Individual Differences in Selective Exposure to Attitude-Congruent Political Information: Intuition, Faith, and Social Environment

A Dissertation presented

by

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to

The Graduate School

in Partial Fulfillment of the

Requirements

for the Degree of

Doctor of Philosophy

in

Political Science

Stony Brook University

August 2020

Stony Brook University
The Graduate School

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Abstract of the Dissertation

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When seeking political information, people are motivated to selectively seek information that will support their prior beliefs or attitudes rather than information that will challenge them. However, there may be differences in the degree to which individuals engage in such selective exposure. I seek to identify dispositional or environmental variables that may influence the development of such individual differences. I use controlled information-search tasks on a controversial political issue to measure the relative frequency with which subjects choose to read arguments that are congruent with their prior attitudes on that issue. In the first chapter, I show that the preference for reading attitude-congruent information is stronger among individuals who rely more on automatic or intuitive thought processes rather than effortful reflection, as measured by the Cognitive Reflection Test. In the second chapter, I investigate the effects of religious faith. Some religions explicitly teach the importance of maintaining one's beliefs, and I theorize that habits of selective exposure to information congruent with one's religious beliefs could, as a side effect, lead to habits of selective exposure in other contexts such as political information seeking. I find that, in an information-search task on a non-religious political issue, the preference for reading attitude-congruent arguments is correlated with scores on a self-report scale of rigid religious conviction and can be increased by priming people to think of religion. The third chapter investigates the effects of having a politically homogeneous or heterogeneous social environment. To enable stronger causal inference, I study residents of student housing, a situation in which many residents live with people they have not chosen on the basis of political similarity. I do not find clear and consistent evidence that the preference for reading attitude-congruent information is stronger or weaker among residents who live with a politically similar roommate, though I do find such

an effect among a sub-group: Republican-leaning residents. I also do not find strong evidence that priming people to think of the members of their social networks as more politically similar or dissimilar to their selves affects the tendency to read congruent information.

Contents

Chapter 1: Intuition and Reflection

When seeking information on political topics, people are motivated to expose themselves selectively to information that will support their prior beliefs or attitudes and to avoid information that might challenge them (Taber & Lodge 2006; Garrett 2009; Knobloch-Westerwick & Meng 2009; Westerwick et al. 2013; Iyengar & Hahn 2009; Johnson et al. 2009). This phenomenon of selective exposure to attitude-congruent information is well documented in past research. For example, in an information-search task, pro-gun-control research subjects more often choose to read arguments from political organizations known to be supporters of gun-control policies, while anti-gun-control participants more often read arguments from anti-gun-control organizations (Taber & Lodge 2006). In other research, people with strong attitudes are found to be more likely to view an article when the headline indicates that the information contained in the article is congruent with their prior attitudes (Garrett 2009; Knobloch-Westerwick & Meng 2009; Westerwick et al. 2013). In an experimental setting, Republicans and conservative individuals are more likely to read news stories from Fox News and to avoid stories from CNN and NPR, while Democrats and liberals are more likely to read items from CNN or NPR and to avoid Fox (Iyengar & Hahn 2009). In a survey of people who read political blogs, most respondents report that they often visit blogs that provide information with which they agree, while fewer than a quarter of respondents say they read blogs with which they disagree (Johnson et al. 2009). Taber & Lodge (2006) argue that the phenomenon of selective exposure, or "confirmation bias" as they call it, is an aspect of motivated reasoning. Individuals are motivated to maintain and support their prior beliefs and attitudes (Kruglanski & Webster 1996), and selectively attending to attitude-congruent information can help a motivated reasoner achieve this goal.

Selective exposure is an important research topic especially in the current day as the rise of cable television and the internet makes it easier for individuals to expose themselves selectively to information that is congruent with their opinions and beliefs (Stroud 2008a; Prior 2013). This increased selective exposure may be a cause of increased polarization of public opinion in 21st Century politics (Prior 2013; Lelkes et al. 2017).

Although selective exposure to attitude-congruent information seems to be common, there may be differences in the degree to which individuals engage in selective exposure (Kruglanski et al. 1993; Chen et al. 2014). Some studies have shown that the preference for seeking attitude-congruent information on a given issue is stronger among people who have stronger attitudes on that issue (Taber & Lodge 2006; Knobloch-Westerwick & Meng 2009; Westerwick et al. 2013). This should not be surprising because it is not much different from simply stating that people prefer to seek information that is congruent with their attitudes. If one person has a strong attitude and another person has a weaker attitude, a piece of information that is congruent with the attitudes of

both individuals could be said to be more congruent with the strong attitude than with the weak attitude. The person with the stronger attitude should thus be predicted to have a stronger preference for that piece of attitude-congruent information than the person for whom the attitude-congruence is weaker. However, among two individuals with equally strong opinions on a given issue, one might still be more likely than the other to selectively seek attitude-congruent information on that issue. The question of what factors may influence the development of such individual differences is an important one. If we wanted to make a person who is willing to seek and consider all available information when forming judgments, how would we do it? Alternatively, if we wanted to produce a person who exhibits the opposite behavior, how would we do that? In this dissertation I investigate several potential factors that could influence the development of a tendency to seek attitude-congruent political information. The current chapter focuses on one such variable: the tendency to rely on intuition rather than effortful reflection.

My theory relies on a dual-process model of cognition. A distinction can be made between automatic, implicit, or intuitive cognitive processing vs. deliberate or reflective cognition (Stanovich & West 2000; Kahneman 2011; Evans & Stanovich 2013). Taber & Lodge (2006) suggest that motivated reasoning and confirmatory information seeking are driven largely by automatic implicit processes. If motivated reasoning and selective exposure are a product of automatic or intuitive processes, then individual differences in the tendency to rely on intuition more than effortful reflection may produce differences in susceptibility to motivated reasoning and selective exposure. The tendency to seek attitude-congruent information may be an automatic or intuitive behavior, but it may be possible to resist this behavior through conscious, reflective effort if one is the type of person who is inclined toward effortful reflection.

Individual differences in intuitive vs. reflective cognitive style are known to exist. Some individuals are more likely than others to reflect on their initial intuitive responses and deliberately override those intuitive responses when reflection suggests it is appropriate to do so (Frederick 2005; Toplak et al. 2011). These individual differences could be related to differences in motivated reasoning and selective exposure. Arceneaux & Vander Wielen (2017) present an Intuitionist Model of Political Reasoning: individuals who have stronger intuitions and weaker motivations to engage in effortful reflection are more prone to partisan motivated reasoning. They show that less-reflective individuals, as measured by higher scores on the Need for Affect scale and lower scores on Need for Cognition, are more likely than others to judge a policy proposal based on its partisan source rather than its substance and are more likely than others to allow their opinions toward a politician of their own party to be influenced by debunked information if that false information is flattering toward the politician. However, their findings may be in conflict with other research which finds that the tendency to trust a scientific claim only if the claim makes one's preferred in-group look good is actually greater among more reflective individuals (Kahan et al. 2013).

While investigations into the effects of reflection and intuition on partisan bias or in-group bias have already begun, no research on the effects of reflection and intuition on selective exposure has yet been published. However, it is reasonable to suspect that such effects could exist. When searching for information on a political issue, the automatic or intuitive behavior would be to favor attitude-congruent sources, but individuals who possess a stronger disposition to reflection would be more likely than others to override that intuitive behavior and seek information from challenging sources. If this theory is correct, selective exposure should be observed to be more prevalent among individuals who score higher on measures of individual differences in reliance on intuition rather than reflection.

One method for measuring such individual differences is the Cognitive Reflection Test (CRT), developed by Frederick (2005). This test consists of three simple math questions, each designed to elicit a specific intuitive but incorrect response. For example: "A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost?" The intuitive response is 10 cents, but the correct response is 5 cents. Calculating the correct answers to these questions should not require advanced mathematical skills, but to arrive at the correct response a respondent must first over-ride the intuitive response that initially jumps to mind. Performance on this test can thus be used as a measure of individual differences in the tendency to rely on intuitions or to reflect on and override intuitions when it is appropriate to do so. If individual differences in selective exposure to attitude-congruent information are partially a product of differences in reliance on intuition rather than reflection, we should expect to observe that performance on the CRT predicts selective exposure when seeking political information: the correlation between information-search behavior and prior attitudes should be strongest among those who give the intuitive but incorrect responses to the CRT questions.

Methods

To test the theory that selective exposure to attitude-congruent information is stronger among people who are more inclined to rely on intuition rather than reflection, I conducted three studies using controlled information-search tasks on a controversial political issue: gun-control policy. In the United States, the country in which these studies were conducted, this is a highly controversial issue, with many people holding strong opinions one side of the issue or the other (Parker et al. 2017), and this topic has been used in information-search tasks in prior research demonstrating the prevalence of selective exposure to attitude-congruent information (Taber & Lodge 2006). In each of my studies, participants completed an online survey in which they reported their pre-existing attitudes toward gun control before completing the information-search task. Studies 1 and 2 used a static information board administered through Qualtrics online survey software, and Study 3 em-

ployed a dynamic information board created in the Dynamic Process Tracing Environment (DPTE) developed by Lau and Redlawsk (Lau 1995; Lau & Redlawsk 2001). The Cognitive Reflection Test Frederick (2005) was used in each study to measure individual differences in reliance on intuition or reflection.

Samples

For Study 1, a sample of 358 United States residents was recruited through Amazon Mechanical Turk (MTurk). MTurk samples have previously been used by many behavioral researchers and have been found to replicate experimental results obtained using other samples (Berinsky et al. 2012; Mullinix et al. 2015; Coppock et al. 2018). Because the sample used in Study 1 was also used to test other hypotheses in addition to those included in this chapter, a two-stage quota-sampling procedure was used to generate a sample with a greater proportion of religious individuals than would be found in a typical MTurk sample. Details of this sampling procedure will be described more fully in chapter 2. Study 2 included 919 residents of undergraduate student housing at Stony Brook University who were recruited through an email offering residents a chance to win a lottery prize. Study 3 included 345 students who were recruited from undergraduate political science courses at Stony Brook University and were offered extra credit by their course instructors in exchange for their participation.

Measurement of Pre-Task Attitudes

Prior to the information-search task, respondents reported their attitudes toward gun control. First participants were asked to place their selves somewhere on a continuous slider ranging from "strongly oppose" gun control to "strongly support" gun control. They also reported to what extent they prefer an increase or decrease in gun-control legislation. This was done using a continuous slider ranging from "large decrease" to "large increase". On each item, responses were coded to range from -1 to 1. Each participant's pre-task gun-control attitude score is the mean of these two items. The distribution of these pre-task attitudes can be seen in Figure 1.

Static Information-Search Task (Study 1 and Study 2)

An information-search task on the topic of gun control was used to measure the tendency to seek attitude-congruent information. This task is similar to the task Taber & Lodge (2006) used to detect selective exposure to attitude-congruent information. Eight pro-gun-control arguments and eight anti-gun-control arguments, ranging in length from 28 to 86 words each, are used as stimuli in this task. These are the same arguments used by Taber & Lodge (2006). The full text of the arguments can be found in the appendix.

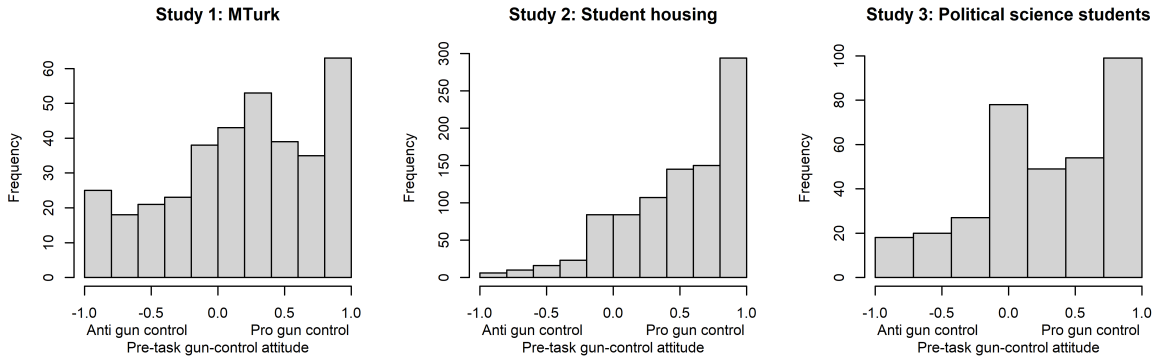


Figure 1: Pre-task gun-control attitudes. Positive values represent support for gun control and negative values represent opposition.

Participants are then told they will have an opportunity to learn more about the issue by reading arguments on both sides and that after doing so they will be asked to decide which side they support. During the information-search task, the first few words of each argument are displayed in a two-column list, with the 8 pro-gun-control items in one column and the 8 anti-gun-control items in the other column. Each item is clearly marked as a "pro" or "anti" item. To counterbalance any effects of item location on the screen, half the participants see the list of pro items on the left side and the anti items on the right, while this orientation is reversed for the other half of participants. Participants are told they will be able to read 8 of the 16 items. When the subject selects an item, the full text of that argument is displayed for them to read. They then return again to the list of 16 items to select another item. Any item that was previously selected is blacked out to indicate that the same item cannot be selected twice (see Figure 2). If the subject attempts to select the same item again, an error message instructs them to select a different item. This process continues until eight items have been selected and read. The software keeps a record of which eight items are viewed, and I calculate what proportion of those viewed items are pro-gun-control items rather than anti-gun-control items. Figure 3 shows the observed frequency distribution of values for this outcome variable.

The theory of selective exposure to attitude-congruent information would predict that participants with more pro-gun-control attitudes would choose to view a greater proportion of pro-gun-control items and participants with more anti-gun-control attitudes would choose to view a lower proportion of pro-gun-control items. Thus the outcome of interest is the strength of the correlation between respondents' pre-task level of support for gun control and the quantity of pro-gun-control items they choose to view. A positive correlation between these two variables would represent a preference for reading attitude-congruent information. A negative correlation would suggest a preference for incongruent information.

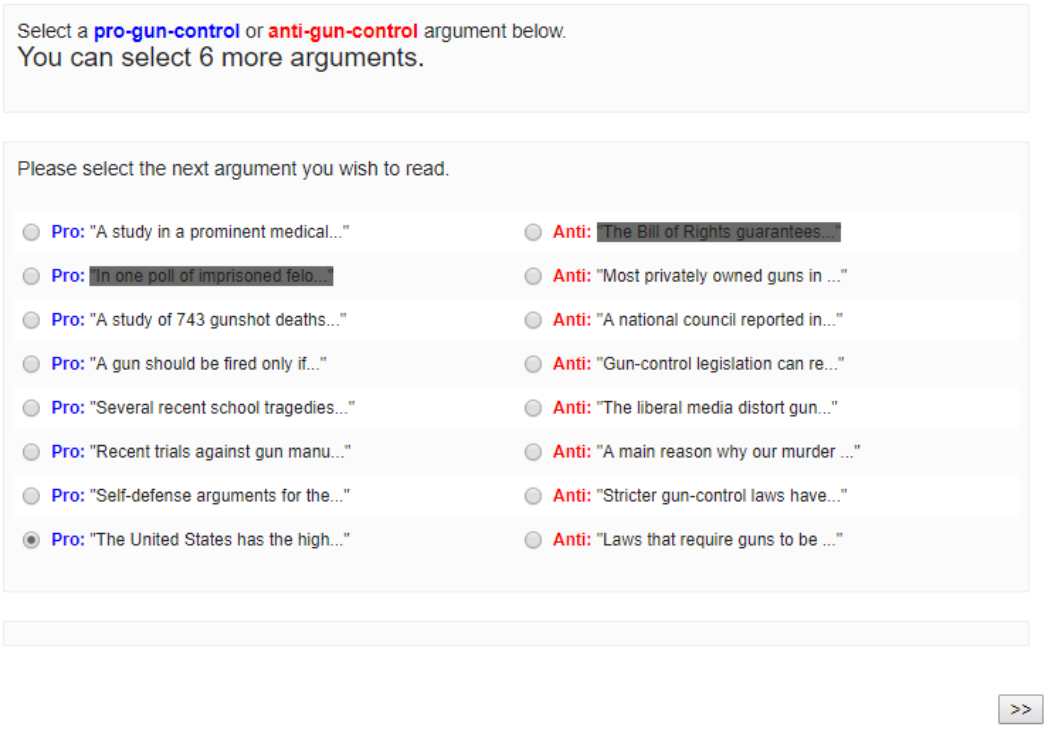


Figure 2: Screen capture of subject interface for static information-search task after two items have been viewed.

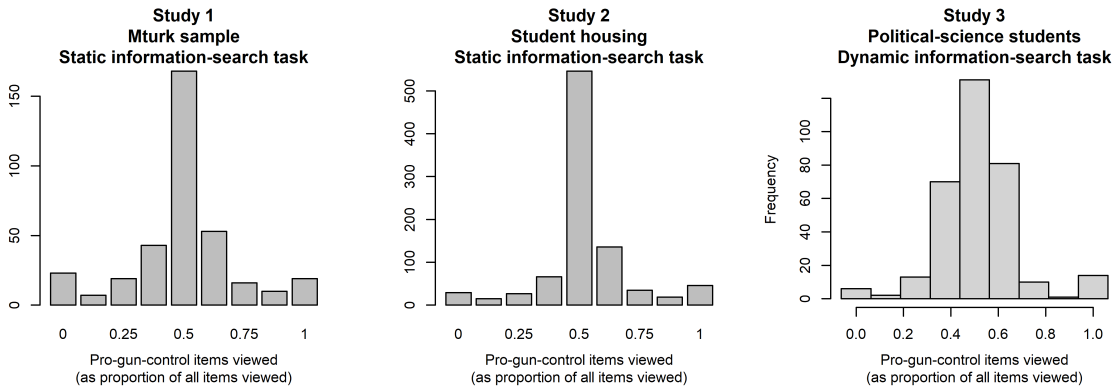
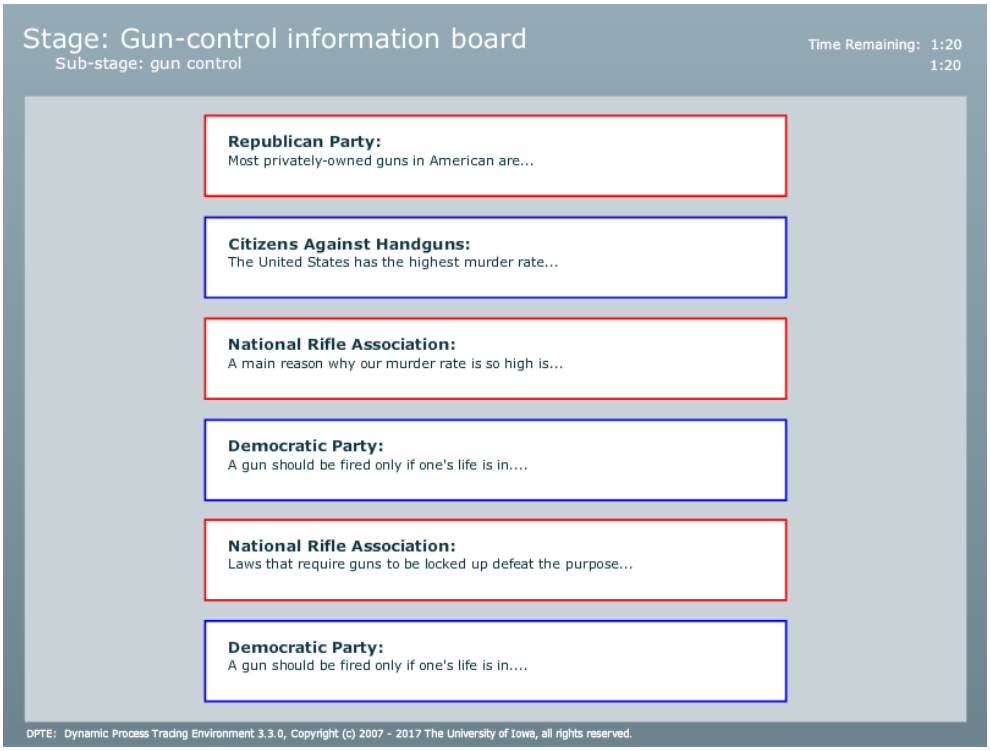


Figure 3: Plots showing what proportion of the viewed items are pro-gun-control items. The anti-gun-control proportion is equal to this same value subtracted from 1.

Figure 4: Screenshot of dynamic information-search task used in Study 3



Dynamic Information-Search Task (Study 3)

Study 3 employed a different information-search task programmed using the Dynamic Process Tracing Environment (DPTE) but featuring the same 16 gun-control arguments. In this version of the task, the participant sees a series of boxes scrolling slowly down the screen in random order, each box showing the first few words of an argument along with the name of one of the following pro- or anti-gun-control sources: The National Rifle Association, the Republican Party, the Democratic Party, or Citizens Against Handguns. Participants are told which side of the issue each of these organizations supports. The screen displays up to six items at a time, but these items are continuously changing as old items move past the bottom of the screen and new items appear at the top. The participant can select any box to open it and view the full text of the argument. They can then close the item to return to the scrolling feed. A screenshot of this task can be seen in Figure 4. Unlike in Studies 1 and 2 (in which each participant is required to select 8 of the 16 available items), participants are shown a countdown timer of two minutes and they are free to view as many items as they wish in that time. The software keeps a record of what items have been viewed. Viewing the same item twice is allowed but is not counted as a separate viewed item. As in Studies 1 and 2, I calculate what proportion of the viewed items are pro-gun-control items. Figure 3 shows the observed frequency distribution of values for this outcome variable.

