INSTITUTE for REPLICATION

No. 79
I4R DISCUSSION PAPER SERIES

A Replication of Ideological asymmetries and the Determinants of Politically Motivated Reasoning

Ryan Briggs

Michael J. Donnelly

Thomas Bergeron

Thomas Galipeau

October 2023

INSTITUTE for REPLICATION

I4R DISCUSSION PAPER SERIES

I4R DP No. 79

A Replication of Ideological Asymmetries and the Determinants of Politically Motivated Reasoning (2022)

Ryan Briggs[1], Michael J. Donnelly[2], Thomas Bergeron[2], Thomas Galipeau[2]

[1]University of Guelph/Canada
[2]University of Toronto/Canada

OCTOBER 2023

E-Mail: joerg.peters@rwi-essen.de
RWI – Leibniz Institute for Economic Research
Hohenzollernstraße 1-3
45128 Essen/Germany
www.i4replication.org

ISSN: 2752-1931

A replication of Ideological asymmetries and the determinants of politically motivated reasoning (2022) *

Ryan Briggs
Michael J Donnelly
Thomas Bergeron
Thomas Galipeau

Oct 3, 2023

Abstract

Guay and Johnston (2022) examine asymmetric politically motivated reasoning on the part of liberals and conservaites. In our replication of the paper we examine four potential issues with the analysis: confounding in the numeracy task, heterogeneity across ideological constraints, the use of control variables, and heterogenity in the moderator index items. None of these potential issues are in fact issues. The results are quite robust. We found only one minor issue with the codebook, which does not affect the results.

*Authors: Briggs: University of Guelph. E-mail: rbriggs@uoguelph.ca. Ryan Briggs received no financial support for this research and has no known conflicts of interest.
Donnelly: University of Toronto. E-mail: mj.donnelly@utoronto.ca. Michael Donnelly received no financial support for this research and has no known conflicts of interest.
Bergeron: University of Toronto. E-mail: thomas.bergeron@mail.utoronto.ca. Thomas Bergeron received no financial support for this research and has no known conflicts of interest.
Galipeau: University of Toronto. E-mail: thomas.galipeau@mail.utoronto.ca. Thomas Galipeau received no financial support for this research and has no known conflicts of interest.

1 Introduction

Guay and Johnston (2022) examine a puzzle in the empirical literature around politically motivated reasoning: How can it be that liberals and conservatives be equally prone to politically motivated reasoning if conservatives are also less open to information that conflicts with their political identity? They find "little evidence for the asymmetry hypothesis" and "no evidence that epistemic needs promote [politically motivated reasoning]" (p. 285).

This report details the replication of Guay and Johnston (2022). We looked at four potential issues with the paper under investigation. First, we looked over the numeracy task. We firstly thought that conservatives and liberal may have different levels of numeracy, which would confound the main results. We found that there were no differences between the two groups. However, we found a slight mismatch between the codebook and the code, which we flagged to the authors. We also examined if there was a difference in numeracy by levels of need for closure. Again, we found no substantial difference.

Secondly, we examined if the treatment only affects "ideologically constrained" individuals. By "ideologically constrained" we mean individuals with consistent positions on ideology, partisanship, and policy position. The rationale was that these individuals might engage more in PMR and that their need for closure would mediate this effect. In the Lucid sample, we find that the results are similar for the constrained individuals and the original analysis.

Third, we investigated how the results varied when the control variables were altered or removed. The replicated results are similar to the original paper as detailed below. They do not change the substantive conclusion of the paper.

Finally, we investigated the moderator items individually. We found that no index was driving the null results. In all the paper replicates, no coding errors were found.

2 Reproducibility

The paper reproduced cleanly. We did not discover any errors in the code.

3 Robustness checks

3.1 Numeracy Task

One potential confounder for Experiment 1 was numeracy. That is, Experiment 1 varied information given about a study and required respondents to answer questions about the conclusions. The example given in Figure 1 of (Guay and Johnston 2022, p. 290) is a study in which, in order to answer a factual question, respondents need to be able to conclude that $\frac{107}{107+21} > \frac{223}{223+75}$. We hypothesized that the ability to do this would vary by ideology, and that this could mean that similar levels of measured response bias are actually the result of different levels of ideological bias combined with different levels of mathematical errors. To test this, we took advantage of a battery of seven simple mathematical questions contained in the same survey. We made the following coding decisions that differed from that used in the codebook:

1. We treated skipped questions (originally NA) as incorrect. We did this because we believe that in a survey context, respondents who are confused by a math question are more likely to skip it than respondents who have a good idea of how to answer it.

2. We treated commas as acceptable decimal points for the question that had a correct answer of 0.1. Some countries and languages use commas as decimals, and so a respondent raised with such a convention should not be treated as less numerate.

