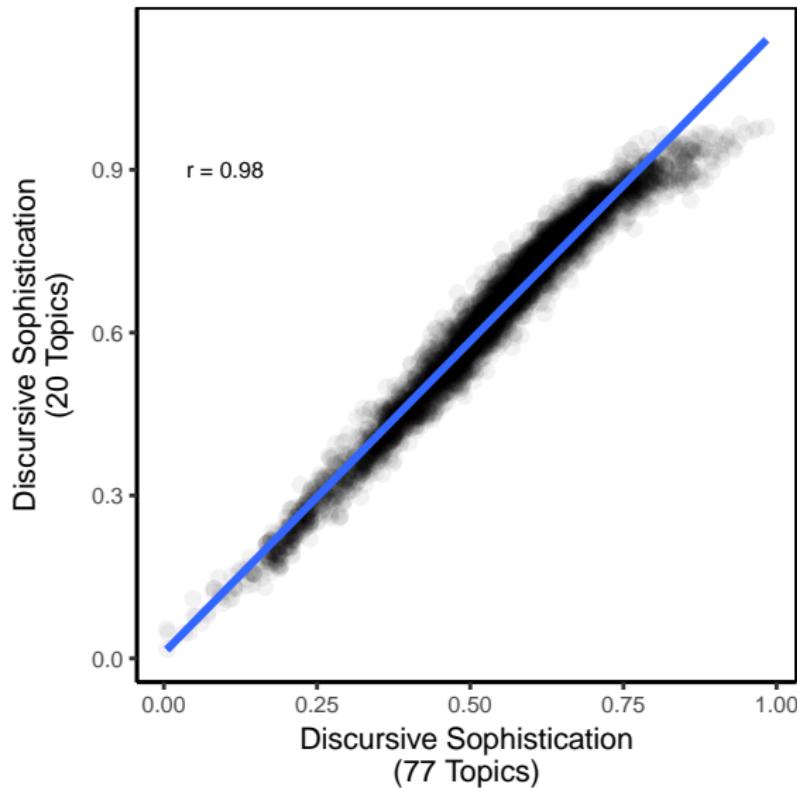
$$\text{Opinionation}_i = \frac{-\sum_{j=1}^J p_{ij} \ln p_{ij}}{\ln J}$$

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

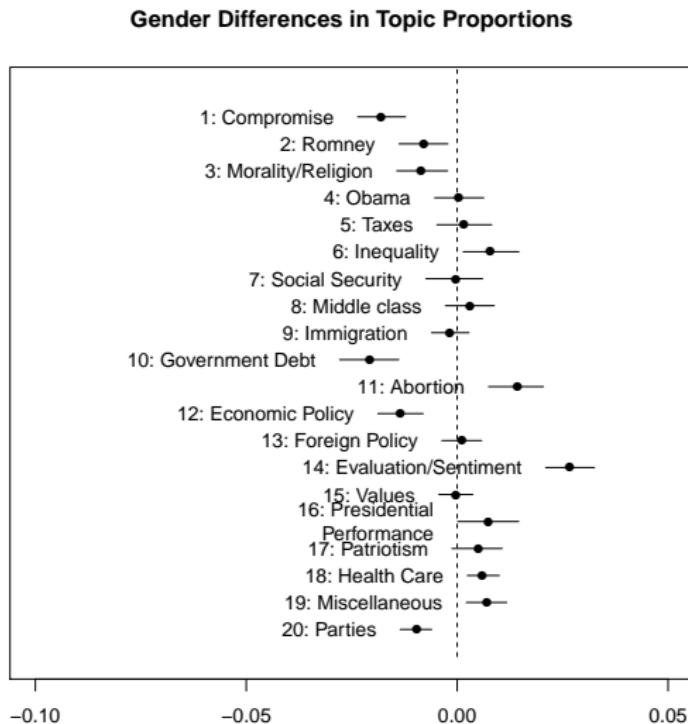
Comparison with Conventional Measures – 2012 ANES