Cognitive Reflection Test

To measure intuitiveness vs. reflectiveness, each participant was asked to complete the CRT. Studies 2 and 3 used the standard three-item test:

1. *A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost?* (Intuitive response: 10 cents. Correct response: 5 cents.)

2. *If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?* (Intuitive response: 100 minutes. Correct response: 5 minutes.)

3. *In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?* (Intuitive response: 24 days. Correct response: 47 days.)

Study 1 used a modified version of the test due to concerns that some MTurk users may be habitual participants in academic research and thus may have previously been exposed to the CRT. To reduce familiarity, the context of some of the questions was modified while maintaining the fundamental logic behind each question:

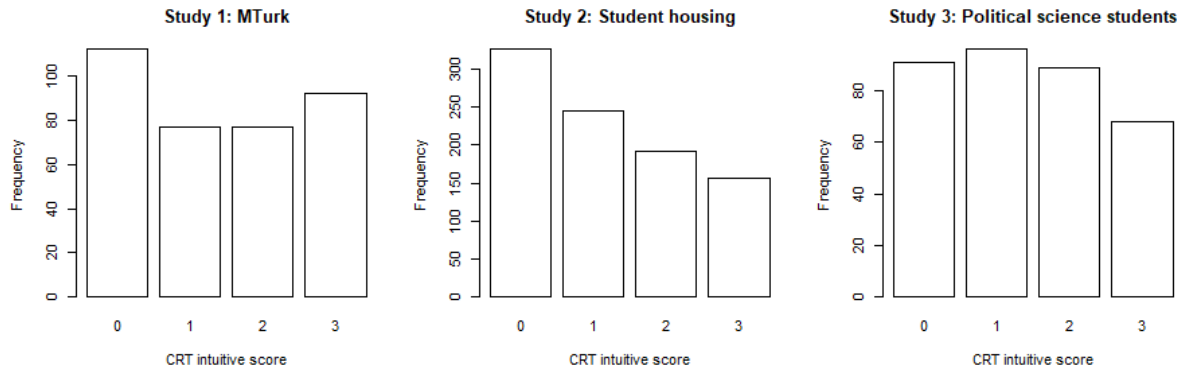
1. *A concert ticket and the transportation to get to the concert cost $110 in total. The ticket costs $100 more than the transportation. How much does the transportation cost?* (Intuitive response: $10. Correct response: $5.)

2. *A large crowd of people are gradually arriving for a big event. Some people arrive early and camp out to reserve the best spots, while others arrive later. Each hour the crowd doubles in size. If it takes 18 hours for the crowd to cover the entire event area, how many hours does it take for the crowd to cover half of the event area?* (Intuitive response: 9 hours. Correct response: 17 hours.)

3. *If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?* (Intuitive response: 100 minutes. Correct response: 5 minutes.)

Each question was displayed on a separate page to prevent participants from going back to change their answers on previous questions. Figure 5 shows the frequency distribution for scores on this test. In the analyses that follow, any participant who gave the intuitive (but incorrect) response on two or three of the questions is categorized as "intuitive" and any participant who did so on zero or one of the questions is categorized as "reflective".

Figure 5: Cognitive Reflection Test (CRT) results: Quantity of questions on which the participant gave the intuitive but incorrect answer



Other Variables

Several other variables were measured to be used as control variables. All three studies included age, gender, political knowledge, level of interest in politics, partisanship, and ideology. Study 1 included level of education. Study 2, for which the sample consisted entirely of undergraduate university students, included grade-point average and number of completed course credits. Study 1 included six items taken from the Need for Closure Scale (Webster & Kruglanski 1994). Measurement methods and summary descriptive statistics for all variables are available in the appendix.

Results

The outcome variable is the quantity of pro-gun-control items viewed as a proportion of all items viewed. Because all items are either pro-gun-control items or anti-gun-control items, a higher quantity of pro items viewed necessarily indicates a lower quantity of anti items viewed. A positive correlation between the number of pro-gun-control items viewed and the pre-task level of support for gun control would represent a preference for reading attitude-congruent information rather than incongruent information. This correlation was predicted to be greater among the more intuitive, or less reflective, participants. To test this prediction, I estimate a linear regression model predicting the quantity of pro-gun-control items viewed (as a proportion of all items viewed). The model includes the following predictor variables: pre-task gun-control attitude, CRT result (an dichotomous variable indicating whether the participant is intuitive rather than reflective), and a multiplicative interaction between these two variables. I estimate this same model separately for each study. Ordinary least squares (OLS) estimates for the parameters of these models can be seen in the first, third, and fifth columns of Table 1.

In the model for study 1, the estimated intercept is 0.49 (95% confidence interval from 0.46

Table 1: OLS Regression Models

	Dependent variable: Pro-gun-control items viewed, as proportion of all items viewed					
	Study 1 MTurk sample, static search task		Study 2 Student sample, static search task		Study 3 Student sample, dynamic search task	
Constant	0.488*** (0.016)	0.682*** (0.080)	0.536*** (0.012)	0.524* (0.315)	0.511*** (0.015)	0.501*** (0.138)
GC attitude (support for gun control)	0.023 (0.025)	−0.256** (0.126)	−0.037** (0.018)	−0.265 (0.423)	0.001 (0.024)	0.102 (0.191)
Age		−0.002 (0.001)		0.003 (0.016)		0.002 (0.006)
Female		0.012 (0.027)		−0.015 (0.022)		−0.010 (0.023)
Education		0.010 (0.007)				
Grade-point average (GPA)				−0.001 (0.018)		
Credits completed				−0.0001 (0.001)		
Political knowledge		−0.002 (0.006)		−0.001 (0.004)		0.007 (0.005)
Political interest		−0.058 (0.048)		−0.032 (0.041)		−0.132** (0.054)
Lean Republican (dichotomous)		−0.024 (0.033)		−0.043 (0.026)		
Lean Republican (continuous)						0.004 (0.031)
Self-assessed conservatism		−0.013 (0.033)		−0.019 (0.033)		−0.034 (0.028)
Need for closure (NFC)		−0.005** (0.003)				
CRT intuitive	−0.014 (0.023)	−0.003 (0.025)	−0.024 (0.019)	−0.031 (0.020)	−0.005 (0.021)	−0.001 (0.022)
GC Attitude * Age		0.001 (0.002)		0.017 (0.021)		−0.006 (0.009)
GC Attitude * Female		−0.039 (0.043)		0.049 (0.034)		0.020 (0.038)
GC Attitude * Education		−0.011 (0.012)				
GC Attitude * GPA				−0.031 (0.027)		
GC Attitude * Credits				−0.001 (0.001)		
GC Attitude * Knowledge		0.002 (0.011)		−0.001 (0.007)		−0.019** (0.007)
GC Attitude * Interest		0.039 (0.080)		−0.033 (0.061)		0.202** (0.080)
GC Attitude * Republican (dich.)		0.029 (0.063)		0.135*** (0.048)		
GC Attitude * Republican (cont.)						−0.030 (0.045)
GC Attitude * Conservatism		0.010 (0.053)		−0.013 (0.046)		0.029 (0.042)
GC Attitude * Need for closure		0.011*** (0.004)				
GC Attitude * CRT intuitive	0.150*** (0.038)	0.129*** (0.044)	0.075*** (0.028)	0.070** (0.030)	0.047 (0.035)	0.037 (0.036)
Observations	358	357	919	899	327	322
R^2	0.096	0.158	0.009	0.045	0.011	0.054
Adjusted R^2	0.088	0.111	0.006	0.025	0.002	0.008

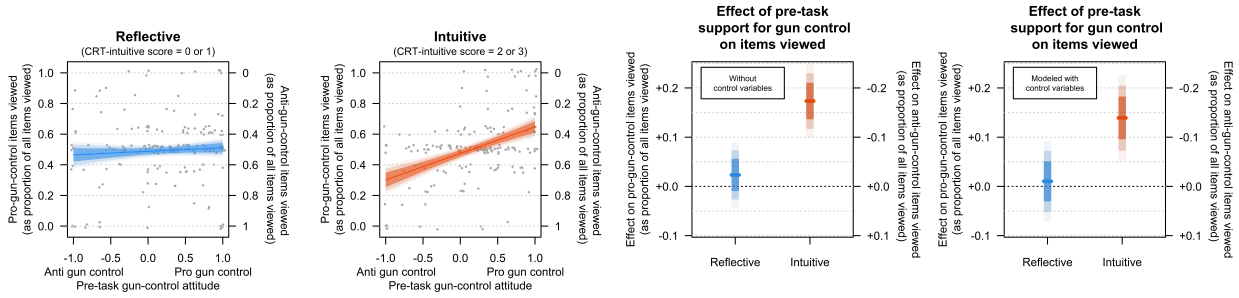
Note: *p<0.1; **p<0.05; ***p<0.01

to 0.52). This means that among reflective (rather than intuitive) participants who have a neutral gun-control attitude, approximately 49% of the items they view are pro-gun-control items. In this same study, the estimated coefficient on gun-control attitude is 0.02, which would indicate that among reflective participants, a one-unit increase in gun-control attitude (e.g. an increase from neutral to strong supporter or an increase from strong opponent to neutral) predicts that the pro-gun-control proportion of items viewed increases by two percentage points. A positive coefficient here would represent a preference for reading attitude-congruent information (among reflective individuals), and a negative coefficient would represent a preference for incongruent information. The estimated effect is small and is not statistically significant (95% confidence interval from -0.03 to +0.07). This suggests that among reflective participants there is no strong preference for reading attitude-congruent information or incongruent information.

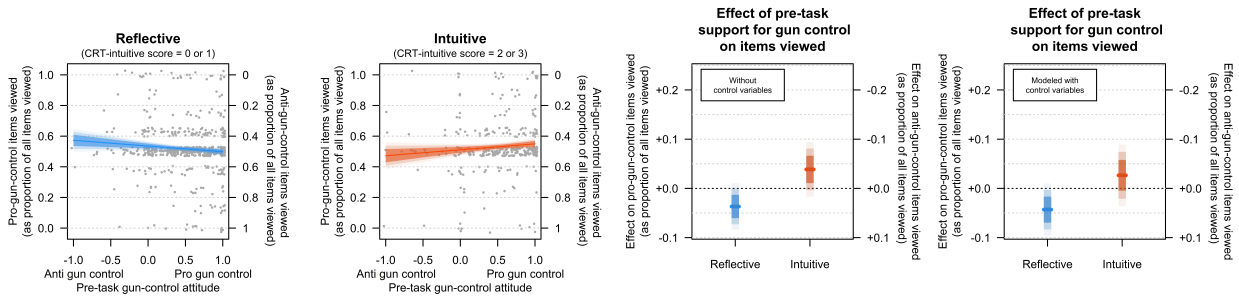
The parameter of greatest interest is the coefficient for the interaction between gun-control attitude and intuitiveness, which tests whether the effect of prior attitudes on search behavior varies with intuitiveness. The interaction coefficient is positive in Study 1 (0.15, $p<.001$), Study 2 (.075, $p=0.008$), and Study 3 (0.05, $p=.176$), indicating that the tendency of pro-gun-control individuals to view a greater proportion of pro-gun-control items (and anti-gun-control individuals to view a lower proportion of pro-gun-control items) is greater among the more intuitive participants, as predicted. However, the estimated effect in Study 3 is small and is not statistically significant. The 95% confidence interval for this effect in Study 3 ranges from -0.02 (almost no increase or decrease in the preference for reading attitude-congruent information) to +0.12 (a moderately stronger preference for congruent information among intuitive participants compared to reflective participants).

Figures 6a, 6b, and 6c show predicted values of the outcome variable and estimated marginal effects for each study. For each study, the two left-most panels show the predicted proportion of pro-gun-control items viewed (vertical axis) at each level of support for gun control (horizontal axis). In these two left-most plots, a positive slope can be interpreted as a preference for reading attitude-congruent information, while a negative slope would represent a preference for incongruent information. In each study, the third panel (second from the right) shows estimated marginal effects based on the model described above. These marginal effects in the third panel estimate the slopes of the lines in the first two panels. In these marginal effects plots, the vertical axis can be interpreted as the strength of preference for reading attitude-congruent information. Negative values on this vertical axis would represent a preference for incongruent information. In each study, the estimated preference for attitude-congruent information is greater among the intuitive participants than among the reflective participants, though the difference in Study 3 is small and is not statistically significant.

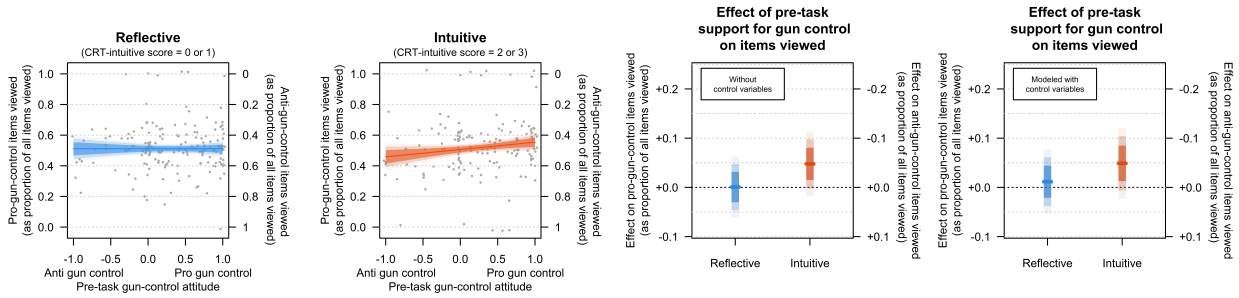
To test robustness, I estimate these models again while adding all of the control variables. I also include a multiplicative interaction between each control variable and gun-control attitude. Esti-



(a) Study 1 (Mturk sample, static information search)



(b) Study 2 (student sample, static information search)



(c) Study 3 (student sample, dynamic information search)

Figure 6: Predicted values of the outcome variable and estimated marginal effects based on the models in Table 1. Shading represents 80%, 95%, and 99% confidence intervals. Scatterplot values have been jittered slightly to enhance readability. Because all items viewed are either pro-gun-control or anti-gun-control, the anti-gun-control proportion is always equal to 1 minus the pro-gun-control proportion. Thus the vertical axis can be used simultaneously to represent both the pro-gun-control proportion and anti-gun-control proportion if the axis is reversed. The secondary vertical axis on the right side of each plot thus does not represent a separate variable but rather a simple reversal of the left-side vertical axis.

mated parameters for these models can be seen in the second, fourth, and sixth columns of Table 1. Estimated marginal effects based on these models can be seen in the fourth (right-most) panel of Figures 6a, 6b, and 6c. Even when conditioning on all of these control variables, Study 1 and Study 2 still provide evidence that the preference for attitude-congruent information is greater among intuitive participants than among reflective participants, though the estimated effect in Study 3 is still small and is not statistically significant.

Discussion

Prior research has demonstrated that the tendency to selectively seek information congruent with one's political attitudes is a common phenomenon. Less research has investigated individual differences in this type of behavior. The question of what individual-level variables are associated with differences in susceptibility to selective exposure is an important topic for research. A tendency to rely on intuition rather than effortful reflection may be one such variable.

In three studies, I test the theory that, when seeking information on a controversial political issue, intuitive individuals are more likely than reflective individuals to selectively seek information that is congruent with their prior attitudes on that issue. Results from two of the three studies clearly support this hypothesis. In a controlled information-search task in which participants are asked to choose items to read from among a set of pro-gun-control arguments and anti-gun-control arguments, the tendency for pro-gun-control individuals to read primarily pro-gun-control arguments and anti-gun-control individuals to read anti-gun-control arguments is strongest among individuals who give intuitive but incorrect responses to questions in the Cognitive Reflection Test. These observed differences in selective exposure cannot be explained by differences in age, gender, level of education, political knowledge, political interest, or party preference. Estimates from the third study are not statistically significant and thus do not provide conclusive evidence.

One possible explanation for why an effect might exist in Study 1 and Study 2 but not in Study 3 could be the difference between the information-search tasks used. In Study 1 and Study 2, participants see a clear list of the available arguments all at the same time, while Study 3 uses a dynamic information-search task in which the links to the available arguments scroll down the screen in random order. The static search task of Study 1 and Study 2 makes it easy for participants to see which items they have already read and thus easy to judge how many items from each side they have read. This could make participants easily aware of whether their information-search behavior is biased toward one side or the other, which could cause some participants to try to be more balanced in their information-search behavior than they otherwise would be. In these two studies, approximately half of the participants chose to read exactly equal quantities of pro and anti items. These studies thus may not provide an accurate estimate of the average amount of selective

exposure that occurs in real-world information seeking. Under the assumption that the use of this information-search task reduces selective exposure (in comparison to real-world behavior) just as much among intuitive individuals as it does among reflective individuals, these studies can still provide a valid test of whether reliance on intuition increases selective exposure. This may or may not be a good assumption though. It could be that a tendency toward reflection reduces biased information seeking only if an individual's information-selection bias is easily apparent to that individual.

However, it is important to note that, while the results of Study 3 do not provide strong evidence that the preference for attitude-congruent information is stronger among intuitive individuals, these results also do not provide strong evidence of the absence of such an effect. Confidence intervals for the effect range from no effect in either direction to a moderate effect in the predicted direction. The results from Study 3 thus do not provide strong evidence to contradict the findings of the other two studies.

There are a few other important limitations of these studies. First, these studies were conducted using convenience samples recruited from Mturk and university students. These samples may not be representative of the general population of the world or the country in which they were recruited. Typical levels of selective exposure and typical levels of reflectiveness or intuitiveness among students and Mturk users may be different from what would be found in other samples. Fortunately though, these studies are not primarily interested in estimating the amount of selective exposure that occurs in any particular population nor in estimating the average amount of reliance on intuition. Rather, these studies are interested in estimating the covariation between these two variables. There is little reason to suspect that intuitiveness would have a greater effect on selective exposure among students and MTurk users than it does among other populations. However, future research should use other samples to see whether the effects are stronger or weaker than those observed in these studies.

Another limitation of these studies is that they investigate selective exposure in only one policy area. I have no reason to suspect that individual differences in reliance on intuition vs. reflection would affect selective exposure to information that is congruent with one's gun-control attitudes but would not affect selective exposure in the context of any other political issues. However, future research should use other measures of selective exposure and should apply them in the context of other political issues to test the robustness of the findings of these studies.

Conclusion

As a whole, these three studies provide evidence that selective exposure to attitude-congruent information may not be equally strong among all individuals. Selective exposure appears to be driven

partially by reliance on intuition, and individuals who have a tendency to engage in effortful reflection may be more inclined to override that intuitive behavior. These findings have important implications. People who selectively seek information that supports their existing beliefs and attitudes are less likely to encounter information that could update their beliefs or alter their attitudes. If this behavior proliferates, it can produce a political environment with high levels of polarization in which opposing sides becoming increasingly isolated. The findings of these studies suggest that there may be some segment of the population in which the highly consequential behavioral pattern of selective exposure is not so prevalent. At least some individuals, those who are more reflective, may prefer to seek and consider all available information when forming their beliefs and opinions.

Chapter 2: Rigid Religious Faith

The preceding chapter explained that when seeking information on political topics, people are motivated to expose themselves selectively to information that will support their prior beliefs or attitudes and avoid information that might challenge them (Taber & Lodge 2006; Garrett 2009; Knobloch-Westerwick & Meng 2009; Westerwick et al. 2013; Iyengar & Hahn 2009; Johnson et al. 2009). Some individuals may do so more than others (Kruglanski et al. 1993; Chen et al. 2014). Individual differences in the tendency to engage in selective exposure to attitude-congruent information could be affected by many different variables. The preceding variable discussed one such variable. Another may be religious faith.

Religious philosopher William James professed the propriety of a "will to believe" (James 1896). Many religious teachings are more insistent in promoting the importance of faith, or an effort to maintain a strong belief in the doctrines of the religion. Scriptural texts often proclaim that maintaining one's beliefs is not only virtuous but is essential for gaining eternal rewards. Speaking of Christ, John writes, "Whoever believes in Him shall not perish but have eternal life" (John 3:16, NIV). The Quran similarly links faith to supreme rewards or punishments: "The chastisement of Hell awaits those who disbelieve in their Lord... Forgiveness and a mighty reward await those who fear Allah without seeing Him" (Quran 67:6-12). In his famous wager, Pascal reasons that the potential reward for religious belief is infinite and the potential loss from failing to believe is thus also infinite. Since nothing could be more important than eternal salvation or damnation, believers should feel especially motivated to maintain their beliefs. The stakes are high.

Because maintenance of religious beliefs is so important in many religious traditions, some clergy exhort their followers to engage in behaviors that strengthen their faith and to avoid behaviors that weaken it (see, for example, Graham 2015; Osteen 2014). Selective exposure is one type of behavior that could be effective in maintaining faith. If religious believers are frequently exposed to messages of the importance of maintaining faith, this could motivate them to spend time with other believers who will strengthen their belief and to shun non-believers who might challenge their faith (Hardin 1997). It might also lead more generally to habits of selectively exposing themselves to information that supports the doctrines of their religion and avoiding information that might challenge their beliefs (Hart et al. 2009).

