

# Journal of Personality and Social Psychology: Personality Processes and Individual Differences

(Mis)understanding the relationship between personality and sociopolitical attitudes  
--Manuscript Draft--

<b>Manuscript Number:</b>	
<b>Full Title:</b>	(Mis)understanding the relationship between personality and sociopolitical attitudes
<b>Abstract:</b>	A general consensus has emerged regarding the personality characteristics associated with political liberals and conservatives. This picture sees those on the left as typically more disinhibited and willing to violate social conventions, and those on the right as more restrained and obedient to social norms and dictates. This pattern of results was challenged by four papers by Brad Verhulst and Peter Hatemi, who used very large samples to claim results precisely opposed to this consensus view. We present support for the consensus view with a conceptual review, analysis of a large new dataset, and a re-analysis of Verhulst and Hatemi's data. These results are most consistent with a basic coding error by Verhulst and Hatemi. We review the implications of this incident for journal policies regarding replication and the possibility that the persistence of the error is partially attributable to the absence of political conservatives among contemporary social scientists.
<b>Article Type:</b>	Replication Article
<b>Keywords:</b>	personality; ideology; reproducibility
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<b>Suggested Reviewers:</b>	<p>Stanley Feldman, Ph.D. Professor and Associate Director of the Center for Survey Research, Stony Brook University Stanley.Feldman@StonyBrook.edu Dr. Feldman has a great deal of expertise on the topics covered in this manuscript, and is the author of one of the major accounts of authoritarianism that is part of the dispute in this paper.</p> <p>Thomas Bouchard, Ph.D. Professor Emeritus, University of Minnesota Twin Cities bouch001@umn.edu Dr. Bouchard is, like Dr. Feldman, an expert on the topic area whose conceptualization of authoritarianism is central to some of the disputes covered in the present work.</p> <p>John Duckitt, Ph.D. Professor, University of Auckland j.duckitt@auckland.ac.nz Dr. Duckitt is a leading figure concerning the relationship between personality and sociopolitical attitudes, as an author on the two primary meta-analyses on the topic (as well as a large number of novel papers on the topic).</p>

	<p>Chris Sibley, Ph.D. Associate Professor, University of Auckland c.sibley@auckland.ac.nz Dr. Sibley's expertise parallels that of Dr. Duckitt - they co-authored the meta-analyses of interest as well as a large number of their papers on the topics.</p> <p>Jacob Hirsh, Ph.D. Assistant Professor, Rotman School of Management Jacob.Hirsh@rotman.utoronto.ca Dr. Hirsh has particular expertise with the personality frameworks under discussion, and has published the primary paper connecting one of these frameworks to sociopolitical attitudes, as well as several other highly relevant papers.</p> <p>Jonathan Haidt, Ph.D. Professor, New York University Stern School of Business jhaidt@stern.nyu.edu Dr. Haidt is an expert on the psychological bases of ideological differences, and is the primary source for the current discussion regarding the effects on social science of low numbers of conservative researchers.</p>
<p><b>Opposed Reviewers:</b></p>	<p>Peter Hatemi, Ph.D. Professor, Pennsylvania State University phatemi@gmail.com As discussed in my cover letter, I have concerns about this author's willingness to provide an objective review of my critique of his work.</p> <p>Brad Verhulst, Ph.D. Postdoc, Virginia Commonwealth University bverhulst@vcu.edu As discussed in the cover letter, I have concerns about the willingness of this individual to provide an objective review of my critique of his work.</p> <p>Lindon Eaves, Ph.D. Distinguished Professor, Virginia Commonwealth University eaves@hsc.vcu.edu As a co-author on one of the papers of interest, I have concerns about his willingness to provide an objective review.</p>
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Department of Political Science  
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Tuesday, June 16, 2015

Dr. Lynne Cooper  
American Journal of Political Science

Dear Dr. Cooper,

Please find enclosed a manuscript entitled "(Mis)understanding the relationship between personality and sociopolitical attitudes," which I am submitting for exclusive consideration of publication as a replication article in *Journal of Personality and Social Psychology*. This manuscript is original and not under consideration elsewhere, and has not been previously submitted to JPSP.

The data I collected for Study 1 was collected with the approval of Colgate University IRB in accordance with ethical standards for the treatment of human subjects, and no published work has used this data. The data for Study 2 was not collected by me: it was publicly provided as replication data by the authors whose work I am critiquing, at the link I provide in the paper. It has been used for similar analyses to what I report in the present paper, but I claim to show in this paper that the results reported by those authors are exactly opposite (a reversed sign) to those indicated by the data.

I am also submitting supplementary material for this article. There are three components I am submitting: (1) a list of items from an established personality scale; (2) the syntax I apply to the replication data publicly provided by the authors whose work I am critiquing and the full correlation matrix obtained from that syntax (I report only selected values in the main text); (3) a list of all sources I am aware of pertaining to one of the main questions of this paper, provided to help readers evaluate the extent to which the authors I am critiquing deviated from previous research on the topic.

Before closing, I would like to describe the paper and its circumstance to you. In it, we evaluate a claimed pattern of correlation between certain personality characteristics and sociopolitical

attitudes put forward in four papers by Brad Verhulst and Peter Hatemi. These papers are (considering their recent publication) highly cited, including a 2012 paper with 100 citations (according to Google Scholar). We begin our paper with a review of the literature to show just how surprising their claimed pattern of results are – their results are in fact the exact opposite of what previous investigators have found. We then present results from a large new sample which confirms the original picture (and is the precise opposite of results reported by Verhulst and Hatemi), and integrates these results with other current research connecting personality and sociopolitical attitudes. We then present a re-analysis of the data from one of the recent papers by Verhulst and Hatemi, in which we show that this data yields results in line with ours and with that of previous research, results which are directly opposite those claimed by Verhulst and Hatemi. We also discuss how the acceptance of those papers and the failure to detect the apparent errors was exacerbated by a highly problematic representation of the previous literature and by a lack of willingness to share the relevant data.

Because these studies use a dated personality measure (the Eysenck Personality Questionnaire), to our knowledge none of the many citations to these papers attempted an independent replication of the work of these authors. For that matter, no paper appears to have commented on the counter-intuitive results. We are thus the first attempting to replicate these studies.

Finally, a note concerning reviewers: We suggest that the authors we critique are not likely to be effective as objective reviewers. We discuss several professional and ethical lapses in this paper, and our previous interactions with them on this issue have not been productive.

I thank you for considering our work. Please address all correspondence concerning this manuscript to me at [stevenludeke@gmail.com](mailto:stevenludeke@gmail.com).

