

**False Equivalence: Are Liberals and Conservatives in the U.S.
Equally “Biased”?**

Jonathan Baron, *University of Pennsylvania*

John T. Jost, *New York University*

Invited Revision, *Perspectives on Psychological Science*.

Acknowledgements: We thank Brad Bushman, Dan Kahan, Adil Saribay, Robert J. Sternberg, Onurcan Yilmaz, and several anonymous reviewers for helpful feedback on earlier drafts of this article.

Abstract

On the basis of a meta-analysis of 51 studies, Ditto, Liu, Clark, Wojcik, Chen, et al. (2018) conclude that ideological “bias” is equivalent on the left and right of U.S. politics. In this commentary, we contend that this conclusion does not follow from the review and that Ditto and colleagues are too quick to embrace a false equivalence between the liberal left and the conservative right. For one thing, the issues, procedures, and materials used in studies reviewed by Ditto and colleagues were selected for purposes other than the inspection of ideological asymmetries. Consequently, methodological choices made by researchers were systematically biased to avoid producing differences between liberals and conservatives. We also consider the broader implications of a normative analysis of judgment and decision-making and demonstrate that the “bias” examined by Ditto and colleagues is not, in fact, an irrational bias, and that it is incoherent to discuss bias in the absence of standards for assessing accuracy and consistency. We find that Jost’s (2017) conclusions about domain-general asymmetries in motivated social cognition, which suggest that epistemic virtues are more prevalent among liberals than conservatives, are closer to the truth of the matter when it comes to current American politics. Finally, we question the notion that the research literature in psychology is necessarily characterized by “liberal bias,” as several authors have claimed.

False Equivalence: Are Liberals and Conservatives in the U.S. Equally “Biased”?

[T]here can be no real quarrel with a willingness to infer that studies supporting one's theory-based expectations are more probative than . . . studies that contradict one's expectations Hence, a physicist would be 'biased,' but appropriately so, if a new procedure for evaluating the speed of light were accepted if it gave the 'right answer' but rejected if it gave the 'wrong answer.' The same bias leads most of us to be skeptical about reports of miraculous virgin births or herbal cures for cancer.

(Lord, Ross, & Lepper, 1979, p. 2106)

For several decades following the exploitation of politically conservative (or perhaps “pseudo-conservative”) themes in service of right-wing extremism in Europe and the U.S.—movements that resulted in World War II and McCarthyism, respectively—social scientists were in apparent agreement that authoritarianism, cognitive rigidity, dogmatism, intolerance, prejudice, and other forms of irrationalism were more prevalent in Western democratic systems, at least, on the political right than the left. Although it was never total, there was a great deal of social scientific consensus that existed with respect to these points (e.g., Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950; Altemeyer, 1981; Bennett, 1995; Brown, 1965; Duckitt, 2001; Hetherington & Weiler, 2009; Hofstadter, 1965; Jost, Glaser, Kruglanski, & Sulloway, 2003; Lipset & Raab, 1978; Sidanius & Pratto, 1999; Stone, 1980). In recent years, the consensus that did exist has appeared to unravel, at least in circles that are sympathetic to the notion that social scientists are “biased” in favor of liberalism and against conservatism (Duarte, Crawford, Stern, Haidt, Jussim, & Tetlock, 2015; Inbar & Lammers, 2012; see also Ditto, Wojcik, Chen, Grady, & Ringel, 2015).

Nowadays we read that liberals are every bit as authoritarian as conservatives (Conway, Houck, Gornick, & Repke, 2017; Frimer, Gaucher, & Schaefer, 2014); as rigid and “simple-minded” (Conway, Gornick, Houck, Anderson, Stockert, et al., 2016); as intolerant (Brandt, Reyna, Chambers, Crawford, & Wetherell, 2014; Crawford & Pilanski, 2014); as prejudiced (Brandt, 2017; Chambers, Schlenker, & Collisson, 2013; Wetherell, Brandt, & Reyna, 2013); and as “biased” by motivated reasoning processes (Crawford, 2012; Frimer, Skitka, & Motyl, 2017; Kahan, 2016). To us, it seems ironic and more than a little bewildering that social psychologists are drifting into this relativistic view of morality and politics just as authoritarian conservatism (and illiberal hostility to democratic norms) seem to be reaching new heights of popularity and brazenness not only in Trump’s America but also in Erdogan’s Turkey, Orban’s Hungary, and Netanyahu’s Israel. Radical right-wing, nationalistic parties are on the rise again throughout Europe, including Germany, Austria, Poland, Bulgaria, Greece, Macedonia, France, Switzerland, England, and the Netherlands (e.g., Akkerman, de Lange, & Rooduijn, 2016; Camus & Lebourg, 2017; Mammone, Godin, & Jenkins, 2013). The only truly comparable resurgence of left-wing authoritarianism has been in Venezuela, although it is, of course, possible to cite other historical periods in which left-wing authoritarianism posed (or might have posed) a serious threat to liberal democracy.

It is in the present sociopolitical context, where right-wing authoritarianism poses a serious social problem in many countries (including,

arguably, the U.S.), that Ditto, Liu, Clark, Wojcik, Chen, et al. (2018) argue—on the basis of a meta-analysis of 51 experimental studies conducted in recent years—that ideological “bias” is equivalent on the left and right of American politics. In this rejoinder, we argue that the conclusions of Ditto and colleagues do not follow from the studies they review and that they are too quick to conclude that the liberal left and the conservative right are equally biased. In an Appendix we discuss some of the more anomalous outcomes of their meta-analytic review, including the facts that (a) in 7 of the 10 studies in which asymmetrical “bias” was observed it was conservatives who exhibited a stronger “bias” than liberals, and (b) one of the three studies that—according to Ditto et al.—indicated that liberals showed a stronger bias than conservatives was interpreted in precisely the opposite manner by the original authors (MacCoun & Paletz, 2009). Here we address more general problems with Ditto and colleagues’ attempt to resolve the question of whether there is or is not an ideological asymmetry in American politics when it comes to epistemic virtues and vices.

Extensive Evidence of Ideological Asymmetries in Domain-General Cognitive Style Variables

To begin with, Ditto et al.’s null result is (at first blush) surprising for a number of reasons in addition to historical considerations. These include the fact that a large number of other studies (reviewed by Jost, Sterling, and Stern, 2018, in a different meta-analysis) have revealed significant ideological asymmetries with respect to subjective and objective measures

of (domain-general) cognitive style variables. As illustrated in Figure 1, liberals generally score higher than conservatives on measures of integrative complexity, cognitive reflection, need for cognition, and uncertainty tolerance, whereas conservatives score higher than liberals on measures of personal needs for order and structure, cognitive closure, intolerance of ambiguity, cognitive/perceptual rigidity, and dogmatism (Jost, 2017). A study by Zmigrod, Rentfrow, and Robbins (2018) demonstrated, furthermore, that conservatives performed worse than liberals on two objective (and entirely non-political) tests of cognitive flexibility, namely the Wisconsin Card Sorting Test and the Remote Associates Test (see also Amodio, Jost, Master, & Yee, 2007).