Selective exposure to information congruent with one's religious beliefs has been observed in past research. McFarland & Warren Jr (1992) find that biblical literalists, especially those who score low on the Quest Scale (a self-report measure of open-mindedness about one's religious beliefs), prefer to read articles that support fundamentalist Christian beliefs and avoid articles that challenge their beliefs. Jang (2014) finds that when choosing articles to read on the topics of biological evolution or stem-cell research, religious individuals read fewer belief-incongruent

articles than less religious individuals do.

An example of explicit endorsement of selective exposure to belief-congruent information can be seen in an advice forum in a Latter-Day-Saint (LDS) magazine. When questions about the propriety of reading anti-LDS literature are submitted to the magazine, the majority of readers' responses recommend that such literature should not be read (New Era 1973, 2007). However, such explicit messages endorsing selective exposure may not even be necessary for habits of selective exposure to develop. Messages that endorse faith-promoting behavior generally could be sufficient to produce selective exposure more specifically. Because followers of these rigid-faith religions have been taught that strengthening their beliefs is virtuous, when they engage in selective exposure and feel their beliefs being strengthened as a result of that behavior, this should make them feel good about what they are doing. This positive feedback should thus lead to the development of habits of selective exposure.

A habit of selective exposure developed in the context of religious beliefs may not be forever confined to the context of religion. Habitual behaviors learned in one area of life, once they become internalized, can spill into other areas of life. For example, Brady, Verba, and Schlozman (1995) note that skills learned through participating in church or synagogue organizations can help individuals become better equipped to participate effectively in politics. Similarly, habits of information seeking learned in the context of religion might be applied to the context of political information seeking. Suppose a person with strong religious beliefs also has strong opinions about gun legislation, believing that the government is not doing enough to control access to firearms. Even if this is not an issue on which this person's opinions have been dictated by religion, the habits developed in learning to protect religious beliefs are now instinctively applied to protecting other beliefs and attitudes outside the context of religion, perhaps without any conscious awareness that this is happening. In the context of religion, the person learned that having beliefs reinforced is good and it thus feels good. When encountering a pro-gun-control opinion article, the person reads it and feels a similar sense of satisfaction from having prior beliefs and opinions reinforced. When encountering an anti-gun control argument, the person does not read it and thus avoids the negative feelings that this person has learned are associated with having beliefs challenged.

Faith messages could thus promote habits of motivated reasoning and selective exposure in the context of religion which may, as a side-effect, be applied to other contexts such as political information seeking. This is not to say that all religious people will avoid attitude-incongruent political information. Some religious individuals may reject the importance of rigid faith and may be more open to future changes in their religious beliefs (Batson & Raynor-Prince 1983). Such people should not be expected to be particularly susceptible to a preference for seeking attitude-congruent information. Rather, we should expect to find that patterns of selective exposure to attitude-congruent political information are strongest among individuals who believe in the impor-

tance of rigid faith and who hold religious beliefs with rigid conviction.

Potential problems for causal inference

A direct effect of rigid religious faith on habitual selective exposure may not be the only way in which a correlation between these two variables could be found. Having a predisposition toward motivated reasoning and selective exposure could cause individuals to be more likely to select into religious belief. The possibility of reverse causality is thus a major concern when attempting to identify the effect of rigid religious faith on selective exposure. It is also possible that some other predispositional variable could affect both religious belief and selective exposure. Such possible confounding variables could include, for example, a need for cognitive closure or a tendency to rely on intuition more than effortful reflection.

The Need for Closure Scale measures individual differences in desire for predictability, preference for order and structure, discomfort with ambiguity, closed-mindedness, and decisiveness (Webster & Kruglanski 1994). Individuals who have this type of motivation might be more likely to close their minds to new information as a means of accomplishing this goal of maintaining closure (Kruglanski & Boyatzi 2012). This theory is supported by recent empirical work. Chen et al. (2014) find that when subjects have been exposed to information incongruent with their prior attitudes, they more often choose to read stories from news sources that are likely to agree with their own pre-existing ideological biases, but this effect is found only among subjects who score high on the Need for Closure Scale. Having a greater need for cognitive closure could also cause a person to be more drawn to religious belief, especially to fundamentalist religions, because the doctrines of such faiths may provide certainty of belief and rigid structure through strict behavioral requirements. Saroglou (2002) finds that the Need for Closure Scale is indeed associated with measures of religiosity, both with the Religious Fundamentalism scale of Altemeyer & Hunsberger (1992) and with a more general measure of religiosity. Duriez et al. (2000) find that higher Need for Closure scores predict higher scores on the components of their Post-Critical Beliefs Scale that measure Literal vs. Symbolic interpretation of religious content and Exclusion vs. Inclusion of Transcendence (Duriez et al. 2000). If a need for closure increases affinity for religious belief and a need for closure also increases the tendency toward selective exposure, then a correlation between religious belief and selective exposure could be found even in the absence of any direct effect of religious belief on selective exposure.

Another potential confounding variable could be the tendency to engage in a more intuitive, rather than reflective, cognitive style. The preceding chapter described the Cognitive Reflection Test (CRT), developed by Frederick (2005), which measures the tendency to accept the first intuitions that come to mind or to reflect on those intuitions effortfully and override them when it is appropriate to do so. In that chapter I showed that those who give the intuitive (rather than correct)

answers to this test's questions have a stronger tendency to seek attitude-congruent political information. Previous research has found that performance on this test also predicts levels of religious belief, with those who give the intuitive answers rather than the correct answers reporting higher levels of belief in a god (Shenhav et al. 2012; Gervais & Norenzayan 2012). If greater reliance on intuition increases religious belief and also increases selective exposure to attitude-congruent information, a positive correlation between religious belief and selective exposure could be found even in the absence of any direct causal relationship between the two.

Identifying a direct effect of religious belief on political information-search behavior can thus be challenging. An experimental priming manipulation can help overcome these challenges. If the theory presented in this paper is correct, experimentally increasing the salience of a religious individual's faith could momentarily increase selective exposure. The effects of faith messages may depend not only on the frequency of exposure to the message, but also on the recency of such exposure. A religious individual who has regularly been exposed to faith messages should possess a close cognitive association between the concepts of religious faith and any behavioral patterns (e.g. selective exposure) that have been produced by such faith messages. When the salience of the individual's religious beliefs is increased, any associated behaviors should also be momentarily increased. An individual who attends religious services on Sundays, for example, might feel more faithful on Sunday night than on Saturday night and might be more likely to engage in any religiously learned behaviors when feeling more faithful. If religious individuals, as a result of exposure to faith messages, have learned to have greater faith in their political beliefs as well as their religious beliefs and have learned to engage in selective exposure to information that is congruent with their political beliefs, then any increased salience of their religious faith should also produce a momentarily increased faith in their political beliefs and an increase in selective exposure to information that is congruent with those political beliefs. We might thus expect to find that experimental subjects who have been primed to think of religious concepts would be more likely to engage in selective exposure when seeking information on non-religious political topics.

Overview of Current Study

Here I describe a study to investigate whether selective exposure to attitude-congruent political information is greater among individuals with rigid religious convictions and to test whether experimentally increasing the salience of religious faith increases selective exposure. In this study, subjects participate in an information-search task on a controversial non-religious political issue: gun policy. After reporting their own attitudes toward gun control, my research participants are given access to a set of pro-gun-control and anti-gun-control arguments, and I observe which arguments they choose to read. The prediction is that those with stronger pro-gun-control atti-

tudes should choose to read more pro-gun-control items, and those with stronger anti-gun-control attitudes should read more anti-gun-control items. I measure rigid religious conviction using a six-item scale to determine whether the correlation between pre-task attitudes and information-search behavior is stronger among those with rigid religious convictions. Several other variables are measured to be used as control variables, including performance on a modified version of the Cognitive Reflection Test and a subset of items from the Need for Closure Scale. To identify the direct causal effects of religious faith messages, I use a scrambled-sentence task prior to the gun-control information-search task as an experimental manipulation to prime half of the subjects with religious concepts.

Methods

Measurement of Religiosity and Sampling Method

The study was conducted using a sample of United States residents recruited through the Amazon Mechanical Turk (MTurk) online labor market. Although MTurk workers are not a representative sample of the country's population, MTurk samples have been found to replicate the results of many important political psychology experiments that had previously been conducted on more representative samples (Mullinix et al. 2015; Berinsky et al. 2012). One important difference from the general U.S. population is that MTurk users tend to be much less religious than most people (Clifford et al. 2015; Lewis et al. 2015). My goal is to test whether religious individuals engage in greater amounts of selective exposure than do the less religious. This goal does not require a sample whose average level of religiosity is identical to that of the population of any particular country. However, a lack of variation in religiosity would be problematic for a test of this research question. To acquire a sample with a sufficient quantity of religious individuals, while remaining within the limits of a tight research budget, I used a two-stage sampling procedure. Rigid religious conviction was measured for a large sample in a short, low-cost, first-wave survey. From that first sample, a second sample with a wide range of rigid conviction was selected to participate in the full study for a larger payment. To avoid biasing responses to the rigid-religious-conviction questionnaire, I did not tell participants in the first wave that their responses would affect their probability of being invited for a second survey.

In late 2017, 1490 participants were recruited to answer the following six items measuring rigid religious conviction:

1. God has given humanity a complete, unfailing guide to happiness and salvation, which must be totally followed.

2. Regardless of whether they contain some general truths, scriptures should not be considered completely, literally true from beginning to end. (Reverse scored)

3. All religions in the world have flaws and wrong teachings. There is no perfectly true, right religion. (Reverse scored)

4. Whenever science and sacred scripture conflict, scripture is probably right.

5. It is better for religious beliefs to be held firmly and never doubted.

6. If an honest quest for the truth leads one to the conclusion that one's religious beliefs are not correct, then one should allow those beliefs to change. (Reverse scored)

The first four items are taken, with some minor adjustments, from the 12-item Revised Religious Fundamentalism Scale (Altemeyer & Hunsberger 2004), while the two remaining items are adapted from the Quest Scale (Batson 1976; Altemeyer & Hunsberger 1992). This scale is not intended simply to measure the level of religious belief. It is possible to be religious without scoring high on this scale. This scale specifically measures the tendency to hold religious beliefs rigidly and an unwillingness to consider the possibility that one's religious beliefs could be imperfect.

For each item, respondents indicate their level of agreement on a seven-point response scale ranging from "strongly disagree" to "strongly agree". Responses are coded as integers from 0 to 6, with items 2, 3, and 6 being reverse scored to ensure that higher scores always represent higher levels of rigid religious conviction. For each respondent, the six items are summed to generate a score of rigid religious conviction ranging from 0 to 36. The frequency distribution of these scores can be seen in the first panel of Figure 7. A large proportion, more than 18%, of the individuals in the first-wave sample had a score of 0, indicating that they strongly disagree with all three of the positively scored statements and strongly agree with all three of the reverse-scored statements.

To select a sample of participants with a wide range of religiosity to participate in the second wave of the study, subjects were divided into 37 groups, one for each of the 37 possible levels of the variable, 0 through 36. From each group, 25 subjects were randomly selected to be invited to participate in the second wave. For any group that did not have at least 25 individuals, all individuals from that group were invited to the second wave. In total, 723 subjects were invited to the second wave. The second panel of Figure 7 shows the distribution of rigid religious conviction for these invited subjects. Three weeks after the first-wave survey, these 723 selected individuals were sent an email inviting them to participate in a second survey. Where necessary, a second reminder email was sent a few days later. This procedure produced a final second-wave sample of 358 individuals, the same sample used in the preceding chapter (labeled "Study 1" in that chapter). The

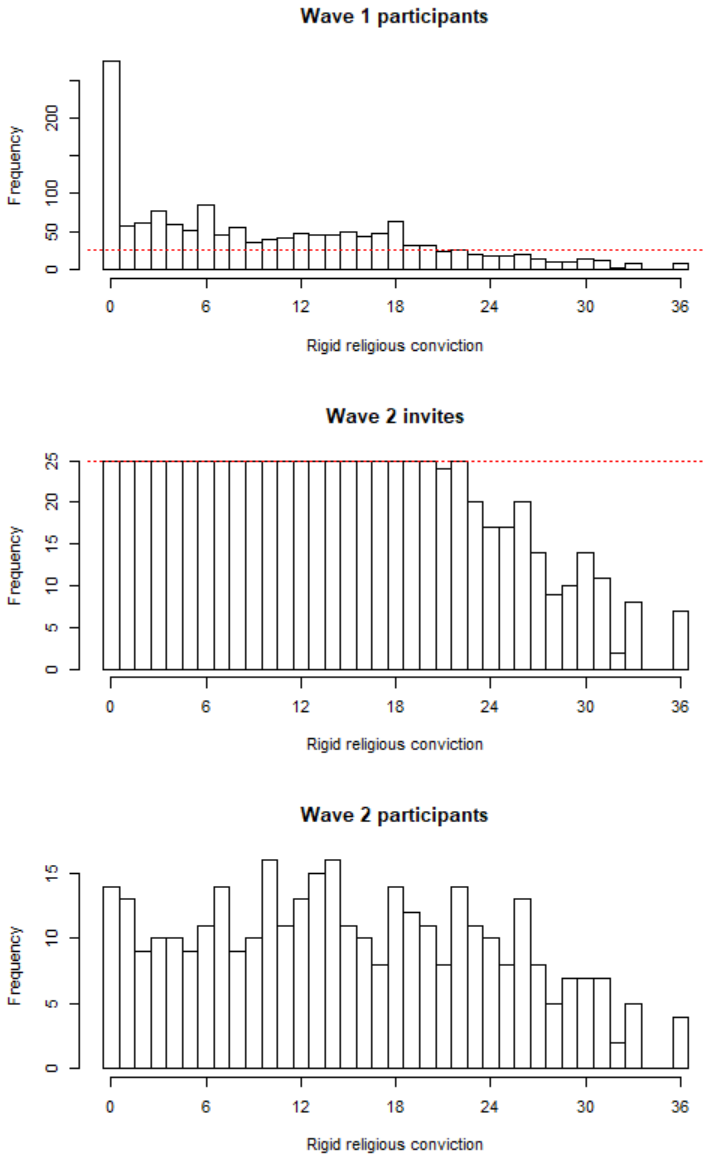


Figure 7: Distribution of Rigid Religious Conviction

third panel of Figure 7 shows the distribution of rigid-religious-conviction scores for all individuals who participated in the second-wave sample. All data other than the rigid religious conviction questionnaire were collected in the second-wave survey.

Outcome Variable: Selective Exposure in Information-Search Task

An information-search task on the topic of gun control was used to measure the tendency to seek attitude-congruent information. This is the same task described in the preceding chapter and is similar to the task Taber & Lodge (2006) used to detect selective exposure to attitude-congruent information. Before starting the information-search task, participants are asked to report their attitudes toward gun control using a continuous slider ranging from "strongly oppose" to "strongly support". A second item asks them to report the extent to which they prefer an increase or decrease in gun-control legislation, using a continuous slider ranging from "large decrease" to "large increase." Responses on each of these items are coded to range from -1 to 1. These two items are strongly correlated (r=0.79). For each participant, the mean of these two items is the participant's pre-task gun-control attitude score (M=0.19, SD=0.57). The observed frequency distribution of these pre-task attitudes was shown in the first panel of Figure 1 in the preceding chapter.

Recall that in this information-search task, participants are asked to select items they wish to read from a list of pro-gun-control and anti-gun-control arguments. The first few words of each argument are displayed in a two-column list, with the eight pro-gun-control items in one column and the eight anti-gun-control items in the other column. Each item is clearly marked as a "pro" or "anti" item. When the subject selects an item, the full text of that argument is displayed for them to read. They then return again to the list of 16 items to select another item. This process continues until 8 items have been selected and read. The computer keeps a record of which items have been viewed, and I calculate the quantity of pro-gun-control items viewed, with a possible range from 0 to 8 (M=3.99, SD=1.72). The midpoint of 4 would indicate that the participant viewed an equal quantity of pro-gun-control and anti-gun-control items.

If selective exposure to attitude-congruent information occurs, participants with more pro-gun-control attitudes would choose to view a greater quantity of pro-gun-control items and participants with more anti-gun-control attitudes would choose to view a lower quantity of pro-gun-control items. The outcome of interest is the strength of the correlation between respondents' pre-task level of support for gun control and the quantity of pro-gun-control items they choose to view. A positive correlation would indicate that individuals prefer to view a greater proportion of items that are congruent with their prior attitudes. I predicted that the strength of the correlation between pre-task attitudes and information-search behavior would differ depending on the level of rigid religious conviction and depending on the experimental priming manipulation.

To test how the effect of pre-task gun-control attitude varies with rigid religious conviction, it

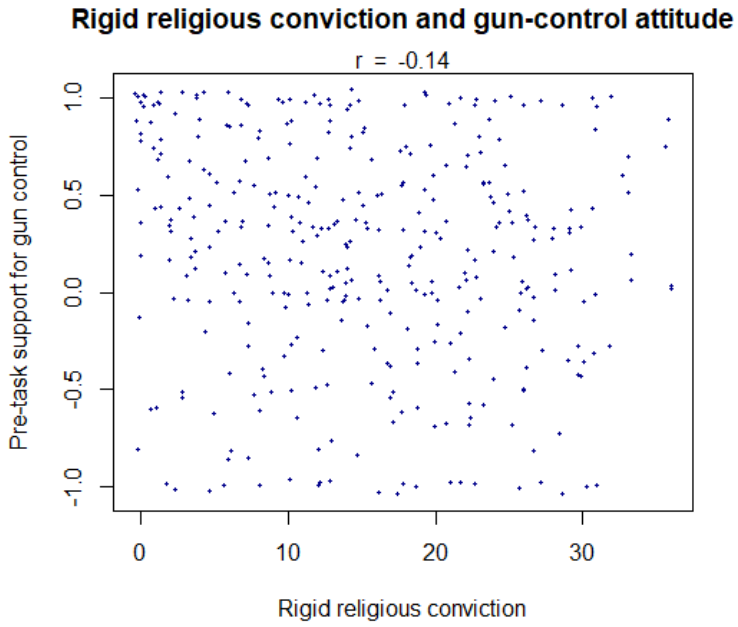


Figure 8: Scatterplot of rigid religious conviction and pre-task support for gun control. Positive values represent gun-control supporters, while negative values represent gun-control opponents. The values of each variable have been jittered slightly to enhance readability.

is important to have common support: there must be sufficient variation in gun-control attitudes among those with low levels of religious conviction, and there must be variation across the same range of gun-control attitudes among those with high levels of religious conviction. As can be seen in the scatterplot in Figure 8, gun-control attitude and rigid religious conviction are only weakly correlated (r = -0.14). Opposition to gun-control is not solely the domain of the highly religious and support for gun control is not solely for the less religious. It should thus be possible to test how the behavior of highly religious gun-control supporters differs from that of less religious gun-control supporters and how the behavior of highly religious gun-control opponents differs from that of less religious gun-control opponents.

Experimental Manipulation: Faith Prime

After reporting their pre-task gun-control attitudes, but before beginning the information-search task, all participants completed a scrambled-sentence task to prime half of them with concepts of religious faith. The scrambled-sentence task (Srull & Wyer 1979; Bargh et al. 1996) is a method of conceptual priming that has previously been used to modify behavior by priming subjects with religious concepts (Shariff & Norenzayan 2007) (Randolph-Seng & Nielsen 2007) (Ahmed & Salas 2011). In this task, the subject is given ten sets of five words. Using each set of words, the

task is to drop one of the five words and reorder the remaining four words to write a grammatically correct four-word sentence. For example, "dessert divine was fork the" becomes "the dessert was divine." In the current study's version of the task, subjects are randomly assigned either to a faith-prime condition or a neutral condition. In the faith-prime condition, five of the ten sentences include words relating to religion (spirit, divine, faith, god, sacred, sermons), while the other five sets of words are identical across treatment conditions. The full list of words can be found in the appendix. If salience of religious faith increases susceptibility to selective exposure, then the correlation between a participant's pre-task gun-control attitude and the quantity of pro-gun-control items the participant chooses to read should be stronger among those in the faith-prime condition than among those in the neutral condition.

Other variables

Data from several other measures were collected to be used as control variables. Measurement methods and descriptive statistics for these variables can be found in the online appendix. The control variables include age, gender, level of education completed, performance on a political knowledge test, self-assessed level of interest in politics, party preference (Democrat or Republican), and self-placement on a liberal-to-conservative continuum.

Of special interest among the control variables are Need for Closure and the Cognitive Reflection Test. Participants answered a subset of six items from the Need for Closure scale. They indicated their agreement with each statement on a 7-point scale ranging from "strongly disagree" to "strongly agree". Responses are coded as integers from 0 to 6. For each participant, the 6 items are summed to generate the participant's NFC score, which has a possible range from 0 to 36 but an observed range from 6 to 35. The text of the six items can be found in the appendix.