Sincerely,

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**(Mis)understanding the relationship between personality and sociopolitical attitudes**

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**(Mis)understanding the relationship between personality and sociopolitical attitudes**

## Abstract

A general consensus has emerged regarding the personality characteristics associated with political liberals and conservatives. This picture sees those on the left as typically more disinhibited and willing to violate social conventions, and those on the right as more restrained and obedient to social norms and dictates. This pattern of results was challenged by four papers by Brad Verhulst and Peter Hatemi, who used very large samples to claim results precisely opposed to this consensus view. We present support for the consensus view with a conceptual review, analysis of a large new dataset, and a re-analysis of Verhulst and Hatemi's data. These results are most consistent with a basic coding error by Verhulst and Hatemi. We review the implications of this incident for journal policies regarding replication and the possibility that the persistence of the error is partially attributable to the absence of political conservatives among contemporary social scientists.

Keywords: personality, ideology, reproducibility, bias in science

Which end of the political spectrum is more prone to exhibit behavioral restraint and obedience to established social norms and dictates? Which end is more prone to disinhibited violations of societal conventions and taboos? The answer provided by ordinary intuition – which identifies conservatives with obedience and constraint, and liberals with openness and disinhibition – is well-supported by psychological data and theory. Some of this supporting research is experimental (Sales & Friend, 1973), but most verifies these differences using a range of personality assessments, conducted using self-reports (see recent meta-analyses: Sibley & Duckitt, 2008; Sibley, Osborne, & Duckitt, 2012), peer reports (Cohrs, Kämpfe-Hargrave, & Riemann, 2012; Ludeke, Reifen Tagar, & DeYoung, 2015), and coding of behavior and of living spaces (Carney, Jost, Gosling, & Potter, 2008). Similar patterns also emerge from studies of how childhood personality predicts adult political orientation (Block & Block, 2006; Fraley, Griffin, Belsky, & Roisman, 2012) and how personality in adulthood predicts change in sociopolitical attitudes over time (Perry & Sibley, 2012; Sibley & Duckitt, 2010).

Interestingly, one group of researchers has consistently reported precisely the opposite result from that found in the rest of the literature. In a series of highly-cited recent papers, Brad Verhulst and Peter Hatemi (Hatemi & Verhulst, 2015; Verhulst, Eaves, & Hatemi, 2012; Verhulst, Hatemi, & Martin, 2010; Verhulst & Estabrook, 2012) use very large community samples assessed with the Eysenck Personality Questionnaire (S. B. G. Eysenck, Eysenck, & Barrett, 1985) to claim that liberals tend to socially conform whereas conservatives are more willing to violate established societal conventions. The quality of the samples and the consistency and magnitude of the results reported by this group requires that these claims be considered seriously.

We take three approaches to considering the issue. First, we will review the relationship among various personality taxonomies and the meaning and nature of “socially desirable responding” to highlight the contrast between results presented by Verhulst and Hatemi and those from the remainder of the literature. Second, we present an empirical examination of the claimed pattern of correlation by Hatemi and Verhulst (2015) using a large, recently-collected sample. This study, the first of which we are aware to compare political measures with both Big Five and Eysenckian personality measures in the same sample, reports the standard correlation with Big Five traits and a pattern of correlations with Eysenckian traits which are precisely opposite to those reported by Hatemi & Verhulst. Third, we use the data analyzed by Hatemi and Verhulst (2015) to demonstrate that the likely source of their peculiar results is not anomalous data but instead erroneous coding of that data. We will show that the most plausible coding of their own data leads to a pattern of results which precisely matches the rest of the literature on the topic. We then close with a brief consideration of what these apparent errors indicate about the state of contemporary social science and of the merits of journal policies regarding reproducibility.

### *The relationship between personality measures and sociopolitical attitudes*

Recent meta-analyses have highlighted a significant degree of consistency across studies of measures of the Big Five and sociopolitical attitudes (Sibley & Duckitt, 2008; Sibley et al., 2012), and the general pattern remains similar across differing methods of personality

assessment, including self- and peer reports as well as behavioral assessments (Carney et al., 2008; Cohrs et al., 2012; Ludeke et al., 2015). Those on the right have been found to be higher in Conscientiousness, which encompasses characteristics such as goal orientation, dutifulness, orderliness, cautiousness, and organization. Those on the left, in contrast, tend to be higher in Openness to Experience, which includes intellectual engagement, creativity, and imaginativeness. The remaining Big Five traits (Agreeableness, Extraversion, and Neuroticism) are generally found to show smaller and less consistent associations with sociopolitical attitudes. There are three areas where this general picture requires further nuance for present purposes. These concern subdivisions within Big Five traits and within ideology, as well as higher-order structures in personality.

*Subdividing personality.* Each of the Big Five can be meaningfully sub-divided into a larger number of sub-traits; for example, DeYoung and colleagues (2007) found each of the Big Five could be divided into two distinct, empirically-derived “aspects.” These sub-divisions proved particularly meaningful for understanding the personality correlates of sociopolitical attitudes: Hirsh and colleagues (2010) found that underneath the apparent lack of relationship between Agreeableness and political ideology, the two aspects of Agreeableness (Compassion and Politeness) bore significant and opposing relationships with conservatism. Conservatism was negatively predicted by Compassion, and positively predicted by Politeness, a result that has since been replicated (Osborne, Wootton, & Sibley, 2013). Within Conscientiousness (usually a reliable predictor of conservatism), a multiple regression of its two aspects (Orderliness and Industriousness) indicated that it was only the Orderliness aspect which predicted conservatism, and that this association was more pronounced than that found for the general Conscientiousness measure both in this study and in the wider literature.

*Higher-order personality constructs.* Combining Big Five traits can be as informative as sub-dividing them (DeYoung, 2006). Prior to the ascension of the Five Factor Model, personality was sometimes represented using three major traits. For example, in his Eysenck Personality Questionnaire (EPQ: S. B. G. Eysenck et al., 1985), Eysenck highlighted two traits familiar to contemporary ears – Extraversion and Neuroticism – as well as a third, which he called Psychoticism. High scorers on EPQ-Psychoticism are described as “cold, impersonal, lacking in sympathy, unfriendly, untrustful, odd, unemotional, unhelpful, antisocial, lacking in insight, strange, with paranoid ideas that people were against him” (H. J. Eysenck & Eysenck, 1976, p. 47); they are also particularly characterized by high levels of risk-taking, and impulsive and irresponsible behavior (Costa & McCrae, 1995). EPQ-Psychoticism is typically represented as representing a blend of the low poles of Agreeableness and Conscientiousness (Costa & McCrae, 1995; H. J. Eysenck, 1992; Markon, Krueger, & Watson, 2005); however, a face reading of the items (presented in Table S1) suggests EPQ-Psychoticism represents a blend not simply of Agreeableness and Conscientiousness, but particularly of the Politeness aspect of Agreeableness (e.g. a yes answer to “Do you try not to be rude to people?” indicates low EPQ-Psychoticism and high Politeness) and of the Orderliness aspect of Conscientiousness (e.g. a yes answer to “Do you stop to think things over before doing anything?” indicates low EPQ-Psychoticism and high Orderliness). We provide below the first empirical test of this of which we are aware, but we note that our supposition is highly consistent with the general characterization of EPQ-

Psychoticism as primarily concerning disinhibited rule-violation (Markon et al., 2005). If our expectation is supported, we can derive clearer expectations of the political correlates of EPQ-Psychoticism than we otherwise would based only on EPQ-Psychoticism's correlates at the level of the Big Five: given the results reviewed above, a mere blend of low Conscientiousness and low Agreeableness might show a modest negative correlation with conservatism if it shows any correlation at all, but a blend of low Politeness and low Orderliness should exhibit a more pronounced negative correlation with conservatism.