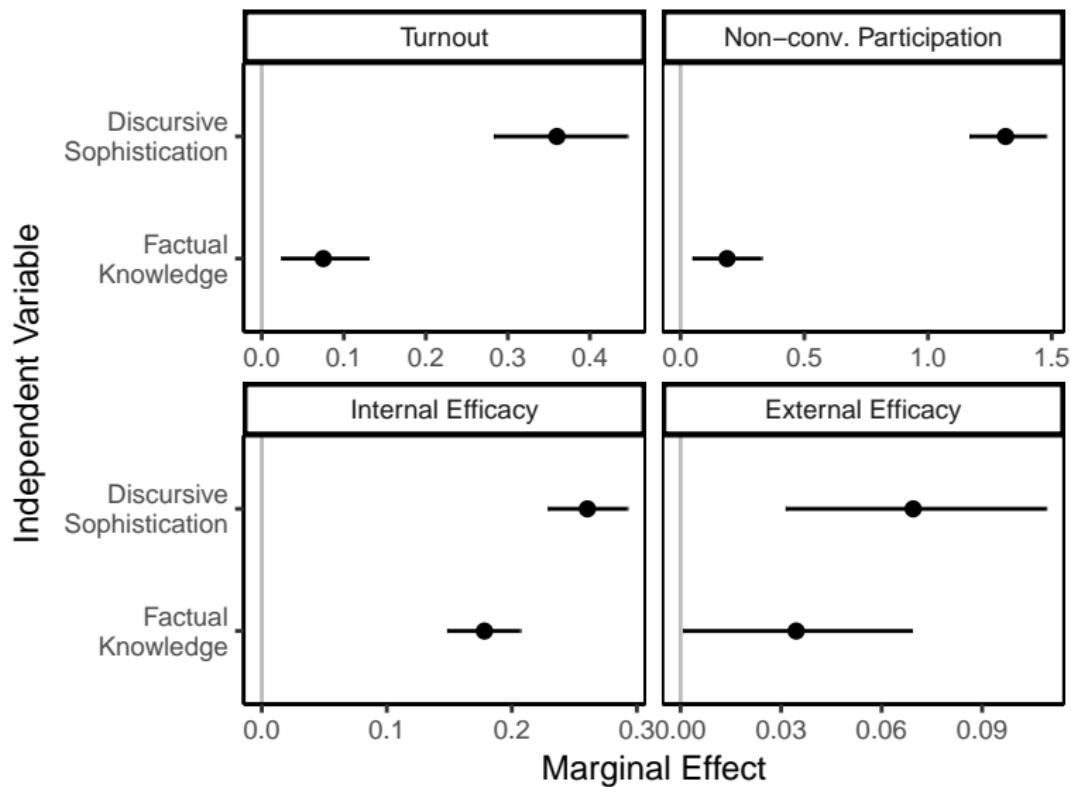
Choosing the Number of Topics (2012 ANES)



