

# 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



## Introduction

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# Overview

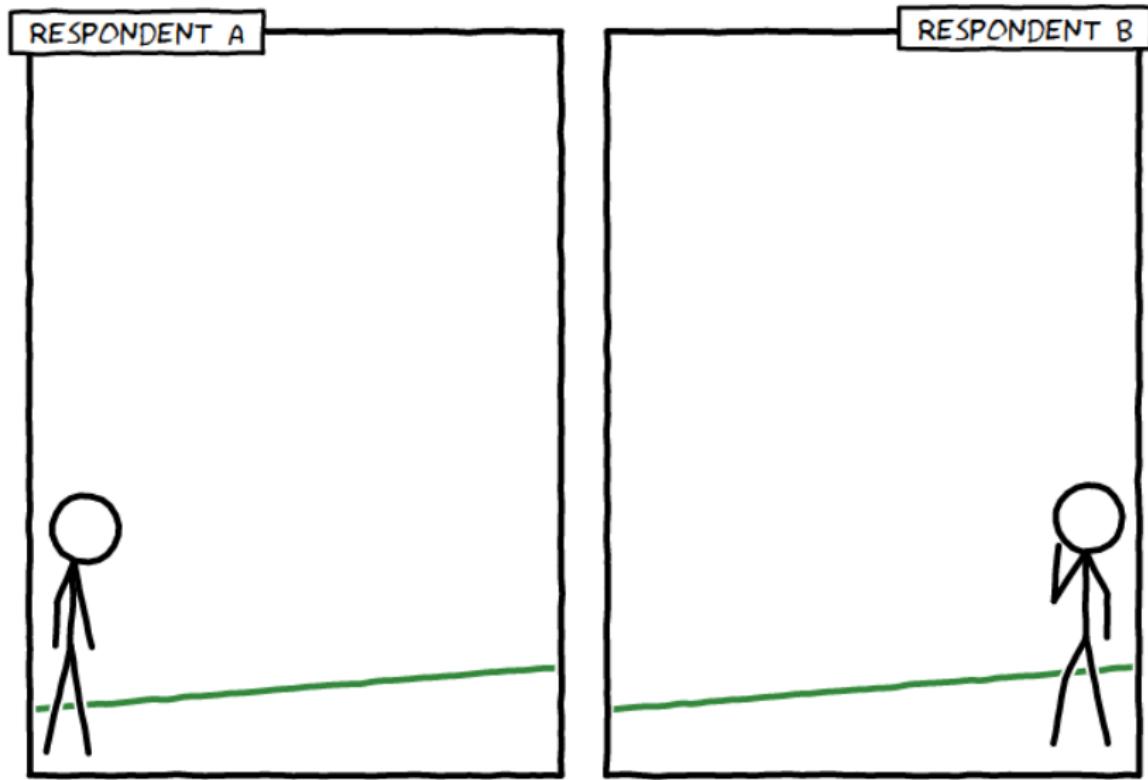
Theoretical Introduction

Discursive Sophistication and Political Competence

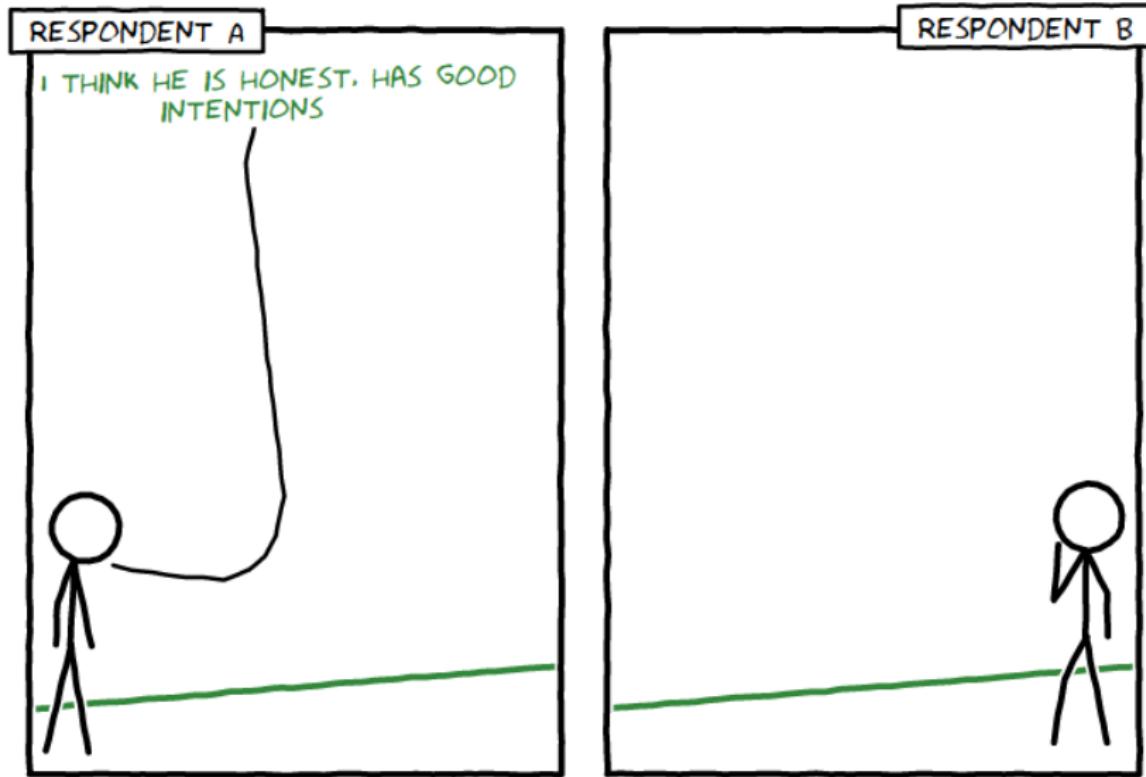
Application: Assessing the Gender Gap

Conclusion

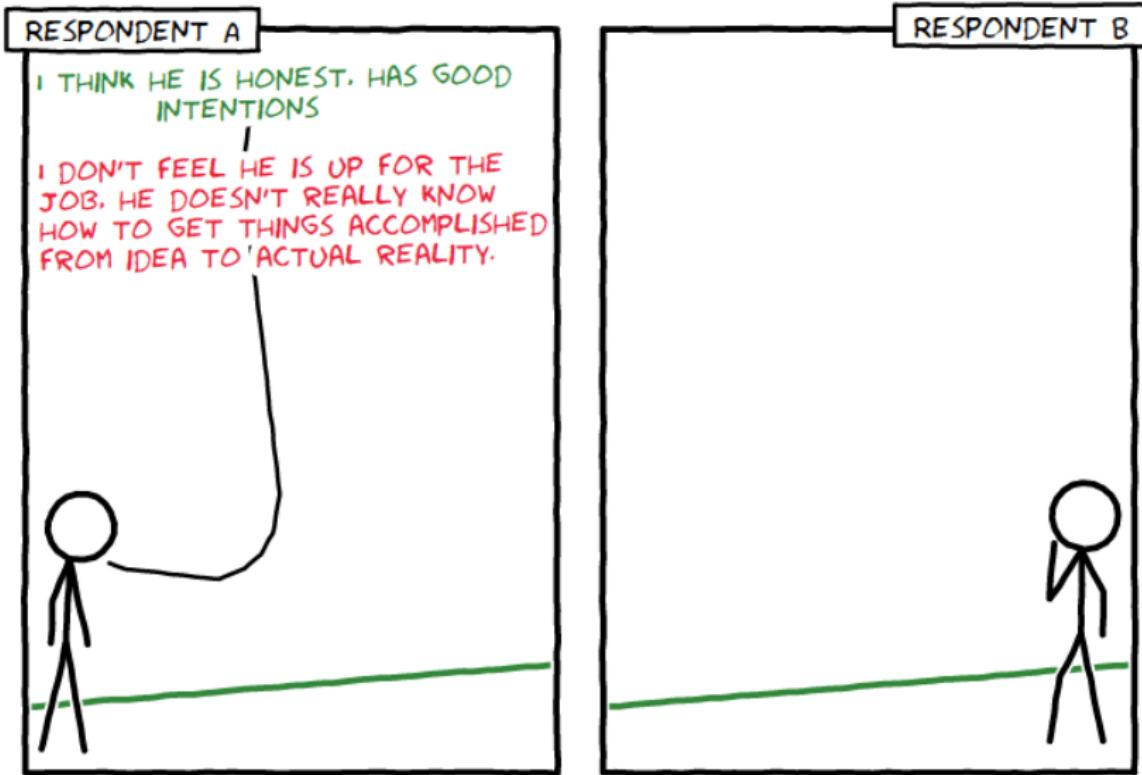
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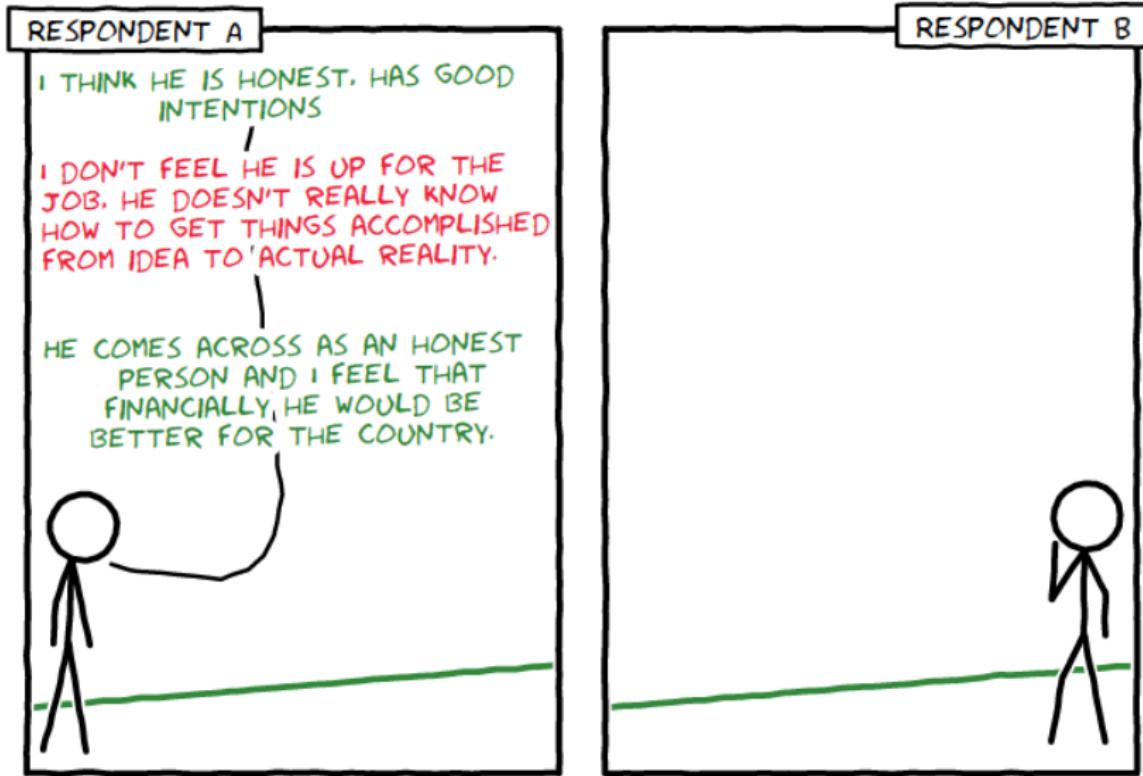
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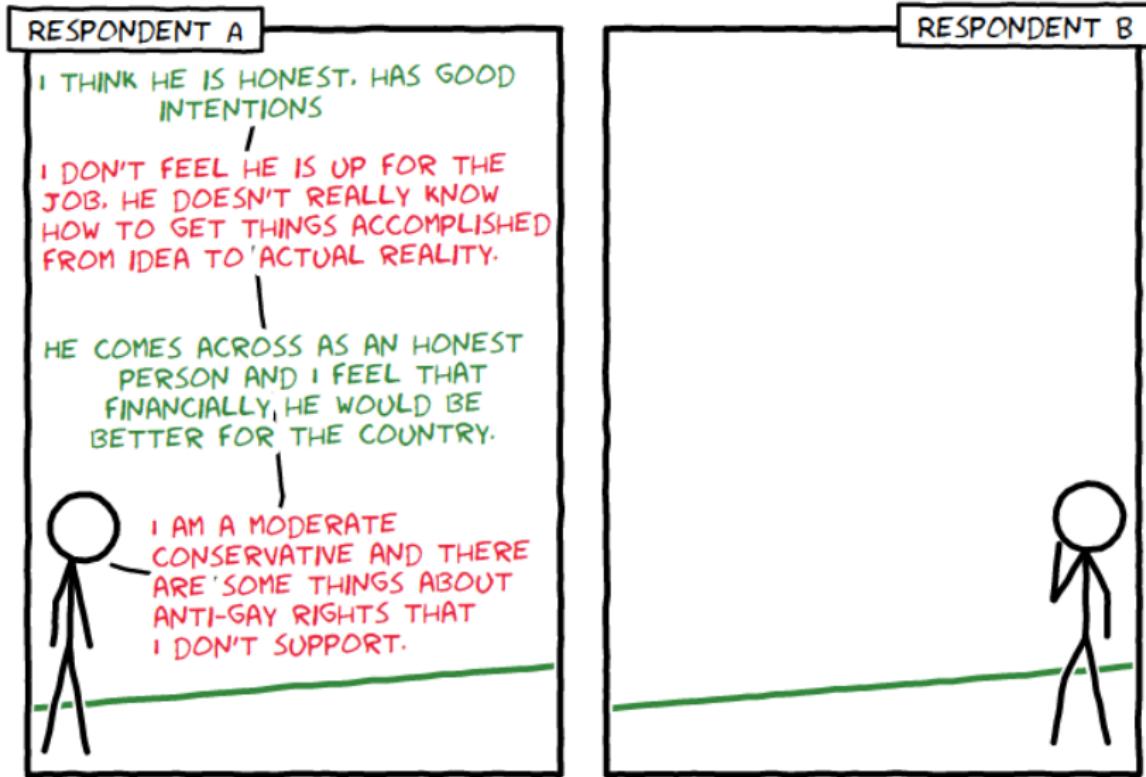
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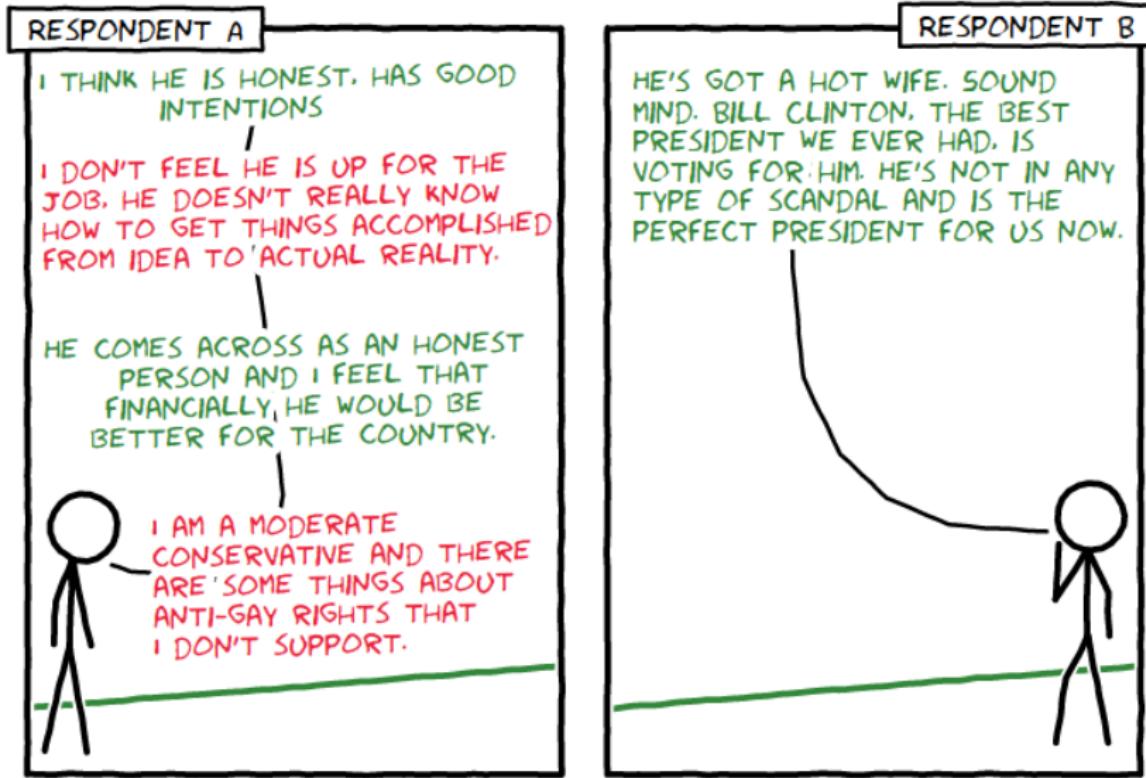
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I THINK HE IS HONEST, HAS GOOD INTENTIONS