3. We allowed a trailing zero for that same correct answer, since the trailing zero is mathematically irrelevant.

In the process, we noted an error in the codebook, which had the correct answers in the wrong order. This was identifiable because the plurality of responses to one of the questions was, according to the codebook, the correct answer for the other. The authors were notified on February 23, 2023 and responded the same day, saying that they had sent a corrected codebook to the journal.

Both before and after our recoding, there were very small differences between Democratic and Republican respondents in average numeracy. Table 1 shows that there is very little difference in numeracy by party, and the recoding decisions we took made very little difference. This suggests that it is unlikely that adjusting for our recoded measure of numeracy will make a difference for the results of Experiment 1.

Table 1: Numeracy by Party

	Percent correct (old)	Percent correct (new)
Democrat	43	42
Republican	44	43
Indep/Other/NA	39	24

Indeed, Table 2 shows the interaction coefficients from models regressing the outcome on the treatment and the interaction of the treatment with numeracy. It shows that recoding numeracy made little difference in these interaction coefficients. The other coefficients in those models (not reported here) also do not change very much with the introduction of this new measure of numeracy.

Table 2

Model	Interaction Coefficient	SD	Pr(>|z|)
Issue (Old)	0.049	0.116	0.6752
Ideology (Old)	0.312	0.144	0.031
Party ID (Old)	0.344	0.131	0.0085
Issue (New)	0.049	0.122	0.6893
Ideology (New)	0.327	0.152	0.0317
Party ID (New)	0.369	0.138	0.0075

3.2 Ideological Constraint

We replicated the subgroup analysis and examined if the treatment effects only affect "ideologically constrained" individuals. By constrained we mean individuals with consistent positions on ideology, partisanship and policy position. The rationale was that these individuals might engage more in PMR and that their need for closure would mediate this effect. Hence, this is a robustness check to see if the results hold with a different moderator (original: issue, ideology and partisanship). Put simply, we are testing whether inconsistent voters drive the results.

Table 3: Experiment 1 (Figure 2, panel A

	Dependent variable:	
	model	
	Original	Replication
	(1)	(2)
Abortion	0.482*	0.358
	p = 0.099	p = 0.259
Gun control	0.031	−0.110
	p = 0.914	p = 0.723
Immigration	−0.814***	−0.940***
	p = 0.009	p = 0.006
min. wage	−0.308	−0.456
	p = 0.306	p = 0.163
Ideology (liberal-conservative)	−0.638***	
	p = 0.001	
Constrained ideology (partisanship-ideology)		−0.697***
		p = 0.001
Constant	0.219	0.337
	p = 0.344	p = 0.174
Observations	495	412
Log Likelihood	−323.974	−268.512
Akaike Inf. Crit.	659.948	549.024
Note:	*p<0.1; **p<0.05; ***p<0.01	

Table 3 presents the point estimates for the first experiment. We compare our new measure to the original point estimate from the Ideology treatment (Figure 2, panel A, middle).[1] Constrained ideology is coded as 1 if respondents are consistent in their ideology and partisanship (e.g., Republicans with conservative ideology). Respondents that are not consistent were removed from the analysis (39% of Democrats, 30% of Republicans). The results show that both point estimates are similar in magnitude and not significantly different.

Table 4 presents the point estimates for the second experiment, where we compare our new measure to the original point estimate from the Ideology treatment (Figure 3, panel A, middle). Again, the results hold.

3.3 Robustness of results to altered controls

We produce a robust replication of the main results presented in Figures 2, 4, 5, and 6.[2] Figure 2 in the original paper presents results from experiments 1 and 2, testing the extent to which the interpretation of numeric information about politics is biased by political attitudes and identities. For our purposes, the key results are in panel D, which show differences in PMR between left and right-wing respondents. We refer to these results as the PMR results in the Figures below.

Figures 4, 5, and 6 in the original paper tested various moderators of PMR and we refer to these as "moderator" studies. The authors measure the respondent's left-right orientation in three ways and run three different kinds of studies, and as we show below the results are robust to the controls being altered all of these splits.

In the original paper, the PMR tests used a sparse set of controls and the moderator studies used a larger set of controls (e.g. age, gender, education categories, racial categories). We replicated the PMR results using the larger set of controls and the moderator results using the sparse set of controls. We also replicated all of

[1] The results are highly similar for the other treatments. Given the nature of our variable, we believe it is the best estimate to be compared with.

[2] We examine the differences in PMR, and so reproduce panel D of Figure 2 and all of the other figures. The other panels of Figure 2 are also reproduced in the appendix and, as expected, show little difference when altering the control variables. We did not examine the robustness of Figure 3 because it had a single well-motivated control variables.