There is also a good deal of evidence that liberals perform better than conservatives on objective tests of cognitive ability and intelligence (Deary, Batty, & Gale, 2008; Deppe et al, 2015; Heaven, Ciarrochi, & Leeson, 2011; Hodson & Busseri, 2012; Onraet, Van Hiel, Dhont, Hodson, Schittekatte, & DePauw, 2015; Yilmaz & Saribay, 2017). Conservatives, on the other hand, appear to be more gullible (Pennycook & Rand, 2017; Pfattheicher & Schindler, 2016; Sterling, Jost, & Pennycook, 2016) and less interested in scientific ways of knowing (Blank & Shaw, 2015; Carl, Cofnas, & Woodley, 2016; Lewandowsky & Oberauer, 2016; Tullett, Hart, Feinberg, Fetterman, & Gottlieb, 2016). They also score higher than liberals on measures of self-deception (Jost, Liviatan, van der Toorn, Ledgerwood, Mandisodza, & Nosek, 2010; Wojcik, Hovasapian, Graham, Motyl, & Ditto, 2015). Increasingly, social

scientists are finding that conservatives are more likely than liberals to spread “fake news,” political misinformation, and conspiracy theories in their online social networks (e.g., Benkler, Faris, Roberts, & Zuckerman, 2017; Marwick & Lewis, 2017; Miller, Saunders, & Farhart, 2016).

A close inspection of Figures S1-S3 included in the supplementary materials for a recent article by Vosoughi, Roy, Aral (2018) reveals that four of the U.S. news sources that contained the highest proportion of false statements (the Rush Limbaugh Show, Glenn Beck Program, Fox News, and the Sean Hannity Show) were highly trusted by a strong majority (51-88%) of “consistent conservatives.” Conversely, the *New York Times*, which received the second-highest score in terms of statement veracity, was highly trusted by 62% of “consistent liberals” but only 3% of “consistent conservatives.” In this study, the *Wall Street Journal* received the highest overall score in terms of statement veracity. Despite its right-leaning orientation, it was slightly more trusted by “consistent liberals” (35%) than “consistent conservatives” (30%); see <http://bit.ly/2GfGInt>.

So, how do we square all of this evidence in support of ideological asymmetries in epistemic motives, abilities, values, virtues, and vices with Ditto et al.’s (2018) conclusion that American liberals are just as “biased” as American conservatives when it comes to information processing? In the next section we discuss implications of the fact that the issues, procedures, and materials used in most (if not all) of the studies reviewed by Ditto and colleagues were selected for a different purpose than to examine ideological

asymmetries. We argue that the methodological choices made by researchers were, as a result, likely to produce no meaningful differences between liberals and conservatives.

After discussing this important issue, we consider the broader implications of a normative analysis of judgment and decision-making and show that the “bias” examined in the studies reviewed by Ditto and colleagues is not, in fact, a bias at all. That is, it is perfectly rational to evaluate new information on the basis of prior beliefs, as Lord et al. (1979) pointed out in the quotation that we have selected for our epigram. Most of the studies under review simply demonstrate that both sides are committed to their initial beliefs, as they (generally) should be. A symmetry in the implementation of a rational process tells us nothing at all about whether there are symmetries or asymmetries with respect to irrational forms of bias, which is the original question of interest in the research literature in social and political psychology that originates with Adorno et al. (1950).

Taken in conjunction, these points raise serious questions about the strong conclusions drawn by Ditto and colleagues (2018). We believe, in any case, that Jost’s (2017) conclusions about ideological asymmetry in processes of motivated social cognition are closer to the truth of the matter, at least when it comes to American (and some cases of European) politics (see also Jost et al., 2003, 2018). Finally, we question the notion that the research literature in social and political psychology is necessarily characterized by “liberal bias,” as these (and several other) authors claim.

Methodological Decisions Made by Researchers May Have Insured Ideological Symmetry

The studies included in Ditto and colleagues' (2018) meta-analysis examined the effect of a prior belief on an evaluative judgment of the quality of research bearing on some empirical proposition. We use the term "belief" to include attitudes, opinions, values, commitments, and identifications; all of these may be expressed in the language of beliefs, that is, propositions that are treated as if they had truth values (e.g., "[I believe that] banning assault weapons would save the lives of many innocent people"). Research participants were usually pre-selected (or sorted) according to their pre-existing beliefs, so that they would be comparable (roughly) in terms of belief confidence, strength, and extremity. The specific propositions being judged or evaluated were selected by researchers so that distortion in both directions (left and right) was not only possible but expected. Most of the researchers had no interest in ideological asymmetries. Ideally, from the perspective of a researcher who wishes to document a general (or "fundamental") bias, the room for ideological distortion would be the same in both directions.

Thus, as in the case of Lord et al. (1979) and Cohen (2003), researchers set out to demonstrate the existence of symmetrical forms of bias, carefully constructing study materials in such a way that nearly everyone (on the left and right) would be likely to evince the bias of interest. Presumably, this was accomplished through careful calibration of language

that made the proposition (as worded) relatively neutral between two fairly extreme (but credible) positions. Most researchers probably relied on their own intuitions about what would “work” to elicit comparable levels of “bias,” and, at least on average, they appear to have done very well.

Likewise, in seeking to identify moderators of “bias” that were orthogonal to ideology (as most, but not all, of them did), researchers may have intuitively gravitated toward issues for which ideological asymmetries were unlikely to arise. This means that the issues and arguments would not be representative of the issues and arguments that characterize left/right political conflict, especially when it comes to extreme ideologues (which may very well be more numerous on one side than the other). It seems clear that the original researchers made no effort to sample issues so that they would be representative of the topics of political debates at the time of the study. Thus, the issues chosen for study in the first place were unlikely to produce evidence of asymmetrical ideological bias, even if it does exist. These facts alone could explain why null differences with respect to ideology were obtained by Ditto et al. (2018) in 41 of the 51 experiments they reviewed.

In other words, all of these research strategies would work against the detection of significant ideological differences in evaluation of evidence. Suppose, for instance, leftists and rightists differ on many issues—most of which require the relative weighting of considerations that both sides would consider relevant, such as deterrence of crime and avoidance of false convictions (in the case of capital punishment). Let us also suppose that for

some issues at least one side maintains highly indefensible positions with severe rigidity, rejecting counter-evidence. (These positions likely involve this sort of rigidity, or they would not have persisted in the face of so much counter-evidence). It is easy to imagine that, at a given time in history, one side has many more extremely rigid, indefensible beliefs than the other. In such a case, researchers would studiously avoid these issues, so that the preponderance of highly rigid beliefs on one side would be missed entirely. Instead, researchers would choose the more truly debatable issues in designing their experiments.

In reality, however, it may very well be the case that one “side” holds far more true beliefs than the other; this possibility is, quite simply, not considered in these studies. In other words, any ideological asymmetries in terms of quality or accuracy of information processing are likely to have taken place long before participants showed up for the experiment, and they are unlikely to come to light in the course of the session itself, because of decisions made by researchers.