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.

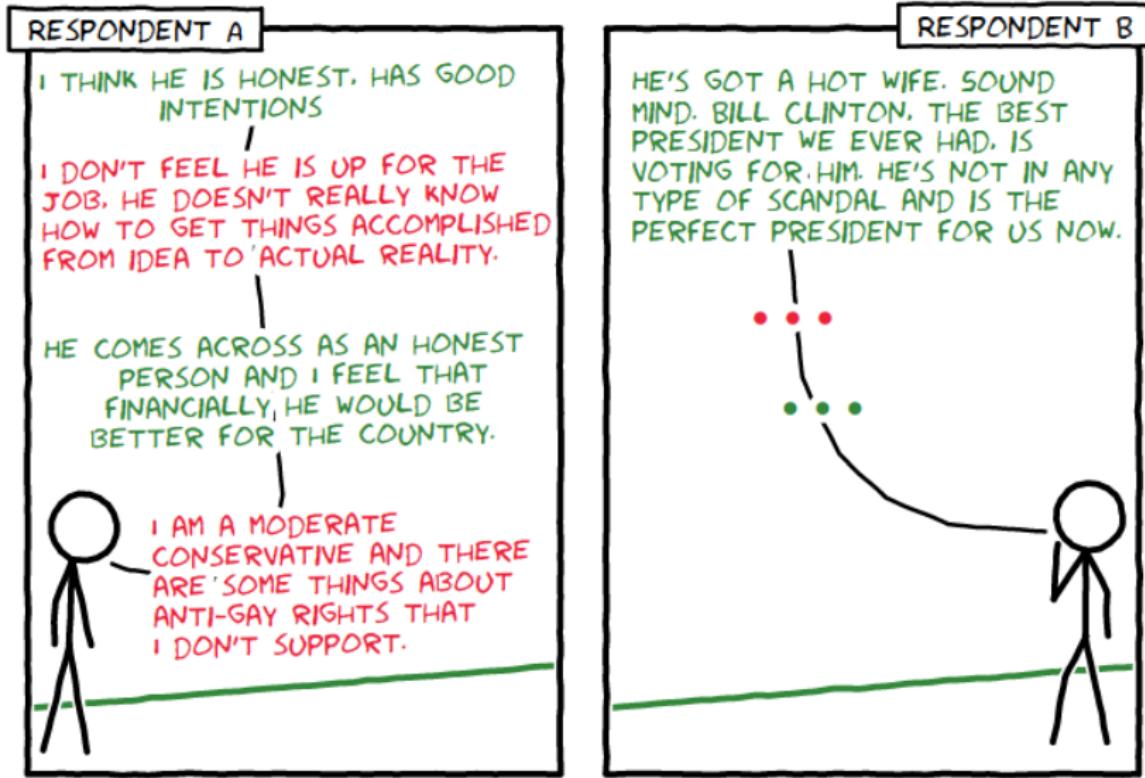


RESPONDENT B

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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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 1: Measurement issues

Caveat 2: Theoretical relevance

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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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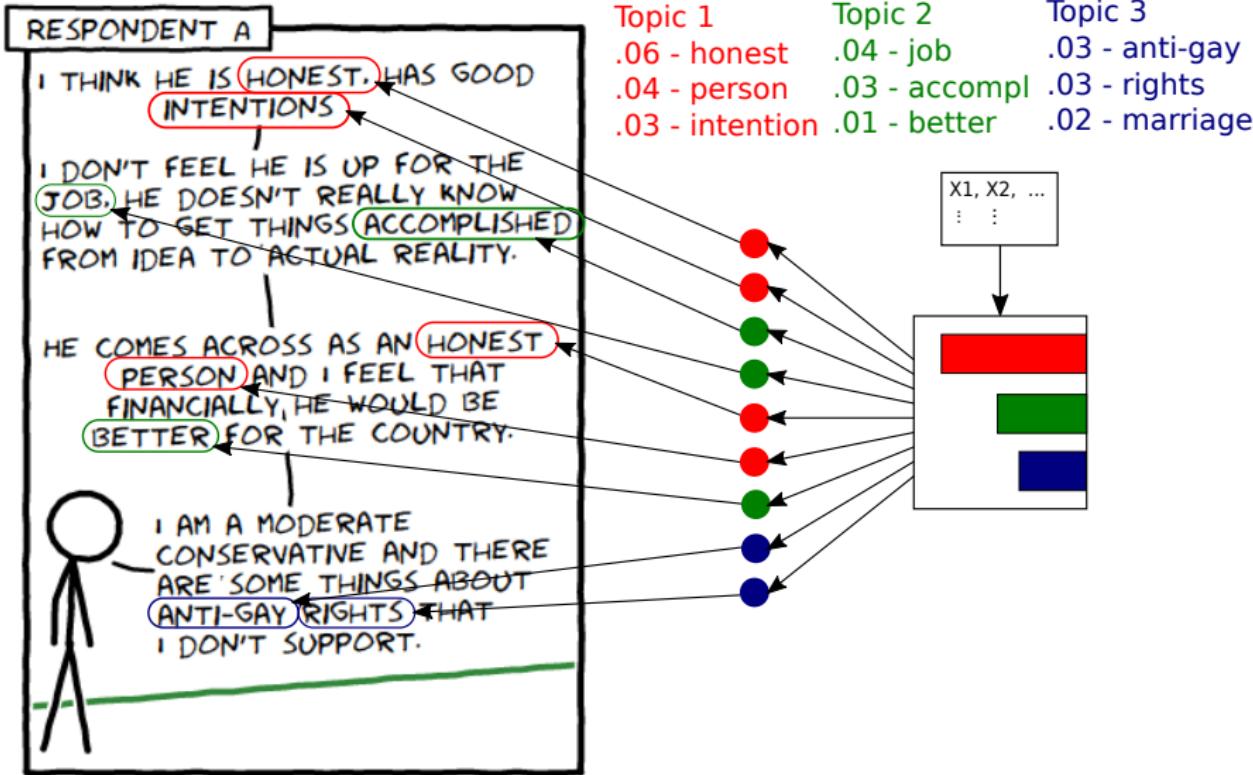
Processing open-ended responses:

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

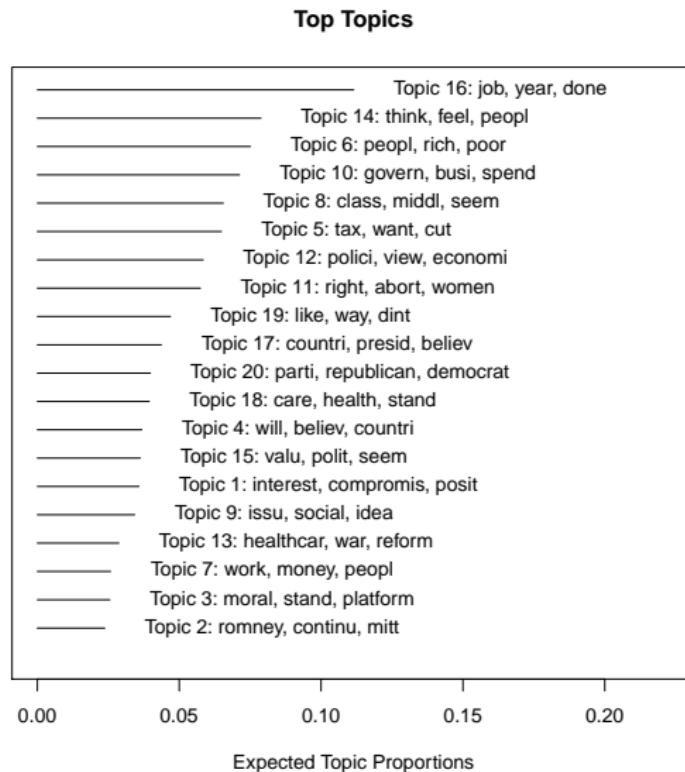
→ Structural topic model

(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?