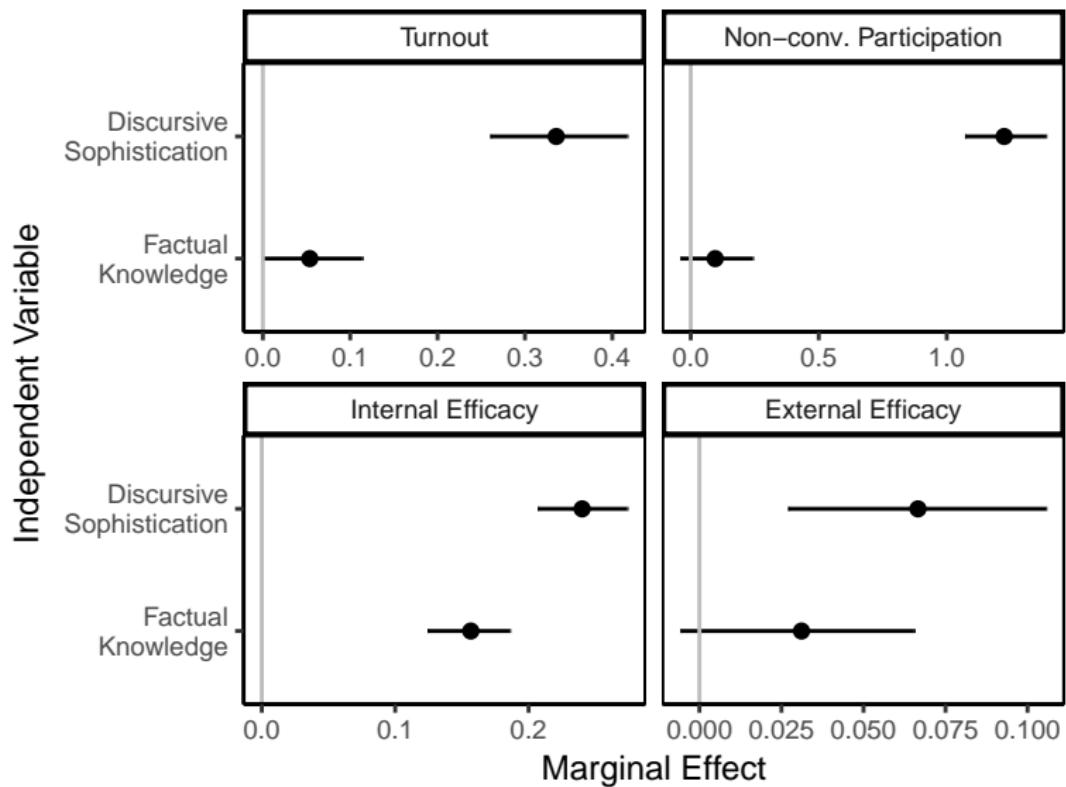
Gender Differences in Topic Proportions (2012 ANES)



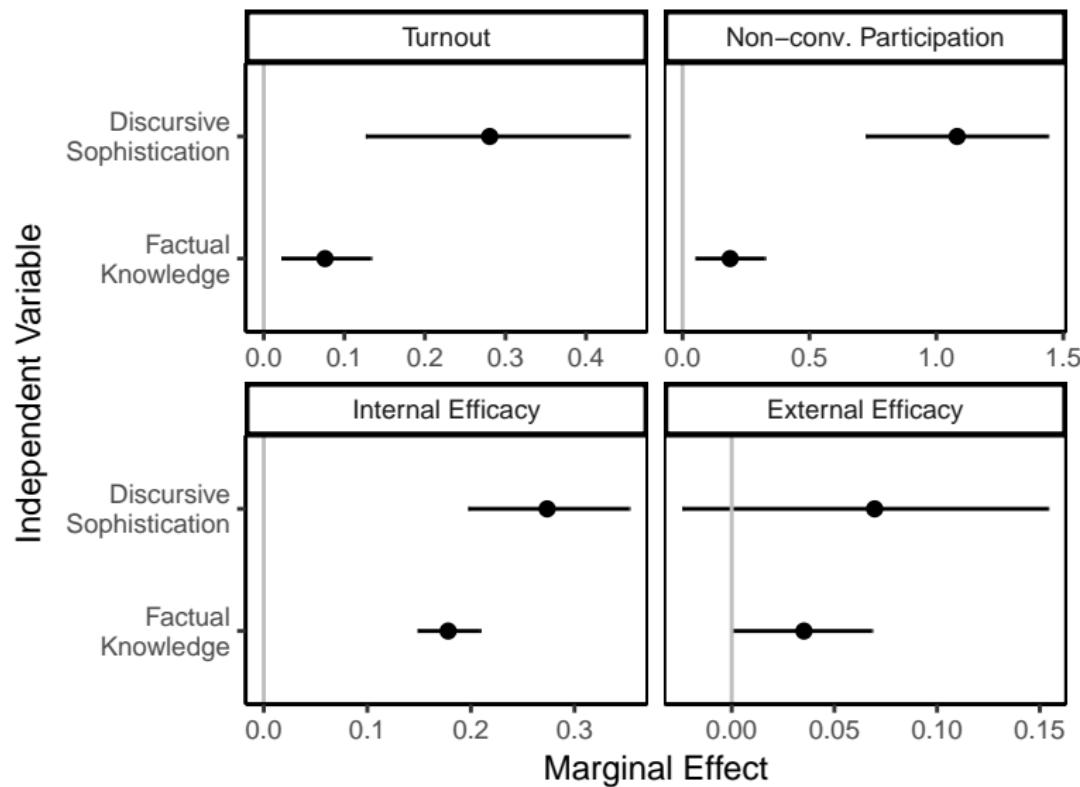
Engagement and Participation – Joint Model