*Subdividing attitudes.* Sociopolitical attitudes also appear to be meaningfully divisible, with a growing literature analyzing the distinctness between the psychological correlates of social and of economic conservatism (Crowson, 2009; Feldman & Johnston, 2013; Gerber, Huber, Doherty, & Dowling, 2011; Ludeke & DeYoung, 2014; Sibley & Duckitt, 2008). This distinction approximately parallels a widely-used distinction in psychology between Right-Wing Authoritarianism (or RWA, which closely tracks with social conservatism) and Social Dominance Orientation (or SDO, a better predictor of economic conservatism; Duriez & Van Hiel, 2002). Conceptually, RWA centers on obedience to traditional authorities, whereas SDO reflects an acceptance of hierarchy and inequality (Altemeyer, 1998). These two attitudinal dimensions have meaningful similarities and differences in their relationship with personality: one distinction we will make use of below concerns Agreeableness, which Gerber and colleagues (2010) found to correlate positively with social conservatism and negatively with economic conservatism. Consistent with this, results from a meta-analysis showed that only SDO (and not RWA) was negatively correlated with Agreeableness (Sibley & Duckitt, 2008). The same meta-analysis also found that only RWA (and not SDO) was positively correlated with Conscientiousness.

#### *Connections between politics and personality outside of the Big Five*

The associations predicted above between EPQ-Psychoticism and the Big Five aspects are not the only grounds on which to base expectations for its relationship with sociopolitical attitudes. Several items from EPQ-Psychoticism are seemingly face-valid indicators of political leanings: for example, high EPQ-Psychoticism scores are indicated by “yes” responses to “Do you think marriage is old-fashioned and should be done away with?” and “Do you prefer to go your own way rather than act by the rules?” Both of these are items that conservatives should be especially quick to reject.

Some nuance for these expectations is required when considering the non-uniform nature of ideology. Whereas the psychological correlates of general measures of conservatism tend to parallel those for measures of social/cultural conservatism, economic conservatism often represents a more distinctive case. In particular, its negative correlation with Agreeableness suggests that its correlations with measures like EPQ-Psychoticism might be precisely opposite those exhibited by social conservatism.

Temporarily leaving aside the studies by Verhulst and Hatemi, previous research on this topic has clearly supported this conception. Results from individual studies were not always significant, but nearly all studies of which we are aware indicate a negative relationship between

general measures of political conservatism or authoritarianism and EPQ-Psychoticism (Altemeyer, 1998; Egan, 1989; Hazell, 1990; Heaven, Connors, & Trevethan, 1987; Kline & Cooper, 1984; Nias, 1973a; Pearson & Greatorex, 1981; Ray & Bozek, 1981; Stones, Heaven, & Bester, 1993). One study reporting no significant relationship gave no indication which direction the nonsignificant finding was in (Pearson & Sheffield, 1976), and one study found (to the apparent surprise of the authors) a positive relationship (Wilson & Brazendale, 1973).

These results suggest that political conservatives and authoritarians exhibit low levels of disinhibition, risk-taking, impulsivity, irresponsibility, and anti-sociality, consistent with a wide range of research on the topic (recently reviewed in Ludeke, 2015). Studies employing measures of attitudes towards inequality (with measures of economic conservatism or social dominance orientation) are less common, but they report the expected *positive* correlation with EPQ-Psychoticism (Altemeyer, 1998; Hazell, 1990). We interpret this as indicating the low levels of sympathy characteristic of high scorers of EPQ-Psychoticism is more commonly found among economic conservatives rather than liberals.

The research reviewed thus far has highlighted a positive association between conservatism and behavioral constraint, e.g. as measured by the Orderliness and Politeness aspects in the Big Five model of personality and the low pole of Eysenck's Psychoticism construct. We turn now to review how research on Socially Desirable Responding provides further support and elaboration for this general picture.

### *Desirable responding and politics*

Because most research on personality and attitudes has relied heavily on self-report measures, the obvious vulnerability of these instruments to “faking” has been a longstanding concern. A particularly large research literature focuses specifically on individual differences in the tendency to provide inaccurate self-reports. Early conceptualizations of such differences typically conceived of a single dimension of difference in “socially desirable responding” (SDR) – that is, of individuals presenting themselves in a more positive light than was accurate. This conception was revised when factor analytic studies demonstrated that at least two distinct dimensions of SDR exist, and that previous measures of SDR differed in the extent to which they effectively captured each dimension (Paulhus, 2002). One of these dimension captures “egoistic bias,” in which individuals attempt to present themselves in a “superhero-like” fashion, exaggerating one's social and intellectual status. A second dimension is labelled “moralistic bias,” which refers to attempts to represent oneself in a “saint-like” fashion, with high scores found most often among those prone to overstate their level of Agreeableness, dutifulness (a component of Conscientiousness), and emotional stability (Ludeke, Weisberg, & DeYoung, 2013; Paulhus & Trapnell, 2008). Factor analyses of SDR measures (reviewed by Paulhus, 2002) indicate that differences in moralistic bias are captured by (among others) the Eysenck Lie Scale (EPQ-Lie; H. J. Eysenck & Eysenck, 1991) and the Impression Management (IM) scale from the Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1991), the latter of which has in recent years become the most frequently used assessment of SDR. The “saint-like” nature of these scales is easily detected with a face reading of their items: representative EPQ-Lie items include “Have you ever taken anything that belonged to someone else?” and “If you say you will

do something, do you always keep your promise no matter how inconvenient it might be?” for which answers of “no” and “yes,” respectively, represent high EPQ-Lie.

Although SDR measures were generally intended to identify those who were prone to inaccurately report their characteristics, a large body of research (reviewed by Ones, Viswesvaran, & Reiss, 1996) suggests that high scores on SDR measures primarily reflect actual differences in the relevant personality traits, and not merely differences in the degree to which individuals misrepresent those traits. Thus, for example, the relationship between a measure of moralistic bias and a self-report measure of Agreeableness will primarily reflect true differences in the latter, if also some tendency to exaggerate one’s level of Agreeableness.