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### 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

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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

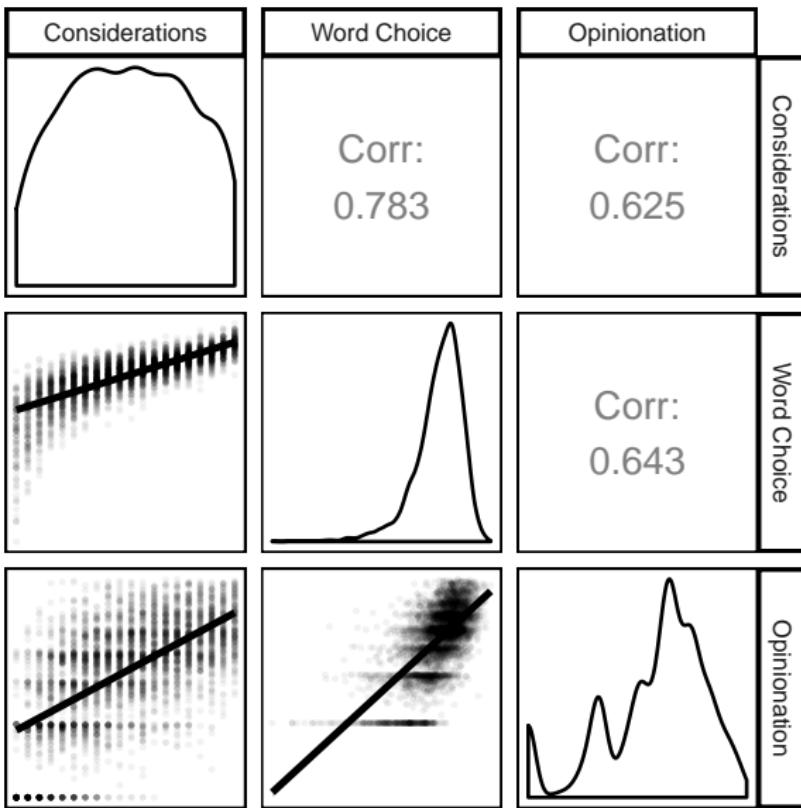
Extracted Quantities:

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

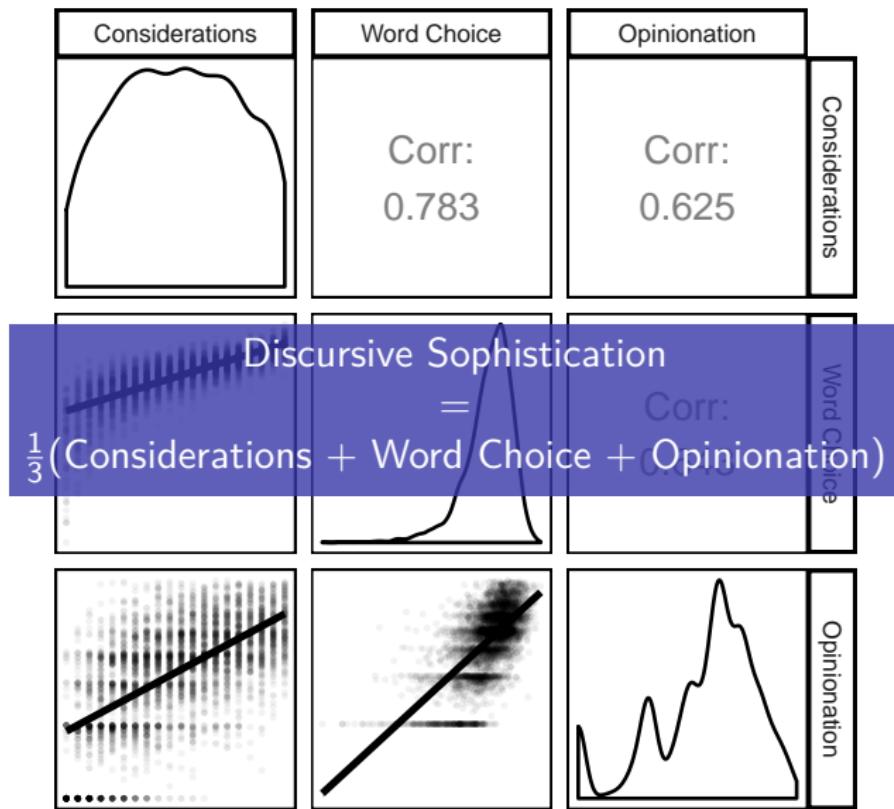
## Discursive Sophistication – Components (2012 ANES)

Considerations	Word Choice	Opinionation

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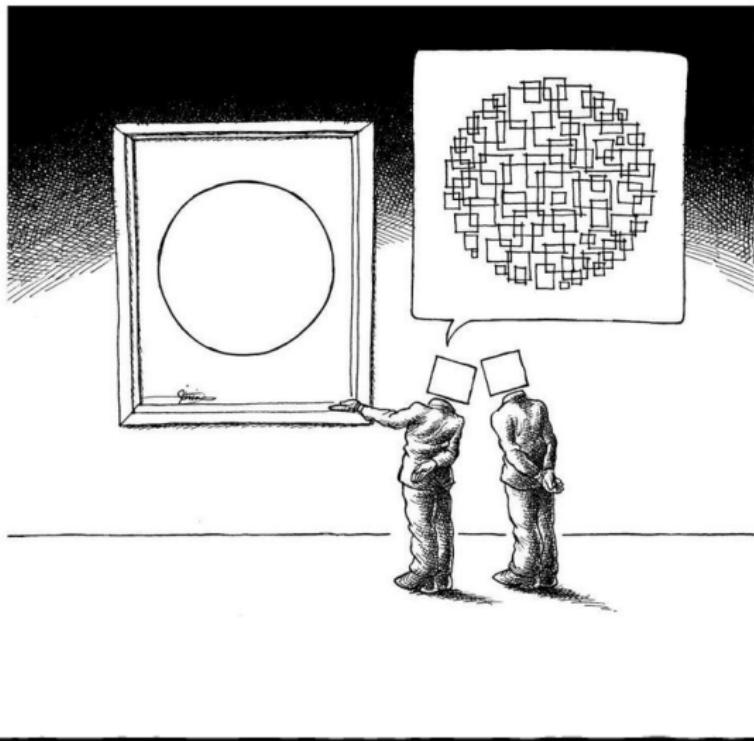
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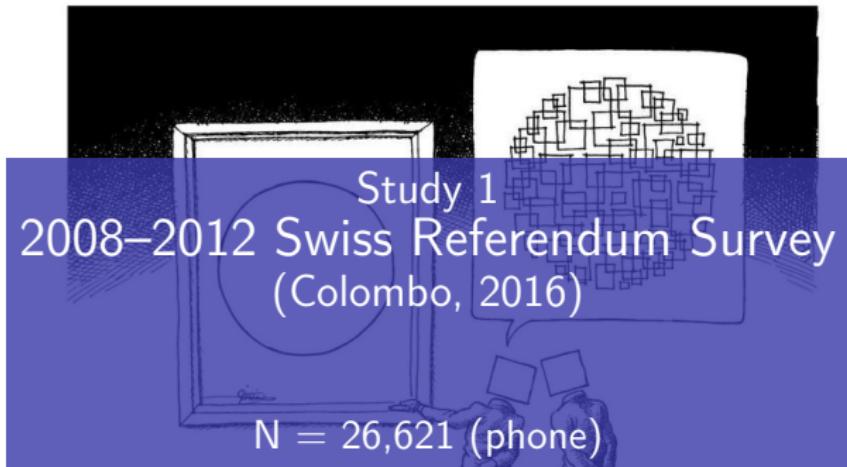
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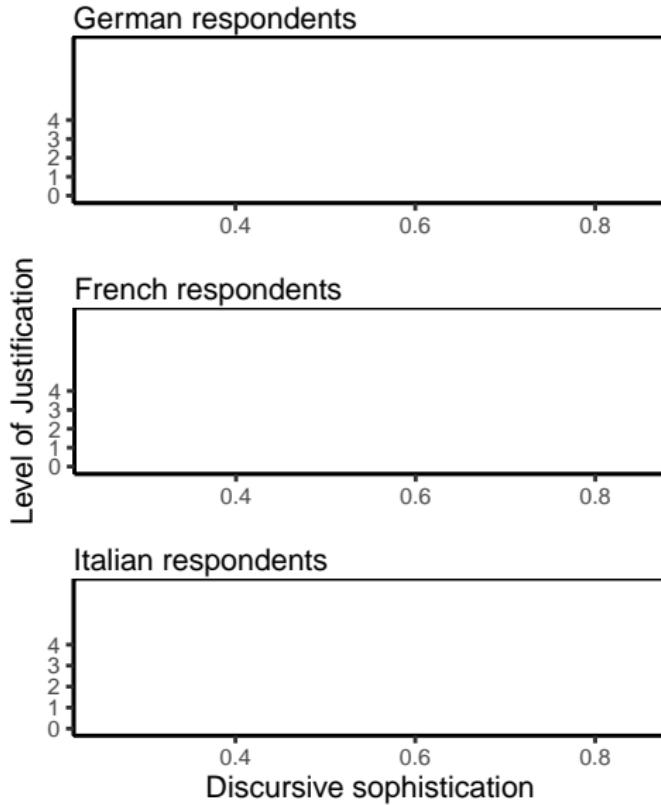


