

Don't Just Ask Me for Facts!

Measuring Political Sophistication Using Open-Ended Responses

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Abstract

There is a broad consensus among scholars of political science and public opinion that the American electorate is not well informed about politics. However, there is no agreement in the discipline about *how to measure* how little citizens actually know. While many studies rely on simple factual political knowledge questions to assess political sophistication, others have criticized this approach from methodological and theoretical perspectives, claiming it does not provide a valid measure of the concept of interest. Using data from the 2012 American National Election Study (ANES), I propose an alternative measure of political sophistication based on open-ended survey responses about political preferences. The text-based metric captures aspects of sophistication unaccounted for when using conventional knowledge indices and is conceptually closer to theoretical approaches that emphasize the importance of the structure and complexity of belief systems.

Issues with Political Knowledge

- Biases due to guessing (e.g. Mondak and Anderson, 2004)
- Partial knowledge (e.g. DeBell, 2013).
- Conditional on motivation (e.g. Prior and Lupia, 2008)
- Ignores important aspects such as visual cues (Prior, 2014)
- Convolutes different types of knowledge (Barabas et al., 2014)
- Not relevant for participation (Lupia, 2006)
- Does not capture belief system constraint (Luskin, 1987; Tetlock, 1983)

Description of Alternative Measure

The measure is based on open-ended responses where individuals list anything that they like/dislike about the Democratic/Republican party as well as anything that might make them vote/not vote for either of the Presidential candidates. The analyses presented here are based on the 2012 ANES (2054 f2f, 3860 online respondents). Verbatim responses were pre-processed using an implementation of the Aspell spell checking algorithm in R, and eliminating non-English responses (228 individuals).

Political belief system	Open-ended response
Size (number of cognitions)	Overall length of responses
Range (dispersion over categories)	Topic diversity
Constraint (interconnectedness)	Response diversity

Figure 1: Dimensions of political belief system as aspects of political sophistication and their measure in open-ended responses (c.f. Luskin, 1987).

$$\text{size}_i = \frac{\log \left(\sum_{j=1}^J n_{ij} \right)}{\max \left[\log \left(\sum_{j=1}^J n_{ij} \right) \right]}, \quad (1)$$
$$\text{range}_i = 1 - \frac{\sum_{k_1=1}^K \sum_{k_2=1}^K |\theta_{ik_1} - \theta_{ik_2}|}{2 \sum_{k_1=1}^K \sum_{k_2=1}^K \theta_{ik_1}}, \quad (2)$$
$$\text{constraint}_i = 1 - \frac{\sum_{j_1=1}^J \sum_{j_2=1}^J |p_{ij_1} - p_{ij_2}|}{2 \sum_{j_1=1}^J \sum_{j_2=1}^J p_{ij_1}}, \quad (3)$$
$$\text{sophistication}_i = \text{size}_i * \text{range}_i * \text{constraint}_i. \quad (4)$$

i	Individual respondent
$j \in J$	Like/dislike items (8 total)
$k \in K$	Topics (72 total, estimated via STM using spectral initialization, c.f. Roberts et al. 2014)
θ_{ik}	predicted proportion of topic k in the collection of responses by individual i
p_{jk}	proportion of words in the response of individual i to question j relative to the overall size of the individual's response