Because SDR scores represent true trait variance as well as biased responding, we can form specific expectations regarding the relationship between SDR and sociopolitical attitudes. A positive association between moralistic bias and political conservatism is plausible based on a reading of the items. For example, a response of “no” to “As a child, were you ever fresh at your parents?” leads to a high score on the EPQ-Lie, and a response of “yes” to “I always obey laws, even if I’m unlikely to get caught” and “I never read sexy books or magazines” leads to a high score on the IM scale from the BIDR; EPQ-Lie and BIDR-Impression Management thus measure very similar constructs, consistent with the large positive correlations observed between the two (DeYoung, Peterson, & Higgins, 2002). These items illustrate why researchers have argued that moralistic bias scales are best conceived as measuring social conformity (DeYoung et al., 2002). Because social conformity is an explicit component and strong correlate of authoritarianism (Feldman, 2003), a positive correlation between moralistic scales and right-wing beliefs (especially relating to social conservatism and authoritarianism) is reasonably expected a priori.

Again temporarily leaving aside the studies by Verhulst and Hatemi, previous research fully supports the expectation that those with a high score on moralistic bias measures such as IM and EPQ-Lie – that is, those most concerned with portraying themselves in a socially conforming fashion – are also more likely to possess conservative attitudes. Although results from individual studies were not always statistically significant, all published studies we located indicated a positive sign for the relationship between measures of social conservatism or authoritarianism and both the IM scale (Altemeyer, 1996, 1998; DeYoung et al., 2002; Goodman & Moradi, 2008; Meston, Heiman, Trapnell, & Paulhus, 1998; Rowatt & Franklin, 2004; Rowatt et al., 2006; Rowatt, Franklin, & Cotton, 2005; Tsang & Rowatt, 2007) as well as EPQ-Lie (Egan, 1989; Hazell, 1990; Heaven et al., 1987; Kirton, 1977; Kline & Cooper, 1984; Nias, 1973a; Pearson & Sheffield, 1976; Wilson & Brazendale, 1973; Wilson & Patterson, 1969).<sup>1</sup>

#### *Anomalous results from Verhulst and Hatemi*

The results outlined above are theoretically coherent and empirically robust. Surprisingly, results from four papers by Verhulst and Hatemi (Hatemi & Verhulst, 2015; Verhulst et al., 2012, 2010; Verhulst & Estabrook, 2012) represent complete and perfect reversals of all trends noted above, as we detail below. These papers make secondary use of samples which, relative to

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<sup>1</sup> Readers are referred to Supplementary Materials 3 for a more detailed discussion of these results.

most other research on the topic, are very impressive with respect to size and representativeness. This challenges any attempt to account for their anomalous results as deriving from an idiosyncratic participant pool, and instead forces us to seriously consider whether the framework we have outlined thus far is as sound as it might first appear.

This is particularly the case given that the reported relationships are far too strong to ignore. For example, Verhulst and colleagues (2010) use an Australian sample to claim that, contrary to the expectations derived from above, EPQ-Psychoticism correlates *positively* with general conservatism ( $r = .57$ ,  $N = 6066$  for females;  $r = .50$ ,  $N = 3449$  for males); this would suggest that those who are the most disinhibited, impulsive, and irresponsible are the *most* conservative. The same source reports that, again contrary to the expectations developed above, EPQ-Lie scores correlates *negatively* with conservatism ( $r = -.36$ ,  $N = 6066$  for females;  $r = -.26$ ,  $N = 3449$  for males); this would suggest that those who are *most* likely to socially conform are *least* likely to possess conservative attitudes.<sup>2</sup> Verhulst and colleagues (2012) report similar results from an American sample: there, EPQ-Psychoticism correlates positively with social conservatism ( $r = .38$ , for females;  $r = .29$  for males) and negatively with economic conservatism ( $r = -.14$  for females;  $r = -.25$  for males); with sample size of 28,877, all results are significant. EPQ-Lie scores in this sample correlate negatively with social conservatism ( $r_s = -.34$  and  $-.26$  for females and males, respectively).

The anomalies in these papers extend beyond the political sphere. Hatemi and Verhulst (2015; Verhulst et al., 2010) report that those endorsing conventional religious behavior (such as observing the Sabbath and believing in the accuracy of the Bible) are extraordinarily *high* in EPQ-Psychoticism, and *low* in EPQ-Lie. Recent meta-analyses on both of these traits report precisely the opposite result: religiousness is consistently negatively correlated with EPQ-Psychoticism (Lodi-Smith & Roberts, 2007) and positively correlated with SDR measures such as EPQ-Lie (Sedikides & Gebauer, 2010).

Further results of interest concern the relationship between attitude measures and demographic characteristics such as age and sex, which is reported only by Hatemi and Verhulst (2015). Conservatism and religiousness have generally been found to correlate positively with age, and females typically score higher than males on measures of religiousness (Argue, Johnson, & White, 1999; Maselko & Kubzansky, 2006; Nias, 1973a, 1973b; Truett, 1993), but Hatemi and Verhulst (2015; Figure 1) report that males are substantially higher on religiousness whereas the young are the most religious and conservative.

### *Confirming and explaining the discrepancy*

The discussion above points to an important discrepancy in the literature to be examined and explained. We begin by presenting results from a recent data collection which we conducted

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<sup>2</sup> Two additional papers by these authors (Hatemi & Verhulst, 2015; Verhulst & Estabrook, 2012) also use this sample; to avoid duplication we will not detail individual results from these studies. The general pattern presented in these samples is the same as those in the studies discussed in detail. Verhulst and Estabrook (2012) focus on sexual issues (Abortion, Birth Control, Gay Rights, etc.) and EPQ Psychoticism, claiming that those who are more conservative on these issues are higher in EPQ Psychoticism. Hatemi and Verhulst (2015) use both EPQ-Psychoticism and EPQ-Lie, and report results of the same direction as those discussed here.

to simultaneously test the relationships between the EPQ, the Big Five, and sociopolitical attitudes. We then turn to a re-analysis of the data used by Hatemi and Verhulst (2015) to attempt to identify whether their anomalous results are best explained as a feature of their sample or as a result of basic errors.

## **Study 1**

We were originally unsuccessful in obtaining replication data from Verhulst and Hatemi (see footnote 4), necessitating the present data collection in June of 2014, which to our knowledge is the first study to assess at the same time DeYoung's Big Five "aspects," the Eysenckian traits, and sociopolitical attitudes. Based on the considerations outlined above, we expected to find the relationships between personality and sociopolitical constructs outlined in Table 1. We additionally expected to find that EPQ-Psychoticism was primarily predicted by the Politeness aspect of Agreeableness (and not Compassion), and primarily predicted by the Orderliness aspect of Conscientiousness (and not Industriousness). When assessing the two major dimensions of sociopolitical attitudes, we followed the common practices of psychologists (using authoritarianism and Social Dominance Orientation to assess these dimensions) rather than assessing individual issue positions to create social and economic conservatism scales.