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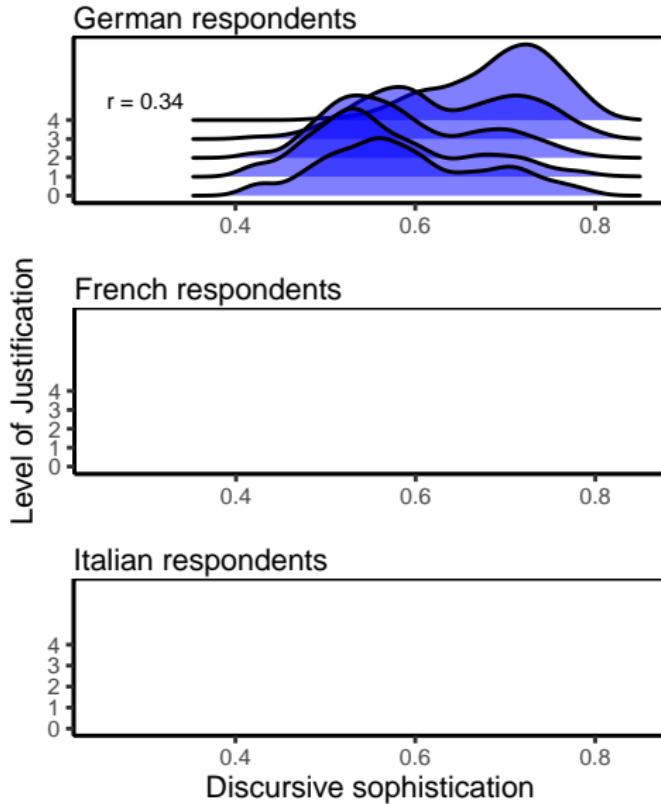
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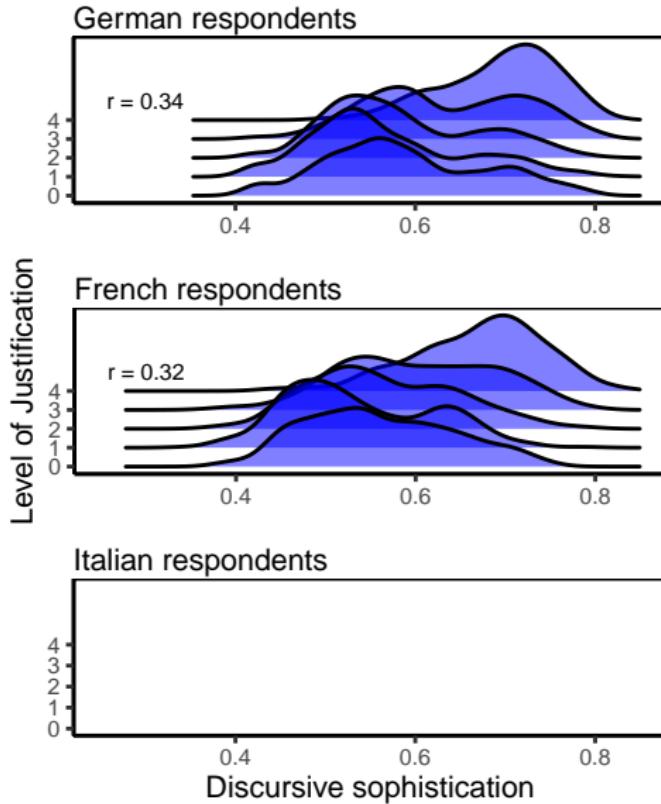
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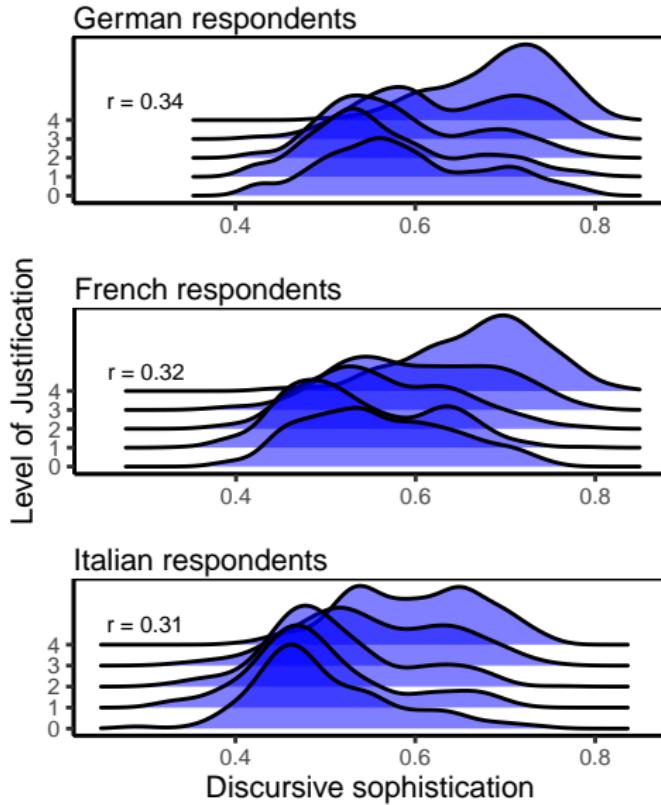
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RESPONDENT B



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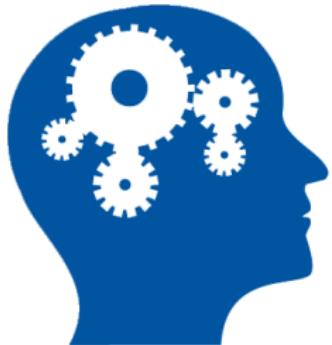
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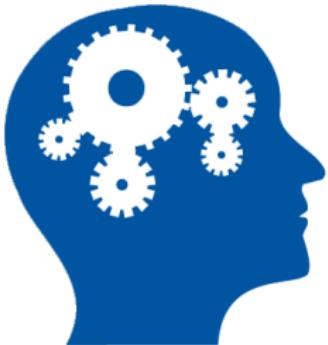
RESPONDENT B



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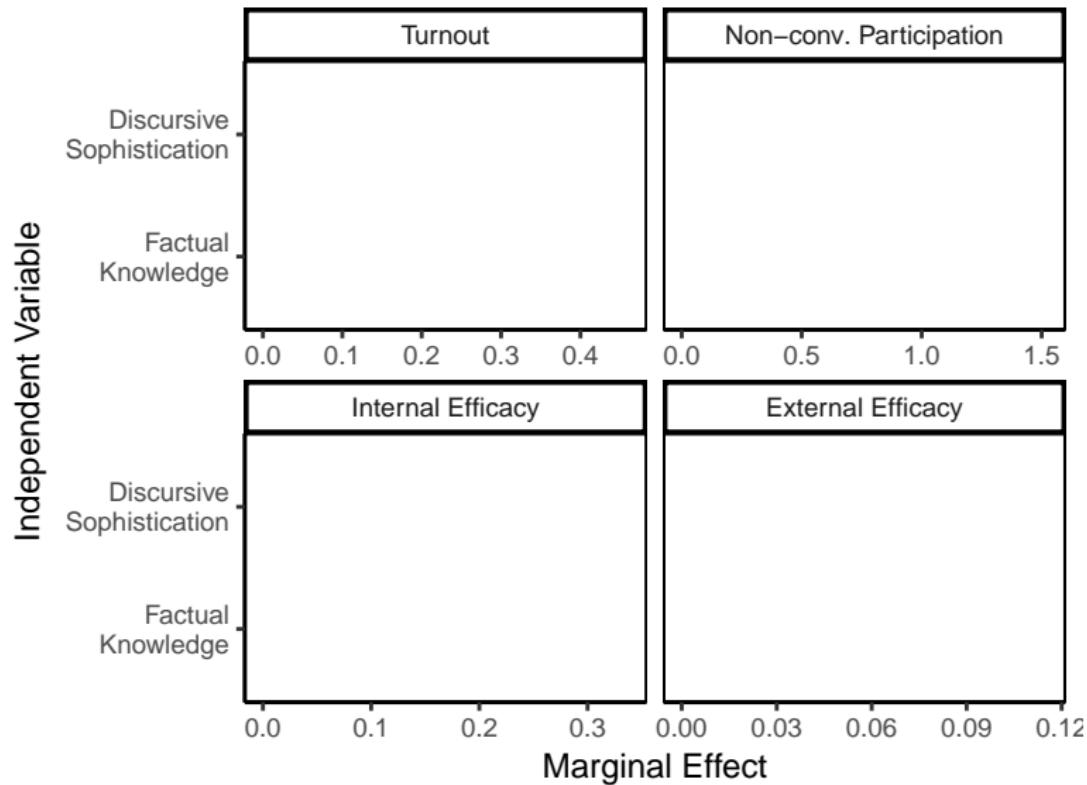


Study 2  
2012 American National Election Study

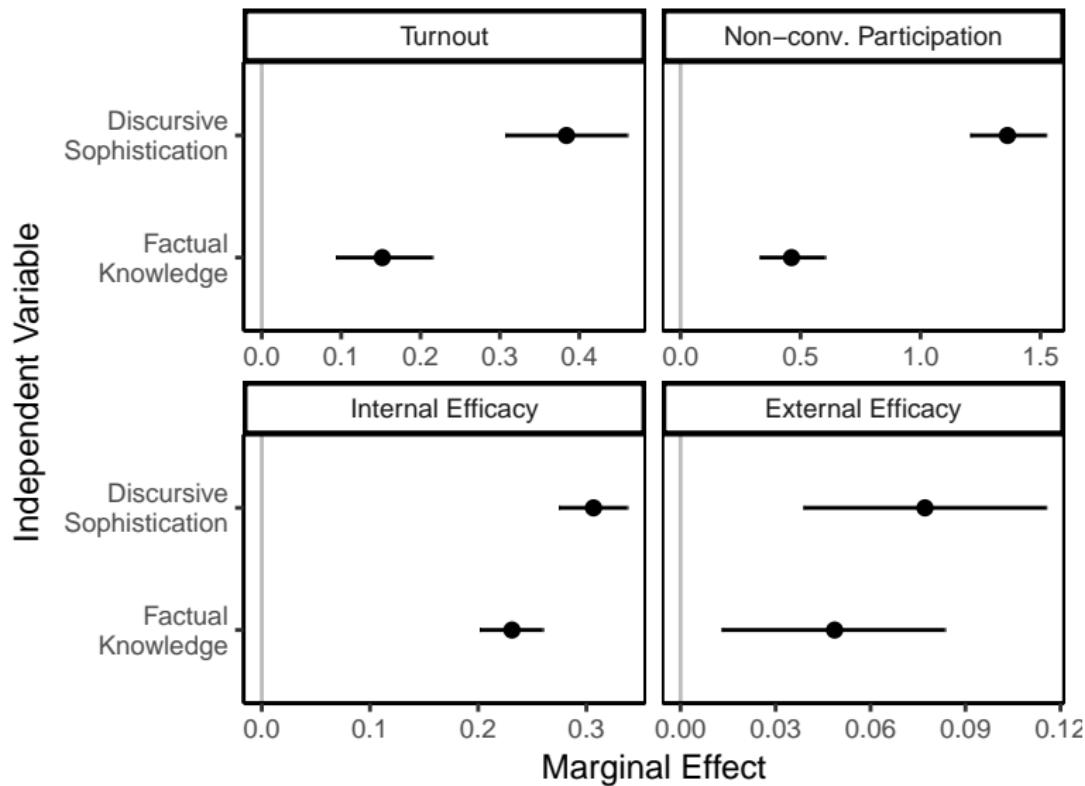
N = 5914 (2054 f2f + 3860 online)



# Engagement and Participation



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RESPONDENT A

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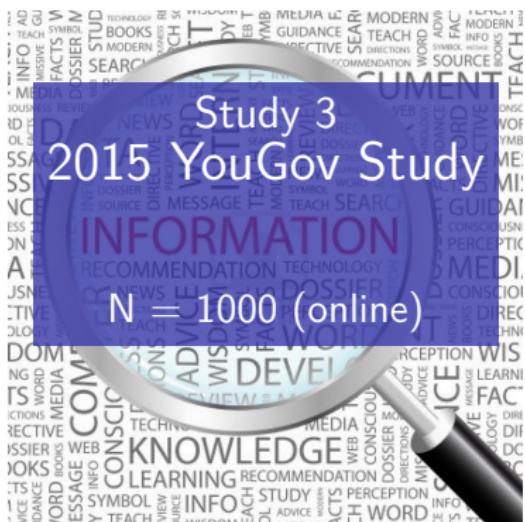
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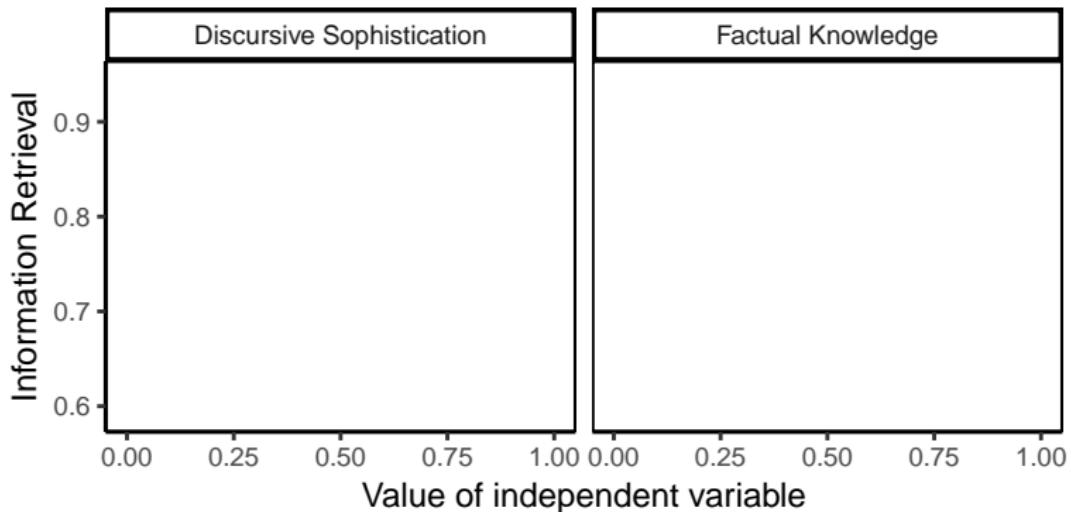