For the Cognitive Reflection Test, the CRT-intuitive score is the quantity of questions on which the participant gave the intuitive, rather than the correct, response. Because of concerns that some MTurk users may be regular participants in behavioral research and may have had previous experience with the questions in the Cognitive Reflection Test, I used a modified version of the test. I changed the context of some of the questions to make the questions seem less familiar while maintaining the underlying logic of each question. The full text of these questions can be found in the preceding chapter.

Results

From the list of eight pro-gun-control and eight anti-gun-control arguments, each participant was required to select a total of eight items to read. For the sample as a whole, the quantity of pro-

gun-control items a participant chose to read is positively correlated with pre-task support for gun-control (r=.24, p<.001). This indicates a preference for reading attitude-congruent information. More pro-gun-control individuals read more pro-gun-control items and read fewer anti-gun-control items, while more anti-gun-control individuals read more anti-gun-control items and fewer pro-gun-control items.

Correlation with Rigid Religious Conviction

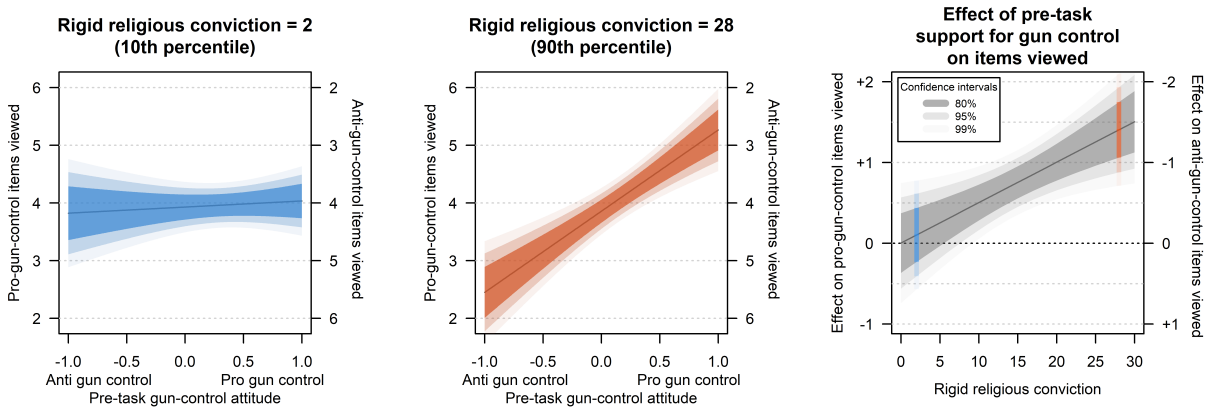
To test whether this effect of pre-task attitude on information-search behavior varies with the level of rigid religious conviction, I estimate a linear regression model predicting the count of pro-gun-control items viewed as a function of pre-task gun-control attitude, rigid religious conviction, and a multiplicative interaction between those two variables. OLS estimates of the parameters of this model can be seen in column 1 of Table 2. In this model, the coefficient on gun-control attitude does not show any significant effect (95% confidence interval from -0.56 to 0.57). This does not indicate a lack of evidence for selective exposure to attitude-congruent information among the sample as a whole. Rather, this represents a lack of evidence for selective exposure to attitude-congruent information among individuals who have a rigid-religious-conviction score of zero. If selective exposure does occur among individuals who do not have rigid religious convictions, it is likely a weak effect. The parameter of greatest interest for testing my theory is the interaction coefficient. This coefficient is positive (p=.003), which indicates that the effect of prior gun-control attitudes on information-search behavior increases with the level of rigid religious conviction. Higher levels of rigid religious conviction are associated with a higher likelihood that pro-gun-control individuals will view a greater proportion of pro-gun-control items (and that anti-gun-control individuals will view a lower proportion of pro-gun-control items). Rigid religious conviction is clearly correlated with selective-exposure to attitude-congruent information in this gun-control information-search task.

Predicted values of the outcome variable based on this model are plotted in the first two panels of Figure 9a, separated by level of rigid religious conviction. In these first two plots, a positive slope would indicate that individuals who have more pro-gun-control attitudes view more pro-gun-control items rather than anti-gun-control items and that individuals who have more anti-gun-control attitudes view more anti-gun-control items rather than pro-gun-control items. In other words, a positive slope would indicate selective exposure to attitude-congruent information. At the 90th percentile of rigid religious conviction, there is a clear positive slope, suggesting that the things a person chooses to read depend heavily on their prior attitudes toward the issue. At this level of rigid religious conviction, a one-unit increase in support for gun control predicts an increase of 1.41 pro-gun-control items viewed (95% confidence interval from 0.878 to 1.932). In contrast, among individuals with a low level of rigid religious conviction (10th percentile), the

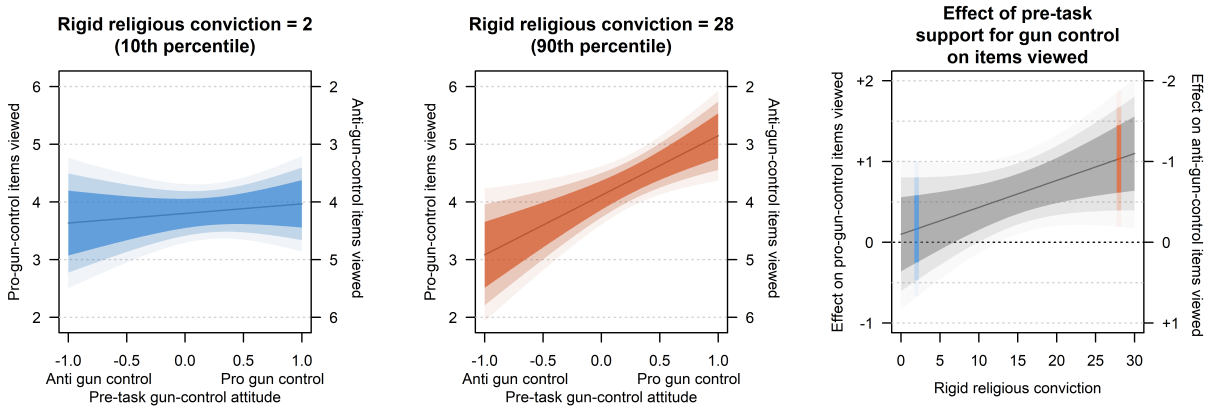
Table 2: OLS estimates for linear regression models. The dependent variable is the quantity of pro-gun-control items viewed (which is always equal to 8 minus the quantity of anti-gun-control items viewed). Gun-control attitude is a continuous measure ranging from -1 to +1, with positive values representing support for gun control and negative values representing opposition to gun control.

	(1)	(2)	(3)	(4)	(5)
Constant	3.933*** (0.191)	4.786*** (0.587)	5.471*** (0.702)	4.621*** (0.590)	5.258*** (0.704)
Gun-control (GC) attitude	0.003 (0.288)	−0.370 (0.970)	−1.765 (1.112)	−0.667 (0.968)	−1.842* (1.109)
Age		−0.016** (0.008)	−0.015* (0.008)	−0.017** (0.008)	−0.016** (0.008)
Woman		−0.057 (0.218)	0.094 (0.222)	0.001 (0.219)	0.122 (0.222)
Education		0.083 (0.060)	0.075 (0.059)	0.094 (0.059)	0.086 (0.059)
Political knowledge		−0.001 (0.049)	−0.003 (0.048)	−0.005 (0.050)	−0.005 (0.050)
Political interest		−0.595 (0.389)	−0.590 (0.385)	−0.446 (0.388)	−0.462 (0.386)
Conservatism self-assess		−0.258 (0.290)	−0.180 (0.290)	−0.286 (0.287)	−0.211 (0.288)
Lean Republican		−0.216 (0.275)	−0.193 (0.273)	−0.141 (0.274)	−0.129 (0.272)
Need for closure (NFC)			−0.046** (0.021)		−0.042** (0.021)
CRT-intuitive score				−0.045 (0.089)	−0.023 (0.088)
Rigid religious conviction	−0.003 (0.010)	0.005 (0.012)	0.009 (0.012)	0.008 (0.012)	0.011 (0.012)
GC attitude * Age		0.014 (0.012)	0.009 (0.012)	0.013 (0.012)	0.009 (0.012)
GC attitude * Woman		−0.077 (0.349)	−0.335 (0.356)	−0.289 (0.353)	−0.486 (0.358)
GC attitude * Education		−0.123 (0.100)	−0.109 (0.099)	−0.133 (0.099)	−0.118 (0.098)
GC attitude * Knowledge		−0.086 (0.084)	−0.071 (0.083)	0.001 (0.087)	0.002 (0.087)
GC attitude * Interest		0.630 (0.647)	0.544 (0.642)	0.393 (0.648)	0.362 (0.644)
GC attitude * Conservatism		−0.185 (0.473)	−0.293 (0.469)	−0.210 (0.469)	−0.309 (0.467)
GC attitude * Republican		0.518 (0.521)	0.415 (0.517)	0.514 (0.518)	0.431 (0.515)
GC attitude * NFC			0.092*** (0.033)		0.079** (0.033)
GC attitude * Intuitive				0.467*** (0.153)	0.407*** (0.154)
GC attitude * Religious	0.050*** (0.017)	0.054*** (0.020)	0.045** (0.020)	0.039* (0.020)	0.033* (0.020)
Observations	355	354	354	354	354
R^2	0.084	0.136	0.159	0.159	0.177

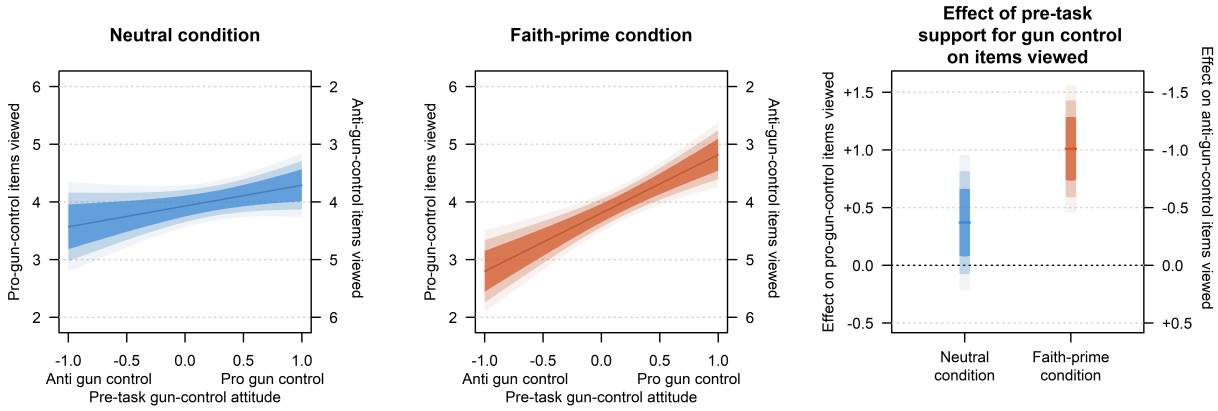
Note: *p<0.1; **p<0.05; ***p<0.01



(a) Model 1 of Table 2 (with no control variables)



(b) Model 5 of Table 2 (with all control variables)



(c) Model 1 of Table 3 (experimental data)

Figure 9: For each model, the first two plots show predicted values of the outcome variable. The third plot shows estimated marginal effects. Because the total of all items viewed is constrained to 8, the count of anti-gun-control items viewed is always equal to 8 minus the count of pro-gun-control items viewed. Thus the vertical axis can be used simultaneously to represent both the count of pro-gun-control items viewed and the count of anti-gun-control items viewed if the axis is reversed. The secondary vertical axis on the right side of each plot does not represent a completely separate variable but rather a simple reversal of the left-side vertical axis.

slope is near zero (95% confidence interval from -0.408 to 0.615), suggesting that information-search behavior does not appear to be driven much by prior attitudes. The third panel of Figure 9a shows estimated marginal effects of pre-task support for gun-control on the count of pro-gun-control items viewed. In this plot, positive values on the vertical axis represent selective exposure to attitude-congruent information, while negative values would represent a preference for incongruent information. These marginal effects are plotted across most of the range of values of rigid religious conviction. The plot shows that the effect of pre-task support for gun-control on the count of pro-gun-control items viewed clearly increases as rigid religious conviction increases (p=.003), suggesting that the preference for attitude-congruent information increases as rigid religious conviction increases.

To test the robustness of the association between rigid religious conviction and selective exposure, I estimate another model, seen in column 2 of Table 2, which includes the following control variables: age, gender, level of education, performance on a test of political knowledge, self-reported level of interest in politics, partisan leaning (forced dichotomous choice, Democrat or Republican), and self-assessed position on a liberal-conservative continuum. The model also includes a multiplicative interaction between pre-task gun-control attitude and each of these control variables. Even when controlling for all of these extra variables, the positive interactive effect of rigid religious conviction and pre-task gun-control attitude is still present (p=.006).

However, because rigid religious conviction is correlated with need for closure (r=0.213, p<.001) and with intuitiveness (r=0.295, p<.001), it is possible that the effects of these variables could account for some of the estimated effects of rigid religious conviction. Adding NFC and CRT-intuitive scores to the model (column 5 of Table 2) decreases the estimated interactive effect of rigid religious conviction by about 40% (from 0.054 to 0.033), but some of the effect still remains (p=.099). Predicted values of the dependent variable based on this model can be seen in Figure 9b along with estimated marginal effects. Even when including all of these control variables, selective exposure to attitude-congruent information still appears to be greater among those with rigid religious convictions.

Effect of Faith-Prime Manipulation

The experimental priming manipulation makes it possible to test whether increased salience of religious faith has a direct effect on information-search behavior. To test the effects of the manipulation, I estimate another model of the quantity of pro-gun-control items viewed, this time using the following variables: treatment condition, pre-task gun-control attitude, and a multiplicative interaction between the two. The estimated coefficients for this model can be seen in column 1 of Table 3. The parameter of greatest interest for testing the effects of the priming manipulation is the coefficient for the interaction between pre-task gun-control attitude and treatment assignment.

The estimated interaction coefficient is positive (p=.039), indicating that the effect of pre-task gun-control attitudes on the quantity of pro-gun-control items viewed is stronger among those who were primed with religious words. Priming people with religious words increases selective exposure to attitude-congruent information in the gun-control information-search task.

Table 3: OLS estimates for linear regression models. The dependent variable is the quantity of pro-gun-control items viewed (which is equal to 8 minus the quantity of anti-gun-control items viewed).

	(1)	(2)
Constant	3.925***	4.173***
	(0.142)	(0.294)
GC attitude (support for gun control)	0.371	−0.220
	(0.226)	(0.415)
Faith-prime manipulation	−0.113	−0.451
	(0.189)	(0.386)
Rigid religious conviction		−0.015
		(0.016)
GC Attitude * Faith prime	0.640**	0.392
	(0.310)	(0.579)
GC Attitude * Rigid religious conviction		0.042*
		(0.025)
Prime * Rigid religious conviction		0.025
		(0.021)
GC Attitude * Prime * Religious conviction		0.018
		(0.033)
Observations	358	355
R^2	0.067	0.101
Note:	*p<0.1; **p<0.05; ***p<0.01	
	Standard errors in parentheses.	

Predicted values of the outcome variable based on this model are plotted in the first two panels of Figure 9c above. In these two plots, a positive slope represents a preference for reading attitude-congruent information, and a steeper slope indicates a stronger preference. The slope for the faith-

prime condition is 1.01 (95% confidence interval from 0.594 to 1.427), meaning that a one-unit increase in gun-control support (e.g. an increase from neutral to strongly support or an increase from strongly oppose to neutral) predicts an increase of 1.01 pro-gun-control items viewed. In contrast, the slope for the neutral treatment condition is only 0.371 (95% confidence interval from -0.072 to 0.813). These two slopes can be compared more easily by examining the marginal effects plot (in the far-right panel of Figure 9c). In this plot, higher values on the vertical axis can be interpreted as a greater preference for attitude-congruent information. The plot shows that pre-task gun-control attitudes have a greater effect on gun-control information-search behavior among those who have been primed with religious words than among those who have not (p=.039). These results show that priming participants with religious words makes pro-gun-control participants more likely to read pro-gun-control arguments and makes anti-gun-control participants more likely to read anti-gun-control arguments.

Interaction of Experimental Treatment & Rigid Religious Conviction

It is reasonable to imagine that the priming manipulation might be effective primarily among religious individuals. Reminding subjects of their religious faith might have less effect among those do not have any religious faith. A test of whether the effect of the prime is stronger among subjects who have stronger pre-existing religious convictions was not planned for this study. Such a test involves a three-way interaction, and the sample size of this study unfortunately does not offer much statistical power for such a test. However, I estimated the three-way interactive model for exploratory purposes. The estimated coefficients for this model can be seen in column 2 of Table 3.

The estimated coefficient for the three-way interaction between pre-task gun-control attitude, rigid religious conviction, and faith-prime treatment is positive, as expected, but the standard error is quite large so the coefficient estimate is not statistically distinguishable from zero (p=.582). The reader should thus not be confident about how the effect of the prime varies with levels of rigid religious conviction. Unlike in Model 1 of the same table, the coefficient for the two-way interaction between gun-control attitude and faith-prime treatment is not significant (p=.498), but this should not be interpreted to mean that the prime has no effect on the correlation between pre-task attitude and information-search behavior. It is important to remember that when a three-way interaction is added to the model, the two-way interactive term takes on a different meaning. This coefficient represents the effect of the priming treatment when rigid religious conviction is zero.

Estimated marginal effects of pre-task gun-control attitude based on this three-way interactive model can be seen in the first panel of Figure 10. These marginal effects are shown separately for the faith-prime treatment condition and the neutral condition and are separated by level of rigid religious conviction. The vertical axis in this plot can be interpreted as the strength of preference

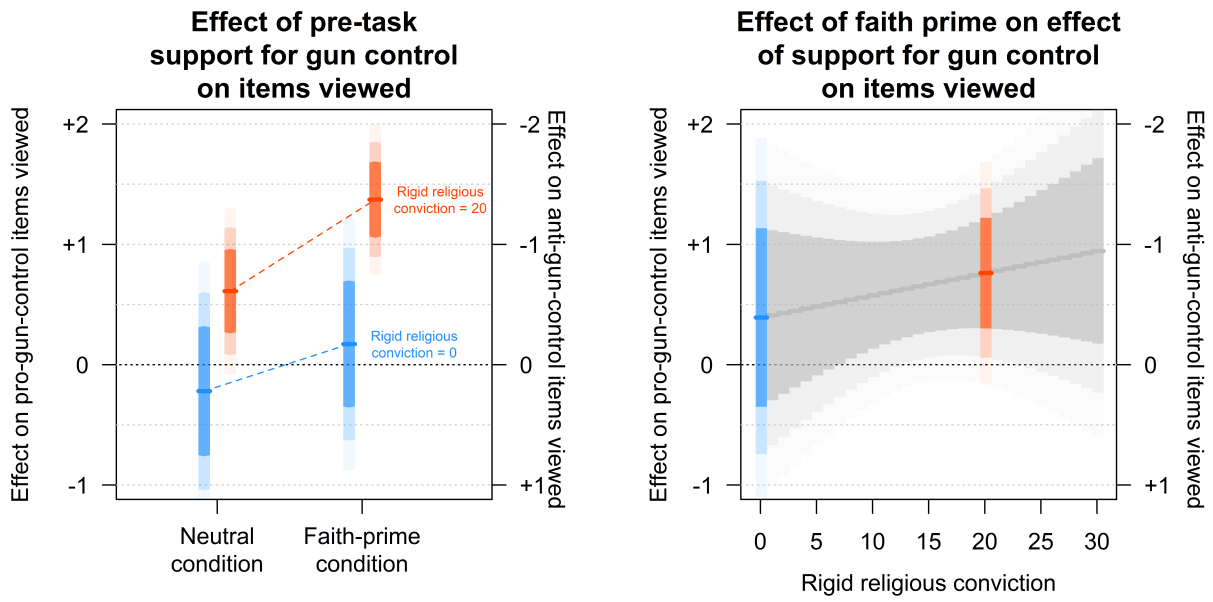


Figure 10: Three-way interactive model (Model 2 in Table 3). Shading represents 80%, 95%, and 99% confidence intervals. The first plot shows the marginal effects of pre-task gun-control attitude on the quantity of pro-gun-control (and anti-gun-control) items viewed. This vertical axis can be interpreted as the strength of preference for attitude-congruent information. The second plot shows the effect of the faith-prime treatment on the marginal effect of pre-task gun-control attitude on the quantity of pro-gun-control (and anti-gun-control) items viewed. This vertical axis can be interpreted as the effect of the prime on selective exposure to attitude-congruent information. Because the total of all items viewed is constrained to 8, the count of anti-gun-control items viewed is always equal to 8 minus the count of pro-gun-control items viewed. The secondary vertical axis on the right side of each plot thus does not represent a separate variable but rather a simple reversal of the left-side vertical axis.

for attitude-congruent information. Negative values would represent a preference for incongruent information. When rigid religious conviction is zero, no significant effect of the faith-prime treatment on selective exposure can be inferred (p=.498). However, when rigid religious conviction is at a relatively high level of 20, the preference for attitude-congruent information is greater in the faith-prime treatment condition than in the neutral condition (p=.034).