If conservatives in the U.S. are indeed more dogmatic, less reflective, and more prone to intuitive, gut-level (“Type 1”) thinking (e.g., see Jost, 2017; Jost & Krochik, 2014), it is to be expected that such a cognitive style would manifest itself in terms of beliefs that were neglected in the studies reviewed by Ditto and colleagues, because they would have seemed “silly” to liberal participants (and researchers). These would include not only misconceptions about anthropogenic climate change and the safety of

existing gun laws but still fairly widespread beliefs that: Bill and Hillary Clinton conspired to murder Vince Foster, Seth Rich, and other political liabilities; Saddam Hussein possessed “weapons of mass destruction” in Iraq; Barack Obama was born in Kenya and that he is a Muslim and a Marxist; “death panels” were part of the Affordable Care Act, which was a socialist conspiracy; many cases of rape are just instances of “buyer’s remorse”; gun control laws are ineffective and oppressive, and Democrats are plotting to confiscate the property of legal gun-owners; immigration reform in the U.S. will sharply increase terrorism and may ultimately lead to the imposition of Sharia law; the Black Lives Matter movement is a terrorist organization that promotes racism and hate crimes; millions of votes were fraudulently cast for Hillary Clinton and she should be imprisoned because of email infractions and/or mishandling (and “covering up”) the attack on the U.S. embassy in Benghazi; that Donald Trump is an innocent victim of “liberal” media; and there is no compelling evidence that Russia covertly influenced the 2016 presidential election. It should be noted, for instance, that President Trump has repeatedly and explicitly endorsed many of these beliefs.¹ In Europe, beliefs that are relatively common on the right but regarded as absurd by most on the left include holocaust denial (or minimization), various anti-Semitic conspiracy theories, and the notion that George Soros is plotting the demise of Western civilization.²

 This is not to say that leftists never engage in conspiracy theorizing (or

1 According to the *New York Times*, President Trump publicly expressed lies or outright falsehoods nearly every day during the first year of his presidency (<https://www.nytimes.com/interactive/2017/06/23/opinion/trumps-lies.html>).

that conspiracy theories are never true), only that the evidence is rather overwhelming that there is an ideological asymmetry, as noted above. Rumors, false information, and conspiracy theories appear to spread more rapidly and more extensively in the online social networks of conservatives (Benkler et al., 2017; Marwick & Lewis, 2017; Miller et al., 2016; Robbins, 2017). This may be due, at least in part, to the facts that conservatives tend to possess a thinking style that is more intuitive and less deliberative than liberals (Jost, 2017) and that this thinking style is associated with conspiracist ideation (Garrett & Weeks, 2017; see also Douglas, Sutton, & Cichocka, 2017), acceptance of “fake news” (Pennycook & Rand, 2017), and susceptibility to seemingly profound but meaningless statements (Sterling et al., 2016).

Any serious attempt to compare the overall quality of reasoning on the part of liberals and conservatives on the basis of specific issues (as in the studies reviewed by Ditto et al., 2018) would require a sufficiently large sample of issues (or topics) so that they are statistically representative of the entire population of ideological differences in public opinion, keeping in mind that these issues (and their relative importance to political identification)

2 In an astonishing case of transplanted conspiracy mongering on the right, the Alabama Senate candidate Roy Moore and his supporters blamed the liberal (Jewish) European financier, George Soros, in late 2017 for working to defeat Moore’s electoral chances. Specifically, they (and others in right-wing media) claimed that Soros was registering felons to vote for the Democratic candidate and that Soros paid women to come forward with allegations of sexual assault against the candidate. These accusations against Soros were apparently part of a desperate effort to discredit allegations of sexual assault against minors that were piling up against Moore (https://www.huffingtonpost.com/entry/roy-moore-george-soros_us_5a26fb54e4b08220bd787c0d).

may change over time. These important considerations were neither recognized nor addressed by Ditto and colleagues, or, for that matter, the original researchers whose studies they reviewed. The research reviewed by Jost (2017) does not suffer from the same methodological limitation, because it focuses on general psychological differences that covary with political orientation, rather than responses to a very small and unrepresentative set of issues that were hand-picked in part to avoid ideological asymmetries.

What if the “Bias” in Question is Rational (for Some More than Others)?

To this point, we have tacitly accepted the assumption made by Ditto et al. (2018)—and most of the researchers whose work was reviewed—that the “bias” exhibited in these experiments was irrational. Many researchers go so far as to assume that the “bias” in question resulted from motivated reasoning or wishful thinking. However, the true source of the alleged bias may be purely cognitive, with no motivation involved—that is, purely a case of beliefs affecting beliefs rather than desires affecting beliefs. None of the studies attempted to manipulate motivation, which would be necessary to disentangle motivational from cognitive effects, when the two are likely to be correlated. (We address this issue in more detail in the Appendix.)

Many—and possibly all—of the studies that claim to find ideological “bias” (in either or both directions) do not in fact show any bias at all. The apparent “bias,” in other words, may be completely rational. Other scholars have made this point rather convincingly by developing Bayesian analyses of

paradigms used to investigate “biased” evaluation of evidence that is consistent vs. inconsistent with pre-existing beliefs (e.g., Bullock, 2009; Jern, Chang & Kemp, 2014; Koehler, 1993). One of Ditto et al.’s (2018) selection criterion was this: “Studies needed to measure participants’ evaluation of the validity, quality, or acceptance of the matched politically-congenial and politically-uncongenial information. Examples of information evaluation measures included ratings of a scientific study’s methodological quality, approval/disapproval of a political actor’s behavior, and endorsement of specific policy proposals presented in the stimulus materials.” The only evidence of “bias,” therefore, is derived from the judgment that information supporting the participant’s position was more reliable or valid than information supporting the opposing position. These are subjective matters of belief, and (as noted above) no attempt was made to determine their objective levels of accuracy.

The judgment that congenial information is more likely to be correct than uncongenial information is rational (and consistent with Bayesian reasoning) because we (human beings) know that most of our beliefs are correct, and—even when we know that others disagree with us—we are justified in thinking that we are probably correct, as long as we attend to the “base rate” of being correct, which we ought to do. Lord et al. (1979) made clear that, in the context of evaluating new studies (as their research participants were asked to do): “there can be no real quarrel with a willingness to infer that studies supporting one’s theory-based expectations

are more probative than . . . studies that contradict one's expectations Hence, a physicist would be 'biased,' but appropriately so, if a new procedure for evaluating the speed of light were accepted if it gave the 'right answer' but rejected if it gave the 'wrong answer.' The same bias leads most of us to be skeptical about reports of miraculous virgin births or herbal cures for cancer" (p. 2106).³ Ditto et al. (2018) ignore this crucial caveat.