Table 4: Experiment 1 (Figure 3, panel A)

	Dependent variable:	
	model	
	Original	Replication
	(1)	(2)
Abortion	−0.060	0.035
	p = 0.655	p = 0.810
Gun control	−0.157	−0.140
	p = 0.255	p = 0.358
Immigration	−0.005	0.022
	p = 0.970	p = 0.880
Min. wage	−0.079	−0.045
	p = 0.564	p = 0.765
Ideology	−0.402***	
	p = 0.00001	
Constrained ideology		−0.450***
		p = 0.00001
Constant	0.243**	0.156
	p = 0.019	p = 0.159
Observations	529	431
R^2	0.042	0.055
Adjusted R^2	0.033	0.044
Residual Std. Error	1.005 (df = 523)	0.987 (df = 425)
F Statistic	4.583*** (df = 5; 523)	4.915*** (df = 5; 425)
Note:		*p<0.1; **p<0.05; ***p<0.01

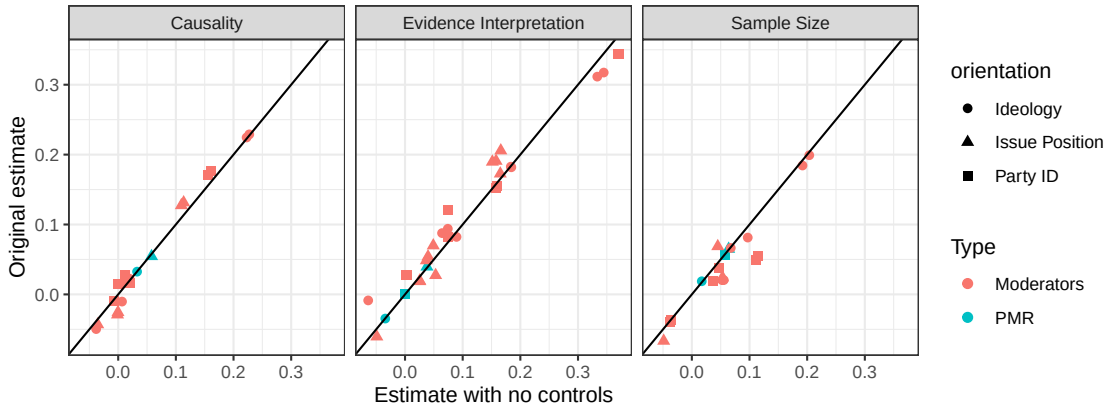

Figure 1: How effects of interest change without controls

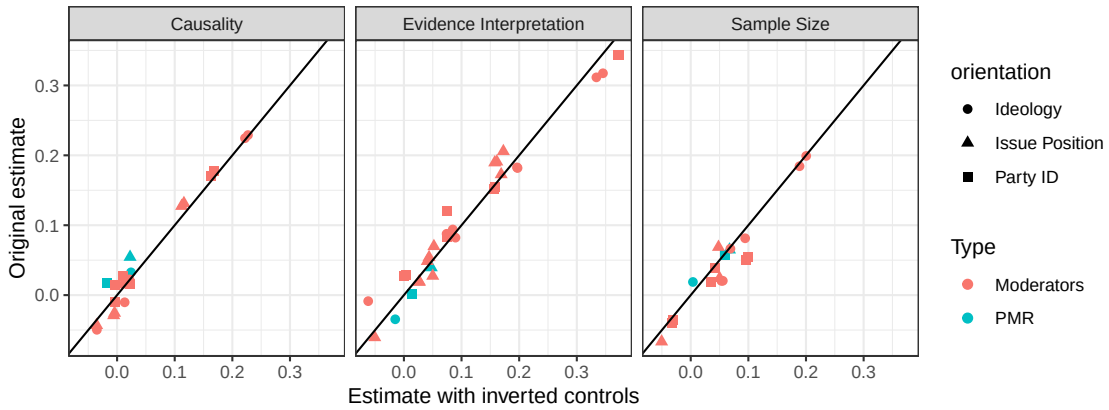

Figure 2: How effects of interest change with inverted controls

these results using no controls at all. We show how the main coefficeints of interest change when altering the controls in Figures 1 and 2. We show how standard errors change in Figures 3 and 4. In general, the results change very little. The results are robust to these choices.

3.4 Moderator Variables

Figure 4 in Guay and Johnston (2022) (p.296) shows that trait indexes do not moderate the treatment effects. We investigated the moderator items individually to see if a particular index of traits was driving the results. We looked at the effect of each item separately to examine if one particular trait is systematically linked with one of the outcomes.