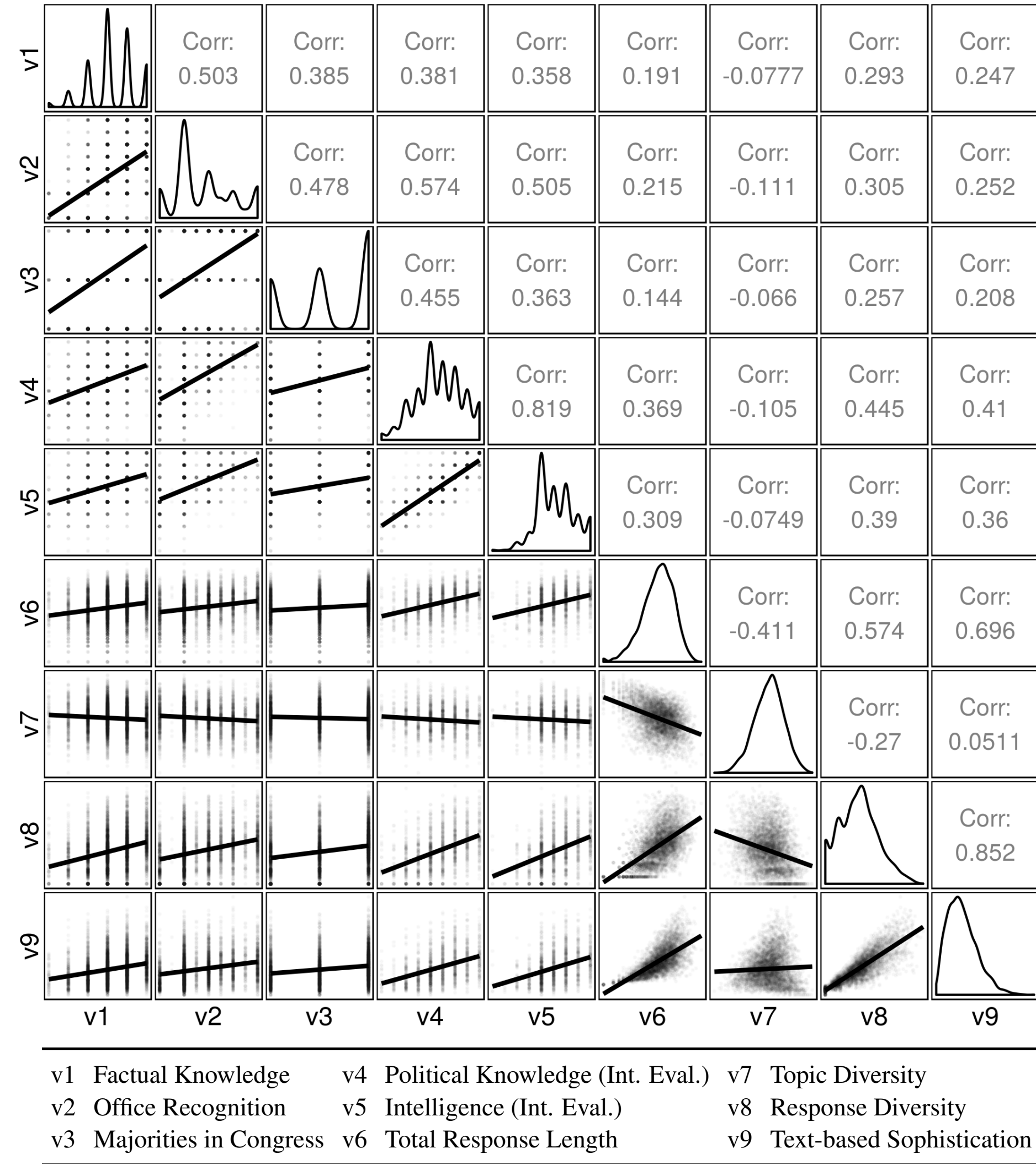


Figure 2: Correlation matrix of conventional political knowledge metrics, the text-based sophistication measure, as well as its individual components. The figures on the diagonal display univariate densities for each variable.

The text-based sophistication measure is positively correlated with all conventional metrics while capturing some additional variation. However, one of the components of the text-based measure, Topic Diversity (v7), shows low negative correlations with all other indices. One explanation for this finding is that the posterior topic proportions of the structural topic model are strongly affected by the prior over topics for short responses. The text-based sophistication measure is positively correlated with the interviewer's assessment of the respondent's apparent intelligence, although less so than other conventional metrics as well as less than with the interviewer's assessment of the respondent's level of information.