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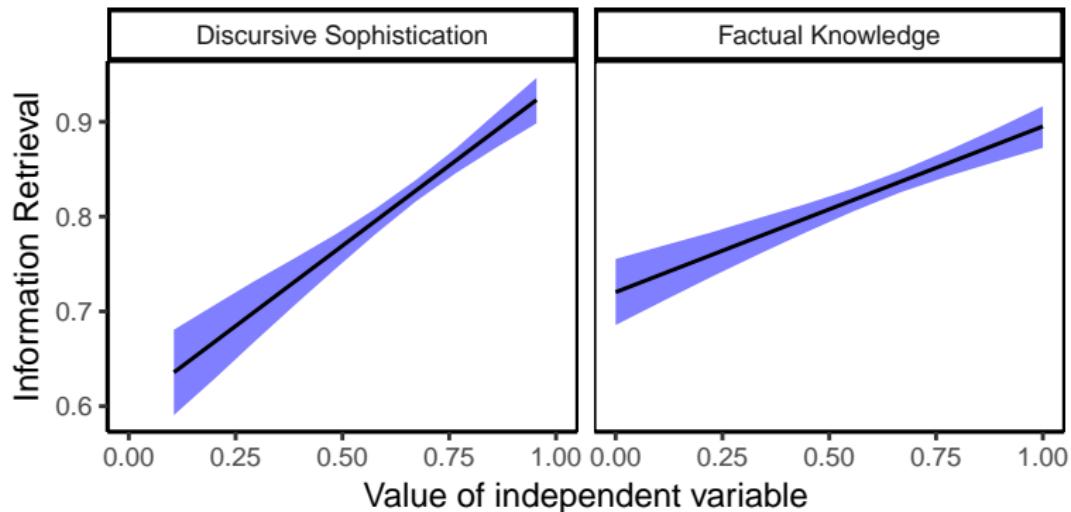
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# Accurate Information Retrieval



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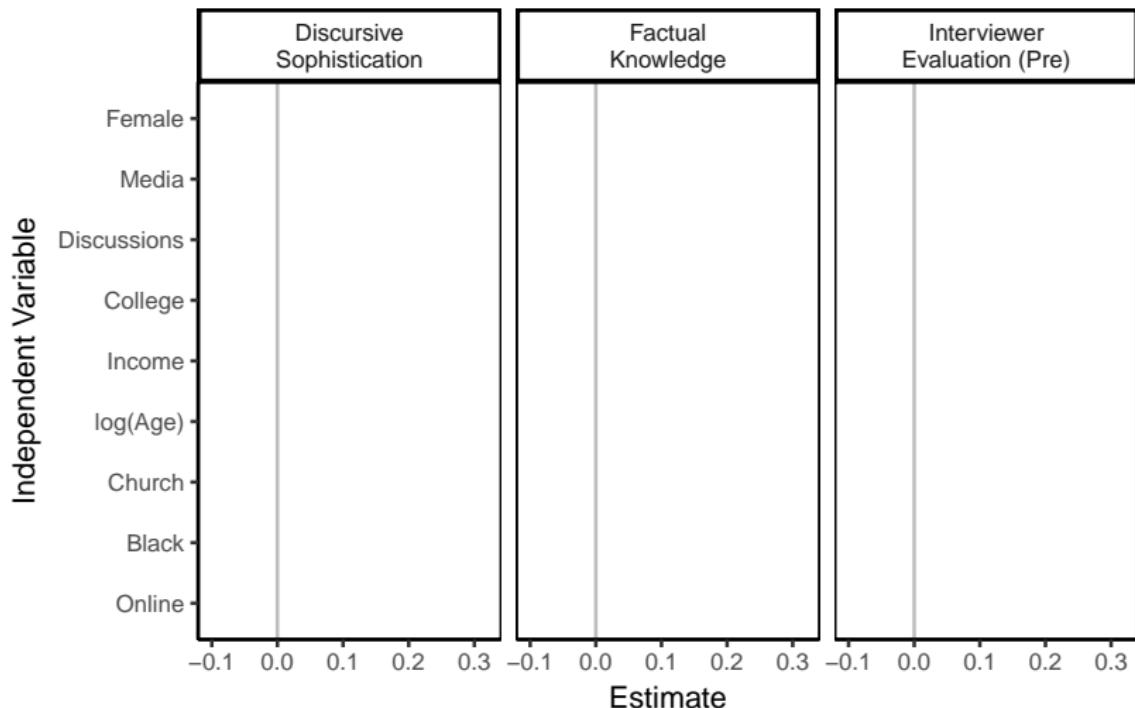
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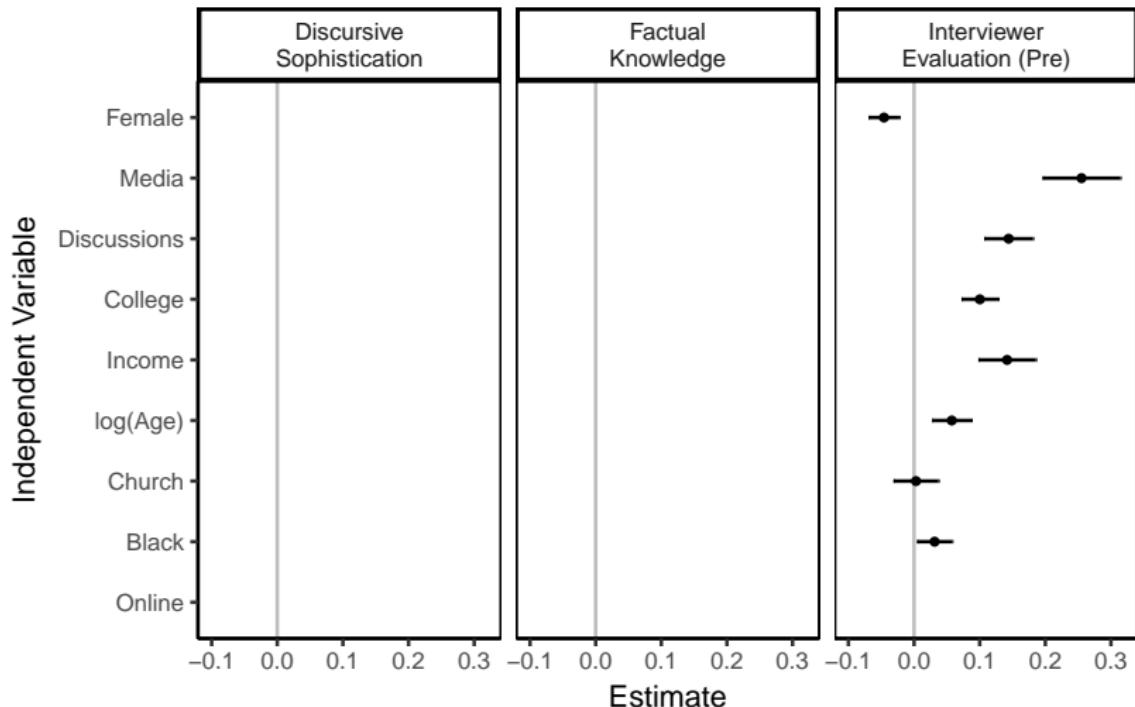
Explanation 1: Personality characteristics

Explanation 2: Question content / gender-relevant knowledge

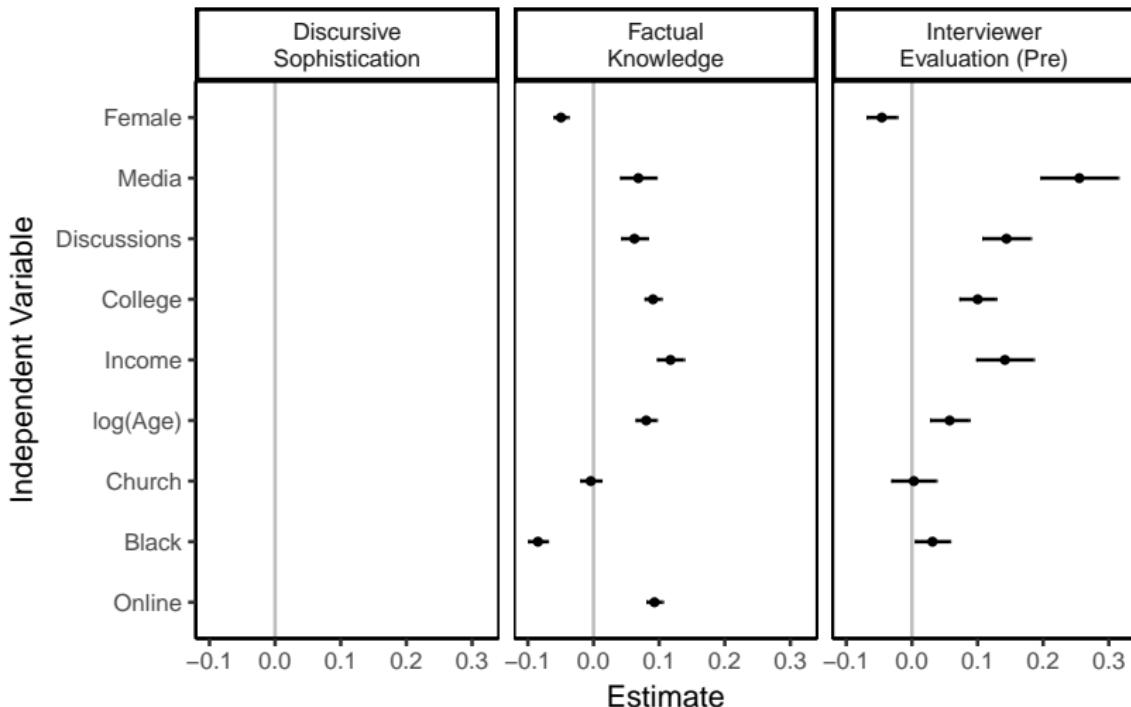
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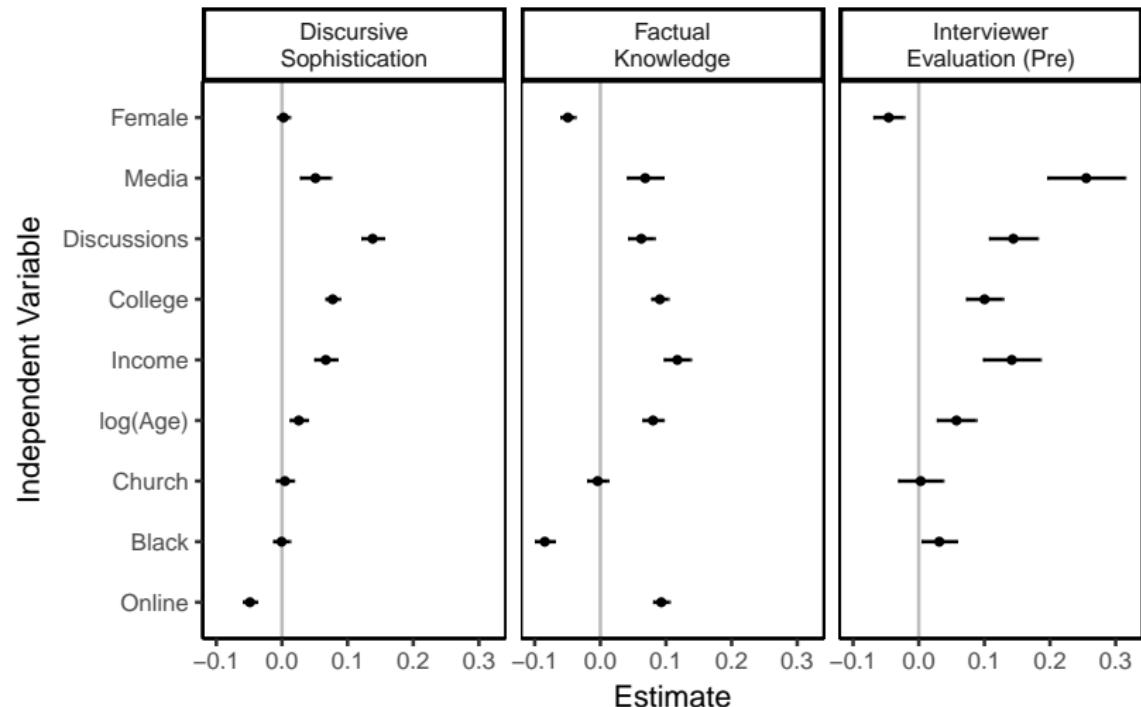
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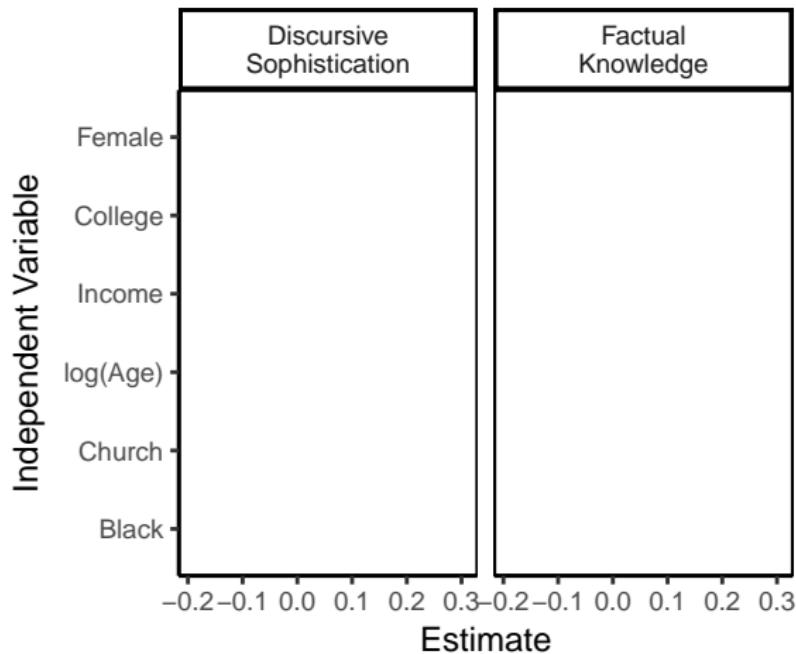
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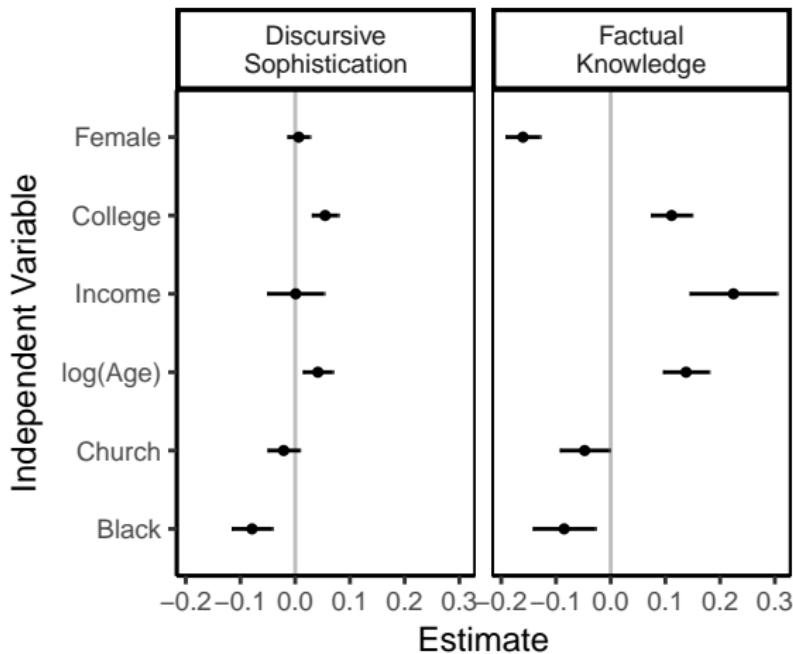
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RESPONDENT A