We found that no index was driving the null results. We found that the null results are robust to all traits in the index. While some moderators are significant in

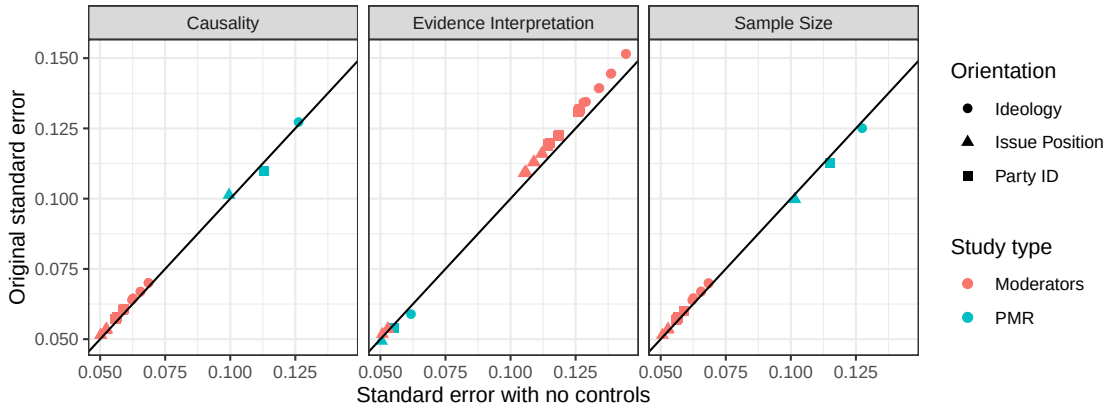

Figure 3: How standard errors change without controls

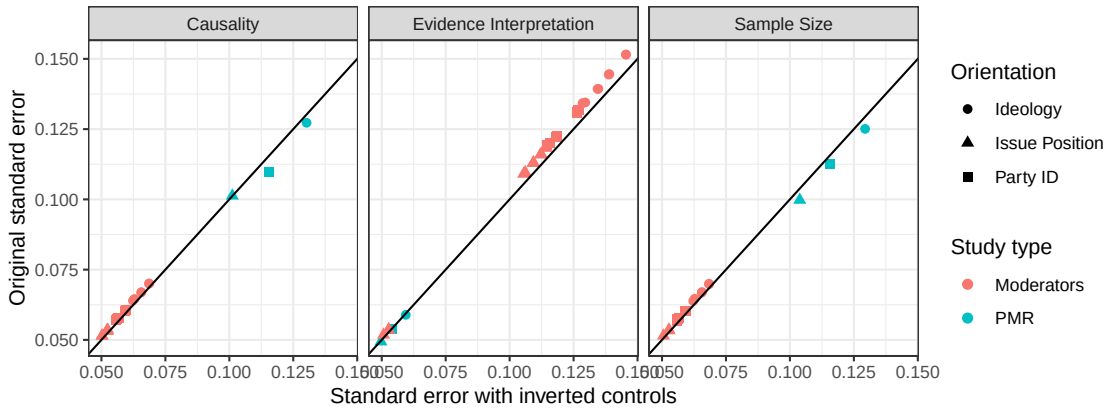

Figure 4: How standard errors change with inverted controls

some analyses, no relationships are systematic. We do not interpret this as a change in the interpretation of the results or the findings in Figure 4. This re-analysis aims to see if the null findings in Figure 4 are due to particular items in the scale (need for closure, openness to new experience, and Schwartz values).

4 Conclusion

The results of this paper stand up well to the scrutiny that we applied. We worried that perhaps conservatives and liberal had different levels of numeracy, which would confound the main results, but this was not the case. We conducted a subgroup analysis to see if the treatment only affects "ideologically constrained" individuals, and we found that the results are similar for the constrained individuals and the original analysis. We investigate how the results varied when the control variables

Table 5: Experiment 1: Issue Position

	Original	Need for Closure	Openness	Schwartz values
Congeniality	0.617	0.616	0.616	0.620
	(1.63×10^{-8})	(1.63×10^{-8})	(1.58×10^{-8})	(1.44×10^{-8})
Congeniality*Trait index	0.191			
	(0.082)			
Congeniality*Need for Closure		0.173		
		(0.113)		
Congeniality*Openness			0.070	
			(0.528)	
Congeniality*Schwartz values				0.191
				(0.082)
Num.Obs.	1435	1435	1435	1434
AIC	1964.0	1962.5	1966.8	1963.1
BIC	2085.2	2083.6	2088.0	2084.3
Log.Lik.	−958.989	−958.225	−960.383	−958.569
RMSE	0.49	0.49	0.49	0.49

Table 6: Experiment 1: Ideology

	Original	Need for closure	Openness	Schwartz values
Congeniality	0.598	0.597	0.598	0.602
	(1.25×10^{-5})	(1.25×10^{-5})	(1.2×10^{-5})	(1.12×10^{-5})
Congeniality*Trait index	0.082			
	(0.541)			
Congeniality*Need for Closure		−0.009		
		(0.949)		
Congeniality*Openness			0.002	
			(0.985)	
Congeniality*Schwartz values				0.207
				(0.128)
Num.Obs.	956	956	956	955
AIC	1318.3	1318.6	1319.1	1314.5
BIC	1430.1	1430.5	1430.9	1426.3
Log.Lik.	−636.127	−636.305	−636.526	−634.233
RMSE	0.49	0.49	0.49	0.49