## **Materials and methods**

### *Participants*

This sample consisted of 1085 adult American residents recruited using Amazon's Mechanical Turk; previous research (Buhrmester, Kwang, & Gosling, 2011) has suggested participants drawn from this source are reasonably diverse and attentive. Participants were primarily young (mean age = 37, SD = 13, range 18 to 83), female (58%), and Caucasian (80%). Other ethnicities included Latino/Hispanic (5%), Black/African American (8%), Asian/Asian American (5%), Native American (1%), and unspecified other (2%). Self-reports of highest educational attainment indicate that half (49%) had completed a four-year degree (the highest level assessed); 12% reported completing a 2 year college degree, 29% completed some college, and 11% completed high school or a GED. Only participants who completed all of the measures discussed below were included in the analyses.

### *Measures*

#### *Big Five Aspect Scales.*

Participants completed the Agreeableness (A), Conscientiousness (C), and Openness-Intellect (O) scales from the Big Five Aspect Scales (BFAS; DeYoung et al., 2007); for ease, we refer to the last of these simply as "Openness." The BFAS allows one to differentiate between two aspects of each of the Big Five traits; each aspect is assessed using 10 items from the International Personality Item Pool (L. R. Goldberg, 1999), answered on a five-point Likert scale. Reliabilities for the six aspects assessed (Compassion (A), Politeness (A), Orderliness (C), Industriousness (C), Openness (O), and Intellect (O)) were good, ranging between .79 and .91.

#### *Eysenck Personality Questionnaire.*

Participants completed the Psychoticism and Lie scales from the Eysenck Personality Questionnaire-Revised Short-scale (EPQ-RS; S. B. G. Eysenck, Eysenck, & Barrett, 1985). Responses were provided on a four points scale: “definitely yes,” “yes,” “no,” “definitely no.” Reliabilities for both scales were similar to that reported by Eysenck and colleagues (1985), with Psychoticism exhibiting low reliability ( $\alpha = .60$ ) whereas the Lie scale was more adequate ( $\alpha = .84$ ).

#### *Conservative ideological self-placement.*

Participants responded to a standard single-item question of their ideological preference on a seven point scale, ranging from “very liberal” to “very conservative,” with “moderate” as the central response option.

#### *Authoritarianism.*

We assessed authoritarianism using the commonly-used measure concerning child-rearing values (Feldman & Stenner, 1997), in which participants select one value from each of four value pairs as preferable. For example, “obedience” and “self-reliance” are presented together; selecting the former is indicative of authoritarianism. Although others have also reported reliabilities for this measure below standard cut-offs such as .7 (e.g. Feldman & Stenner, 1997), the present alpha of .55 appears lower than typical for the measure, but is not improved by dropping any item from the measure.

#### *Social Dominance Orientation.*

SDO was assessed using an abbreviated (eight item) version (provided by Weber & Federico, 2007) of the fuller 16 item measure by Pratto and colleagues (Pratto, Sidanius, Stallworth, & Malle, 1994). High scorers are more willing to accept group-based inequality, as exemplified by “yes” responses to “Inferior groups should stay in their place.” Reliability was high ( $\alpha = .92$ ).

### **Results from study 1**

#### *Psychoticism and the Big Five.*

Those scoring high in Psychoticism scored particularly low in Agreeableness and Conscientiousness, and also somewhat low in Openness ( $r_s = -.51, -.41, \text{ and } -.12$ , respectively, all  $p < .001$ ), with values that are quite close to previous studies (e.g. Goldberg & Rosolack, 1994).

More revealing are the associations with particular aspects: when Psychoticism is predicted in a multiple regression using the Agreeable aspects (Compassion and Politeness), Politeness is far more relevant than is Compassion (betas =  $-.50$  and  $-.10$ , respectively; both,  $p < .001$ ). Similarly, Psychoticism is better predicted by low Orderliness than low Industriousness (betas =  $-.34$  and  $-.14$ , respectively; both  $p < .001$ ).

#### *Personality and politics.*

As shown in Table 2, all expected findings outlined in Table 1 were observed. Within the Big Five, Openness is negatively correlated with conservative ideological self-placement,

authoritarianism, and SDO ( $r$ s -.21, -.29, -.34, respectively, all  $p < .001$ ). Conscientiousness correlated positively with ideological self-placement and authoritarianism ( $r$ s = .21 and .19, respectively, all  $p < .001$ ), and Agreeableness correlated only with SDO ( $r = -.39$ ,  $p < .001$ ).

Within the EPQ, Psychoticism correlated negatively with conservative ideological self-placement ( $r = -.22$ ,  $p < .001$ ) and with authoritarianism ( $r = -.20$ ,  $p < .001$ ), but correlated positively with Social Dominance Orientation ( $r = .11$ ,  $p < .001$ ). The Lie scale correlated positively with conservative ideological self-placement and with authoritarianism ( $r$ s = .10 and .17, respectively, both  $p < .001$ ).

### **Brief discussion of study 1**

As expected, we observed that Psychoticism associated primarily with Orderliness (within Conscientiousness) and Politeness (within Agreeableness). This allowed clear expectations of how Psychoticism would relate to attitude measures. These expectations were confirmed: high scores on Psychoticism accompanied low scores on a general conservatism indicator and on authoritarianism, but high scores on SDO. As also expected, social desirability was positively associated with general conservatism and authoritarianism.

These results present a precise contrast with those reported by Verhulst and Hatemi. Because the data used by Verhulst and Hatemi as part of a recent publication (Hatemi & Verhulst, 2015) has very recently become publicly available, we can explore whether this difference reflects actual differences between samples or whether a coding error accounts for the difference.

### **Study 2**

Several items from the EPQ and from sociopolitical attitude measures have extremely similar content. This is useful in the present circumstance, as it allows us to infer the direction of the relationship between EPQ scales and sociopolitical attitudes based exclusively on the raw data, even in the absence of any information about how the scales should be scored.

A recently published paper claiming counter-intuitive relationships between Eysenckian scales and political measures (Hatemi & Verhulst, 2015) was published in the journal *PLOS One*, which requires data be made public for replication studies.<sup>3</sup> Using this data, we show that when allowing the item scoring to guide one's expectations about the direction of the scales, the results are precisely the opposite as that reported by Verhulst and Hatemi (Hatemi & Verhulst, 2015; Verhulst et al., 2012, 2010; Verhulst & Estabrook, 2012), and instead match those reported in the present study and in the broader literature.

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<sup>3</sup> A previous paper by the authors making similar claims (Verhulst et al., 2012) was published by *American Journal of Political Science (AJPS)*, which also requires data be made public. Unfortunately, the link for this data which was provided by the authors in the paper was not functional as of August of 2012, and remains non-functional. At that time we brought the concerns raised in this paper to the attention of Brad Verhulst and Peter Hatemi (the latter of whom serves on the AJPS editorial board) and requested the data for replication purposes. Unfortunately, we have not been able to obtain access to the data from the authors.

## Materials and methods

We used data downloaded on March 4, 2015 from the link provided in Hatemi and Verhulst (2015).<sup>4</sup> This file includes data from both a 1980 and 1990 assessment of Australian adults; data from the latter assessment has been used in multiple papers by Verhulst and Hatemi and appears to include some items not assessed in the 1980 assessment, so we analyzed the 1990 data here. Importantly, this assessment appears to be the same as that used in two of the other papers of interest (Verhulst & Estabrook, 2012; Verhulst et al., 2010), so re-analyses of these data directly bear on three of the papers reporting anomalous results.