The second panel shows the estimated effect of the faith-prime treatment across all levels of rigid religious conviction. In this plot, positive values on the vertical axis indicate that the faith-prime treatment increases the preference for reading attitude-congruent information, and negative values would indicate that the faith prime decreases the preference for attitude-congruent information. The results show that at high levels of rigid religious conviction the faith prime has a significant effect on selective exposure, though the large standard errors leave much uncertainty about how strong the effect is. At lower levels of rigid religious conviction, the faith-prime treatment may or may not have an effect. At the lowest level of rigid religious conviction, the large confidence interval ranges from a weak negative effect of the prime on selective exposure to a strong positive effect. Again, though, it is important to stress that this study was not designed to test whether the strength of the faith-prime treatment varies with the level of rigid religious conviction. The more important result is that the prime has a significant average treatment effect (p=.039), as shown by model 1 in Table 3 and by Figure 9c.

Discussion

In this chapter I argue that rigid religious faith promotes selective exposure to attitude-congruent political information. Messages of rigid faith lead individuals to believe that maintaining their beliefs is desirable and could thus encourage them to engage in motivated reasoning and selective exposure to increase the likelihood of maintaining their religious beliefs. This could lead to the development of a habit of selective exposure, which might then be applied more broadly to other non-religious contexts such as the context of political information seeking.

The study reported here provides observational and experimental evidence for an effect of rigid religious faith on selective exposure. In an information-search task on the topic of gun control, the proportion of pro-gun-control arguments an individual chooses to read is positively correlated with the individual's pre-task level of support for gun-control policies, and this correlation is stronger among subjects who score higher on a measure of rigid religious conviction. Among pro-gun-control individuals, those with rigid religious convictions are more likely than those without such convictions to choose to read pro-gun-control arguments over anti-gun-control arguments. Among anti-gun-control individuals, those with rigid religious convictions are more likely than those without such convictions to choose anti-gun-control arguments over pro-gun-control arguments. In

other words, when seeking information on a non-religious political issue, individuals with rigid religious convictions are more likely than others to selectively read arguments that are congruent with their prior attitudes on the issue. This finding cannot be explained by measured differences in age, gender, education level, political knowledge, political interest, self-labeled ideology, or party preference.

The argument of this chapter is that rigid religious faith promotes selective exposure to attitude-congruent political information, but there are possible alternative explanations for an observed correlation between rigid religious conviction and selective exposure. There could be a confounding variable. Some predispositional variable, such as a need for cognitive closure or a preference for intuition over reflection, could cause individuals to be more religious and could have a separate effect on habits of selective exposure in political information seeking. To address this concern, I have my participants complete a modified version of the Cognitive Reflection Test and answer a subset of items from the Need for Closure Scale. I find that conditioning on these two variables reduces, but does not completely eliminate, the estimated association between selective exposure to attitude-congruent political information and rigid religious conviction. This could mean some of the initially observed correlation between rigid religious conviction and selective exposure is generated by something other than an actual effect of religious faith on selective exposure, or it could just mean these other variables partially mediate the effect of rigid religious faith on selective exposure. However, whichever of these is the correct explanation for the reduction in the estimated effect of rigid religious conviction on selective exposure, some of the estimated effect still remains even after conditioning on need for closure and on Cognitive Reflection Test scores. This suggests that a need for closure and a preference for intuition are not the only mechanisms driving the correlation between rigid religious conviction and selective exposure.

Of course, it is still possible that there is some other unmeasured variable that affects both rigid religious faith and selective exposure and is thus responsible for the observed covariation between them. Unfortunately, this study does not, and cannot, measure every possible confounding variable. Even if it could, reverse causality is also a potential concern, as having a greater predisposition to seek attitude-congruent information might make people more likely to hold rigid religious convictions. The results of the observational part of this study should be interpreted only as evidence of correlation between rigid religious conviction and selective exposure — not as perfect evidence of a direct causal relationship.

These potential concerns regarding causal inference are alleviated by the experimental part of this study. Just prior to the gun-control information-search task, a scrambled-sentence task is used to prime half the participants with words related to religious belief. The correlation between pre-task gun-control attitudes and gun-control information-search behavior is stronger among subjects primed with religious words than among those primed with neutral words. The prime caused pro-

gun-control participants to read more pro-gun-control arguments and it caused anti-gun-control participants to read more anti-gun-control arguments. This demonstrates that increased salience of religious faith causes an increase in selective exposure when seeking information on a non-religious political issue.

Limitations and future work

This study has several limitations. First, this study measures selective exposure in relation to only one political topic. The topic of gun policy was chosen for this study because it is a highly controversial topic in American politics on which many people hold strong opinions (Parker et al. 2017) and because this topic has been used in previous research demonstrating the phenomenon of selective exposure to attitude-congruent information (Taber & Lodge 2006). It is also important that there are many people with rigid religious convictions on both sides of the gun-control issue and many people without rigid religious convictions on both sides of the issue. However, the use of only this one topic could be a weakness of this study. While this topic does not seem explicitly to be a religious issue, it could be possible that some people get their gun-policy opinions from their religion. If some people have religious beliefs that dictate pro-gun-control attitudes and others have religious beliefs that dictate anti-gun-control attitudes, then the topic of gun control would not be a non-religious issue and the results observed in this study thus would not necessarily demonstrate that rigid religious conviction is associated with selective exposure in the context of non-religious political issues. However, it would be difficult to think of other political topics that would not be similarly subject to this concern, so the topic of gun policy seems as appropriate a topic for this study as any other topic would be. There is little reason to suspect that the topic of gun policy would be unique in terms of the degree to which religious faith affects the tendency to seek attitude-congruent information on the issue. However, future studies should test the theory using multiple political topics.

Second, this study uses only one type of measure of selective exposure, and the information-search task used here may not be representative of the environments in which people typically make their information-seeking decisions. In this study, participants see a clear list of available arguments all at the same time with obvious labels indicating which side of the debate each item supports. In normal life, the available information is rarely presented so neatly. The task used in this study also requires all participants to read the same total quantity of items. In normal life, people are free to choose not only which things they prefer to read but also how much they want to read. The current study cannot capture differences in the tendency to seek information — only differences in the tendency to favor one type of information over the other. If, hypothetically, the tendency to favor attitude-congruent information over incongruent information is stronger (or weaker) when people are required to choose something to read than when they are free to read

as much or as little as they like, then this task might not provide an accurate measurement of the tendency to favor congruent information.

The task used in this study also makes it easy for participants to see whether their own information-search behavior is biased toward one side or the other. This could cause some participants to try to be more balanced in their information-search behavior than they typically would be. Almost half of the participants chose to read exactly equal quantities of pro and anti items. This study should thus not be taken to provide an estimate of the average amount of selective exposure that occurs in real-world information seeking. However, under the assumption that the use of this information-search task reduces selective exposure (in comparison to real-world behavior) just as much among people with rigid religious convictions as it does among people without such convictions, this study can still provide a valid test of whether rigid religious conviction increases selective exposure. To improve on the current study, future research should test the theory using other types of measures of selective exposure that can better simulate real-world environments.

Third, the MTurk sample used in this study may not be representative of the general population. MTurk users may be especially compliant and may try to do what they think the researchers would prefer. MTurk users may thus be more motivated than other samples to read a balanced set of pro and anti items. The amount of selective exposure to attitude-congruent information in the general population could thus be underestimated in this sample. It is also reasonable to suppose that the average level of religious conviction may be different in this sample than in the U.S. population. Fortunately though, this study is not primarily interested in estimating the average level of selective exposure or the average level of rigid religious conviction in the population of any particular country. Rather, this study is interested only in the covariation between these two variables. There is no obvious reason to suspect that rigid religious conviction would affect selective exposure only among MTurk workers, but that is always possible. Future studies should test whether the observed effects are stronger or weaker in other samples.

Fourth, this study makes no differentiation between different types of religions nor between the effects of different aspects of religiosity. In this chapter I argue that rigid faith is the aspect of religiosity that promotes selective exposure, but it could be that other aspects of religiosity are the driving forces. I estimated other models using, in place of the rigid religious conviction scale, a more general measure of religiosity: self-placement on a continuous slider ranging from "not at all religious" to "extremely religious." The results using this alternative measure of religiosity are similar to the results using the scale of rigid religious conviction. However, this could simply be because self-identified religiosity is strongly correlated with rigid religious conviction. It does not necessarily imply a direct relationship between religiosity and selective exposure that is independent of rigid religious conviction. The sample size of the current study does not make it easy to separate the effects of different aspects of religiosity. Future research on this topic should

explore the nature of religious faith more precisely to identity exactly what aspects of religion are responsible for increased selective exposure or motivated reasoning.

Despite some limitations, the value of this study's findings should not be too heavily discounted. This study provides the first known evidence that selective exposure to attitude-congruent information is stronger among individuals who hold rigid religious convictions and that religious faith increases selective exposure. Future research should seek to replicate and elaborate on this important finding.

Chapter 3: Social Environment Homogeneity

In the preceding chapters, I introduced the concept of selective exposure to attitude-congruent information and the idea of individual differences in susceptibility to this type of behavior. I also showed evidence for two important variables that may be factors in such individual differences. Another possible cause of individual differences in the preference for seeking attitude-congruent information could be differences in the political diversity or homogeneity of a person's social environment. There are at least two mechanisms through which having a social network with diverse opinions could decrease the bias toward seeking attitude-congruent information. First, those who are accustomed to encountering challenging information could develop a greater affinity for, or tolerance for, encountering challenging information. Second, positive feelings toward the people in one's social network could lead to positive feelings toward the type of information exposure that is experienced when communicating with those people.

Frequency of exposure to challenging information

People tend to prefer things with which they are familiar (Zajonc 1968). If encountering attitude-incongruent information is more familiar, such encounters may thus be more desirable. Lack of exposure to something can even produce greater fears of that thing. Repeated exposure to a feared stimulus, if there are no negative consequences other than the fear, can reduce such fear over time (Myers & Davis 2007). A person who has not had much experience with encountering challenging information could overestimate how unpleasant the experience will be, while a person whose social environment provides many opportunities to encounter diverse information may have learned that such encounters are not so unpleasant. Individuals who have habitually been exposed to challenging information may have developed a sort of immunity to the aversive effects associated with such exposure.

Individuals who have often encountered information that challenges their opinions may also occasionally have found such information to be valuable and may have learned that having access to all available information can help ensure that their opinions are more fully informed (Mutz 2002b). This could make them more willing to seek challenging information.

Of course, discussions in a social network are just one possible vehicle by which political information can reach an individual. Under this theory, challenging information that is encountered by means other than social interaction could also have a similar effect. However, social interaction provides a large part of the political information and opinions an individual encounters (Huckfeldt

et al. 1995; McClurg 2006), and it is the source on which the present study focuses.

Positive feelings toward sources of challenging information

When two things are encountered together, affect toward one of those things can be influenced by prior affect toward the other. For example, Lodge & Taber (2013) had research subjects read a description of a political candidate while they were being primed with positive words (e.g. laughter, miracle, graduate, rainbow) or negative words (e.g. vomit, funeral, loneliness, ulcer). When subjects were primed with positive words, their feelings toward the candidate became more positive. Lodge and Taber describe this result as "affect transfer." Because the two things (the political candidate and the primed concepts) were encountered together, affect toward one was transferred to the other.

If a person encounters challenging information when communicating with a person, affect toward that person could be transferred to the experience of encountering challenging information. People tend to interact with people they like (Casciaro & Lobo 2005). People are also likely to develop feelings of closeness toward the people who spend a lot of time with them. Feelings toward close members of a social network should thus generally be positive. The experience of encountering attitude-incongruent information may typically be associated with negative affect and most individuals might thus prefer to avoid it Festinger (1957); Zhu et al. (2017). However, if challenging information is often encountered when interacting with an individual toward whom the subject feels positively, the positive affect toward that individual could infect the affect that is associated with the experience of encountering challenging information. Having a social network of individuals toward whom the subject feels positively but with whom the subject encounters disagreement could thus reduce the subject's negative affective association with encountering challenging information.

Potential arguments for an opposite effect

While there are reasons to believe that exposure to a diverse social environment may reduce the preference for seeking attitude-congruent information, there are also plausible arguments for an opposite effect. First, when people are confronted with information that challenges their opinions, this may act as a threat, which could trigger defenses. This sort of threat might encourage an individual to seek information that will re-fortify their prior beliefs. Exposure to counter-attitudinal information in a politically diverse social environment could thus increase susceptibility to defensive motivated reasoning. For example, (Chen et al. 2014) found that only subjects who had been exposed to a news story that challenged their beliefs about current economic performance were more likely to seek information from attitude-congruent sources when subsequently given the opportu-

nity to do so. However, this is an effect of short-term, impersonal exposure to attitude-incongruent information. It does not answer the question of what effects should be expected from real social interaction with actual persons (especially well-liked persons) who have opposing views nor what effects should be expected from long-term persistent exposure to challenging information.

A second reason to suppose that heterogeneous social environments may not increase counter-attitudinal information seeking follows from the finding that individuals who have had more exposure to alternative views may already be more aware of the rationales behind opposing attitudes (Mutz 2002a). They may thus have less reason to seek information about alternative views because they are already aware of that information, while an individual who is not yet aware of opposing arguments may have more reason to try to learn about them. Individuals who have a politically diverse social environment may thus expend less effort in the search for challenging information, regardless of whether they are less motivated to avoid challenging information.

Previous research on effects of social environment homogeneity

The question of whether the homogeneity of one's social environment affects the tendency to seek attitude-congruent information is a novel research question. However, there has been much research investigating relationships between social networks and political behavior more generally, and some of this past research could be somewhat relevant to the present research question. For example, Mutz (2002a) found that people who have a more diverse social network tend to have more ambivalent attitudes. This was tested using the discussant-name-generator method (Huckfeldt & Sprague 1987, 1991; Huckfeldt 2001). In a name-generator task, respondents are first asked to list the names of a few individuals with whom they discuss their opinions on politics or other important matters. After providing a list of names, the participant is asked questions about each named discussant. This generates data on the nature of the respondent's social network, which can be used to test, among other things, the effect of having a more homogeneous (or a more heterogeneous) social environment. This same research paradigm been used to show that those who report greater diversity of opinion among their named discussants are more aware of rationales for opposing views (Mutz 2002b). Of course, being more aware of opposing views does not necessarily imply that such people will be more willing to seek information about opposing views. However, Mutz (2002b) also tested the association between social-network diversity and tolerance. Research participants were asked to name their most disliked group and then asked whether they would allow freedom of speech and other civil liberties for that group. The results showed that those who report greater diversity of opinion among their named discussants also exhibit greater tolerance toward disliked groups.

Identifying the effects of exposure to a politically diverse social environment using these types of studies is problematic, because some individuals may be more likely than others to choose di-

verse social networks. The possibility of reverse causality could be a major problem for causal inference. However, the same correlation between diversity of the discussant network and tolerance of disliked groups was later found when testing workplace discussant networks, which are less likely than other types of social networks to have been selected based on political similarities (Mutz & Mondak 2006). (Mutz 2002b) also found that experimental manipulation of exposure to diverse information has a direct effect on political tolerance. In a lab experiment, some participants were randomly assigned to be exposed to arguments in opposition to their own attitudes. Those who had read arguments incongruent with their own attitudes reported greater tolerance toward their disliked groups, though this effect was limited to those who were high in perspective-taking ability. Because the arguments that had been read were not necessarily related to the positions of the disliked group in question, these results seem to imply that exposure to diverse information leads to a general increase in tolerance across different contexts. This does not necessarily mean that individuals with greater levels of exposure to diverse information will be more likely to seek counter-attitudinal information, but it seems plausible that individuals who are more tolerant toward those with opposing views might be more willing to seek information from opposing sources.

In more recent findings, individuals who report greater political dissimilarity among their social-network discussants tend to engage in greater amounts of political information seeking. Using a simulated information-search task in a laboratory setting, Levitan & Wronski (2014) found that participants who had reported having more heterogeneous discussant networks spent more time both seeking and reviewing information during the search task. The subjects who reported having more diverse networks also reported that they spend more time seeking political information from mass-media sources. However, a greater tendency to seek political information does not necessarily imply a greater willingness to seek counter-attitudinal information. A person can spend a lot of time reading or watching political content but may consume only one-sided content.

(Klar 2014) found that exposure to heterogeneous group discussion led to a greater preference for future heterogeneous group discussion. Student subjects were randomly assigned to discuss health-care policy and energy policy either with a homogeneous group of 8 Democrats or a heterogeneous group of 4 Democrats and 4 Republicans. After these discussions, when participants were asked whether they would prefer a homogeneous group or heterogeneous group for hypothetical future discussions, participants reported greater affinity for the type of group they had experienced. These results may support the idea that exposure to diverse opinions can lead to a greater preference for being exposed to diverse opinions. However, it is possible that this may have been a very specific effect, with respondents simply reporting that they enjoyed the specific experience they had just had, rather than a greater preference for seeking counter-attitudinal information more generally. It also is not clear whether this self-reported preference would extend to actual behavioral

changes, nor is it clear whether any long-term effects would persist when the discussion experience is no longer salient.

Overview of studies

The question of whether a heterogeneous social environment decreases the tendency to seek attitude-congruent information remains unanswered. Here I describe two studies that investigate this question. identifying the effects of having and interacting with a heterogeneous social network is problematic. Individuals can, at least to some extent, choose their social environment. Those who have a greater aversion to being exposed to challenging information may have a greater tendency to choose a homogeneous social network. The possibility of reverse causality could thus be a major threat to causal inference in any study of this research question. Ideally, my theory would be tested using a situation in which subjects have been randomly assigned to live with, work with, or form friendships with either similar or dissimilar others for an extended period. Given the difficulty of finding or arranging such a situation, some degree of compromise in the research design may be necessary.

The first study described here relies on a situation that imperfectly approximates a natural experiment: student housing. Residents of student housing often live with roommates they did not previously know. This reduces the risk that subjects have used political homogeneity as a criterion for selecting into their social environments. In this study, students are asked to report the level of political similarity within their roommate dyads. Participants also complete an information-search task to determine whether students who live with a dissimilar roommate are more open to seeking information that challenges their prior opinions.

In the second study, I use an experimental treatment to manipulate the salience of similarity or dissimilarity within participants' social networks. Subjects are randomly assigned to write about either similarities or differences between their discussants and selves to manipulate their perceptions of network homogeneity. If subjects can be induced to think of well-liked members of their social network as being different from their selves, this could decrease the mental association between disagreement and negative affect. Individuals who are induced to think of their social networks as being more heterogeneous should thus exhibit a weaker preference for attitude-congruent information in an information-search task.

Study 1: Student Housing

Because individuals can choose their social environments to some extent, identifying the effects of having a homogeneous or heterogeneous social environment is problematic. Those who have a

greater aversion to challenging information may be more likely than others to select into homogeneous social networks. This study seeks to overcome this problem by studying residents of student housing. Many students live with room-mates they did not previously know. If a roommate was not previously known to the student, then the room-mate was probably not selected on the basis of political homogeneity. This should make it possible to test whether living with a dissimilar room-mate decreases the tendency to avoid attitude-incongruent information.

Sample

At Stony Brook University, approximately nine thousand undergraduate students live in student housing, and most of these residents share a bedroom with another student. Very few residents request to live with a room-mate they previously knew. Most request to live with roommates they found through a system of housing-match profiles run by the student housing office. In this system, future residents answer a short questionnaire about the factors that are important to them in choosing a roommate. Their answers to these questions form a profile that can be viewed by others who are seeking a roommate. The questions that are included in the profile-generating process can be found in the appendix. Based on these questions, a match percentage for each possible pair of profiles can be calculated. A future resident who is searching for a roommate can be shown a list of the student profiles that are a strong match for their own profile. Students can then contact each other to discuss the possibility of living together. Because the questions in the profile questionnaire do not explicitly mention political orientation, it may be reasonable to assume, cautiously, that most residents do not choose their room-mates on the basis of political homogeneity.

The data were collected late in the Spring semester of 2018. The student-housing office sent an email to all residents of undergraduate housing inviting them to participate in an internet-based survey. In return for their participation, residents were offered an entry into a lottery for a cash prize. A second reminder email was sent out a week later. A total of 919 residents completed to the survey. This is the same sample used in chapter 1 (labeled "study 2" in that chapter).

Outcome variable: Preference for attitude-congruent information in information-search task

As described in the previous chapters, participants reported their attitudes on the issue of gun control using a continuous slider ranging from "strongly oppose" to "strongly support". A second item asked them to report the extent to which they prefer an increase or decrease in gun-control legislation, using a continuous slider ranging from "large decrease" to "large increase." Responses on each of these items are coded to range from -1 to 1. These two items are strongly correlated (r=.55). For each participant, the mean of these two items is the participant's pre-task gun-control attitude score (M=0.514, SD=0.429). The observed frequency distribution of the pre-task attitudes

among this sample was shown in the second panel of Figure 1 in chapter 1. Participants in this study also completed the static information-search task that was described in the previous chapters. Recall that in this task participants were shown a static list of eight pro-gun-control and eight anti-gun-control arguments and are required to select eight arguments to read. I calculate how many of those eight viewed items are pro-gun-control items (M=4.18, SD=1.45), which enables me to calculate the degree to which the tendency to view pro-gun-control rather than anti-gun-control items is correlated with a participant's pre-task level of support for, or opposition, to gun control.