	Low	High
Obama (+)		i think he has done well so far
Obama (-)	Shady. He left his spot in Illinois and someone is in prison for trying to sell it. Wonder how he got it. Probably the same way he got the Nobel. Who's in charge of USDA school program? Who is surgeon General? How they get there? What are their true credentials prior to current positions? Reeks.	way things are going with education
Romney (+)		his health policy outlooks, but it also hinders itself as well. his pro-life opinion personality a lot of his policies
Romney (-)		i like their ideas they are for the people
Democrats (+)		sometimes i wonder if progress can occur
Democrats (-)	They care about the stupidest stuff	my religious beliefs of Christianity tend to follow many of their thoughts
Republicans (+)		soemtimes they don't make sense or have just never been 'the right mix' to make me want to vote for them
Republicans (-)	Stewards for the rich and big business	

Table 1: Example of open-ended responses for low and high scores of text-based sophistication measure with equal response length (between 50 and 100 words). Note that these are the raw responses without any pre-processing (spell-checking etc.).

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Validation I: Determinants of Sophistication

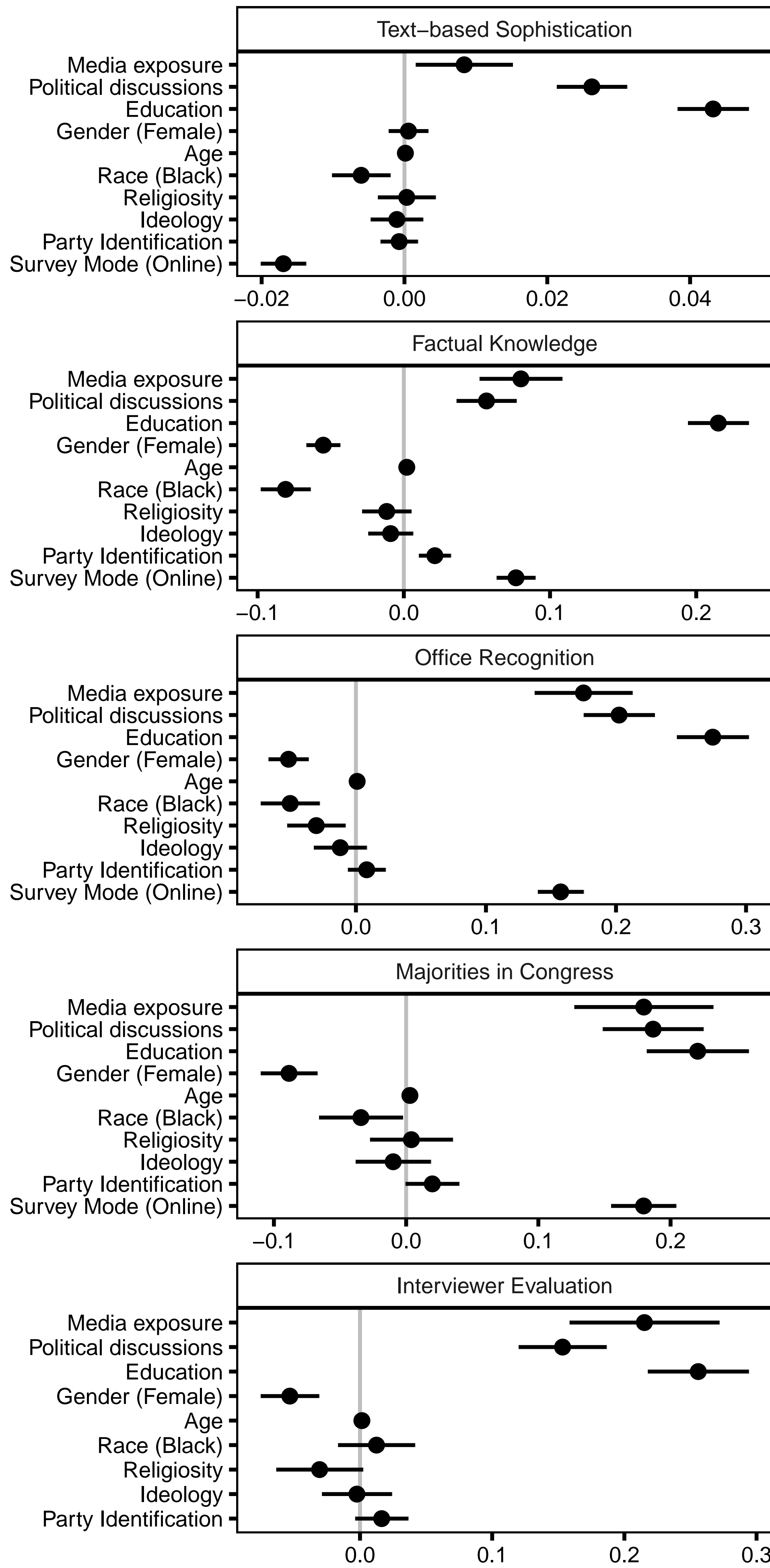


Figure 3: Common determinants of political sophistication and political knowledge. Estimates are OLS regression coefficients with 95% confidence intervals. Dependent variables are the text-based sophistication measure as well as conventional metrics.

Figure 3 compares the effects of common determinants of political sophistication and knowledge for the different measures. While the overall patterns are consistent across metrics, there are some interesting differences regarding the text-based measure. The gender-bias frequently reported using traditional indicators of political knowledge disappears when sophistication is measured using open-ended responses. Women might not score as high on political information quizzes (partly because they are less likely to guess rather than to express lack of knowledge, c.f. Mondak and Anderson

2004), but they do not differ substantially in complexity and sophistication when they describe their political preferences. Furthermore, the effect of survey mode is reversed, which can be explained by the fact that factual questions in online surveys can overestimate knowledge when respondents look up answers (see also Clifford and Jerit, forthcoming).