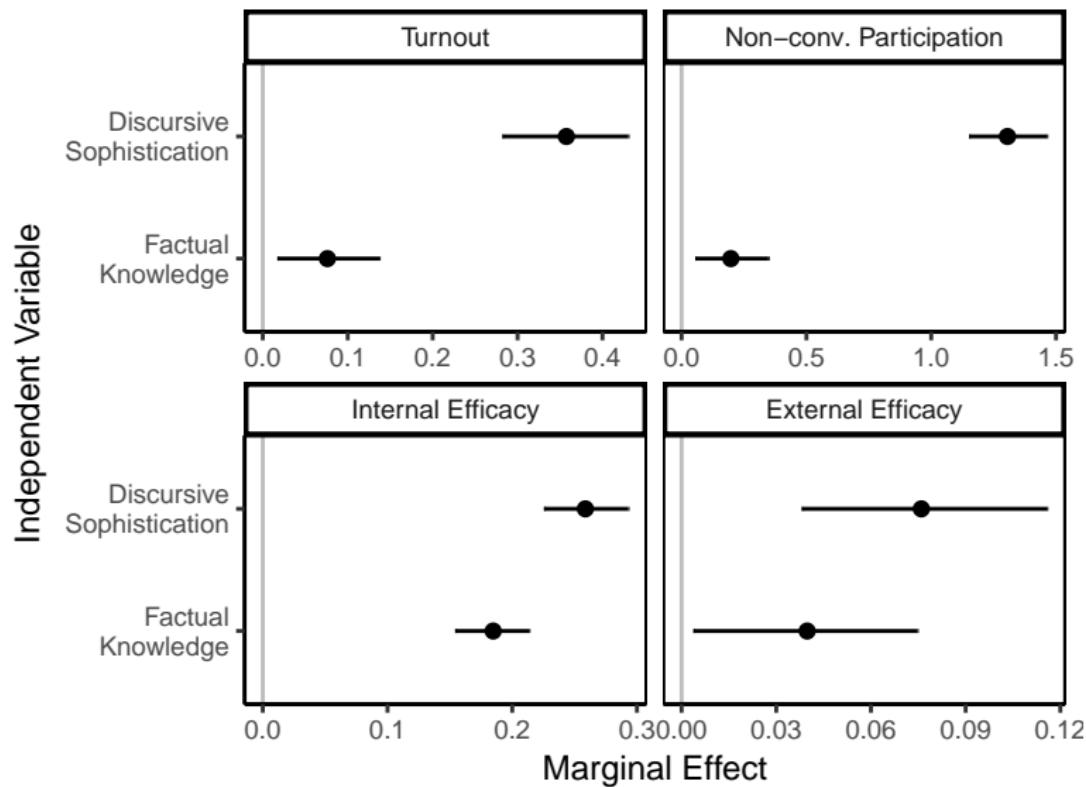
Engagement and Participation – Control for WORDSUM