RESPONDENT B

## Conclusion



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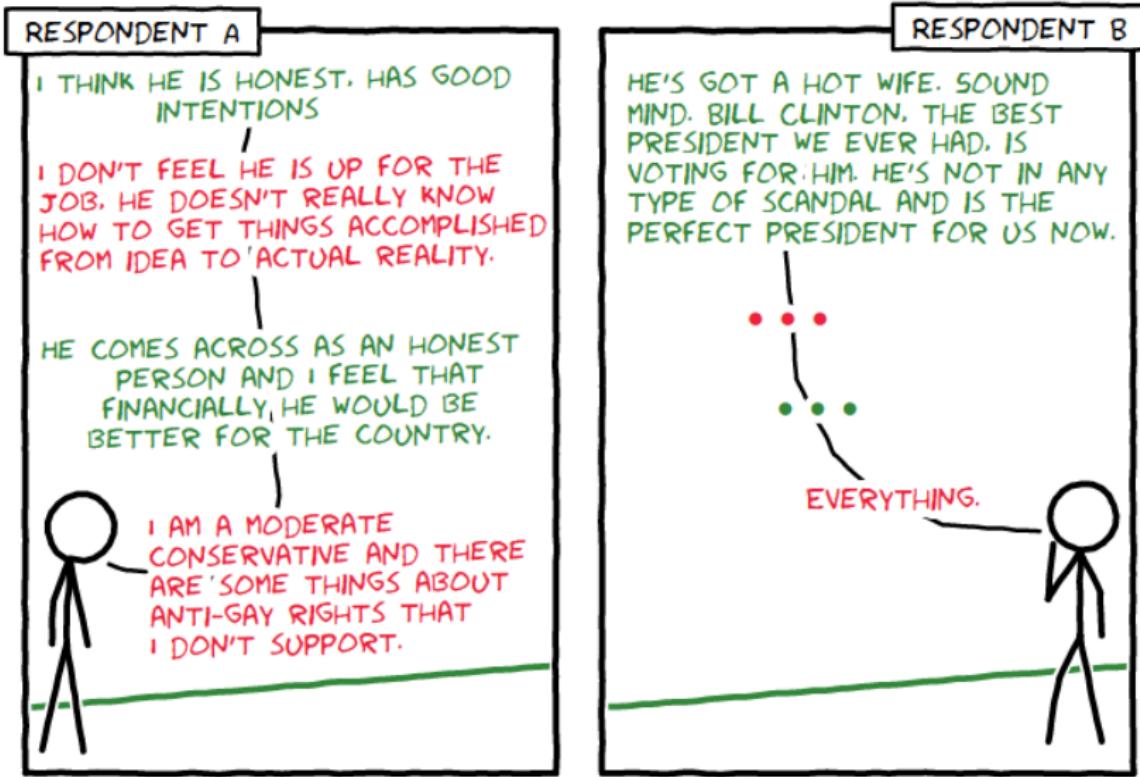
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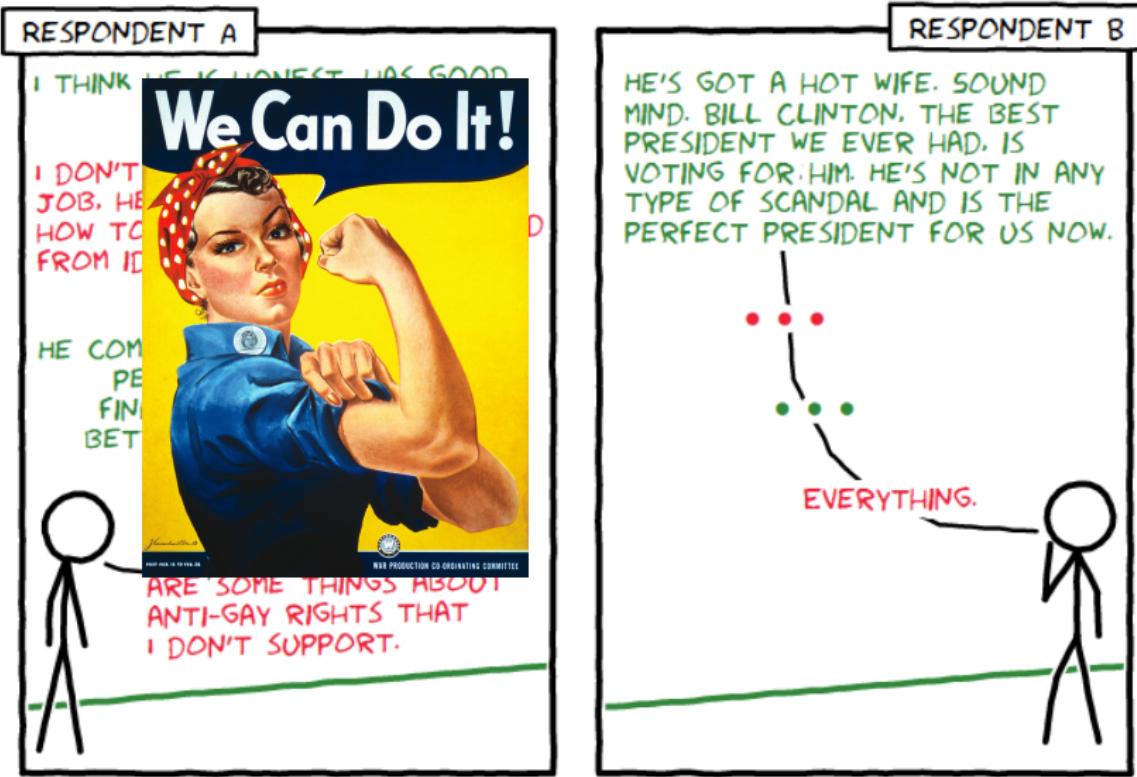
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- ▶ Women might score lower than men on factual knowledge about political institutions, but there are no differences in the sophistication of expressed political attitudes.

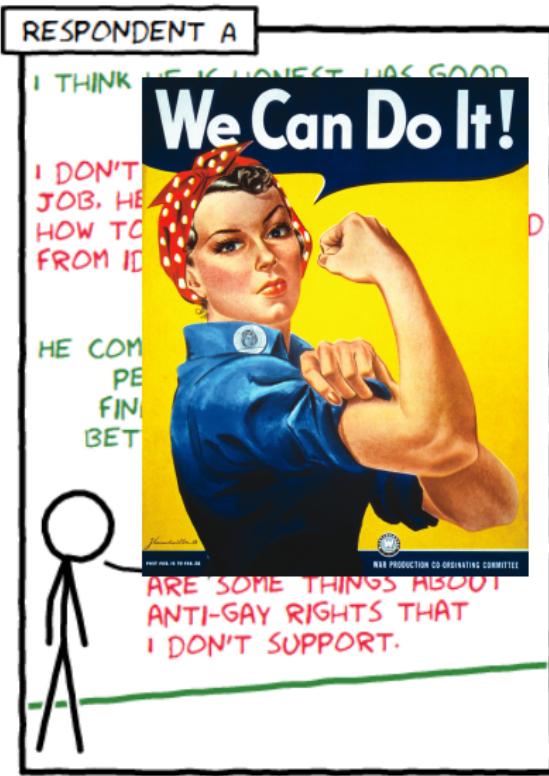
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Thank you very much for your attention!

Manuscript and code available at:

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

Comments, questions?