Even if some cases of resistance to counter-evidence are indeed irrational, a person might exhibit what looks like "rigidity" (unwillingness to accept counter-evidence) because he or she is already familiar with a great deal of evidence. Someone who knows the medical literature on the effects of saturated fat on heart disease, for instance, might regard a single study suggesting that fat reduces risk as simply "one drop in the bucket," to be

3 The idea that it is often rational to judge the quality of evidence on the basis of its fit with prior beliefs may strike some as suspect. So here is a greatly simplified example to show more formally how this idea works. Suppose a doctor is testing for a disease. The test is either good or bad, with equal probability (.5). If it is good, it makes no errors. It has a hit rate of 1, $p(\text{positive}|\text{disease})$, and a false alarm rate of 0, $p(\text{positive}|\text{no-disease})$. If it is bad, it has a hit rate of .75 and a false alarm rate of .25. In the limiting case, the doctor is sure that the patient does not have the disease but has already administered the test. The test is positive. Clearly, this must be the bad test. *The doctor has used her belief about the disease to evaluate the quality of the test, and appropriately so.*

More generally, but still assuming that (a) the good and bad tests were equally likely to have been administered in the absence of any results, (b) the disease probability D is independent of which test was used, and (c) the good test is no worse in hit rates and no worse in false alarm rates than the bad test, we can ask what is the probability that the good test was administered after we learn that the test result is positive. Let H_g and H_b be the hit rates of the good and bad tests, respectively, and F_g and F_b the false alarm rates. Consider now the four ways of getting a positive result: hit with the good test, false alarm with the good test, hit with the bad test, and false alarm with the bad test. These probabilities are, respectively: $.5DH_g$; $.5(1-D)F_g$; $.5DH_b$; and $.5(1-D)F_b$. The ratio of the sum of the first two to the sum of all four gives us the posterior probability of the good test, given a positive result. This ratio is greater than .5 (the assumed prior), only when $D(H_g-H_b)$ is greater than $(1-D)(F_b-F_g)$. If the difference in hit rates for the good vs. bad test (H_g-H_b) is positive and equal to the difference in false alarm rates (F_b-F_g), then the good test is more likely to have been administered only when D is greater than .5. If H_g-H_b and F_b-F_g differ, then the cutoff must be changed accordingly. The point is that the *evidence is more likely to be valid when it points to the outcome with the higher prior probability.*

weighed against all the other studies demonstrating the opposite. If liberals and conservatives differ in terms of familiarity with relevant evidence—and, on some issues, at least, they almost surely do—the more familiar side would (and should) be more likely to dismiss evidence that appears to contradict pre-existing beliefs. To the extent that researchers try (intuitively) to minimize these types of effects by selecting issues for which the evidence is equally familiar (or unfamiliar) and equally strong (or weak) on both sides, they are almost sure to end up with a set of issues that is statistically unrepresentative, and they still may not have equated all relevant beliefs in terms of internal consistency, correspondence to reality, and other rational considerations.

The problem is confounded by the fact that some people are much better than others when it comes to attending to base rates pertaining to belief accuracy (Kruger & Dunning, 1999). People who are competent *should* have high confidence in their beliefs; their confidence is well-placed. When they are exposed to new information that conflicts with their prior beliefs, they have a lifetime of good reasons to be suspicious about the information. Others who are incompetent—including, Dunning (2016) suggests, many Trump supporters—have misplaced confidence in their own beliefs. Ditto and colleagues' (2018) analysis treats these two groups of people as equally “biased,” simply because they express similarly high confidence in their beliefs. This ignores the fact that some people are on (objectively) more solid epistemic ground than others when they trust their own judgment.

Moreover, it would be impossible to truly assess the quality of information on the basis of a brief summary of the sort used in experiments—or (if one is not an expert) even a complete research report, which was presented in some of the experiments. For instance, most people do not believe in the existence of extra-sensory perception (ESP), and thus it would be rational for them to suspect that studies supporting the existence of ESP are more likely to be flawed than studies showing no effect. Although Bem's (2011) article ostensibly provided experimental evidence for precognition, a highly technical analysis (including statistical analysis) would be required to assess its quality. One cannot expect research participants, or even fairly knowledgeable readers, to be capable of such an in-depth evaluation, or to be willing to take the time to perform such an evaluation even if they were well-equipped to do so. It is therefore reasonable and appropriate for people to ask whether the study's conclusions agree with their pre-existing beliefs and whether experts whose judgment they respect would likely judge the study's conclusions to be well supported.

For example, in the Lord et al. (1979) study of capital punishment, if participants believed that capital punishment failed to deter criminals (for reasons that seem just as valid as reasons for their other beliefs), then these participants would have good reason to be suspicious of studies that suggest otherwise. When asked to justify their suspicion, they might look for flaws in the studies in question. In the Lord et al. research, the flaws were easy to find, insofar as none of the studies was dispositive. From a practical point of

view, we should ask whether we want citizens in a democracy to change their minds about important policy positions based on the last thing they saw or read, ignoring prior beliefs that they may in fact be well-supported.

It may appear to be more difficult to make the case that “bias” was rational in research by Kahan (2013), which investigated whether the Cognitive Reflection Task (CRT) was perceived as a good measure of “how reflective and open-minded someone is.” Believers in climate change rated the test as reasonably accurate when they were told that fellow believers scored higher on it than skeptics, and they rated it as poorer when they were told that believers scored lower than skeptics. The opposite results were found for participants who were themselves climate skeptics. Even if both positions were equally justifiable in light of the available scientific evidence, the “bias” would be consistent with rationality if those on each side genuinely believe that they are more reflective and open-minded than their opponents. They might even have reasonable grounds for such a belief, if they had more experience with extremely vocal adversaries and more moderate adherents, which might well be the case for many people (if, for instance, they were exposed to opponents through social media platforms and adherents through direct interpersonal contacts). In such a situation, a result suggesting that opponents score higher than adherents on cognitive reflection would conflict with a reasonably held belief. The belief is reasonable because it is held with as much confidence as other beliefs that are much less controversial.

In the absence of unequivocal scientific data, people cannot easily know when confidence in their beliefs is misplaced. Thus, Kahan's (2013) results are consistent with the interpretation that participants—especially those who accept the scientific consensus on climate change—are behaving rationally given their prior beliefs. Confidence in these beliefs may be less justified on one side or the other of the climate change debate, but this, more consequential type of asymmetrical bias was not assessed in this study. Furthermore, it is probably worth noting that the available scientific evidence (even in 2012) suggested that climate change skeptics had less reason to feel confident in their pre-existing opinions than believers did (<https://www.nasa.gov/topics/earth/features/2012-temps.html>).