The assessments of interest include the EPQ and the Wilson-Patterson Conservatism Scale (Wilson, 1973). This latter instrument presents a list of terms (e.g. “abortion,” “death penalty,” “school uniforms”) to which participants respond by indicating whether they favor them, with responses available as “yes,” “?” indicating uncertainty, and “no.”<sup>5</sup>

We computed several versions of the Eysenckian and Wilson-Patterson scales. First, we scored each scale as indicated by the relevant manual, summing all relevant items provided in the data file. Second, we computed scores using the factor loadings indicated by two of the papers in question (Hatemi & Verhulst, 2015; Verhulst et al., 2010).<sup>6</sup>

To assist our inferences concerning the direction in which the scales should be coded, we identified two topics which are addressed in both measures. One of these topics concerns attitudes towards marriage: as keyed by their original sources, a conservative response is represented by answering “no” to “divorce” (Wilson, 1973), and a high-Psychoticism response is represented by answering “yes” to “Do you think marriage is old-fashioned and should be done away with?” (S. B. G. Eysenck et al., 1985). Attitudes towards strict rules are also assessed by both measures: a conservative response is represented by answering “yes” to “strict rules” (Wilson, 1973), and a high-Psychoticism response is represented by answering “yes” to “Do you prefer to go your own way rather than act by the rules?”, and answering “no” to “Is it better to follow society’s rules than go your own way?” (S. B. G. Eysenck et al., 1985).

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<sup>4</sup> Specifically, we used “Adult.csv,” downloaded from <http://thedata.harvard.edu/dvn/faces/study/StudyPage.xhtml?globalId=doi:10.7910/DVN/28447&versionNumber=1>.

<sup>5</sup> There is no indication in this data of how the variables are scored, and there is no syntax which would allow one to replicate the authors’ results. We further address the scoring of variables below, but a first look at the papers by Hatemi and Verhulst suggest the data is coded such that “yes” responses to the question are represented as higher values. Thus, for example, “abortion” has a negative loading on social conservatism, and “bible truth” has a positive loading on religiousness (Hatemi & Verhulst, 2015). We therefore coded individual variables as if a response of “yes” to each individual item was the highest value for that item. (To create scale scores, items were then reverse-coded when indicated by the relevant manual.) The third category on the Wilson-Patterson (“?”) is typically treated as intermediate between “yes” and “no.” Accordingly, we treated high scores on Wilson-Patterson items (“3” in the data file) as “yes,” intermediate scores (“2”) as “?”, and low scores (“1”) as “no.”

<sup>6</sup> To facilitate review and replication, we include SPSS syntax for this and other analyses in Supplementary Materials 2.

Identifying the gender of participants was straightforward due to the variable being named “male” and coded as 1 or 0.

## Results

Table S2 presents the full correlation results between the computed scales and the individual items of interest, as well as demographic characteristics such as age and sex. Results reported below in the text use the scales scored as in the manuals; results using scales scored in alternative ways are presented in Table S2 and are very similar.

Several indicators suggest that we have accurately identified the direction in which these instruments are to be scored. One such indicator is that items from different measures that are similar to each other correlate as expected. Favoring “strict rules” (from the Wilson-Patterson) is positively correlated with “Is it better to follow society’s rules than go your own way?” and negatively correlated with “Do you prefer to go your own way rather than act by the rules?”, which are both items from the EPQ ( $r_s = .18$  and  $-.15$ , respectively, both  $p < .001$ ). Similarly, “divorce” (from the Wilson-Patterson) is correlated positively with “Do you think marriage is old-fashioned and should be done away with?” from the EPQ ( $r = .10$ ,  $p < .001$ ).<sup>7</sup>

These items also correlate as expected with the general scales of interest: for example, “strict rules” correlates positively with Conservatism and negatively with Psychoticism ( $r_s = .50$  and  $-.21$ , respectively, both  $p < .001$ ), as does “Is it better to follow society’s rules than go your own way?” ( $r_s = .20$  and  $-.56$ , respectively). Thus, in the scoring procedure we have adopted, individual items correlate as expected with both the scales of which they are a part and with similar items from different scales.

Additionally, the demographic correlates of the EPQ scales are appropriate: they are in line with those reported in the broader literature and with those reported by Hatemi and Verhulst (2015). Psychoticism is highest among the young and the male ( $r_s = -.12$  and  $.21$  with age and maleness, both  $p < .001$ ) whereas social desirability is highest among the old and the female ( $r_s = .30$  and  $-.15$  with age and maleness, both  $p < .001$ ), consistent with existing literature (Loehlin & Martin, 2001; Nias, 1973a, 1973b; Paulhus, 1991). (Comparable trends are even better established within the Big Five framework: Roberts, Walton, & Viechtbauer, 2006; Weisberg, De Young, & Hirsh, 2011.)

Having established the correct direction in which these measures should be coded, we can now turn to the primary results of interest. Conservatism is correlated positively with age and Lie scale, and negatively with Psychoticism ( $r_s = .34$ ,  $.27$ ,  $-.21$ , respectively, all  $p < .001$ ). Religious attitudes exhibit the same pattern, correlating positively with age and Lie scale, and negatively with Psychoticism ( $r_s = .29$ ,  $.19$ , and  $-.21$ , respectively, all  $p < .001$ ), with females being more religious ( $r = -.14$  with maleness,  $p < .001$ ).

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<sup>7</sup> The very modest size of these correlations are likely attributable in part to the response scale – the EPQ items are dichotomous – and in part the extremity of the question. For example, less than 4% of respondents agreed that marriage should be “done away with.”

## **Brief discussion of study 2**

No scoring key was provided for this data, but we scored the data used by Verhulst and Hatemi in three papers (Hatemi & Verhulst, 2015; Verhulst & Estabrook, 2012; Verhulst et al., 2010) in a way that was intuitive, with higher scores on all scales representing the “yes” response. When scored this way, individual items with face-valid connections across the two scales exhibited the expected correlations within and across scales. Additionally, all scales correlated as expected with demographic variables. Most importantly, the personality and sociopolitical attitude measures then correlated with each other in a way that was consistent with results from Study 1 and with the previous literature, and precisely opposite the pattern of correlation reported by Verhulst and Hatemi (Hatemi & Verhulst, 2015; Verhulst & Estabrook, 2012; Verhulst et al., 2010). Based on the correlations with demographic variables reported in Hatemi and Verhulst (2015), we can speculate that the most likely explanation is that they inverted the “liberal” and “conservative” poles of the scale (and also the “secular” and “religious” poles). Were we to invert the poles of the political measure in this way, we would obtain the anomalous patterns of association Verhulst and Hatemi report that their political measure has with both the EPQ measure and demographic characteristics, but we would also obtain extremely unlikely results between items with similar content from different scales: for example, those endorsing strict rules would be also indicating a preference to ignore rules and go their own way, and those indicating disapproval of divorce would also claim a preference for abolishing marriage altogether.