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

 [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

2012 ANES

2015 YouGov

## Conclusion

General Discussion

# 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

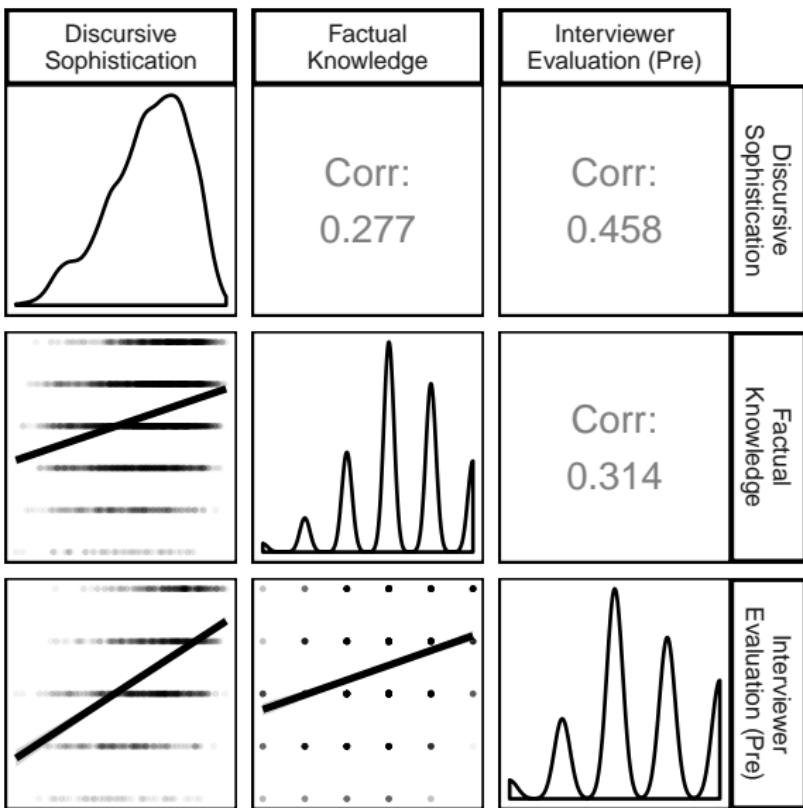
# Opinionation

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

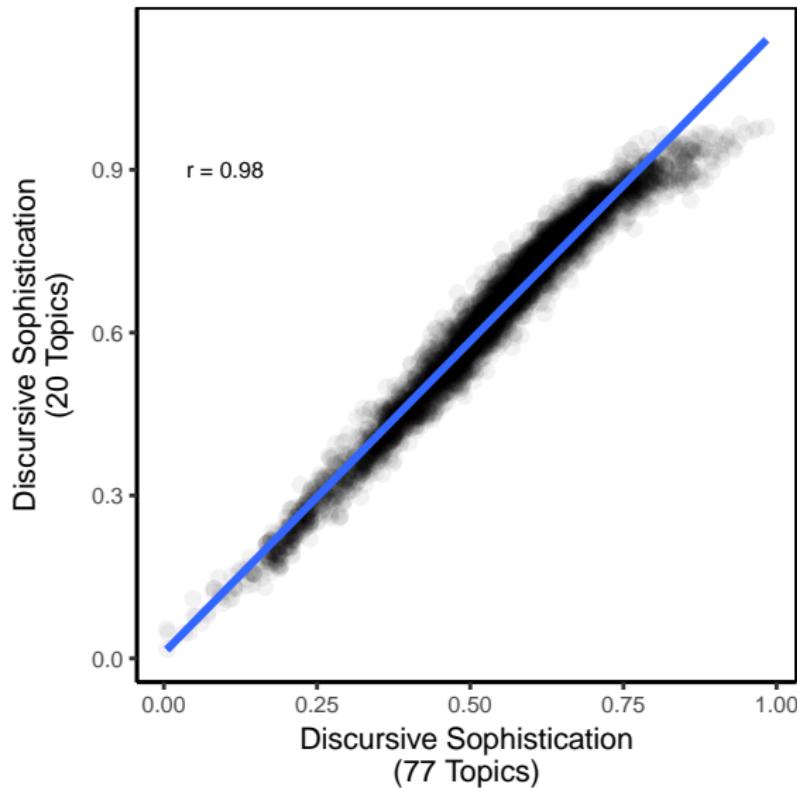
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$i$	Respondent
$j \in \{1, \dots, J\}$	Open-ended items
$p_{ij}$	Proportion of words in the response of individual $i$ to question $j$ relative to the overall size of the individual's response

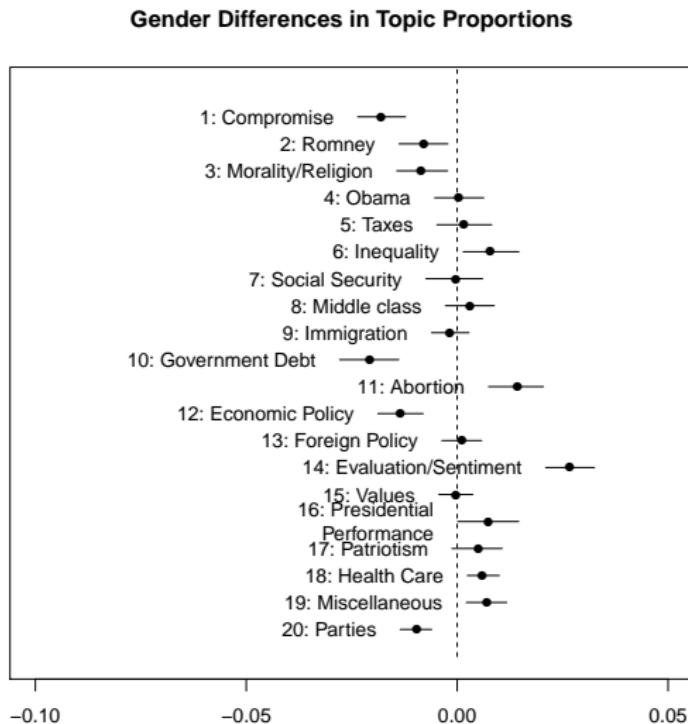
# Comparison with Conventional Measures – 2012 ANES



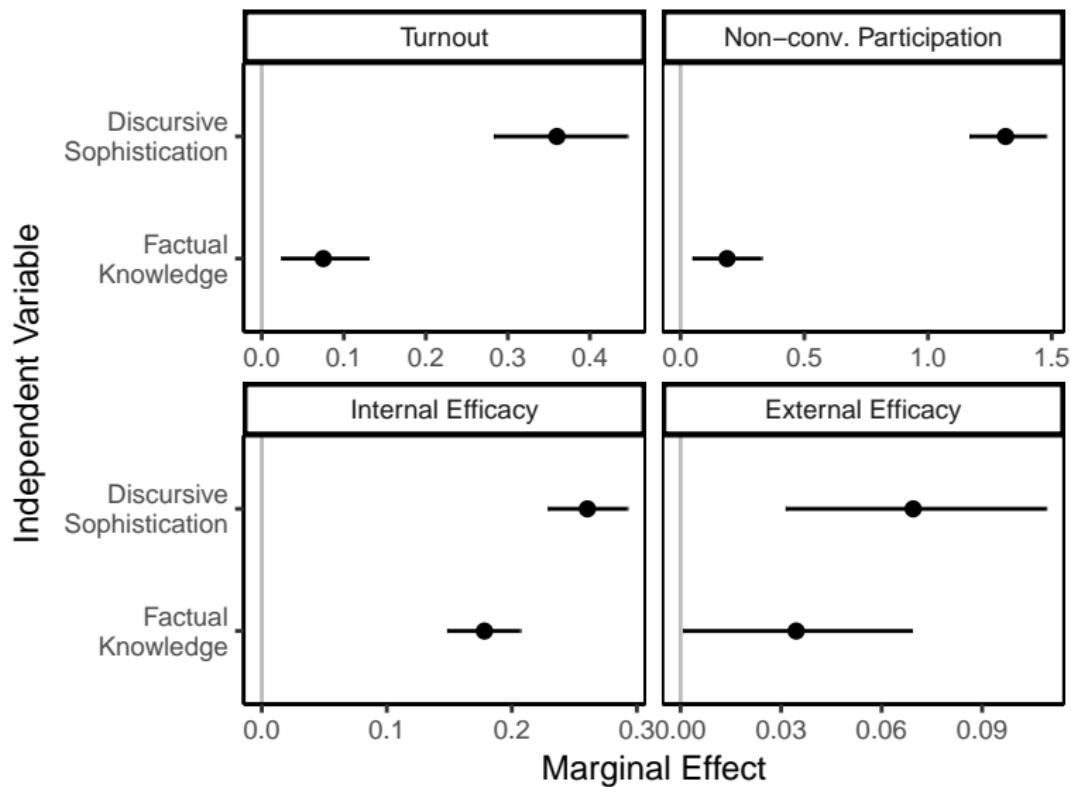
## Choosing the Number of Topics (2012 ANES)



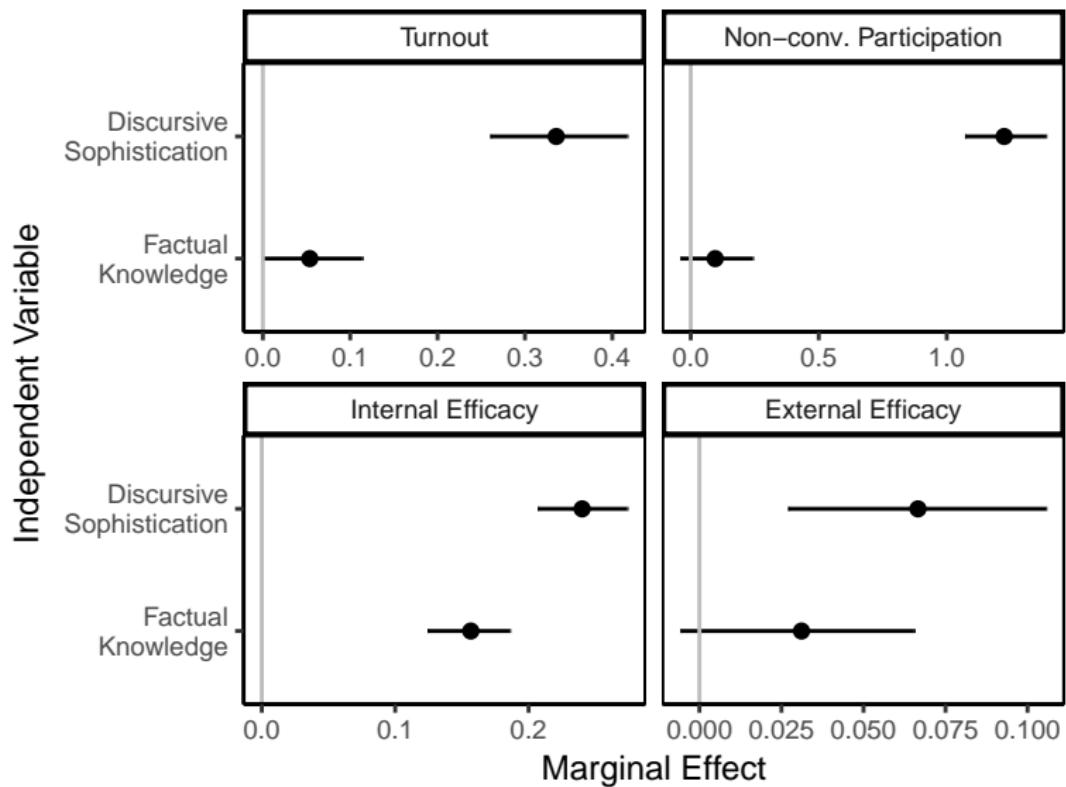
# Gender Differences in Topic Proportions (2012 ANES)



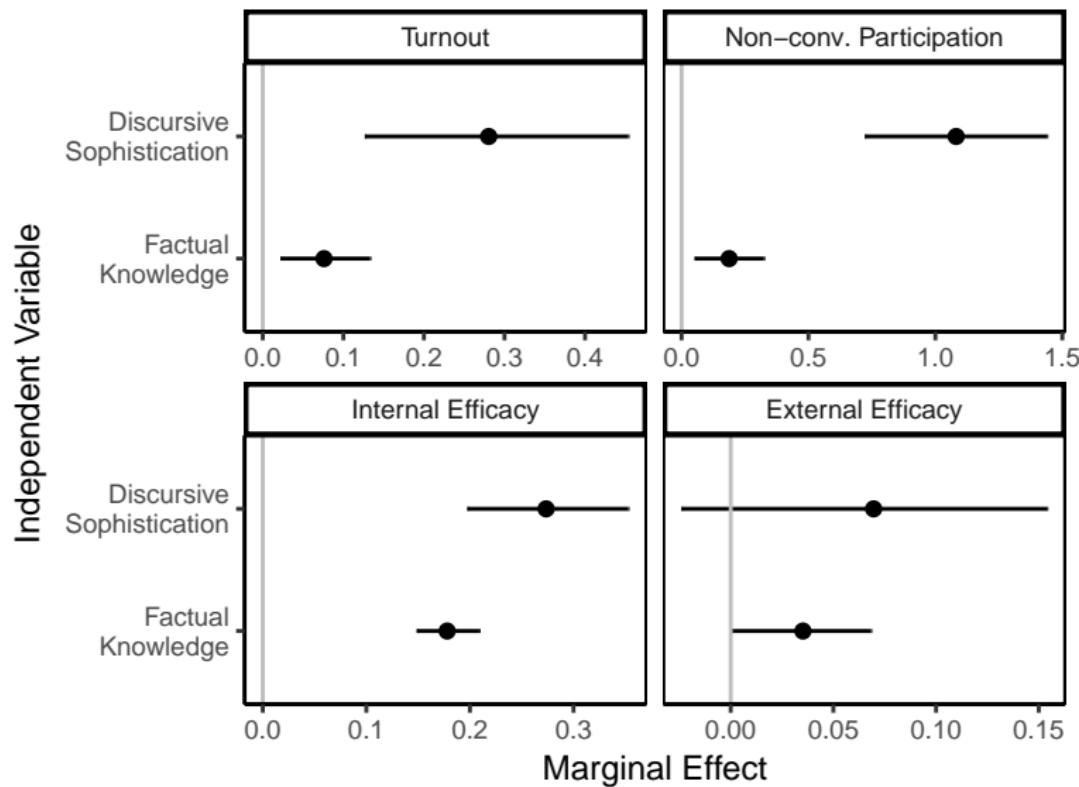
# Engagement and Participation – Joint Model