It is also possible that the effect of prior belief on the evaluation of new information is excessive for some people and insufficient for others. Or, to put it another way, some people—such as liberals, perhaps (see Jost & Hunyady, 2018)—may be prone to “overcorrect” for the possibility of bias, whereas others may be prone to “undercorrect” (Wegener & Petty, 1997). If people on one side of an issue were more strongly affected by their prior beliefs than those on the other side, this would lead Ditto et al. (2018) to conclude that the former group was more “biased.” But this conclusion does not follow, because the side showing more commitment to their prior beliefs could be doing so appropriately, and the other side may even exhibit an irrational neglect of prior beliefs (as in findings reported by Kahneman & Tversky, 1972). It is also possible that one “side” suffers from an irrational

neglect of prior beliefs as well as a different type of irrational bias to accept information that is consistent with their desires (i.e., wishful thinking), whereas the other “side” uses prior beliefs rationally (e.g., in a manner consistent with Bayesian reasoning) and shows no evidence of wishful thinking. These two groups of respondents would be indistinguishable according to the analysis of bias proposed by Ditto and colleagues, although the latter group is clearly behaving more rationally than the former.

The most parsimonious explanation for the totality of results presented in this meta-analysis is that both liberals and conservatives are using their prior beliefs in a more or less rational manner, especially given that they possess limited or incomplete information. The important point to make, however, is that the experimental paradigms examined by Ditto and colleagues (2018) are simply not useful for detecting ideological differences in *irrational* forms of bias, which is the kind of bias at issue. In other words, we are no closer to answering the question of whether conservative (vs. liberal) ideology leads more people astray (epistemically speaking) than we were before Ditto and his collaborators began their work.

Moving Forward

We agree with Ditto and colleagues (2018) that it is a legitimate (and societally significant) empirical question as to whether liberals and conservatives are or are not equally prone to irrational information-processing biases (see also Jost, Hennes, & Lavine, 2013). However, the

studies they have reviewed—which suggest that people evaluate evidence more favorably when it supports their pre-existing beliefs—are ill-equipped to answer this question for the reasons we have indicated. To begin with, it would be necessary to choose a statistically representative sample of the entire population of issues (and beliefs) on which liberals and conservatives differ, rather than relying on issues that were carefully chosen to maximize the possibility of producing symmetrical effects. But even if Ditto and his colleagues were able to come up with a much more representative sample of political issues, it does not solve the problem of establishing that the alleged “bias” under investigation is, in fact, irrational.

Sooner or later, it will be important for researchers to confront the issue of belief accuracy, which Kahan (2013), Ditto et al. (2018), and many others have side-stepped thus far. Such an approach would treat “bias” as a departure from accuracy—a failure to accept the correct answer when there is one. Doing this, issue by issue, will likely produce evidence of bias among liberals as well as conservatives, but there is little reason to assume that the contest will end in a draw. Caplan (2007), for instance, argued that ignorance of basic economics is more characteristic of leftists than rightists. On the other hand, Bartels (2016) observed that conservatives were more likely than liberals to hold false beliefs about economic inequality in the U.S. (see also Davidai & Gilovich, 2015), and there is a great deal of evidence suggesting that misconceptions concerning the existence and consequences of

anthropogenic climate change are far more prevalent on the right than the left (e.g., Mooney, 2012). By comparing biases of this sort (including adherence to false beliefs), it would be possible, at least in principle, to determine which “side” is correct more often.

Another way to tackle key questions about the quality of information-processing would be to move away from political issues—which are the only kinds of issues investigated by Ditto et al. (2018)—and inspect biases with respect to abstract cognitive tasks, so that the experimenter can design situations that have correct answers when it comes to the relevance and quality of evidence (e.g., Baron, Beattie & Hershey, 1988). Studies administering both subjective and objective measures of cognitive-motivational style reviewed by Jost (2017) may provide the best way of measuring, in a domain-general way, the proclivity to engage in irrational forms of information processing. Specifically, many of those studies revealed ideological asymmetries in (a) the processing of non-political stimuli, such as measures of cognitive and perceptual rigidity, intolerance of ambiguity, integrative complexity, and cognitive reflection, as well as (b) self-reported thinking styles, such as need for cognition, need for cognitive closure, self-deception, and preferences for intuitive vs. analytical reasoning in general (that is, outside of the domain of politics). They show clearly that—in the U.S. and a number of other countries—that conservative rightists are indeed somewhat less epistemically virtuous than liberal leftists.

It would be useful also to explore ideological differences in other

epistemic variables, such as “active open-mindedness” (Baron, 1995; see also Perkins, Bushey, & Faraday, 1986). Baron (2017) analyzed data from a nationally representative U.S. sample and observed that the correlation between liberal (vs. conservative) orientation and a measure of actively open-minded thinking was .27. It would also be useful to consider ideological asymmetries in belief overconfidence, which should be negatively associated with active open-mindedness. Given that the tendency to be overconfident in the correctness of one’s own beliefs and opinions is especially pronounced among those who are often wrong (Kruger & Dunning, 1999), it would be extremely useful to investigate this phenomenon in political contexts. We know of no such attempts thus far—despite the fact that the Dunning-Krueger effect has been offered as an explanation for the electoral support received by President Donald Trump (Dunning, 2016).

Another way forward would be to focus on judgments about the quality of specific arguments that can be objectively evaluated in terms of their actual relevance and logical force—as Stanovich and West (1997, 1998) did in the case of the Argument Evaluation Test, which treats philosophical experts’ judgments of arguments as the normative standard. The research question in this case would be whether rightists would (or would not) be more likely than leftists to dismiss or avoid strong arguments favoring the other side, when the criterion for argument strength is determined on the basis of logic and relevance. Goldberg and Jost (2018) observed that conservatives were more likely than liberals to avoid discussing the issue of

capital punishment with someone who disagreed with them—but only when that person was described as highly knowledgeable about the topic. Thus, there may well be an ideological asymmetry when it comes to selective avoidance of belief-discrepant information, especially when the information is likely to be high in quality—and therefore more uncertainty-inducing (see also Barberá, Jost, Nagler, Tucker, & Bonneau, 2015; Boutyline & Willer, 2017; Garrett, 2009; Garrett & Stroud, 2014; Iyengar, Hahn, Krosnick, & Walker, 2008; Lau & Redlawsk, 2006; Mutz, 2006; Nam, Jost, & Van Bavel, 2013; Vraga, 2015).

Institutional (and Ideological) Pressures to Reach the Conclusion that Bias is Symmetrical

Ditto and colleagues (2018) claim that “academic psychology’s particular focus on bias in political conservatives is largely a function of the blind spots . . . of a scientific discipline overwhelmingly composed of political liberals” (p. 5). Statements such as this carry with them a number of dubious assumptions, including the notion that (self-serving) liberal “biases” in academia typically (or even always) outweigh conservative, centrist, and system-justifying “biases”—a claim also pushed by Haidt (2011) and Duarte et al. (2015), among others. But there are plenty of scholars who bemoan the “middle-of-the-road,” status-quo preserving nature of much of the academic psychological literature (e.g., Fine, 2012; Fox, Prilleltensky, & Austin, 2009; Sampson, 1983; Stone, 1980). Consistent with claims made by the latter set of critics, an analysis by King, Avery, Hebl, and Cortina (2017)

suggested that research articles on “liberal” topics such as gender equality and demographic diversity are subject to higher rates of rejection and revision in the publication process, compared to articles on other topics.