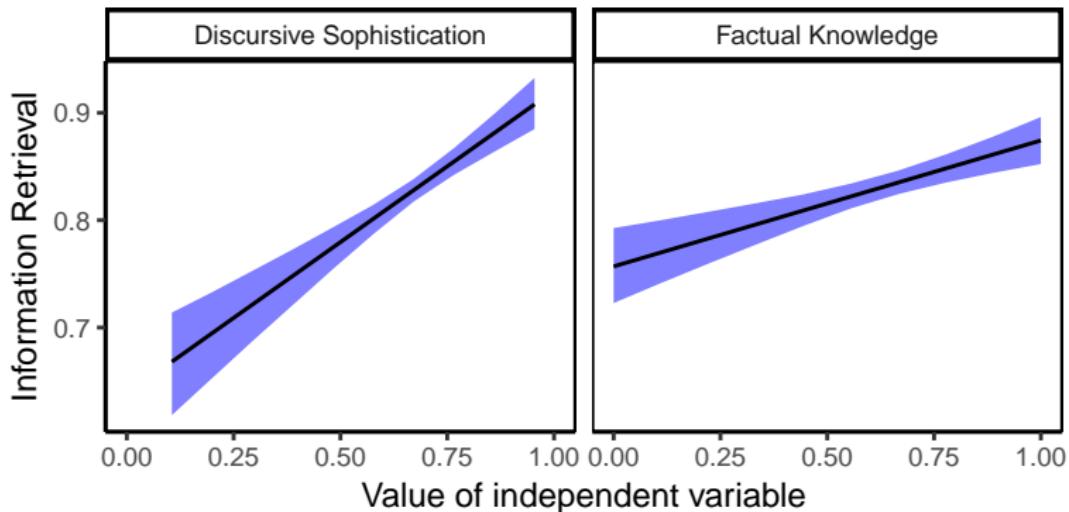
Engagement and Participation – Control for Word Count



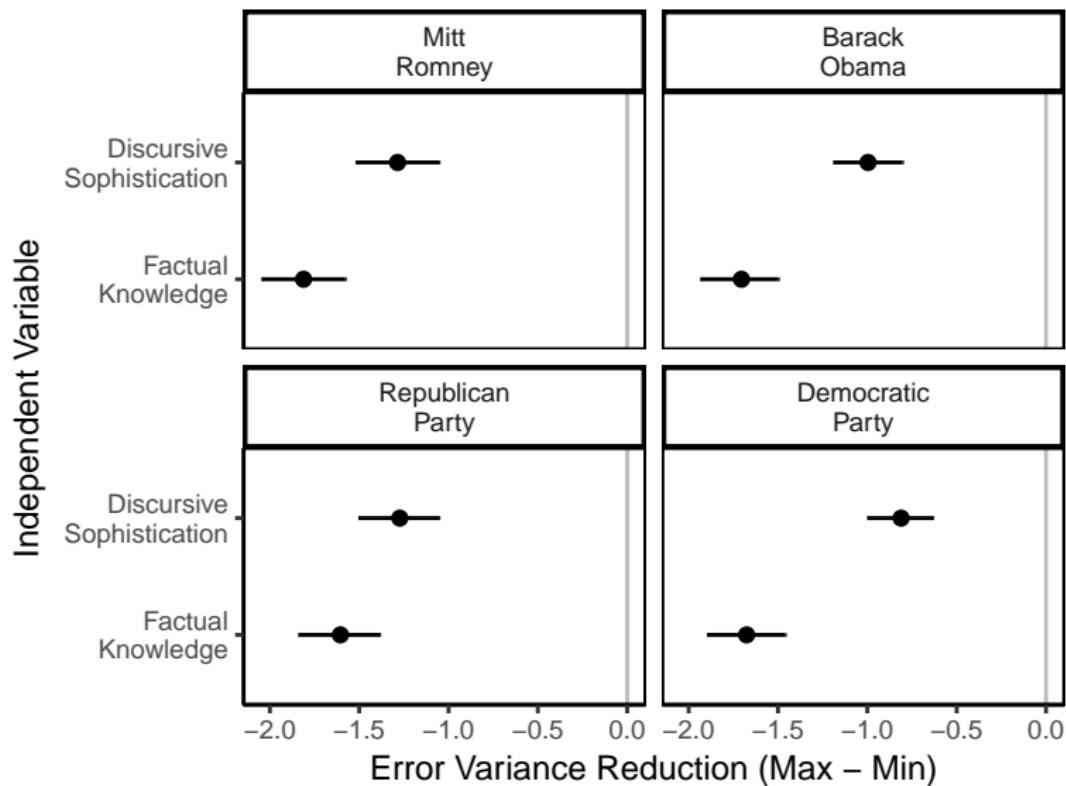
Engagement and Participation – Control for Personality