## **General discussion**

We found support for the broad consensus on the characteristics of liberals and conservatives: liberals are more prone to deviate from established conventions whereas conservatives are more prone to obey and adhere to established traditions and authorities. This result is replicable across different operationalizations of the core personality and attitudinal constructs. Although the Five Factor Model has clearly ascended to the dominant position for contemporary understandings of personality, there may be some advantages to considering alternative personality taxonomies as it relates to our understanding of the personality correlates of sociopolitically attitudes. For example, despite the quite modest reliability of EPQ-Psychoticism, in Study 1 it exhibited the most pronounced correlation of all personality measures with ideological self-placement. This is all the more remarkable given that EPQ-Psychoticism has little relationship to the Big Five trait typically used to identify political leanings (Openness), and instead primarily reflects Agreeableness and Conscientiousness. Because Agreeableness is typically considered to be unrelated to political leanings whereas Conscientiousness exhibits a modest relationship (Sibley et al., 2012), this result might be considered unexpected. However, our finding that EPQ-Psychoticism primarily reflected Politeness (and not Compassion) and Orderliness (and not Industriousness) renders this result sensible, as previous research has found that right-wing beliefs are more common among the polite and orderly, and not among the compassionate and industrious (Hirsh et al., 2010).

Because the present studies exclusively relied on self-reports, we are limited in our ability to interpret the positive association that the EPQ-Lie scale (a measure of “saint-like” SDR)

exhibited with conservatism and religiousness. However, recent studies using both self- and peer reports of personality trait levels suggest we should interpret these relationships consistently with the general consensus regarding SDR measures, in which SDR measures reflect both a tendency to overclaim certain traits as well as an indication that the person has elevated levels of those traits (Ones et al., 1996). These studies have found that although sociopolitical attitudes and religiousness predict misrepresentation in self-reports (identified by comparing self-reports with peer reports), peer reports largely support the general pattern of personality correlations for sociopolitical attitudes and religiousness (Ludeke & Carey, 2015; Ludeke et al., 2015). For example, Ludeke and Carey (2015) reported that religiousness correlated positively with the tendency to self-report as more Agreeable than could be justified by the reports of highly informed peers, and that this relationship was partially statistically mediated by scores on a measure of saint-like SDR. At the same time, however, religiousness was still positively correlated with Agreeableness – just not as correlated with peer reports as with self-reports. In the context of the present study, this suggests that our report of elevated scores on saint-like SDR among conservatives suggests that conservatives may not be *quite* as high on Conscientiousness or as low on Psychoticism as was indicated by the self-reports analyzed above, but that these associations are largely accurate and not an artifact of SDR or related processes.

*Questions about the scientific process: How did these errors survive peer review?*

The present study has also raised some questions about the scientific process. What can account for the publication of four papers by a single research group which reports precise inversions of the pattern of correlation between personality and sociopolitical attitudes identified here and in the previous literature? Should the inaccuracies of these papers have been detectable by the peer review process? What factors contributed to their lack of detection?

We review three potential contributors: (i) violations of journal policies with respect to reproducibility; (ii) omissions and mischaracterizations in the literature reviews; (iii) an absence of conservatives among reviewers and scientific audiences.

*Reproducibility.*

We faced three hurdles in our attempt to evaluate the results of Verhulst and Hatemi: (i) data required by the journal (for Verhulst et al., 2012) to be made publicly available was not provided; (ii) data provided (for Hatemi and Verhulst, 2015) was not sufficient for typical replication purposes, as it lacked a key indicating the scoring of individual variables; (iii) no syntax was provided (for Hatemi and Verhulst, 2015). Each of these can be effectively remedied by journal policies. The hosting of replication data and syntax by journals would have greatly eased the identification of the apparent errors discussed above. Journals pursuing more lax policies (such as allowing authors to arrange hosting of the data) would benefit by producing a stream-lined and anonymous process by which those attempting to replicate papers can notify the journal about deficiencies in the replication materials provided by authors.

*Problematic literature review*

Another contributing factor concerns misrepresentation of the previous literature. Such misrepresentation can impair the ability of reviewers and readers to effectively evaluate the claims of authors. We see two distinct forms of misrepresentation in the papers under discussion: the first is omission of relevant results which appear to have been known to the authors; the second is the (possibly sincere) misstating of conclusions from the previous literature.

The most problematic omissions occurred when making claims to uniqueness. Verhulst and Hatemi state “[t]his is only the second study we are aware of to explore the relationship between any ideological dimension and social desirability (Verhulst et al., 2012, p. 40), citing their previous paper as the only other study on the topic. In the present paper, we have cited 18 studies published prior to this claim which examine the correlation of social desirability with conservatism and/or authoritarianism;<sup>8</sup> as discussed, each of these studies presented results precisely opposite those presented by Verhulst and Hatemi. The authors appear to have been able to locate many of these studies, as the papers in question in fact cite no fewer than six of them (Altemeyer, 1996, 1998; Kline & Cooper, 1984; Nias, 1973a, within Wilson, 1973; Ray, 1980; Wilson & Brazendale, 1973), where these citations are referenced only to buttress different components of their paper and not as presenting contrary evidence (or, indeed, as pre-empting Verhulst and Hatemi’s claims to priority on the topic). Similarly, with respect to EPQ-Psychoticism, at least three citations which report contrary results (Kline & Cooper, 1984; Nias, 1973a, within Wilson, 1973; Pearson & Grotzer, 1981) are discussed only in the context of other findings. Of interest, the contrary results from these other studies are sometimes presented in the same table as other results which Verhulst and Hatemi cite.<sup>9</sup> Of course, selectivity in one’s

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<sup>8</sup> See Table S3 in Supplementary Materials 3 for a brief overview. In Table S4 of Supplementary Materials 3, we also provide references for an additional 16 studies that also consider the connection between social desirability and sociopolitical attitudes. These studies are not cited in the present paper because they use either infrequently used socially desirable responding measures or measures which operationalize socially desirable responding differently than does the EPQ-L; for example, many of the studies use the Marlowe-Crowne measure, which reflects not only moralistic but also egoistic responding (Paulhus, 2002), and as such is not hypothesized to exhibit as clean of a connection with sociopolitical attitudes.

Of note, Verhulst and Hatemi’s mischaracterization of this literature persisted over multiple papers. For example, they also state that “positive correlations between... Social Desirability and socially liberal attitudes” represented a consistent finding (p. 4; Hatemi & Verhulst, 2015), citing only their two (highly anomalous) studies as support and neglecting the very large body of contradictory evidence. Because social desirability played a substantial role in the consideration and evaluation of sociopolitical measures – even extending beyond mere correlation studies and considering the effects of various conditions when completing the surveys (e.g. Nias, Wilson, & Woodbridge, 1971) – the persistence of these mischaracterizations is perplexing.