There is also the fairly obvious possibility that harsh conservative criticism of scientific research (and, indeed, the researchers themselves)—by politicians, media personalities, activists, and fellow citizens—has had a silencing effect on those who explore and obtain support for liberal ideas and the existence of ideological asymmetries that appear to favor liberals over conservatives.⁴ Indeed, in our experience, many young (and not so young) researchers hope that they will obtain symmetrical rather than asymmetrical patterns of ideological “bias” for fear of public intimidation and reprisal. Ditto and colleagues, like many others, fail to consider the possibility that there are formal and informal pressures on social scientists to create false equivalences between the left and the right. What would it say about the legitimacy of our two-party system in the U.S. if members of one party were deemed consistently more irrational, misinformed, and self-deceived than the other? Those who are invested in the system’s legitimacy are eager to believe that “both sides” are to blame for the failures of democracy, whether or not that is actually the case. It is simply more convenient (and comfortable) to assume that bias is ideologically symmetrical.

But there is an even more fundamental problem with the argument

⁴ To take just one of several examples, Scott Eidelman received death threats for publishing research indicating that “low-effort thought” promotes the adoption of conservative ideological positions (see <http://themonkeycage.org/2012/06/science-genetics-and-polarization/>).

made by Ditto et al. (2018). As we have pointed out, it is far from clear that the research they review tells us anything about “bias” in any normative sense (Bullock, 2009; Jern et al., 2014; Koehler, 1993). This does not stop them from reinforcing the argument that because most academics vote Democratic it must be the case that university decisions about graduate admissions, faculty hiring, and promotion are “biased” in favor of Democrats (and against Republicans). If it were established—carefully and empirically—that the two “sides” were equally worthy of support and criticism, then claims of “political bias” would be warranted. But if, in fact, one side is closer to the truth—and the other is more deserving of epistemic scrutiny than the other—then a preponderance of criticism of the latter is not the result of bias but, rather, the desirable outcome of an impartial decision-making process.

We are not disputing that liberal academics are sometimes wrong; of course, they are. In some cases, for instance, they may be too quick to censor or condemn conservative voices on college campuses or to suppress “politically incorrect” conclusions (e.g., about the heritability of IQ). The question, however, is whether there are meaningful ideological asymmetries with respect to epistemic virtues, not whether one side is always right and the other side is always wrong. The fact that Nicole Kidman is a foot taller than Danny DeVito hardly disproves the reasonable generalization that men are (on average) taller than women.

Concluding Remarks

Academia seeks to maintain standards of open-mindedness and fair

treatment of alternative views (Baron, 1993). If the application of these standards leads to the conclusion that conservatives in the U.S. and perhaps elsewhere are more rigid, dogmatic, and epistemically fallible than liberals (on average), this is not bias. It may very well be as close to the truth as we can come. When there is a discrepancy between the beliefs held by experts and ordinary citizens, there is something foolhardy about concluding that it is the experts who must be biased (Jost, 2011). If academics are disproportionately liberal—in comparison with society at large—it just might be due to the fact that being liberal in the early 21st century is more compatible with the epistemic standards, values, and practices of academia than is being conservative.

References

- Adorno, T. W., Frenkel-Brunswik, E., Levinson, D. J., & Sanford, R. N. (1950). *The authoritarian personality*. New York: Harper.
- Akkerman, T., de Lange, S.L., & Rooduijn, M. (2016). *Radical right-wing populist parties in Western Europe: Into the mainstream?* London: Routledge.
- Altemeyer, R.A. (1981). *Right-wing authoritarianism*. Winnipeg, Canada: University of Manitoba Press.
- Amodio, D.M., Jost, J.T., Master, S.L., & Yee, C.M. (2007). Neurocognitive correlates of liberalism and conservatism. *Nature Neuroscience*, *10*, 1246-1247.
- 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*, 1531-1542.
- Baron, J. (1993). Why teach thinking? An essay. *Applied Psychology: An International Review*, *42*, 191-237.
<https://www.sas.upenn.edu/~baron/papers/WhyTeachThinking.pdf>
- Baron, J. (1995). Myside bias in thinking about abortion. *Thinking and Reasoning*, *1*, 221--235.
- Baron, J. (2017). Comment on Kahan and Corbin: Can polarization increase with actively open-minded thinking? *Research and Politics*, *4*.
<https://doi.org/10.1177/2053168016688122>
- Baron, J., Beattie, J., & Hershey, J. C. (1988). Heuristics and biases in diagnostic reasoning: II. Congruence, information, and certainty. *Organizational Behavior and Human Decision Processes*, *42*, 88-110.
- Bartels, L. (2016). *Unequal democracy: The political economy of the new gilded age* (2nd Ed.). New York: Russell Sage.
- Bem, D.J. (2011). Feeling the future: Experimental evidence for anomalous retroactive influences on cognition and affect. *Journal of Personality and Social Psychology*, *100*, 407-425.
- Benkler, Y., Faris, R., Roberts, H., & Zuckerman, E. (2017). Study: Breitbart-led right-wing media ecosystem altered broader media agenda. *Columbia Journalism Review*, *1*(4.1), 7.
<https://www.cjr.org/analysis/breitbart-media-trump-harvard-study.php>
- Bennett, D.H. (1995). *The party of fear: The American far right from nativism to the militia movement* (Revised and updated). New York: Vintage.
- Blank, J. M. & Shaw, D. (2015). Does partisanship shape attitudes toward science and public policy? The case for ideology and religion. *The ANNALS of the American Academy of Political and Social Science*, *658*, 18-35.
- Boutyline, A., & Willer, R. (2017). The social structure of political echo chambers: Variation in ideological homophily in online networks. *Political Psychology*, *38*, 551-569.
- Brandt, M.J. (2017). Predicting ideological prejudice. *Psychological Science*, *28*, 713-722.