Observational Treatment Variable: Roommate Similarity

At the beginning of the survey, prior to the information-search task, participants answered questions about their own political ideology and party preference. Participants who did not choose Democrat or Republican as their party identification were asked the following queston: "Do you think of yourself as closer to the Republican party or to the Democratic party?" All respondents were forced to choose one of these two parties. The sample included 84% Democratic-leaning and 16% Republican-leaning participants.

At the end of the survey, after the information-search task, participants answered questions about their roommates. Participants were asked how many people share their bedroom. Among the 919 participants, 593 said they had one roommate, 87 had two roommates, and 239 had no roommates. For simplicity of comparisons, the data analyses that follow will focus only on those participants who have one roommate. Participants were then asked a series of questions about each roommate. Among other questions, participants were asked "If this person had to choose between the Republican Party and the Democratic Party, which would this person prefer?" As before, they were forced to choose one party or the other when answering this question. Each participant can thus be coded as having a same-party roommate or an opposite-party roommate.

Other variables

Data for several other variables were collected to be used as controls in the analysis. Students reported their age, their gender, their race or ethnicity, and their citizenship status in the US. They also completed an eight-question test of political knowledge. At the end of the survey, participants were asked to provide their university identification number to enable the Office of Student Affairs to match participants' responses to those of their roommates. The university also supplied data for each participant's grade-point average (GPA) and the number of credits each student had completed toward their degree. Measurement methods and descriptive statistics for the control variables can be found in the appendix.

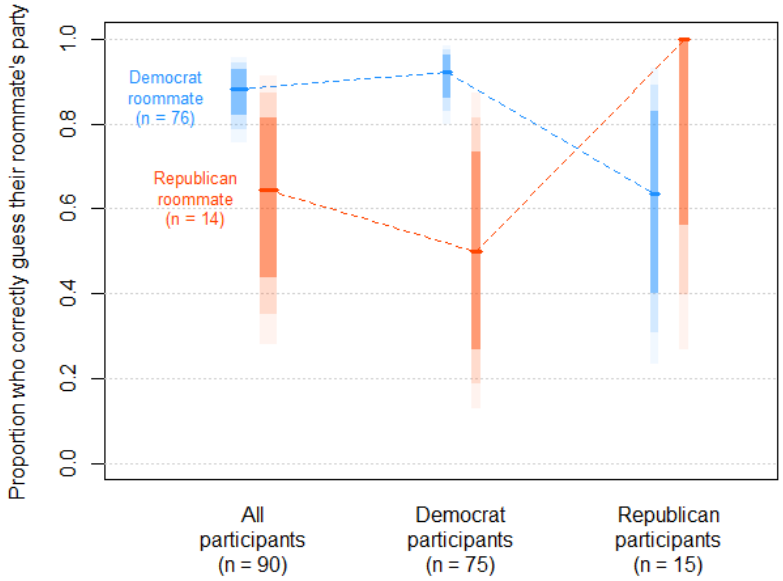


Figure 11: Accuracy of participants' perceptions of their roommates' party preferences. Shading represents 80%, 95%, and 99% confidence intervals.

Diagnostics: Accuracy of perceptions, test for sorting

Among the 593 participants who had one roommate, 90 had a roommate who was also a participant. Because so few of the participants had a roommate who also participated, most of the data analysis for this study will rely on participants' perceptions of their roommates' political preferences. However, the availability of self-report data for some roommates makes it possible to check whether participants' perceptions of their roommates' party preferences tend to be accurate. In 84% of the cases for which roommates' self-reports are available, the participant guessed the roommate's party preference correctly. Figure 11 shows that accuracy was 88% among participants with Democratic-leaning roommates and 64% among participants with Republican-leaning roommates. This suggests that participants' guesses are not entirely random. Participants' perceptions of their roommates' party preferences are at least somewhat correlated with their roommates' actual preferences.

If roommates were assigned randomly, an observed correlation between roommate homogeneity and selective exposure to attitude-congruent information could be used as evidence that having a same-party roommate affects the tendency to seek attitude-congruent information. Most roommates are not assigned randomly. However, an assumption that students do not choose their roommates on the basis of political similarity (nor on the basis of any variables that are correlated with political similarity) would allow similar conclusions. This assumption may or may not be reasonable. Figure 12 shows the data for whether roommates are sorted by party. The esti-

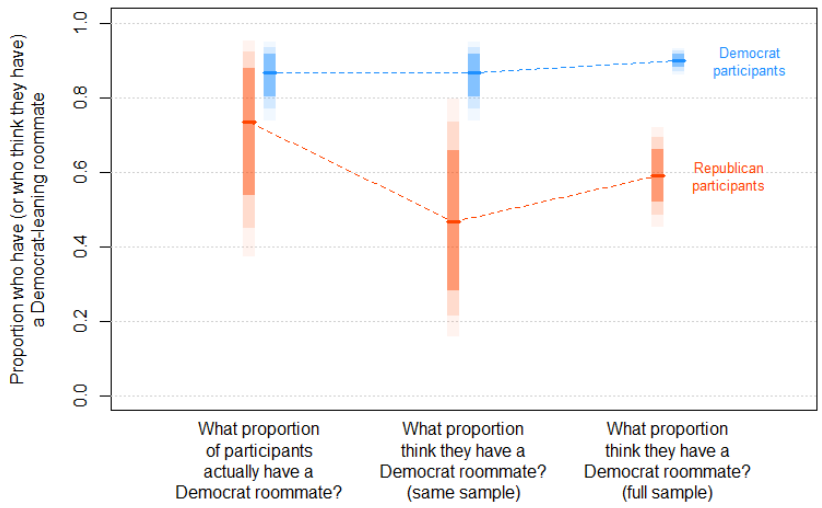


Figure 12: What proportion of participants have a Democratic-leaning roommate and what proportion think they have a Democratic-leaning roommate? "Same sample" refers to the set of participants whose roommates' self-reports are available. "Full sample" uses all participants, including those whose roommates did not participate in the survey. Shading represents 80%, 95%, and 99% confidence intervals.

mates at the left end of the figure use roommates' actual self-reported party preferences. Among participants whose roommates participated in the study, 86% of the Democratic-leaning participants had a Democratic-leaning roommate, and 73% of the Republican-leaning participants had a Democratic-leaning roommate. A 95% confidence interval (CI) for the difference between these two proportions ranges from -.41 (a strong preference for same-party roommates) to +.14 (a weak preference for opposite-party roommates). The data thus do not provide strong evidence of sorting. However, this could just be because the sample is small, so this should not be interpreted as strong evidence that roommates are not sorted by party.

Although the data for roommates' actual self-reported party preferences does not provide evidence of sorting, an analysis of participants' perceptions of their roommates' party preferences shows evidence that participants believe they are somewhat sorted. The far right side of Figure 12 shows that among all Democratic-leaning participants who have one roommate ($n = 500$), 90% believe their roommate leans Democrat. Among Republican-leaning participants ($n = 93$), only 59% believe their roommate leans Democrat. Democrats are thus more likely than Republicans to believe their roommate is a Democrat ($p < .0001$). Inversely, Republicans are more likely than Democrats to believe their roommate is a Republican.

There are three possible explanations for the observed correlation between participant's own party preference and participant's perception of roommate's party preference:

1. Residents choose their roommates on the basis of party preferences or characteristics that

are correlated with party preferences.

2. Residents do not choose their roommates on the basis of party preferences or characteristics that are correlated with party preferences, but they do choose based on characteristics that the participants believe are correlated with party preferences.

3. Roommates are not chosen on the basis of any relevant characteristics. Participants simply overestimate the degree to which any person's party preference agrees with their own.

Because the sample is small, the available data cannot definitively differentiate between these three alternatives. While it appears the proportion of participants who believe they have a same-party roommate (.82) may be greater than the proportion of participants who actually have a same-party roommate (.76), the 95% CI for the difference between these two proportions ranges from +.16 (a moderate tendency for participants to overestimate the similarity of their roommates) to -.04 (almost no tendency to overestimate or underestimate similarity).

In summary, although participants may slightly overestimate roommate similarity, participants perceptions of their roommates' party preferences are correlated with their roommates' actual party preferences. In addition, there is no strong evidence that participants have chosen their roommates on the basis of partisan homogeneity. However, the small sample also cannot provide strong evidence that roommates have not been chosen on the basis of party. In the analyses that follow, attempts to identify the effects of having a same-party (or opposite-party roommate) rely partially on the assumption that roommates have not been selected by political similarity. The reader should be aware that the conclusions that should be drawn from the results of this study may depend on whether that assumption is correct.

Results

From the list of eight pro-gun-control and eight anti-gun-control arguments, each participant chose eight arguments to read. If participants have a preference for reading attitude-congruent information, the count of pro-gun-control items viewed should be positively correlated with pre-task level of support for gun control. In the full sample, these two variables are not correlated (r=-.01, 95% CI from -.07 to .05).

Beyond this main effect, the goal of the study is to identify the effect of living with a similar or dissimilar room-mate. Recall that when reporting their partisan leaning and their roommates' partisan leaning, participants were forced to choose either Republican or Democrat. Every participant included in the analysis can thus be categorized as having either a same-party roommate or an opposite-party roommate. To test whether the strength of the correlation between pre-task support for gun control and the tendency to read pro-gun-control arguments varies with roommate

similarity, an interaction between this dichotomous roommate-similarity variable and gun-control attitude can be included in a model of the quantity of pro-gun-control items viewed.

It is essential, however, that the effects be calculated separately for Republican participants and Democrat participants. Because there are more Democrats than Republicans in student housing, a Democrat is more likely than a Republican to have a same-party roommate. A respondent's own party preference could thus be a confounding variable. For example, suppose hypothetically that having a same-party roommate does not affect selective exposure to attitude-congruent information but suppose hypothetically that being a Democrat does increase selective exposure. Because being a Democrat also increases the probability of having a same-party roommate, the data would show that selective exposure is greater among participants who have same-party roommates. This observed correlation would be spurious. An estimate of the effect of having a same-party roommate on selective exposure could thus be biased if the estimate does not condition on the participant's own party. For this reason, the model must include the participant's two-party preference as a control variable. My model also includes an interaction between participant's party and roommate's party, in case the effect of having a same-party roommate differs between Republican participants and Democrat participants.

I estimate a linear regression model of the quantity of pro-gun-control items viewed in the information-search task. The model includes the following predictor variables: pre-task gun-control attitude, an indicator variable for whether the participant leans Republican (zero indicates Democrat), an indicator variable for whether the roommate prefers the same party as the participant (zero indicates an opposite-party roommate), a three-way multiplicative interaction between those three variables, and three two-way interactions (one for each combination of two variables). Estimated parameters of this model can be seen in the first column of Table 4. To enable easier interpretation of some of the coefficients, the second column of the same table shows the same model but with "party of participant" reversed.

The coefficient on pre-task support for gun control can be interpreted as the strength of preference for reading attitude-congruent information, but only among Democratic-leaning participants who have an opposite-party roommate (first column) or among Republican-leaning participants who have an opposite-party roommate (second column). In the first column the estimate of this coefficient is negative, which would represent a slight preference for incongruent information. A one-point increase in support for gun-control (e.g. an increase from neutral to strong supporter or an increase from strong opponent to neutral) predicts a decrease of 0.58 pro-gun-control items viewed (which is equivalent to an increase of 0.58 anti-gun-control items viewed). However, because the sample includes few participants who have Republican roommates, this estimate is not very precise (95% CI from -1.67 to +0.52). In the second column, the estimate is near zero (95% CI from -1.05 to +0.78), suggesting that among Republicans who have an opposite-party roommate,

Table 4: OLS estimates of coefficients for linear regression models. The dependent variable is the quantity of pro-gun-control items viewed (which is always equal to 8 minus the quantity of anti-gun-control items viewed). Gun-control attitude is a continuous measure ranging from -1 to +1, with positive values representing support for gun control and negative values representing opposition to gun control. In the first and third columns, "party of participant" is 1 for Republican or 0 for Democrat. In the second and fourth columns, "party of participant" is 1 for Democrat or 0 for Republican. The models in columns 2 and 4 are thus exactly the same models as those in columns 1 and 3 but with one variable reverse coded to enable easier interpretation of some of the coefficients.

	Model 1 If Dem, party = 0 If Rep, party = 1	Model 1 reversed If Rep, party = 0 If Dem, party = 1	Model 2 If Dem, party = 0 If Rep, party = 1	Model 2 reversed If Rep, party = 0 If Dem, party = 1
Constant	4.240*** (0.370)	4.233*** (0.226)	13.242*** (3.831)	−10.019 (7.324)
GC attitude (support for gun control)	−0.576 (0.558)	−0.134 (0.467)	−11.726** (5.395)	5.130 (13.433)
Party of participant (see column headers)	−0.006 (0.434)	0.006 (0.434)	−23.261*** (8.265)	23.261*** (8.265)
Same-party roommate	0.212 (0.388)	−0.344 (0.331)	0.354 (0.409)	−0.521 (0.341)
Age			−0.370* (0.195)	0.588 (0.372)
Woman			−0.422* (0.254)	−0.461 (0.491)
White			−0.155 (0.307)	0.260 (0.383)
Non-citizen			−0.173 (0.274)	0.268 (0.551)
Interest in politics			0.195 (0.544)	0.236 (0.697)
Knowledge of politics			−0.056 (0.052)	0.102 (0.080)
CRT-intuitive score			−0.093 (0.106)	−0.160 (0.185)
GPA			−0.437** (0.196)	0.819** (0.337)
Credits completed			0.003 (0.006)	−0.008 (0.011)
GC attitude * Party	0.442 (0.728)	−0.442 (0.728)	16.856 (14.476)	−16.856 (14.476)
GC attitude * Same party	0.197 (0.582)	1.805** (0.746)	−0.315 (0.605)	1.557* (0.915)
GC attitude * Age			0.521* (0.272)	0.077 (0.634)
GC attitude * Woman			0.926** (0.385)	1.795 (1.137)
GC attitude * White			0.371 (0.435)	−2.239** (1.026)
GC attitude * Non-citizen			0.372 (0.401)	−0.806 (1.112)
GC attitude * Interest			−0.737 (0.759)	−3.212* (1.944)
GC attitude * Knowledge			0.055 (0.077)	0.202 (0.216)
GC attitude * CRT-intuitive			0.328** (0.152)	0.357 (0.437)
GC attitude * GPA			0.244 (0.286)	−1.733** (0.879)
GC attitude * Credits			−0.009 (0.009)	−0.008 (0.022)
Party * Same party	−0.556 (0.510)	0.556 (0.510)	−0.875 (0.533)	0.875 (0.533)
Party * Age			0.958** (0.420)	−0.958** (0.420)
Party * Woman			−0.039 (0.553)	0.039 (0.553)
Party * White			0.416 (0.491)	−0.416 (0.491)
Party * Non-citizen			0.442 (0.615)	−0.442 (0.615)
Party * Interest			0.041 (0.884)	−0.041 (0.884)
Party * Knowledge			0.158* (0.095)	−0.158* (0.095)
Party * CRT-intuitive			−0.067 (0.213)	0.067 (0.213)
Party * GPA			1.256*** (0.390)	−1.256*** (0.390)
Party * Credits			−0.011 (0.012)	0.011 (0.012)
GC attitude * Party * Same party	1.608* (0.946)	−1.608* (0.946)	1.871* (1.097)	−1.871* (1.097)
GC attitude * Party * Age			−0.443 (0.690)	0.443 (0.690)
GC attitude * Party * Woman			0.869 (1.200)	−0.869 (1.200)
GC attitude * Party * White			−2.610** (1.114)	2.610** (1.114)
GC attitude * Party * Non-citizen			−1.178 (1.182)	1.178 (1.182)
GC attitude * Party * Interest			−2.475 (2.087)	2.475 (2.087)
GC attitude * Party * Knowledge			0.147 (0.229)	−0.147 (0.229)
GC attitude * Party * CRT-intuitive			0.029 (0.463)	−0.029 (0.463)
GC attitude * Party * GPA			−1.977** (0.924)	1.977** (0.924)
GC attitude * Party * Credits			0.001 (0.024)	−0.001 (0.024)
Observations	593	593	578	578

Note: *p<0.1; **p<0.05; ***p<0.01

there may not be any strong preference for congruent or incongruent information.

Of greater interest is the coefficient for the two-way interaction between roommate similarity and support for gun control. This coefficient can be interpreted as the effect of having a same-party roommate on the level of selective exposure to attitude congruent information, but only among participants who lean Democrat (first column) or among participants who lean Republican (second column). This coefficient estimate is near zero, which suggests that, among Democrat-leaning participants, having a same-party roommate might not have much effect on selective exposure. Again though, the estimate is not very precise. The 95% CI ranges from -0.94 (a moderate decrease in the preference for congruent information) to +1.34 (a moderate increase). In the second column, the coefficient for the two-way interaction between roommate similarity and support for gun control is positive (p=.015). This suggests that, among Republicans, having a same-party roommate is associated with a higher tendency to read attitude-congruent items.

The estimated coefficient for the three-way interaction is positive in the first column and negative in the second column (p=.089). This indicates that having a same-party roommate increases selective exposure to attitude-congruent information among Republican participants more than it does among Democrats. The lack of statistical power for testing a three-way interaction leaves much uncertainty about the how strong this effect is though (95% CI from -.25 to +3.46).

Because coefficients in a three-way interactive model can be difficult to understand, it is helpful to look at plots of the effects. In Figure 13, all of the panels other than the lower-right panel are based on the model described above (Model 1 of Table 4). The four panels on the left show predicted values of the outcome variable: the count of pro-gun-control items viewed. In these four plots, a positive slope would represent selective exposure to attitude-congruent information, and a negative slope would represent a preference for incongruent information. A clear positive slope is seen in only one of the four plots: Republican participants who have a same-party roommate. Estimates of the slopes of these four lines are shown in the upper-right panel (the marginal-effects plot). In this plot, the vertical axis can be interpreted as the strength of preference for reading attitude-congruent information. Negative values on this vertical axis would represent a preference for incongruent information. Among Republican participants, the preference for reading attitude-congruent information is stronger among those with same-party roommates than among those with opposite-party roommates (p=.015). There is no evidence that Democrats with same-party roommates engage in more selective exposure than Democrats with opposite-party roommates (p=.734). When calculating the average marginal effect for Democrat participants and Republican participants combined (not shown in the plot), there is no evidence that the preference for attitude-congruent information is stronger among those with same-party roommates than among those with opposite-party roommates (p=.544).

To control for potential confounds, I estimate the model again with the addition of several other

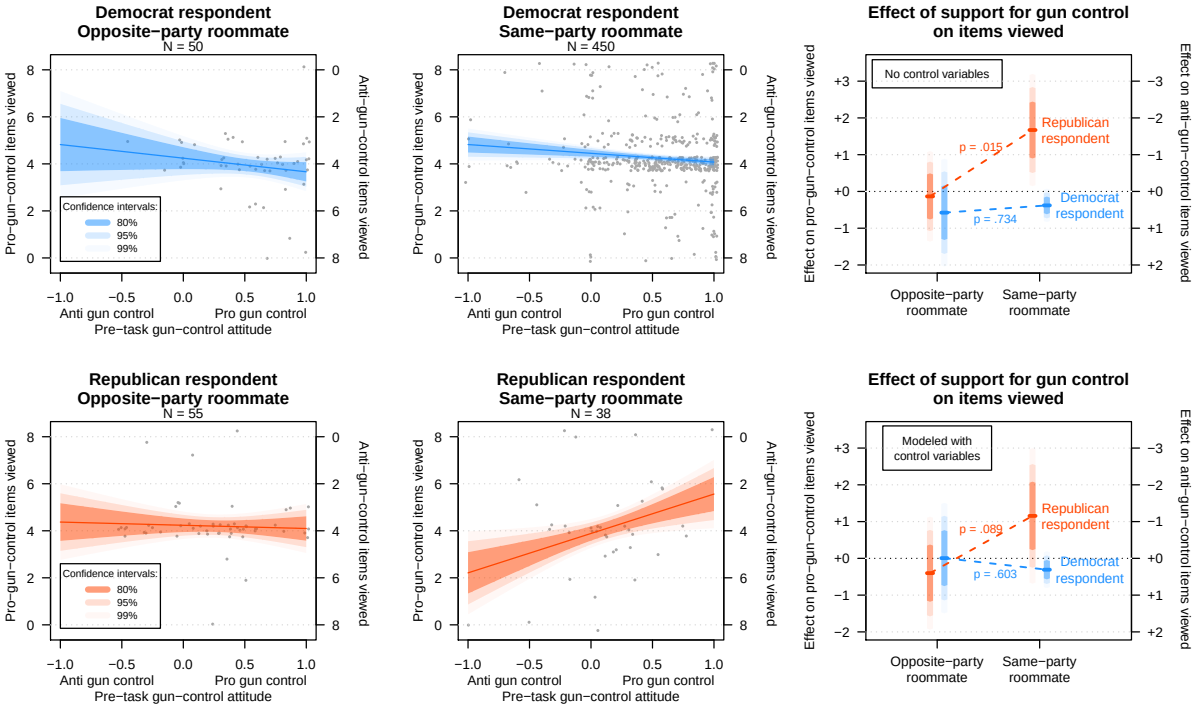


Figure 13: The four panels on the left show predicted values of the outcome variable based on model 1 in Table 4. The upper-right panel shows estimated marginal effects based on the same model. The lower-right panel shows marginal effects based on model 2 of the same table. Shading represents 80%, 95%, and 99% confidence intervals. Values in the scatterplots are jittered to enhance readability.

variables: age, gender, an indicator for whether the student identifies as white, an indicator for whether the student is a U.S. citizen, self-assessed level of political interest, political-knowledge-test score, Cognitive Reflection Test (CRT) score, GPA, and credits completed. For each control variable, I also include an interaction between gun-control attitude and the control variable, an interaction between participant's party preference and the control variable, and a three-way interaction between gun-control attitude, party preference, and the control variable. Estimated parameters for this model can be seen in the third and fourth columns of Table 4. The lower-right panel of Figure 13 shows marginal effects calculated from this model. The preference for attitude-congruent information is still stronger among Republicans with same-party roommates than among Republicans with opposite-party roommates (p=.089). However, this estimated effect (1.56) is slightly smaller compared to the effect that was estimated without the control variables (1.81). Like the model without control variables, this model also shows that having a same-party roommate increases the preference for reading attitude-congruent information more among Republican participants than it does among Democrats (p=.088). Like the other model, this model does not show any evidence that selective exposure is stronger among Democrats with same-party roommates than among Democrats with opposite-party roommates (p=.603). When calculating the average marginal effect for Democrats and Republicans combined (not shown in the figure), there is again no evidence that the preference for attitude-congruent information is stronger among those with same-party roommates (p=.968).