Validation II: Coherent Attitudes

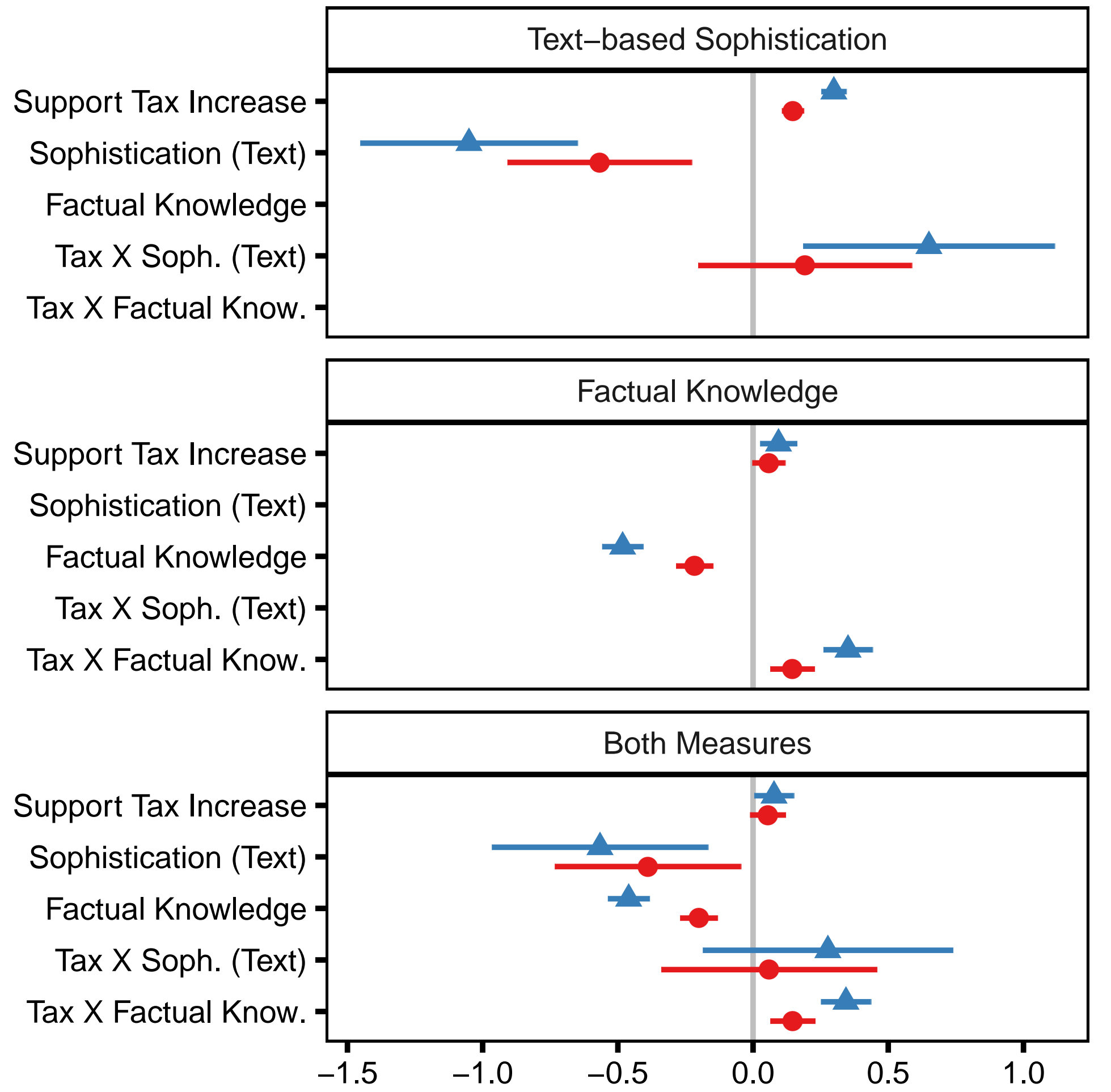


Figure 4: Sophistication and Coherent Attitudes. Estimates are OLS regression coefficients with 95% confidence intervals. The dependent variable measures support for redistributive economic policies. Red circles indicate model results including control variables such as gender, age, race, religiosity, ideology, and party identification.

Similar to the analyses in Prior (2014), Figure 4 examines whether sophistication increases the consistency between related political preferences (i.e. coherence between support for tax increase for high incomes and support for redistributive policies). Positive interaction effects indicate that sophistication increases coherence. The results suggest that factual political knowledge is a better predictor of consistent preferences.

References

Barabas, Jason, Jennifer Jerit, William Pollock, and Carlisle Rainey. 2014. "The Question(s) of Political Knowledge." *American Political Science Review* 108 (04): 840–855.

Clifford, Scott, and Jennifer Jerit. forthcoming. "Cheating on Political Knowledge Questions in Online Surveys: An Assessment of the Problem and Solutions." *Public Opinion Quarterly*.

DeBell, Matthew. 2013. "Harder than it looks: Coding political knowledge on the ANES." *Political Analysis* 21 (4): 393–406.