- Brandt, M.J., Reyna, C., Chambers, J.R., Crawford, J.T., & Wetherell, G. (2014). The ideological-conflict hypothesis: Intolerance among both liberals and conservatives. *Current Directions in Psychological Science, 23*, 27-34.
- Brown, R. (1965). *Social psychology*. New York: Free Press.
- Bullock, J.G. (2009). Partisan bias and the Bayesian ideal in the study of public opinion. *Journal of Politics, 71*, 1109-1124.
- Camus, J.-Y., & Lebourg, N. (2017). *Far-right politics in Europe*. Cambridge, MA: Belknap.
- Caplan, B. (2007). *The myth of the rational voter: Why democracies choose bad policies*. Princeton, NJ: Princeton University Press.
- Carl, N., Cofnas, N., & Woodley of Menie, M. (2016). Scientific literacy, optimism about science and conservatism. *Personality and Individual Differences, 94*, 299-302.
- Chambers, J.R., Schlenker, B.R., & Collisson, B. (2013). Ideology and prejudice: The role of value conflicts. *Psychological Science, 24*, 140-149.
- Cohen, G.L. (2003). Party over policy: The dominating impact of group influence on political beliefs. *Journal of Personality and Social Psychology, 85*, 808-822.
- Conway, L. G., Gornick, L. J., Houck, S. C., Anderson, C., Stockert, J., Sessoms, D., & McCue, K. (2016). Are conservatives really more simple-minded than liberals? The domain specificity of complex thinking. *Political Psychology, 37*, 777-798.
- Conway, L.G. III, Houck, S.C., Gornick, L.J., & Repke, M.A. (in press). Finding the Loch Ness monster: Left-wing authoritarianism in the United States. *Political Psychology*. doi: 10.1111/pops.12470
- Crawford, J.T. (2012). The ideologically objectionable premise model: Predicting biased political judgments on the left and right. *Journal of Experimental Social Psychology, 48*, 138-151.
- Crawford, J.T., & Pilanski, J.M. (2014). Political intolerance, right and left. *Political Psychology, 35*, 841-851.
- Davidai, S., & Gilovich, T. (2015). Building a more mobile America—One income quintile at a time. *Perspectives on Psychological Science, 10*, 60-71.
- Deary, I.J., Batty, G.D., & Gale, C.R. (2008). Bright children become enlightened adults. *Psychological Science, 19*, 1-6.
- Deppe, K.D., Gonzalez, F.J., Neiman, J.L., Jacobs, C., Pahlke, J., Smith, K.B., & Hibbing, J.R. (2015). Reflective liberals and intuitive conservatives: A look at the Cognitive Reflection Test and ideology. *Judgment and Decision Making, 10*, 314-331.
- Ditto, P.H., Liu, B.S., Clark, C.J., Wojcik, S.P., Chen, E.E., Grady, R.H., Celniker, J.B., & Zinger, J.F. (2018). At least bias is bipartisan: A meta-analytic comparison of partisan bias in liberals and conservatives. *Perspectives on Psychological Science*, in press.
- Ditto, P.H., Wojcik, S.P., Chen, E.E., Grady, R.H., & Ringel, M. (2015). Political bias is tenacious. *Behavioral and Brain Sciences, 38*, e140.

- Douglas, K.M., Sutton, R.M., & Cichocka, A. (2017). The psychology of conspiracy theories. *Current Directions in Psychological Science*, 26, 538-542.
- Duarte, J.L., Crawford, J.T., Stern, C., Haidt, J., Jussim, L., & Tetlock, P.E. (2015). Political diversity will improve social psychological science. *Behavioral and Brain Sciences*, 38, e130.
- Duckitt, J. (2001). A dual-process cognitive-motivational theory of ideology and prejudice. *Advances in Experimental Social Psychology*, 33, 41-113.
- Dunning, D. (2016, May 25). The psychological quirk that explains why you love Donald Trump. *Politico*.
<https://www.politico.com/magazine/story/2016/05/donald-trump-supporters-dunning-kruger-effect-213904>
- Fine, M. (2012). Resuscitating critical psychology for “revolting” times. *Journal of Social Issues*, 68, 416-438.
- Fox, D., Prilleltensky, I., & Austin, S. (Eds.) (2009). *Critical psychology: An introduction* (2nd ed.). Los Angeles, CA: Sage.
- Frimer, J.A., Gaucher, D., & Schaefer, N.K. (2014). Political conservatives' affinity for obedience to authority is loyal, not blind. *Personality and Social Psychology Bulletin*, 40, 1205-1214.
- Frimer, J.A., Skitka, L.J., & Motyl, M. (2017). Liberals and conservatives are similarly motivated to avoid exposure to another's opinions. *Journal of Experimental Social Psychology*, 72, 1-12.
- Garrett, R.K. (2009). Politically motivated reinforcement seeking: Reframing the selective exposure debate. *Journal of Communication*, 59, 676-699.
- Garrett, R.K., & Stroud, N.J. (2014). Partisan paths to exposure diversity: Differences in pro and counterattitudinal news consumption. *Journal of Communication*, 64, 680-701.
- Garrett, R.K., & Weeks, B.E. (2017). Epistemic beliefs' role in promoting misperceptions and conspiracist ideation. *PLoS ONE*, 12(9): e0184733.
- Golberg, M., & Jost, J.T. (2018). *Ideological avoidance of belief-discrepant information*. Unpublished manuscript, New York University.
- Haidt, J. (2011). The bright future of post-partisan social psychology.
https://www.edge.org/conversation/jonathan_haidt-the-bright-future-of-post-partisan-social-psychology
- Heaven, P. C. L., Ciarrochi, J. & Leeson, P. (2011). Cognitive ability, right-wing authoritarianism, and social dominance orientation: A five-year longitudinal study amongst adolescents. *Intelligence*, 39, 15-21.
- Hetherington, M.J., & Weiler, J.D. (2009). *Authoritarianism and polarization in American politics*. New York: Cambridge University Press.
- Hodson, G., & Busseri, M. A. (2012). Bright minds and dark attitudes: Lower cognitive ability predicts greater prejudice through right-wing ideology and low intergroup contact. *Psychological Science*, 23, 187-195.
- Hofstadter, R. (1965). *The paranoid style in American politics and other essays*. New York: Knopf. (Original work published 1952)
- Inbar, Y., & Lammers, J. (2012). Political diversity in social and personality psychology. *Perspectives on Psychological Science*, 7, 496-503.

- 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*, 186-200.
- Jern, A., Chang, K. K., & Kemp. C. (2014). Belief is not always irrational. *Psychological Review, 121*, 206-224.
- Jost, J.T. (2011). Commentary on J. Haidt's "The bright future of post-partisan social psychology." https://www.edge.org/conversation/jonathan_haidt-the-bright-future-of-post-partisan-social-psychology#22212
- Jost, J.T. (2017). Ideological asymmetries and the essence of political psychology. *Political Psychology, 38*, 167-208.
- Jost, J. T., Glaser, J., Kruglanski, A. W., & Sulloway, F. J. (2003). Political conservatism as motivated social cognition. *Psychological Bulletin, 129*, 339-375.
- Jost, J.T., & Hunyady, O. (2018). Mass psychology in the age of Trump. *Democracy: A Journal of Ideas*, Spring issue (No. 48). <https://democracyjournal.org/magazine/48/mass-psychology-in-the-age-of-trump/>
- Jost, J.T., Hennes, E.P., & Lavine, H. (2013). "Hot" political cognition: Its self-, group, and system-serving purposes. In D. Carlston (Ed.), *Oxford handbook of social cognition* (pp. 851-875). New York: Oxford University Press.
- Jost, J.T., & Krochik, M. (2014). Ideological differences in epistemic motivation: Implications for attitude structure, depth of information processing, susceptibility to persuasion, and stereotyping. In A. Elliot (Ed.), *Advances in Motivation Science* (pp. 181-231). San Diego, CA: Elsevier/Academic Press.
- Jost, J.T., Liviatan, I., van der Toorn, J., Ledgerwood, A., Mandisodza, A., & Nosek, B.A. (2010). System justification: How do we know it's motivated? In R. Bobocel et al. (Eds.), *The psychology of justice and legitimacy: The Ontario symposium* (Vol. 11, pp.173-203). Hillsdale, NJ: Erlbaum.
- Jost, J.T., Sterling, J., & Stern, C. (2018). Getting closure on conservatism, or the politics of epistemic and existential motivation. In C.E. Kopetz & A. Fishbach (Eds.), *The motivation-cognition interface; From the lab to the real world: A Festschrift in honor of Arie W. Kruglanski* (pp. 56-87). New York: Routledge/Taylor & Francis.
- Kahan, D.M. (2013). Ideology, motivated reasoning, and cognitive reflection. *Judgment and Decision-Making, 8*, 407-424.
- Kahan, D.M. (2016). The politically motivated reasoning paradigm, Part 2: Unanswered questions. In R. Scott & S. Kosslyn (Eds.), *Emerging trends in the social and behavioral sciences*. New York: Wiley.
- Kahneman, D., & Tversky, A. (1972). Subjective probability: A judgment of representativeness. *Cognitive Psychology, 3*, 430-454.
- King, E.B., Avery, D.R., Hebl, M.R., & Cortina, J.M. (2017). Systematic subjectivity: How subtle biases infect the scholarship review process. *Journal of Management*. <https://doi.org/10.1177/0149206317743553>