Study 2: Manipulating perceptions of network homogeneity

I conducted another study to test whether priming participants to think of the people in their social networks as similar to (or different from) their selves causes participants to engage in more (or less) selective exposure to attitude-congruent information. This study included 345 students who were recruited from undergraduate political science courses at Stony Brook University and were offered extra credit by their course instructors in exchange for their participation. This is the same sample used in chapter 1 (labeled "Study 3" in that chapter).

Outcome variable: Selective exposure in dynamic information-search task

In this study I used a dynamic information-search task that was programmed using the Dynamic Process Tracing Environment (the same task described in chapter 1). Recall that in this task, the participant sees a set of links to the eight pro-gun-control and eight anti-gun-control arguments scrolling down the screen at a constant rate, with a random selection of six of the links being displayed on the screen at any moment. The participant can click on any link to see the full

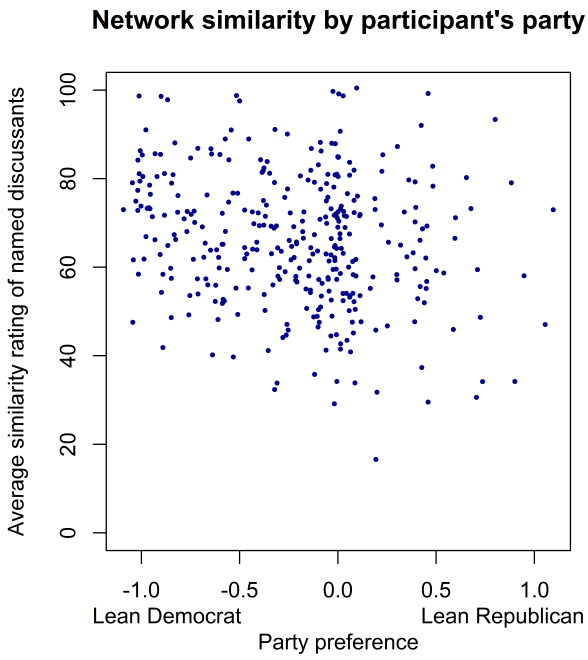


Figure 14: Participants' party preferences and participants' perceptions of the political homogeneity of their social networks. Values have been jittered to enhance readibility.

argument before returning again to the scrolling feed. This task continues for two minutes, and the participant is free to view as many of the arguments as they wish during that time.

Observational treatment variable: Perceived homogeneity of social network

At the beginning of the study, prior to the information-search task, participants answered questions about their political orientation. Among other questions, participants were asked about their preference between the two major parties of the United States. Specifically, they were asked to place themselves somewhere on a continuous slider ranging from "Closer to Democrat" to "Closer to Republican" (coded to range from -1 to 1). After that, participants answered questions about their social networks. Each participant was first asked: "Please write the first name of one person with whom you discuss your opinions on important matters." This was repeated four times to produce a list of four named discussants for each participant. For each named discussant, the participant was then asked, "Are [*discussant name*]'s political opinions similar to your own?" Participants gave their responses using a continuous slider ranging from 0 for "extremely different" to 100 for "extremely similar". For each participant, I calculate the mean similarity rating across all four named discussants to generate a measure of the homogeneity of the participant's social network (M=66.09, SD=14.96). Figure 14 shows the distribution of these mean similarity ratings.

Experimental treatment variable: Manipulated salience of social network similarity or dissimilarity

Salience of similarity or dissimilarity was manipulated experimentally. Subjects were randomly assigned to a similarity treatment group or a dissimilarity treatment group. For each named discussant, participants were asked, "Please write one way in which [*discussant name*]'s opinions are [similar to] yours" (for those in the dissimilarity treatment group, the words "similar to" were changed to "different from"). If disagreement with close friends or associates toward whom one has positive feelings can reduce negative feelings toward encountering disagreement, then manipulating the salience of disagreement (or agreement) with a close friend or associate may decrease the tendency to avoid counter-attitudinal information in an information-search task.

Results

To test whether selective exposure to attitude-congruent information is greater among participants who have more homogeneous social networks, I estimate a linear regression model in which the outcome variable is the quantity of pro-gun-control items viewed as a proportion of all items viewed. The anti-gun-control proportion of items viewed would simply be this same value subtracted from 1. The model includes the following predictor variables: pre-task support for gun control, party preference, similarity of social network, a three-way multiplicative interaction between these three variables, and three two-way interactions. The first column of Table 5 shows the estimated parameters of this model, and the left panel of Figure 15 shows the estimated marginal effects of pre-task support for gun-control on the quantity of pro-gun-control items viewed. The vertical axis in this plot can be interpreted as the strength of preference for reading attitude-congruent arguments. These effects are plotted across the range of values of social-network homogeneity. There is no significant preference for attitude-congruent information at any level of network similarity. The estimated slope of the line that relates network similarity to the preference for attitude-congruent information is positive, but the 95% confidence interval for this estimated slope ranges from -.0014 to +.0033, which means there is no strong evidence that the effect of gun-control attitudes on gun-control information-search behavior varies with the perceived level of network homogeneity (p=0.43).

To test whether priming participants to think of their network discussants as similar or dissimilar affects the tendency to seek attitude-congruent information, I estimate another model of pro-gun-control items viewed (as a proportion of items viewed), this one using the following predictor variables: pre-task gun-control attitude, experimental treatment condition, and a multiplicative interaction between these two variables. Estimated parameters of this model are shown in the second column of Table 5 and marginal effects are plotted in the right panel of Figure 15. Although the es-

Table 5: OLS estimates of coefficients for linear regression models. The dependent variable is the pro-gun-control items viewed as a proportion of all items viewed. Gun-control attitude is a continuous measure ranging from -1 to +1, with positive values representing support for gun control and negative values representing opposition to gun control.

	(1)	(2)
Constant	0.465^{***}	0.519^{***}
	(0.047)	(0.015)
GC attitude (support for gun control)	-0.049	0.004
	(0.080)	(0.025)
Party leaning (higher = more Republican)	-0.102	
	(0.103)	
Similarity of named discussants	0.001	
	(0.001)	
GC attitude * Party	0.008	
	(0.147)	
GC attitude * Similarity	0.001	
	(0.001)	
Party * Similarity	0.001	
	(0.002)	
GC attitude * Party * Similarity	-0.0004	
	(0.002)	
Treatment (1 = similarity, 0 = dissimilarity)		-0.022
		(0.021)
GC attitude * Treatment		0.036
		(0.035)
Observations	326	328
Note:	*p<0.1; **p<0.05; ***p<0.01	

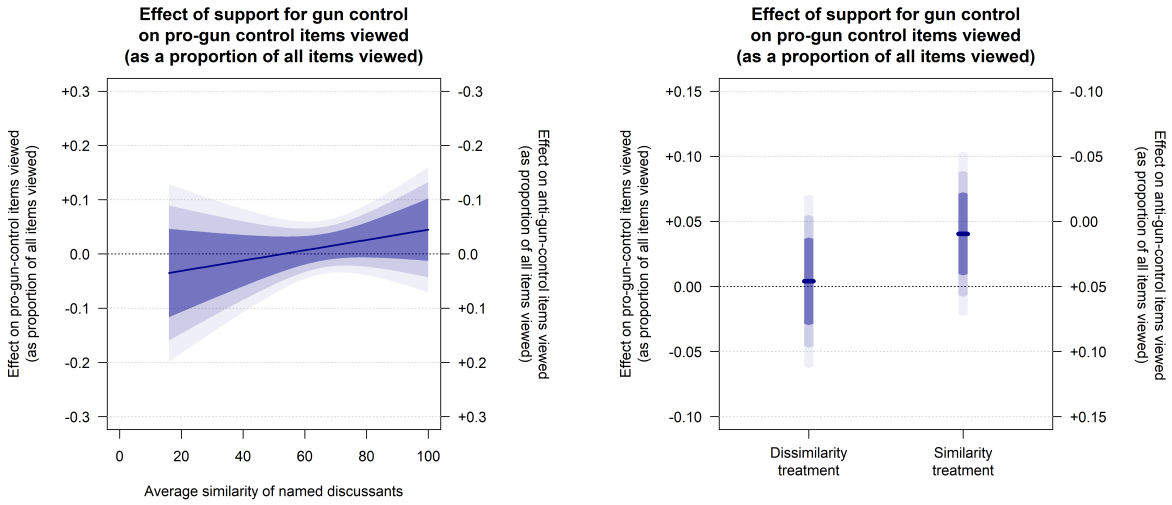


Figure 15: Marginal effects of pre-task support for gun-control on the quantity of pro-gun-control items viewed (as a proportion of all items viewed). The left panel shows effects calculated from model 1 of Table 5 plotted across the range of values of social-network homogeneity. The plot ends at 15 on the left end because no participants provided an average discussant similarity score less than 15. The right panel shows effects calculated from model 2 of the same table and plotted separately by experimental treatment group. Shading represents 80%, 95%, and 99% confidence intervals.

timated effect among those in the similarity treatment group is greater than the estimated effect for those in the dissimilarity treatment group, this difference is not statistically significant (p=.297). There is no strong evidence that priming subjects to think of the people in their social networks as more similar or more dissimilar to their selves affects the tendency to seek attitude-congruent information.

Discussion

In this chapter I propose a theory that the political homogeneity of a person's social environment could affect the tendency to selectively seek attitude-congruent information. The experience of encountering incongruent information may be aversive for most people, but I theorize that being accustomed to encountering challenging information could reduce the fear of, or aversion to, encountering challenging information. In addition, if a person often encounters disagreement within their social network, positive feelings toward members of the social network could be transferred to the experience of encountering disagreement, thereby reducing aversion to encountering disagreement. I describe two studies to test this theory. Neither study provides clear and consistent evidence that having a homogeneous social environment increases the tendency to seek attitude-congruent information on average, though there is some evidence that this effect may occur among

a subset of people.

In Study 1, residents of student housing complete an information-search task on the topic of gun control in which they are given access to a list of pro-gun-control and anti-gun-control arguments. I observe the degree to which they prefer to read arguments that are congruent with their own prior attitudes toward gun control. Residents also report their own preference between the two major political parties of the United States and that of their roommates. Among the full sample, I do not find evidence that those who live with a same-party roommate exhibit a greater or lesser tendency to read attitude-congruent arguments. However, I do find such an effect among a subset of the sample: Republican-leaning participants. Among Republicans, having a same-party roommate is associated with a stronger preference for reading attitude-congruent rather than incongruent arguments. No evidence of a preference for congruent information was found among Republicans who have an opposite-party roommate.

In past research, selective media consumption has been observed among both liberals and conservatives (Iyengar & Hahn 2009; Stroud 2008b), but some studies have suggested that Republicans may be more likely than Democrats to consume primarily attitude-congruent information (Iyengar et al. 2008; Barberá et al. 2015) and that supporters of conservative presidents are more motivated than liberals to avoid cognitive-dissonance-inducing tasks such as writing a counter-attitudinal essay (Nam et al. 2013). However, other studies have found no differences between liberals and conservatives in motivation to avoid dissonance or exposure to opposing opinions (Collins et al. 2017; Frimer et al. 2017). Some have found that conservatives consume more counter-attitudinal information on social media than liberals do (Bakshy et al. 2015). In the current study I find that Republicans read less counter-attitudinal information than Democrats do, but only among those who have same-party roommates. It may be that Republicans typically have a tendency toward selective-exposure, and the experience of having an opposite-party roommate reduces this tendency. However, because I did not predict this type of difference between Republicans and Democrats prior to collecting the data, the result showing such a difference should be considered merely exploratory. The current study should not be interpreted as a strong contribution to the debate about ideological asymmetry of selective exposure.

It is also possible that the difference between Democrats and Republicans that was observed in this study is driven by the fact that Republicans are a minority at the university where this study was conducted. Republican students encounter few same-party individuals at the university, while Democrats encounter many same-party individuals. Having a same-party roommate might have a stronger effect on a person if that person encounters few other same-party individuals in their social environment. This highlights a potential weakness of this study. This study uses the characteristics of a person's roommate as a measure of the characteristics of the person's social environment. This may be a weak measure because a person's roommate may be a very small part of their social

environment. It is difficult to guess what effects would be observed in an analysis that includes a more complete profile of each person's social environment. It is also difficult to disentangle the effects of being a Republican, Democrat, liberal, or conservative from the effects of encountering more disagreement in one's social environment.

There are also some important threats to causal inference in this study or in any study of correlations between social-environment homogeneity and selective exposure. A person who has a greater aversion to encountering information that challenges their opinions may be more likely to select into a homogeneous social environment. The possibility of reverse causality is thus an important concern. In study 1, I attempt to alleviate that threat by using student-housing residents as my test population. Because students often live with roommates they had not previously met, this reduces the likelihood that subjects chose their roommates on the basis of political similarity. The data do show that participants believe their roommates' political orientations to be more similar to their own than would be expected by random chance. However, this could simply reflect a tendency of participants to overestimate the similarity of others to themselves rather than an actual tendency to select roommates based on similarity. In addition to participants' perceptions of their roommates' party preferences, I also have roommates' own self-reports of their party preferences for a small subset of the sample. These data do not show strong evidence that roommates are sorted by political party. However, because of the small sample size, this should not be taken as strong evidence that roommates are not sorted by party. The threat of reverse causality cannot be completely ignored in this study.

Study 2 addresses the problem of causal inference by using an experimental manipulation. In this study, before completing an information-search task, participants are asked to name several members of their social network. Half of the participants are assigned to write about ways in which their named discussants' political opinions are similar to their own and half write about ways in which they are different. This should manipulate participants' perceptions of the homogeneity of their network. My theory predicts that when a participant is induced to associate thoughts of a liked individual with thoughts of encountering disagreement, positive affect toward that individual should transfer to the idea of encountering disagreement. This should reduce the aversion to encountering attitude-incongruent information. However, the data from my information-search task do not show strong evidence that those who are primed to think of their networks as similar to their selves exhibit a greater preference for reading attitude-congruent arguments than those who are primed to think of their networks as dissimilar. There is also no strong evidence that selective exposure is greater among participants who rate their network discussants' political views as more similar to their own.

Thus the two studies do not provide clear and consistent evidence to support my theory that politically diverse social environments reduce the tendency to avoid attitude-incongruent informa-

tion. This lack of clear evidence could be interpreted in a couple of different ways. First, the political homogeneity or heterogeneity of one's social environment might have little or no effect on the tendency to selectively seek attitude-congruent information. This could be because the mechanisms I theorize do not actually occur or it could be because the mechanisms I theorize are counteracted by other mechanisms. For example, frequent exposure to challenging information in one's social environment could act as a threat and could trigger defenses causing an individual to avoid challenging information.

Second, it may be that the theorized effects do occur but the designs or sample sizes of these studies are not sufficient to detect these effects reliably. In addition to the weaknesses already described above, another potential weakness of the student-housing study is that it included few participants who have Republican roommates. This restricts the statistical power for estimating the effect of having a same-party vs. opposite-party roommate. Even with this limitation, I found a statistically significant difference between Republicans who have a Republican roommate and Republicans who have a Democrat roommate, but the small sample left much uncertainty about how large that difference is. Moreover, I did not find any statistically significant difference between Democrats who have a Democrat roommate and Democrats who have a Republican roommate, and it is difficult to guess whether a larger sample of Democrats with Republican roommates would have shown a difference.

Another weakness of this study is that there are few Democrats who oppose gun control. This makes it difficult to observe how the behavior of anti-gun-control Democrats who have same-party roommates differs from that of anti-gun-control Democrats who have opposite-party roommates. Among Democrat participants, my estimates of the correlation between pre-task attitude and information-search behavior rely mostly on differences between those who have strong pro-gun-control attitudes and those who have weak pro-gun-control (or neutral) attitudes. For any future studies it will be important to use an information-search topic for which there is sufficient variation of prior attitudes within each level of the observed treatment variables.

As mentioned in previous chapters, another potential limitation of these studies is the design of the information-search tasks. The controlled tasks used in these studies may differ from the ways in which people typically seek or encounter information in the wild. The content available in the search task may be uninteresting to participants or may be presented in a way that does not sufficiently draw their attention. This could cause participants to want to hurry through the task so they can be done with it and to give little or no attention to the items they are selecting to read. If participants do not care what they are selecting, they would not necessarily exhibit the same preference for attitude-congruent information as they would in real life. In addition, the static information-search task used in Study 1 presents all the available items in neat rows and columns and makes it easy for the participant to see whether their information-search behavior is biased

toward one side of the issue or the other. This task thus makes it easier for participants to reduce their apparent bias if they wish to do so. The results from this task thus may not provide a good measure of the average amount of selective exposure that occurs in the real world. Future studies should use information-search tasks that better approximate the way information is encountered in normal life.

Conclusion

The current studies do not provide clear and consistent evidence that having a politically diverse social environment decreases selective exposure to attitude-congruent information. However, because of limitations of these studies and because of observed inconsistencies across sub-groups, this matter should not be considered settled. Future research should continue to investigate the effects of social environments on individual differences in information-search behavior.

The topic of individual differences in selective exposure is a young research topic, and there is still much that is not well known. Further research should seek to discover what other variables can lead people to be more or less likely to seek information that challenges their beliefs and opinions and what variables can lead people to process the information they encounter in a biased or unbiased manner. The phenomena of motivated reasoning and selective exposure are highly consequential in political discourse and public opinion, and any variables that can be identified as factors in these behaviors are thus valuable topics for future research.

References

Ahmed, A. M., & Salas, O. (2011). Implicit influences of christian religious representations on dictator and prisoner's dilemma game decisions. *The Journal of Socio-Economics*, *40*(3), 242–246.

Altemeyer, B., & Hunsberger, B. (1992). Authoritarianism, religious fundamentalism, quest, and prejudice. *The international journal for the psychology of religion*, *2*(2), 113–133.

Altemeyer, B., & Hunsberger, B. (2004). Research: A revised religious fundamentalism scale: The short and sweet of it. *The International Journal for the Psychology of Religion*, *14*(1), 47–54.

Arceneaux, K., & Vander Wielen, R. J. (2017). *Taming Intuition: How Reflection Minimizes Partisan Reasoning and Promotes Democratic Accountability*. Cambridge University Press.

Bakshy, E., Messing, S., & Adamic, L. A. (2015). Exposure to ideologically diverse news and opinion on facebook. *Science*, *348*(6239), 1130–1132.

Barberá, P., Jost, J. T., Nagler, J., Tucker, J. A., & Bonneau, R. (2015). Tweeting from left to right: Is online political communication more than an echo chamber? *Psychological science*, *26*(10), 1531–1542.

Bargh, J. A., Chen, M., & Burrows, L. (1996). Automaticity of social behavior: Direct effects of trait construct and stereotype activation on action. *Journal of personality and social psychology*, *71*(2), 230.

Batson, C. D. (1976). Religion as prosocial: Agent or double agent? *Journal for the Scientific study of Religion*, (pp. 29–45).

Batson, C. D., & Raynor-Prince, L. (1983). Religious orientation and complexity of thought about existential concerns. *Journal for the scientific study of Religion*, (pp. 38–50).

Berinsky, A. J., Huber, G. A., & Lenz, G. S. (2012). Evaluating online labor markets for experimental research: Amazon. com's mechanical turk. *Political Analysis*, *20*(3), 351–368.

Casciaro, T., & Lobo, M. S. (2005). Competent jerks, lovable fools, and the formation of social networks. *Harvard business review*, *83*(6), 92–99.

Chen, P. G., Appleby, J., Borgida, E., Callaghan, T. H., Ekstrom, P., Farhart, C. E., Housholder, E., Kim, H., Ksiazkiewicz, A., Lavine, H., et al. (2014). The minnesota multi-investigator 2012 presidential election panel study. *Analyses of Social Issues and Public Policy*, *14*(1), 78–104.