Table 7: Experiment 1: Party ID

	Original	Need for closure	Openness	Schwartz values
Congeniality	0.483	0.486	0.486	0.478
	(5.57×10^{-5})	(5.07×10^{-5})	(5.17×10^{-5})	(6.86×10^{-5})
Congeniality*Trait index	0.083			
	(0.490)			
Congeniality*Need for Closure		0.120		
		(0.313)		
Congeniality*Openness			−0.154	
			(0.195)	
Congeniality*Schwartz values				0.242
				(0.045)
Num.Obs.	1198	1198	1198	1197
AIC	1652.8	1651.6	1651.9	1648.5
BIC	1769.9	1768.7	1768.9	1765.5
Log.Lik.	−803.420	−802.810	−802.951	−801.265
RMSE	0.49	0.49	0.49	0.49

Table 8: Experiment 2 (Sample size): Issue Position

	Original	Need for closure	Openness	Schwartz values
Congeniality	0.219	0.219	0.218	0.220
	(2.21×10^{-5})	(2.36×10^{-5})	(2.32×10^{-5})	(2.18×10^{-5})
Congeniality*Trait index	−0.067			
	(0.196)			
Congeniality*Need for Closure		−0.060		
		(0.243)		
Congeniality*Openness			−0.029	
			(0.581)	
Congeniality*Schwartz values				−0.058
				(0.258)
Num.Obs.	1445	1445	1445	1444
R2	0.076	0.071	0.077	0.074
R2 Adj.	0.063	0.058	0.064	0.061
AIC	4042.2	4050.0	4040.4	4044.0
BIC	4158.3	4166.1	4156.4	4160.1
Log.Lik.	−1999.112	−2003.000	−1998.183	−2000.022
RMSE	0.97	0.97	0.96	0.97

Table 9: Experiment 2 (Sample size): Ideology

	Original	Need for closure	Openness	Schwartz values
Congeniality	0.224	0.221	0.234	0.223
	(0.0007)	(0.0008)	(0.0004)	(0.0007)
Congeniality*Trait index	0.066			
	(0.298)			
Congeniality*Need for Closure		0.081		
		(0.209)		
Congeniality*Openness			0.008	
			(0.903)	
Congeniality*Schwartz values				0.060
				(0.356)
Num.Obs.	963	963	963	962
R2	0.086	0.083	0.087	0.085
R2 Adj.	0.067	0.064	0.067	0.065
AIC	2747.8	2750.4	2746.9	2747.3
BIC	2854.9	2857.5	2854.0	2854.4
Log.Lik.	−1351.879	−1353.202	−1351.439	−1351.640
RMSE	0.98	0.99	0.98	0.99

Table 10: Experiment 2 (Sample size): Partisanship

	Overall	Need for closure	Openness	Schwartz values
Congeniality	0.206	0.199	0.210	0.203
	(0.0003)	(0.0005)	(0.0003)	(0.0004)
Congeniality*Trait index	0.038			
	(0.499)			
Congeniality*Need for Closure		0.019		
		(0.736)		
Congeniality*Openness			0.017	
			(0.761)	
Congeniality*Schwartz values				0.055
				(0.334)
Num.Obs.	1207	1207	1207	1206
R2	0.097	0.090	0.099	0.094
R2 Adj.	0.081	0.075	0.083	0.079
AIC	3403.0	3411.5	3400.3	3404.1
BIC	3515.1	3523.6	3512.5	3516.2
Log.Lik.	−1679.514	−1683.725	−1678.175	−1680.061
RMSE	0.97	0.98	0.97	0.97

Table 11: Experiment 2 (Causal claim): Issue Position

	Original	Need for closure	Openness	Schwartz values
Congeniality	0.381	0.383	0.380	0.384
	(2.08×10^{-13})	(1.4×10^{-13})	(1.85×10^{-13})	(1.42×10^{-13})
Congeniality*Trait index	−0.043			
	(0.403)			
Congeniality*Need for Closure		0.015		
		(0.771)		
Congeniality*Openness			−0.112	
			(0.031)	
Congeniality*Schwartz values				−0.004
				(0.933)
Num.Obs.	1445	1445	1445	1444
R2	0.075	0.079	0.083	0.075
R2 Adj.	0.062	0.066	0.070	0.062
AIC	4040.4	4033.9	4027.8	4036.2
BIC	4156.5	4150.0	4143.8	4152.3
Log.Lik.	−1998.195	−1994.947	−1991.882	−1996.113
RMSE	0.96	0.96	0.96	0.96