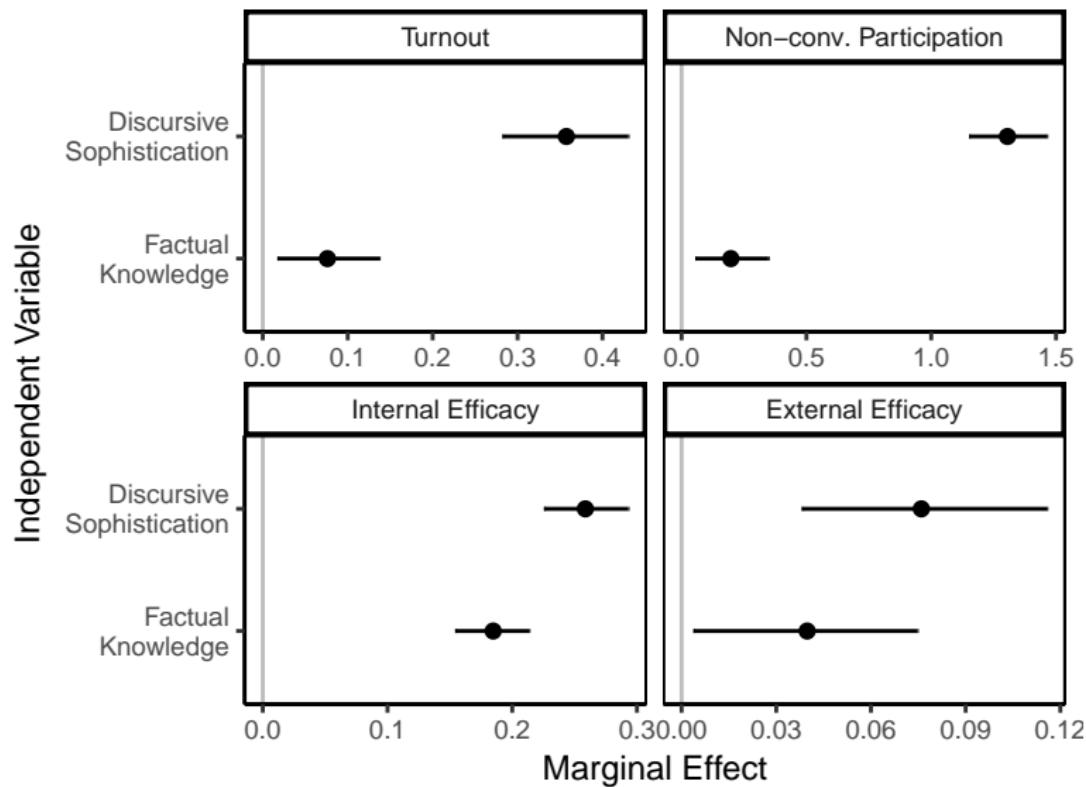
# Engagement and Participation – Control for WORDSUM



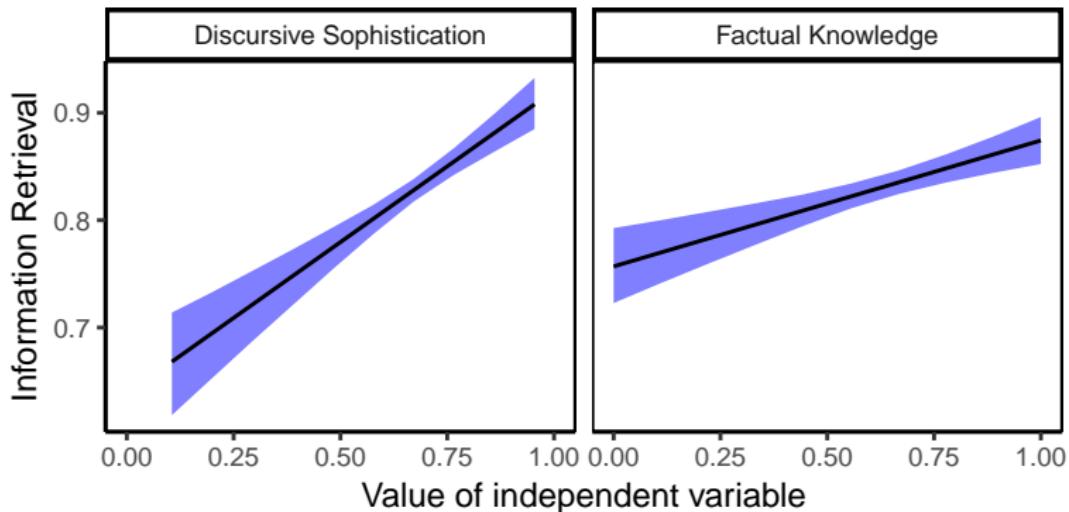
# Engagement and Participation – Control for Word Count



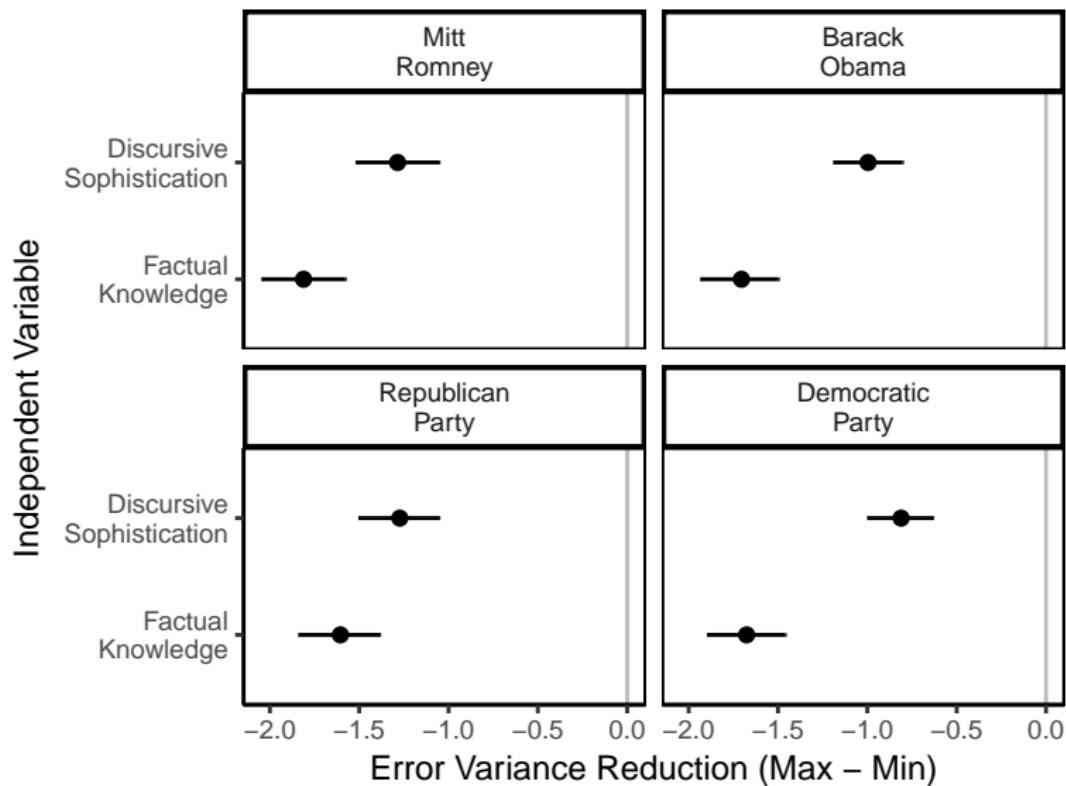
# Engagement and Participation – Control for Personality



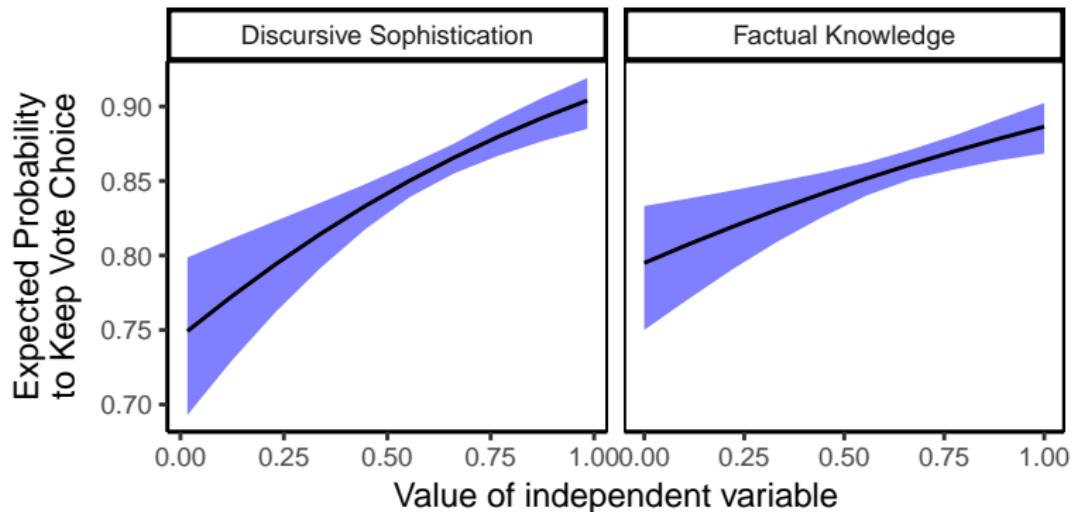
# Accurate Information Retrieval – Joint Model



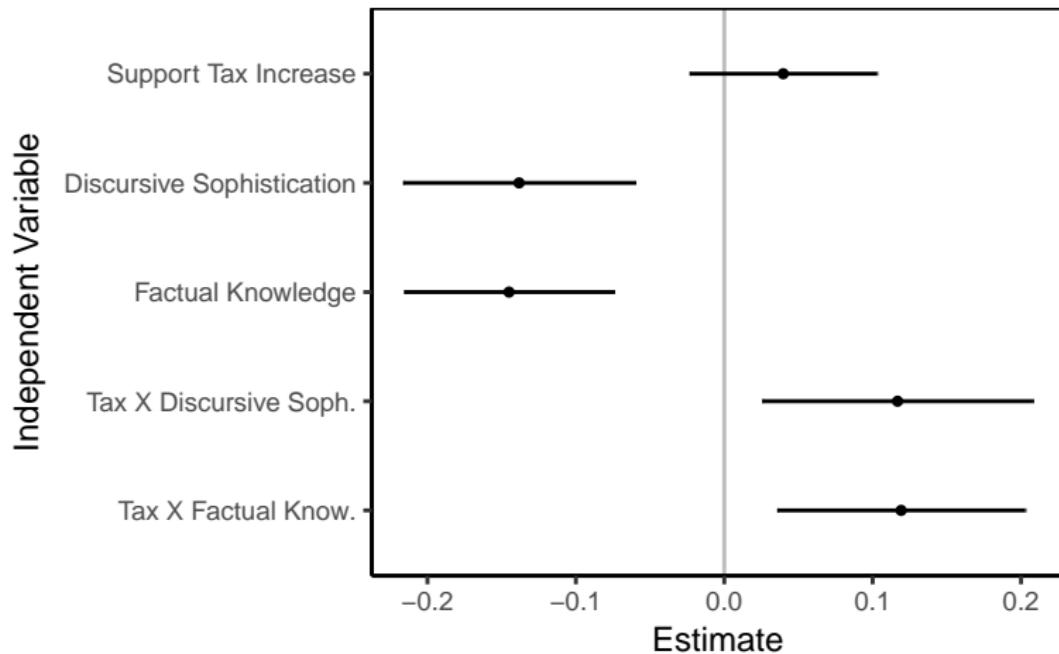
# Precision in Perceived Ideological Position (2012 ANES)



# Consistency with Initial Vote Intention (2012 ANES)



## Issue-Consistency: Support for Redistribution (2012 ANES)



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