Clifford, S., Jewell, R. M., & Waggoner, P. D. (2015). Are samples drawn from mechanical turk valid for research on political ideology? *Research & Politics*, *2*(4), 2053168015622072.

Collins, T. P., Crawford, J. T., & Brandt, M. J. (2017). No evidence for ideological asymmetry in dissonance avoidance. *Social Psychology*.

Coppock, A., Leeper, T. J., & Mullinix, K. J. (2018). Generalizability of heterogeneous treatment effect estimates across samples. *Proceedings of the National Academy of Sciences*, *115*(49),

12441–12446.

Duriez, B., Fontaine, J. R., & Hutsebaut, D. (2000). A further elaboration of the post-critical belief scale: Evidence for the existence of four different approaches to religion in flanders-belgium. *Psychologica Belgica*, *40*(3), 153–182.

Evans, J. S. B., & Stanovich, K. E. (2013). Dual-process theories of higher cognition: Advancing the debate. *Perspectives on psychological science*, *8*(3), 223–241.

Festinger, L. (1957). *A theory of cognitive dissonance*, vol. 2. Stanford university press.

Frederick, S. (2005). Cognitive reflection and decision making. *The Journal of Economic Perspectives*, *19*(4), 25–42.

Frimer, J. A., Skitka, L. J., & Motyl, M. (2017). Liberals and conservatives are similarly motivated to avoid exposure to one another's opinions. *Journal of Experimental Social Psychology*, *72*, 1–12.

Garrett, R. K. (2009). Echo chambers online?: Politically motivated selective exposure among internet news users. *Journal of Computer-Mediated Communication*, *14*(2), 265–285.

Gervais, W. M., & Norenzayan, A. (2012). Analytic thinking promotes religious disbelief. *Science*, *336*(6080), 493–496.

Graham, B. (2015). God has given you everything you need to strengthen your faith. https://billygraham.org/answer/god-has-given-you-everything-you-need-to-strengthen-your-faith/. Accessed: 2018-07-25.

Hardin, R. (1997). The economics of religious belief. *Journal of Institutional and Theoretical Economics (JITE)/Zeitschrift für die gesamte Staatswissenschaft*, (pp. 259–278).

Hart, W., Albarracín, D., Eagly, A. H., Brechan, I., Lindberg, M. J., & Merrill, L. (2009). Feeling validated versus being correct: a meta-analysis of selective exposure to information. *Psychological bulletin*, *135*(4), 555.

Huckfeldt, R. (2001). The social communication of political expertise. *American Journal of Political Science*, (pp. 425–438).

Huckfeldt, R., Beck, P. A., Dalton, R. J., & Levine, J. (1995). Political environments, cohesive social groups, and the communication of public opinion. *American Journal of Political Science*, (pp. 1025–1054).

Huckfeldt, R., & Sprague, J. (1987). Networks in context: The social flow of political information. *American Political Science Review*, *81*(04), 1197–1216.

Huckfeldt, R., & Sprague, J. (1991). Discussant effects on vote choice: Intimacy, structure, and interdependence. *The Journal of Politics*, *53*(1), 122–158.

Iyengar, S., & Hahn, K. S. (2009). Red media, blue media: Evidence of ideological selectivity in media use. *Journal of Communication*, *59*(1), 19–39.

Iyengar, S., Hahn, K. S., Krosnick, J. A., & Walker, J. (2008). Selective exposure to campaign

communication: The role of anticipated agreement and issue public membership. *The Journal of Politics*, *70*(1), 186–200.

James, W. (1896). *The will to believe: And other essays in popular philosophy*. Longmans, Green, and Company.

Jang, S. M. (2014). Seeking congruency or incongruency online? examining selective exposure to four controversial science issues. *Science Communication*, *36*(2), 143–167.

Johnson, T. J., Bichard, S. L., & Zhang, W. (2009). Communication communities or "cyberghettos?": A path analysis model examining factors that explain selective exposure to blogs. *Journal of Computer-Mediated Communication*, *15*(1), 60–82.

Kahan, D. M., Peters, E., Dawson, E. C., & Slovic, P. (2013). Motivated numeracy and enlightened self-government.

Kahneman, D. (2011). *Thinking, fast and slow*. Macmillan.

Klar, S. (2014). Partisanship in a social setting. *American Journal of Political Science*, *58*(3), 687–704.

Knobloch-Westerwick, S., & Meng, J. (2009). Looking the other way: Selective exposure to attitude-consistent and counterattitudinal political information. *Communication Research*, *36*(3), 426–448.

Kruglanski, A. W., & Boyatzi, L. M. (2012). The psychology of closed and open mindedness, rationality, and democracy. *Critical Review*, *24*(2), 217–232.

Kruglanski, A. W., & Webster, D. M. (1996). Motivated closing of the mind:" seizing" and" freezing.". *Psychological review*, *103*(2), 263.

Kruglanski, A. W., Webster, D. M., & Klem, A. (1993). Motivated resistance and openness to persuasion in the presence or absence of prior information. *Journal of personality and social psychology*, *65*, 861–861.

Lau, R. R. (1995). Information search during an election campaign: Introducing a process-tracing methodology for political scientists. *Political judgment: Structure and process*, (pp. 179–206).

Lau, R. R., & Redlawsk, D. P. (2001). An experimental study of information search, memory, and decision making during a political campaign. *Citizens and politics: Perspectives from political psychology*, (pp. 136–159).

Lelkes, Y., Sood, G., & Iyengar, S. (2017). The hostile audience: The effect of access to broadband internet on partisan affect. *American Journal of Political Science*, *61*(1), 5–20.

Levitan, L., & Wronski, J. (2014). Social context and information seeking: Examining the effects of network attitudinal composition on engagement with political information. *Political Behavior*, *36*(4), 793–816.

Lewis, A. R., Djupe, P. A., Mockabee, S. T., & Su-Ya Wu, J. (2015). The (non) religion of mechanical turk workers. *Journal for the Scientific Study of Religion*, *54*(2), 419–428.

Lodge, M., & Taber, C. S. (2013). *The rationalizing voter*. Cambridge University Press.

McClurg, S. D. (2006). Political disagreement in context: The conditional effect of neighborhood context, disagreement and political talk on electoral participation. *Political Behavior*, *28*(4), 349–366.

McFarland, S. G., & Warren Jr, J. C. (1992). Religious orientations and selective exposure among fundamentalist christians. *Journal for the scientific study of Religion*, (pp. 163–174).

Mullinix, K. J., Leeper, T. J., Druckman, J. N., & Freese, J. (2015). The generalizability of survey experiments. *Journal of Experimental Political Science*, *2*(2), 109–138.

Mutz, D. C. (2002a). The consequences of cross-cutting networks for political participation. *American Journal of Political Science*, (pp. 838–855).

Mutz, D. C. (2002b). Cross-cutting social networks: Testing democratic theory in practice. *American Political Science Review*, *96*(01), 111–126.

Mutz, D. C., & Mondak, J. J. (2006). The workplace as a context for cross-cutting political discourse. *Journal of politics*, *68*(1), 140–155.

Myers, K. M., & Davis, M. (2007). Mechanisms of fear extinction. *Molecular psychiatry*, *12*(2), 120–150.

Nam, H. H., Jost, J. T., & Van Bavel, J. J. (2013). Not for all the tea in china! *Political ideology and the avoidance of dissonance-arousing situations. PLoS One*, *8*(4).

New Era, T. (1973). What would you do? https://www.lds.org/new-era/1973/05/what-would-you-do. Accessed: 2018-07-25.

New Era, T. (2007). Questions and answers. https://www.lds.org/new-era/2007/07/q-and-a-questions-and-answers. Accessed: 2018-07-25.

Osteen, J. (2014). Increasing your faith. https://www.joelosteen.com/Pages/MessageViewer.aspx?date=2014-06-18. Accessed: 2018-07-25.

Parker, K., Horowitz, J., Igielnik, R., Oliphant, B., & Brown, A. (2017). *America's complex relationship with guns: an in-depth look at the attitudes and experiences of US adults*. Pew Research Center.

Prior, M. (2013). Media and political polarization. *Annual Review of Political Science*, *16*, 101–127.

Randolph-Seng, B., & Nielsen, M. E. (2007). Honesty: One effect of primed religious representations. *The International Journal for the Psychology of Religion*, *17*(4), 303–315.

Saroglou, V. (2002). Beyond dogmatism: The need for closure as related to religion. *Mental Health, Religion & Culture*, *5*(2), 183–194.

Shariff, A. F., & Norenzayan, A. (2007). God is watching you: Priming god concepts increases prosocial behavior in an anonymous economic game. *Psychological science*, *18*(9), 803–809.

Shenhav, A., Rand, D. G., & Greene, J. D. (2012). Divine intuition: cognitive style influences belief in god. *Journal of Experimental Psychology: General*, *141*(3), 423.

Srull, T. K., & Wyer, R. S. (1979). The role of category accessibility in the interpretation of information about persons: Some determinants and implications. *Journal of Personality and Social Psychology*, *37*(10), 1660.

Stanovich, K. E., & West, R. F. (2000). Individual differences in reasoning: Implications for the rationality debate? *Behavioral and brain sciences*, *23*(5), 645–665.

Stroud, N. J. (2008a). Media use and political predispositions: Revisiting the concept of selective exposure. *Political Behavior*, *30*(3), 341–366.

Stroud, N. J. (2008b). Media use and political predispositions: Revisiting the concept of selective exposure. *Political Behavior*, *30*(3), 341–366.

Taber, C. S., & Lodge, M. (2006). Motivated skepticism in the evaluation of political beliefs. *American Journal of Political Science*, *50*(3), 755–769.

Toplak, M. E., West, R. F., & Stanovich, K. E. (2011). The cognitive reflection test as a predictor of performance on heuristics-and-biases tasks. *Memory & cognition*, *39*(7), 1275.

Webster, D. M., & Kruglanski, A. W. (1994). Individual differences in need for cognitive closure. *Journal of personality and social psychology*, *67*(6), 1049.

Westerwick, A., Kleinman, S. B., & Knobloch-Westerwick, S. (2013). Turn a blind eye if you care: Impacts of attitude consistency, importance, and credibility on seeking of political information and implications for attitudes. *Journal of Communication*, *63*(3), 432–453.

Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of personality and social psychology*, *9*(2p2), 1.

Zhu, Q., Skoric, M., & Shen, F. (2017). I shield myself from thee: Selective avoidance on social media during political protests. *Political Communication*, *34*(1), 112–131.

Appendix

Gun-control arguments used in information-search tasks

Pro-gun-control arguments:

1. *A study in a prominent medical journal found that you or a member of your family are 43 times more likely to be killed by your own gun than by an intruder's. Guns aren't the protection many people think they are. We need stricter gun control.*

2. *In one poll of imprisoned felons, only 27% report buying guns on the black market; the rest got their weapons through legal channels. Obviously, tougher gun controls are needed to keep these 'legal' guns out of criminal hands.*

3. *A study of 743 gunshot deaths reports that 398 occurred in a home where a gun was kept. Only 9 of the 743 were deemed to be justified by the police. It follows that gun owners are not as responsible as they claim to be.*

4. *A gun should be fired only if one's life is in danger and all other options have been exhausted. Most 'self-defense' shootings do not meet these criteria. Thus use of guns in self-defense only contributes to the crime rate.*

5. *Several recent school tragedies highlight the fact that guns have become a menace to our children. It's very simple: our schoolyards should not be battlefields. We need to reduce access to guns; we need stricter gun control.*

6. *Recent trials against gun manufacturers have consistently found them guilty, and have forced the gun industry to pay out huge sums of money. If the courts can find good reason to rein in the gun industry, then it is high time for Congress to follow suit.*

7. *Self-defense arguments for the need of guns are silly: guns only become necessary for self-defense because there are so many guns out there. Thus, guns should be outlawed outright – then we won't need to worry about self-defense.*

8. *The United States has the highest murder rate of all industrialized nations. It is also the only industrialized country that has lenient gun laws. We therefore say: bring down the number of guns, bring down the murder rate.*

Anti-gun-control arguments:

1. *The Bill of Rights guarantees the right of all citizens to bear arms. Quite simply, gun control measures are unconstitutional infringements on a basic right of citizenship.*

2. *Most privately-owned guns in America are owned by sportsmen and are used for completely peaceful purposes. These guns pose no risk to society, but they are unfairly targeted by gun control legislation.*

3. *A national council reported in a recent year that handgun accidents killed less than 15 children under the age of 6. This number is minuscule when compared to the total number of accidental deaths of young children. It simply is not worth outlawing guns to save just a handful of lives.*

4. *Gun control legislation can only regulate guns sold through legal outlets. But these days, many criminals buy their guns illegally. Gun control legislation therefore cannot regulate the most dangerous guns in society.*

5. *The liberal media distort gun issues: they only talk about tragedies involving guns. Yet guns were used defensively 2.5 million times last year. The real tragedy would be to outlaw guns – crime would spiral out of control.*

6. *A main reason why our murder rate is so high is that most crime victims do not resist. These victims are twice as likely to be injured compared to those who defend themselves. Carrying a gun is thus one's ultimate protection against violent crime.*

7. *Stricter gun control laws have not passed Congress, reflecting serious misgivings the American people have about gun control. However, the courts have repeatedly ignored the will of the people, finding gun manufacturers in the wrong. We need to limit the power of the courts in gun control cases.*

8. *Laws that require guns to be locked up defeat the purpose of gun ownership: how can I protect my family if I must first retrieve my gun from its locker? We thus need to repeal laws regulating guns in private homes.*

Faith-priming task

Please complete the following verbal fluency task. Do your best to complete every item. Your payment does not depend on getting the correct answers.
Instructions: For each set of five words, drop one unnecessary word and unscramble the remaining words to make a four-word phrase or sentence.
For example: high winds the flies plane –> the plane flies high

Faith-prime condition:

1. *appreciated presence was see her*

2. *felt she eradicate spirit the*

3. *more paper it once do*

4. *dessert divine was fork the*

5. *send I over it mailed*

6. *evil faith have God in*

7. *yesterday it finished track he*

8. *sacred is book refer the*
9. *prepared somewhat I was retired*
10. *sermons believed the simple she*

Neutral condition:

1. *appreciated presence was see her*
2. *fall was worried she always*
3. *more paper it once do*
4. *shoes give replace old the*
5. *send I over it mailed*
6. *saw hammer he the train*
7. *yesterday it finished track he*
8. *sky the seamless blue is*
9. *prepared somewhat I was retired*
10. *predictable he shoes his tied*

Housing match profiles questionnaire

(Administered by student housing office before room-mates are matched)

1. *Do you use tobacco products?*
2. *I am comfortable living with someone who uses tobacco products.*
3. *I am most likely to study in my bedroom.*
4. *I typically try to go to bed prior to 11pm most nights.*
5. *I like listening to music while I am studying.*
6. *I am comfortable with my roommate hosting guests in my room or suite.*
7. *I am comfortable with my roommate hosting an overnight guest in my room or suite.*
8. *I am comfortable with my roommate's significant other spending the night in my room / suite.*
9. *I need a clean room to be productive.*
10. *I am comfortable sharing items (clothing, food, toiletries, etc) with my roommate.*
11. *I value diversity and would welcome living with a student from a background different from mine.*

Measurement Methods for Control Variables

Partisan leaning

- Mturk study and student-housing study: *Do you think of yourself as closer to the Republican party or closer to the Democratic party?*
  - Forced dichotomous choice (coded as 0 for *Democratic* or 1 for *Republican*)
- DPTE study: *Even if you are neither Democrat nor Republican, you may feel that one of these two parties is closer to your ideology than the other is. To which party are you closer?*
  - Continuous slider ranging from "*Closer to Democrat*" to "*Closer to Republican*" (coded to range from -1 to +1)

Self-assessed conservatism

Are your political views liberal or conservative...

1. *on economic issues?*
2. *on social issues?*
3. *in general?*

Each of the three items is a continuous slider ranging from "*Extremely liberal*" to "*Extremely conservative*" (coded to range from -1 to +1). However, the models presented in this paper include only the "*in general*" item.

Political knowledge test

We are also interested in seeing how much information about U.S. politics gets out to the public. Please answer the following questions without searching for the answers and without asking anyone for assistance. Most people don't know the answers to these questions. If you don't know the answer, you should guess.

- *Which job or political office is currently held by each of the following individuals?*
  1. *John Roberts*
  2. *Mitch McConnell*
  3. *Jeff Sessions*
  4. *Rex Tillerson*
  5. *Betsy DeVos*
  6. *Paul Ryan* (included only in the DPTE study)
- *How long is a single term for each of the following elected offices?*
  1. *President*

2. *Senators*
3. *House of Representatives*

Each question is a multiple-choice item with forced response. The number of questions answered correctly forms the political-knowledge score, ranging from 0 to 8 (or from 0 to 9 in the DPTE study).

Political interest

– *How interested are you in information about current events in government or politics?*

  – Continuous slider from "*Not at all interested*" to "*Extremely interested*" (coded to range from 0 to 1)

Education (included only in the Mturk study)

What level of education have you completed?

1. *Less than high school*
2. *High school graduate or equivalent*
3. *Some college*
4. *Trade school or community college degree (or more than two years at university)*
5. *Bachelor degree*
6. *Some graduate studies*
7. *Master degree*
8. *Professional degree*
9. *Doctoral degree*

In the data analysis presented in this paper, this is treated as an interval variable ranging from 0 to 8. However, using a set of 8 dummy variables in place of the single education-level variable does not reduce the estimated interactive effect between pre-task gun-control attitude and CRT-intuitive score.

Six items taken from the Need For Closure Scale (only in the Mturk study)

1. *When I am confronted with a problem, I'm dying to reach a solution very quickly.*
2. *I enjoy having a clear and structured mode of life.*
3. *I feel irritated when one person disagrees with what everyone else in a group believes.*

4. *When I have made a decision, I feel relieved.*

5. *I don't like situations that are uncertain.*

6. *I do not usually consult many different opinions before forming my own view.*

Participants report their level of agreement with each statement on a 7-point scale ranging from "Strongly disagree" to "Strongly agree" (coded to range from 0 to 6). The sum of the six items forms a need-for-closure score for each participant with a possible range from 0 to 36 and an observed range from 6 to 35.

Table 6: Summary descriptive statistics for treatment variables and outcome variables

Variable	Sample	N	Mean	St. Dev.	Min	Max
Total items viewed						
	MTurk	358	8	0	8	8
	Student housing	919	8	0	8	8
	Political science students	345	6.983	3.345	0	15
Pro-gun-control items viewed						
	MTurk	358	3.992	1.724	0	8
	Student housing	919	4.181	1.448	0	8
	Political science students	345	3.554	1.867	0	8
Anti-gun-control items viewed						
	MTurk	358	4.008	1.724	0	8
	Student housing	919	3.819	1.448	0	8
	Political science students	345	3.429	1.862	0	8
Pre-task support for gun-control						
	MTurk	358	0.195	0.573	−1.00	1.00
	Student housing	919	0.514	0.428	−1.00	1.00
	Political science students	345	0.292	0.537	−1.00	1.00
Cognitive Reflection Test (CRT) correct answers						
	MTurk	358	1.285	1.208	0	3
	Student housing	919	1.470	1.166	0	3
	Political science students	344	1.180	1.136	0	3
CRT intuitive answers						
	MTurk	358	1.416	1.178	0	3
	Student housing	919	1.196	1.100	0	3
	Political science students	344	1.390	1.080	0	3
Rigid religious conviction						
	MTurk	355	15.085	9.254	0	36
Average similarity rating of four named discussants						
	Political science students	343	66.093	14.963	15.75	100

Table 7: Summary descriptive statistics for control variables

Variable	Sample	N	Mean	St. Dev.	Min	Max
Age						
	MTurk	358	39.771	13.476	20	79
	Student housing	919	20.295	1.272	17	26
	Political science students	343	20.385	2.059	17	34
Woman (dichotomous)						
	MTurk	358	0.589		0	1
	Student housing	919	0.610		0	1
	Political science students	345	0.481		0	1
Lean Republican (dichotomous)						
	MTurk	358	0.425		0	1
	Student housing	919	0.157		0	1
Lean Republican (continuous)						
	Political science students	345	−0.205	0.451	−1.00	1.00
Conservatism (self-assessed)						
	MTurk	358	−0.029	0.546	−1.00	1.00
	Student housing	919	−0.283	0.354	−1.00	0.95
	Political science students	345	−0.178	0.462	−1.00	1.00
Political knowledge test						
	MTurk	358	5.221	2.308	0	8
	Student housing	919	4.366	2.282	0	8
	Political science students	341	4.587	2.751	0	9
Political interest						
	MTurk	358	0.602	0.267	0.00	1.00
	Student housing	919	0.481	0.252	0.00	1.00
	Political science students	345	0.572	0.262	0.00	1.00
Education						
	MTurk	357	3.535	1.672	0	8
Grade-point average						
	Student housing	899	3.265	0.520	0.82	4.00
Credits completed						
	Student housing	911	69.182	38.310	7	206
Need for closure						
	MTurk	358	22.584	4.872	6	35