Table 12: Experiment 2 (Causal claim): Ideology

	Original	Need for closure	Openness	Schwartz values
Congeniality	0.308	0.304	0.304	0.311
	(3.58×10^{-6})	(4.8×10^{-6})	(5.20×10^{-6})	(2.88×10^{-6})
Congeniality*Trait index	−0.050			
	(0.438)			
Congeniality*Need for Closure		−0.010		
		(0.874)		
Congeniality*Openness			−0.067	
			(0.301)	
Congeniality*Schwartz values				−0.030
				(0.642)
Num.Obs.	964	964	964	963
R2	0.086	0.087	0.087	0.087
R2 Adj.	0.066	0.068	0.067	0.068
AIC	2757.7	2755.7	2756.4	2752.6
BIC	2864.9	2862.9	2863.6	2859.7
Log.Lik.	−1356.870	−1355.870	−1356.201	−1354.287
RMSE	0.99	0.99	0.99	0.99

Table 13: Experiment 2 (Causal claim): Partisanship

	Original	Need for closure	Openness	Schwartz values
Congeniality	0.257	0.257	0.251	0.252
	(8.96×10^{-6})	(8.3×10^{-6})	(1.42×10^{-5})	(1.26×10^{-5})
Congeniality*Trait index	−0.010			
	(0.859)			
Congeniality*Need for Closure		0.016		
		(0.781)		
Congeniality*Openness			−0.052	
			(0.360)	
Congeniality*Schwartz values				0.021
				(0.710)
Num.Obs.	1207	1207	1207	1206
R2	0.064	0.070	0.068	0.065
R2 Adj.	0.049	0.054	0.053	0.049
AIC	3421.8	3415.1	3416.6	3417.1
BIC	3533.9	3527.2	3528.7	3529.2
Log.Lik.	−1688.914	−1685.529	−1686.285	−1686.542
F				4.137
RMSE	0.98	0.98	0.98	0.98

were altered or removed. The replicated results are similar to the original paper. They do not change the substantive conclusion of the paper. Finally, we investigated the moderator items individually and found that no index was driving the null results.

We found no coding errors and the code replicated well. Our single, small, issue was an error in the reporting in the codebook, which we flagged to the authors.

References

Guay, B. and Johnston, C. D.: 2022, Ideological asymmetries and the determinants of politically motivated reasoning, *American Journal of Political Science* **66**(2), 285–301.

5 Appendix

Section 3.3 of the paper uses a condensed set of figures to show that the results are robust to dropping the controls or changing the set of control variables. Here we give a sense of how little the results change by reproducing each panel of Figure 2 separately. The results are shown below in Figures 8, 12, 16, and 20. The results change very little.