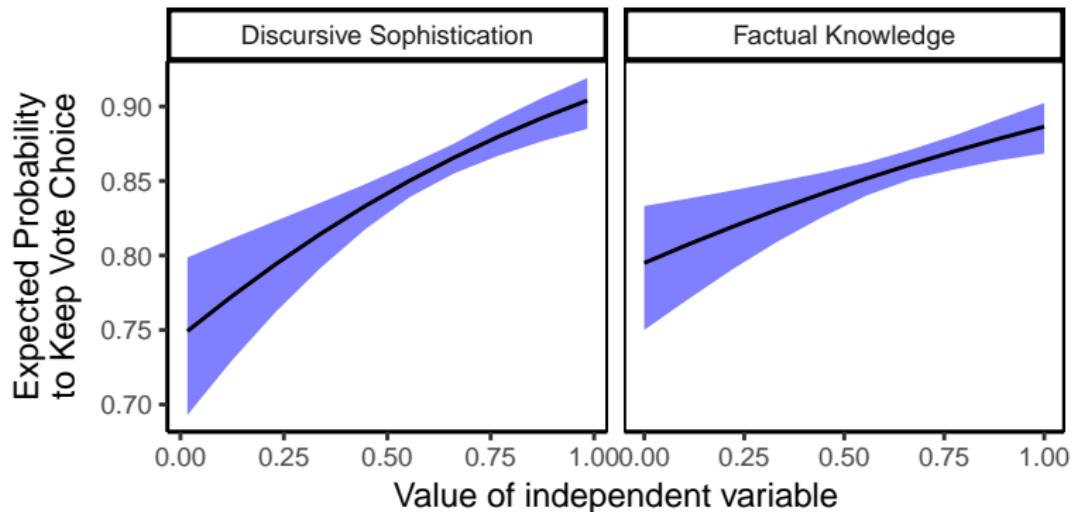
Accurate Information Retrieval – Joint Model



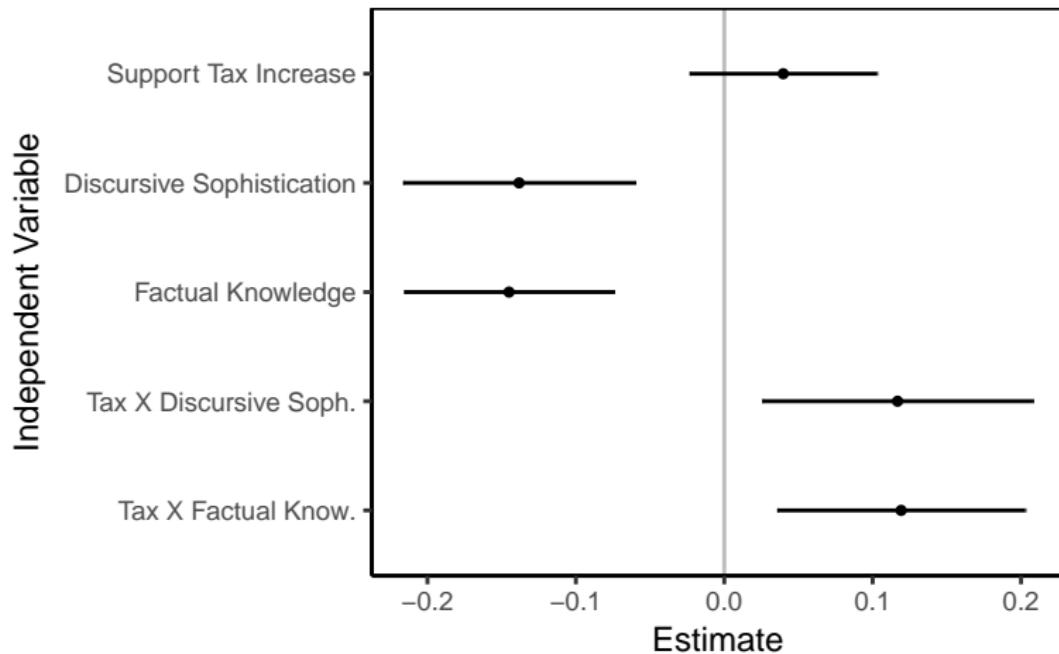
Precision in Perceived Ideological Position (2012 ANES)



Consistency with Initial Vote Intention (2012 ANES)



Issue-Consistency: Support for Redistribution (2012 ANES)



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.