- Koehler, J.J. (1993). The influence of prior beliefs on scientific judgments of evidence quality. *Organizational Behavior and Human Decision Processes*, 56, 28-55.
- Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of Personality and Social Psychology*, 77, 1121-1134.
- Lau, R. R., & Redlawsk, D. P. (2006). *How voters decide: Information processing in election campaigns*. Cambridge University Press.
- Lewandowsky, S., & Oberauer, K. (2016). Motivated rejection of science. *Current Directions in Psychological Science*, 25, 217-222.
- Lipset, S.M., & Raab, E. (1978). *The politics of unreason: Right-wing extremism in America, 1790-1977* (2nd edition). Chicago: University of Chicago Press.
- Lord, C.G., Ross, L., & Lepper, M.R. (1979). Biased assimilation and attitude polarization: The effects of prior theories on subsequently considered evidence. *Journal of Personality and Social Psychology*, 37, 2098-2109.
- MacCoun, R.J., & Paletz, S. (2009). Citizens' perceptions of ideological bias in research on public policy controversies. *Political Psychology*, 30, 43-65.
- Mammone, A., Godin, E., & Jenkins, B. (Eds.) (2013). *Varieties of extreme right-wing extremism in Europe*. London: Routledge.
- Marwick, A., & Lewis, R. (2017). Media manipulation and disinformation online. *Data & Society Research Institute*.
https://datasociety.net/pubs/oh/DataAndSociety_MediaManipulationAndDisinformationOnline.pdf
- Miller, J.M., Saunders, K.L., & Farhart, C.E. (2016). Conspiracy endorsement as motivated reasoning: The moderating roles of political knowledge and trust. *American Journal of Political Science*, 60, 824-844.
- Mooney, C. (2012). *The Republican brain: The science of why they deny science—and reality*. New York: Wiley.
- Mutz, D. C. (2006). *Hearing the other side: Deliberative versus participatory democracy*. Cambridge University Press.
- 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), e59837.
- Onraet, E., Van Hiel, A., Dhont, K., Hodson, G., Schittekatte, M., & DePauw, W. (2015). The association of cognitive ability with right-wing ideological attitudes and prejudice: A meta-analytic review. *European Journal of Personality*, 29, 599-621.
- Pennycook, G., & Rand, D.G. (2017). *Who falls for fake news? The roles of analytic thinking, motivated reasoning, political ideology, and bullshit receptivity*. Available at
 SSRN: <https://ssrn.com/abstract=3023545> or <http://dx.doi.org/10.2139/ssrn.3023545>
- Perkins, D., Bushey, B., & Faraday, M. (1986). *Learning to reason*. Final report, Grant No. NIE-G-83-0028, Project No. 030717. Harvard Graduate

School of Education.

<http://finzi.psych.upenn.edu/~baron/aot/perkins1986.pdf>

- Pfattheicher, S., & Schindler, S. (2016). Misperceiving bullshit as profound is associated with favorable views of Cruz, Rubio, Trump and conservatism. *PLoS ONE*, *11*, e0153419.
- Robbins, J. (2017, December 1). Brexit voters and Britain First supporters are more likely to believe conspiracy theories. *International Business Times*. <https://amp.ibtimes.co.uk/brexit-voters-britain-first-supporters-are-more-likely-believe-conspiracy-theories-1649106>
- Sampson, E.E. (1983). *Justice and the critique of pure psychology*. New York: Plenum.
- Sidanius, J., & Pratto, F. (1999). *Social dominance: An intergroup theory of social hierarchy and oppression*. New York: Cambridge University Press.
- Stanovich, K.E., & West, R.F. (1997). Reasoning independently of prior belief and individual differences in actively open-minded thinking. *Journal of Educational Psychology*, *89*, 342-357.
- Stanovich, K.E., & West, R.F. (1998). Individual differences in rational thought. *Journal of Experimental Psychology: General*, *127*, 161--188.
- Sterling, J. L., Jost, J. T., & Pennycook, G. (2016). Are neoliberals more susceptible to bullshit? *Judgment and Decision Making*, *11*, 352-360.
- Stone, W.F. (1980). The myth of left-wing authoritarianism. *Political Psychology*, *2*, 3-19.
- Tullett, A. M., Hart, W. P., Feinberg, M., Fetterman, Z. J., & Gottlieb, S. (2016). Is ideology the enemy of inquiry? Examining the link between political orientation and lack of interest in novel data. *Journal of Research in Personality*, *63*, 123-132.
- Vraga, E. K. (2015). How party affiliation conditions the experience of dissonance and explains polarization and selective exposure. *Social Science Quarterly*, *96*, 487-502.
- Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. *Science*, *359*, 1146-1151,
- Wegener, D.T., & Petty, R.E. (1997). The flexible correction model: The role of naive theories of bias in bias correction. *Advances in Experimental Social Psychology*, *29*, 141-208.
- Wetherell, G.A., Brandt, M.J., & Reyna, C. (2013). Discrimination across the ideological divide: The role of value violations and abstract values in discrimination by liberals and conservatives. *Social Psychological and Personality Science*, *4*, 658-667.
- Wojcik, S. P., Hovasapian, A., Graham, J., Motyl, M., & Ditto, P. H. (2015). Conservatives report, but liberals display, greater happiness. *Science*, *347*(6227), 1243-1246. doi:10.1126/science.1260817
- Yilmaz, O., & Saribay, S. A. (2017). The relationship between cognitive style and political orientation depends on the measures used. *Judgment and Decision Making*, *12*, 140-147.
- Zmigrod, L., Rentfrow, P., & Robbins, T. (2018). The cognitive underpinnings

of nationalistic ideology: The case of Brexit. *Proceedings of the National Academy of Sciences*, in press.

Figure 1: Distribution of Average Effect Sizes Obtained in Meta-Analysis by Jost, Sterling, and Stern (2018)