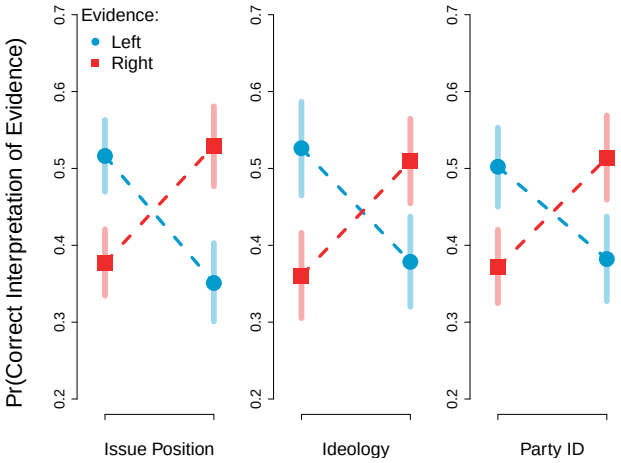

Figure 5: Original

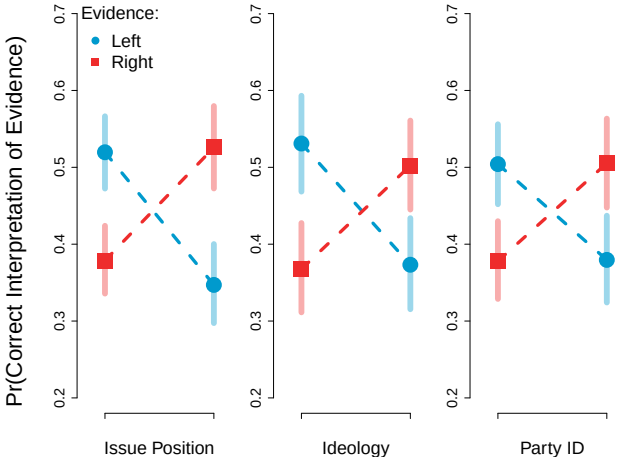

Figure 6: No controls

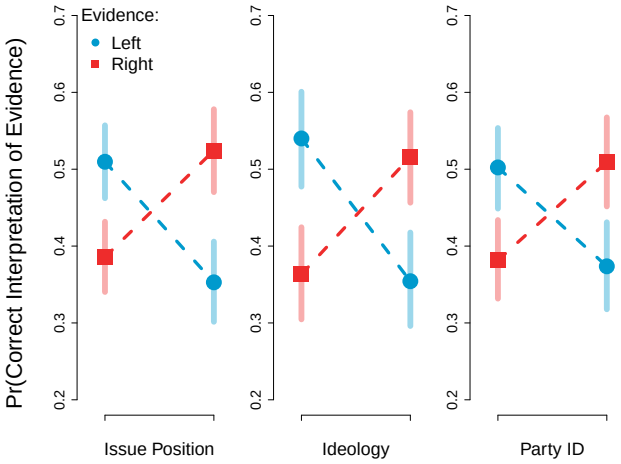

Figure 7: Inverted controls

Figure 8: Panel A, Figure 2

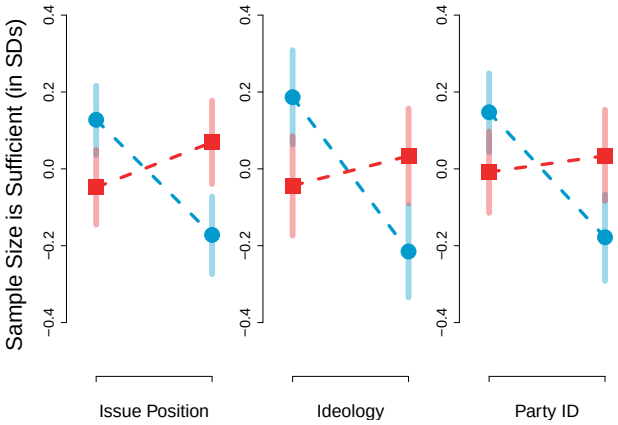

Figure 9: Original

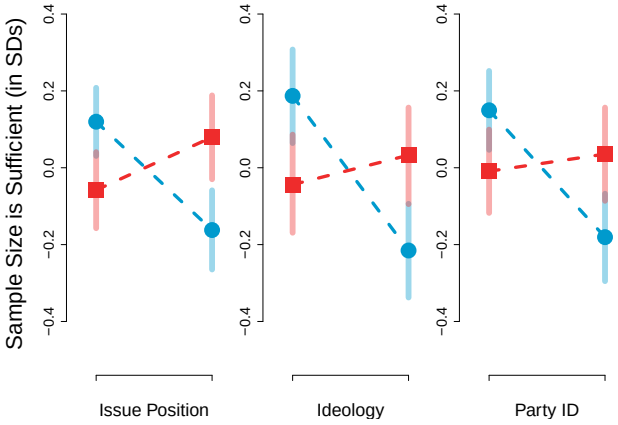

Figure 10: No controls

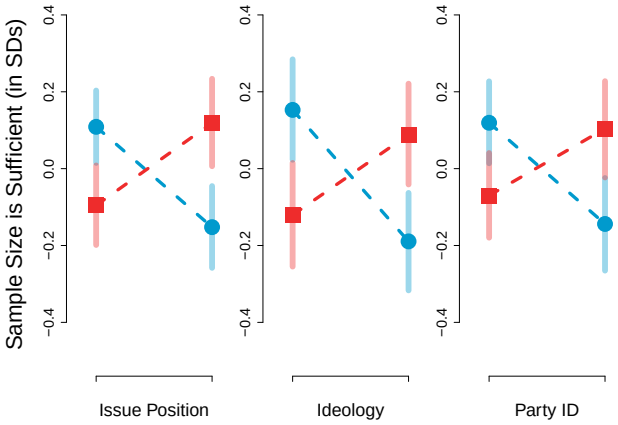

Figure 11: Inverted controls

Figure 12: Panel B, Figure 2