Lupia, Arthur. 2006. "How elitism undermines the study of voter competence." *Critical Review* 18 (1-3): 217–232.

Luskin, Robert C. 1987. "Measuring political sophistication." *American Journal of Political Science*: 856–899.

Mondak, Jeffery J, and Mary R Anderson. 2004. "The knowledge gap: A reexamination of gender-based differences in political knowledge." *Journal of Politics* 66 (2): 492–512.

Pietryka, Matthew T, and Randall C MacIntosh. 2013. "An Analysis of ANES Items and Their Use in the Construction of Political Knowledge Scales." *Political Analysis* 21 (4): 407–429.

Prior, Markus. 2014. "Visual political knowledge: A different road to competence?" *Journal of Politics* 76 (1): 41–57.

Prior, Markus, and Arthur Lupia. 2008. "Money, time, and political knowledge: Distinguishing quick recall and political learning skills." *American Journal of Political Science* 52 (1): 169–183.

Roberts, Margaret E., Brandon M. Stewart, Dustin Tingley, Christopher Lucas, Jetson Leder-Luis, Shana Kushner Gadarin, Bethany Albertson, and David G. Rand. 2014. "Structural Topic Models for Open-Ended Survey Responses." *American Journal of Political Science* 58 (4): 1064–1082.

Tetlock, Philip E. 1983. "Cognitive style and political ideology." *Journal of Personality and Social Psychology* 45 (1): 118.

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