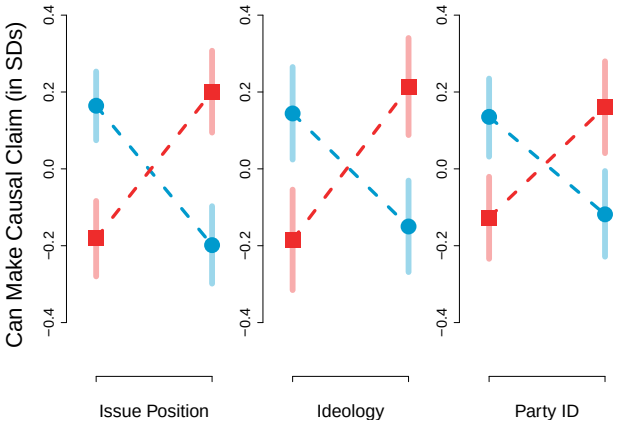

Figure 13: Original

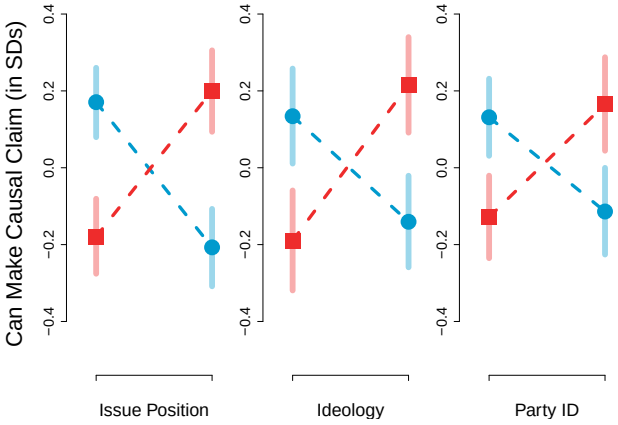

Figure 14: No controls

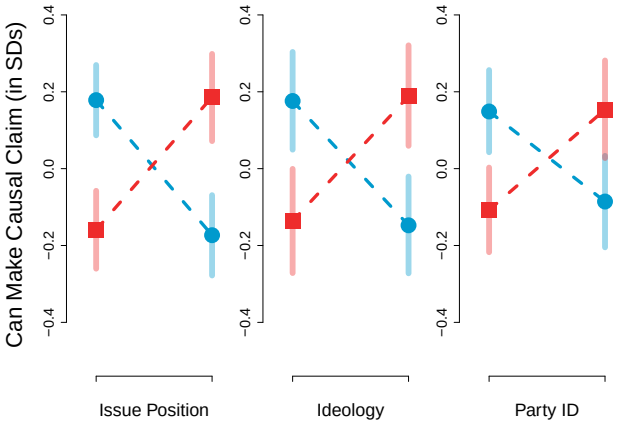

Figure 15: Inverted controls

Figure 16: Panel C, Figure 2

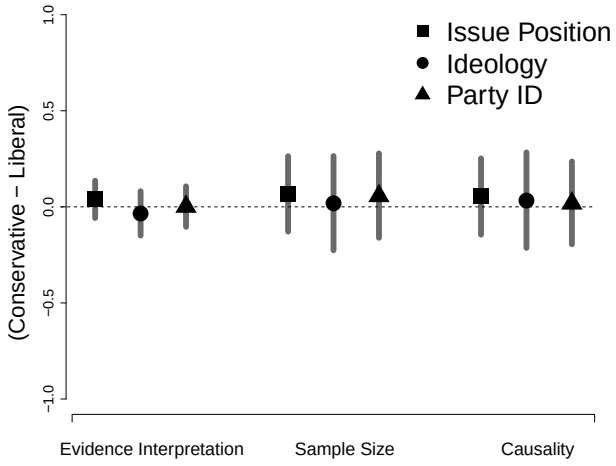

Figure 17: Original

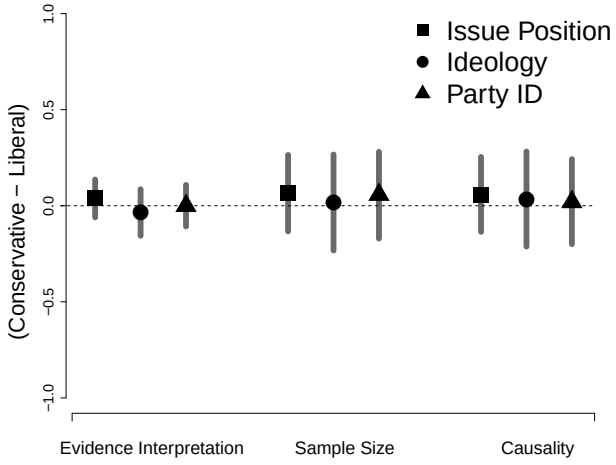

Figure 18: No controls

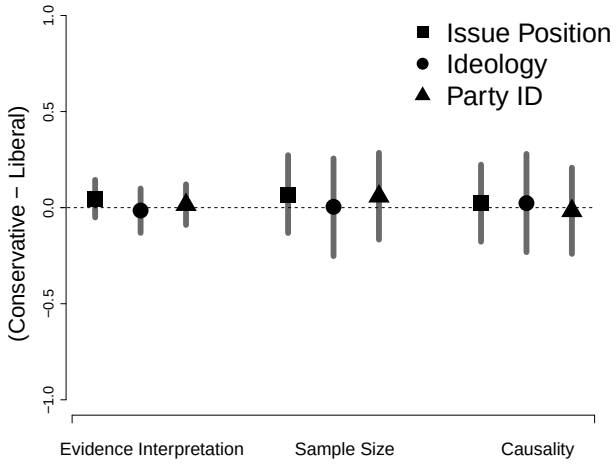

Figure 19: Inverted controls

Figure 20: Panel D, Figure 2