<sup>9</sup> For example, Verhulst and colleagues (2010) cite Ray (1980) as support for the claim that authoritarians are extraverted. (Their citation here appears erroneous, as Ray [1980] reported a negative and not the asserted positive correlation between authoritarianism and extraversion.) The result of interest is presented in Table 1, which also presents a (positive, uncited) correlation between authoritarianism and social desirability. Similarly, Verhulst and colleagues (2012) cite Wilson and Brazendale (1973) concerning the absence of evidence on a connection between conservatism and neuroticism; this result is presented in Table 1 of Wilson and Brazendale (1973), one cell above the positive correlation they report between conservatism and EPQ-Lie. As noted above, Verhulst and colleagues (2012) claim they are unaware of any study examining such a correlation, though the relevance of Wilson and Brazendale (1973), which used the same measures that Verhulst and Hatemi did, was apparently recognized when discussing EPQ-Psychoticism. Kline and Cooper (1984) is cited at the same point for

coverage of previous research is a frequent problem in the scientific literature, and one of which most authors (including ourselves) might be reasonably accused as having engaged in at one point or other, to greater or lesser degrees of severity. In our view, these omissions were more important than most, as we believe the apparently mistaken results of Verhulst and Hatemi would have been considerably less likely to survive peer review had the authors more fully and accurately represented their knowledge of the previous literature.

At other times, the problematic literature review takes the form not of selective use but of an erroneous presentation of what previous research has found. For example, they state:

“In line with our expectations, Psychoticism was strongly related to more conservative positions on Religious, Sex, and Punishment attitude dimensions. This finding is consistent with previous theorizing that suggests these attitude dimensions should be central to Authoritarian concerns, and that Authoritarianism, Traditional Conservatism, and Psychoticism are intertwined (Adorno et al., 1950; Bouchard, 2009)... the reported relationships are consistent with the theoretical relationship between Psychoticism and various measures of Authoritarianism, like Adorno et al.’s (1950) F scale, Altemeyer’s (1981, 1996) RWA scale, and Feldman’s (2003) Social Conformity–Autonomy Scale” (Verhulst et al., 2010; p. 312).

Verhulst and Hatemi are correct to highlight the relevance of work by these researchers. Bouchard’s (2009) account is particularly relevant: it claims that authoritarianism can be considered one of a cluster of traits (including religiousness and political conservatism) which represent obedience to conventional authorities. Previous research has shown this cluster is well represented by measures such as Traditionalism from the Multidimensional Personality Questionnaire (MPQ; Tellegen & Waller, 2008; Ludeke, Johnson, & Bouchard, 2013), which in three-factor solutions such as that implied by the Eysenck’s model loads on the same general factor as EPQ-Psychoticism (Markon et al., 2005). The loadings for MPQ-Traditionalism and EPQ-Psychoticism have opposing signs, indicating that they represent opposite ends of a single factor; accordingly, the strong positive relationship between MPQ-Traditionalism and political conservatism provides a clear basis for predicting that EPQ-Psychoticism would correlate *negatively* and not *positively* with political conservatism, precisely contrary to the findings presented by Verhulst and Hatemi (though, as shown in study 2, seemingly in line with their data). Bouchard’s model is in no way unique in this respect: both Altemeyer’s (1981, 1988, 1996) and Feldman’s (2003) conception share a picture of authoritarianism as concerned with the endorsement of conformity and obedience that is obviously characteristic of the low and not the high pole of EPQ-Psychoticism. Here, then, Verhulst and Hatemi are directly addressing a large body of literature which directly speaks contrary to their reported results and expectations, but mischaracterizing that literature as supportive rather than as directly contrary to their own conception.

*Bias against conservatives?*

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the same reason, but its contrary results from the two adjacent cells concerning EPQ-Psychoticism and EPQ-Lie are not cited.

Recent concerns have been raised over the comparative absence of political conservatives among the ranks of social science researchers (Duarte et al., 2014). To the extent that individual researchers are subject to the same prejudices as other humans, those hailing from one end of the political spectrum may be insufficiently critical when evaluating findings that paint their ideological opponents in a negative light. If an entire research community is dominated by one portion of the political spectrum, these entirely pardonable individual failings may aggregate into a more problematic collective failing.

EPQ-Psychoticism may serve as an illustrative example of this process. It is an undesirable trait, and it is one for which a simple face reading of items would clearly indicate should be elevated among the secular and the political left. (Readers are encouraged to read the items, presented in Table S1, to verify our argument concerning face validity.) High EPQ-Psychoticism scores can be obtained by (among other things) denigrating rules, opposing marriage, de-prioritizing politeness and caution, and engaging in risky behavior such as consuming illegal drugs. On each of these issues, conservatives obviously would score low on EPQ-Psychoticism – and as reviewed above, if and when a given conservative deviates from this pattern, they are more likely than a liberal to attempt to obscure this deviance in self-reports (i.e. to lie). The expectation for a negative correlation between conservatives and EPQ-Psychoticism in self-reports is thus expected on multiple grounds.

One possible explanation for the apparent acceptance of a positive correlation between EPQ-Psychoticism and conservatism is that the negative valence of EPQ-Psychoticism dominated any consideration of the content of the scale. It may be instructive to examine the original reviewer reports for the Verhulst and Hatemi papers: these papers included the EPQ-Psychoticism scale in the text, giving even those reviewers unfamiliar with the EPQ a basis on which to evaluate the likelihood of a positive relationship between EPQ-Psychoticism and conservatism. If reviewers routinely failed to note the apparent anomalous nature of these results, this would be consistent with the suggestion by Duarte and colleagues (2014) that the absence of conservative voices in social science research impedes scientific progress, as conservatives might be expected to more readily recognize this mischaracterization given that it paints them negatively. Alternatively, if reviewers frequently noted the apparent inconsistency and were simply assuaged by assurances from the authors, then it may be a mistake to overdraw conclusions based on this incident.

## **Conclusions**

Disinhibited rule-violators are found more frequently on the left than on the right, while those on the right are more keen to advertise their moralistic obedience to societal norms. This trend can be demonstrated across a range of personality conceptualizations, including Big Five and Eysenckian measures. A series of papers claiming a directly opposing pattern of relationships appeared to be mistaken, perhaps best attributed to an error in data coding. The survival and persistence of this error throughout the pre- and post-peer review process raises possible questions about the role of bias against conservatives, and highlights the need for more stringent journal policies regarding reproducibility of results.

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Table 1. Hypothesized correlations between personality and sociopolitical measures

	Big Five measures			Eysenckian measures	
	Openness	Conscientiousness	Agreeableness	Psychoticism	Lie
Conservative ideological self-placement	-	+	0	-	+
Authoritarianism	-	+	0	-	+
Social Dominance Orientation	-	0	-	+	no prediction

Table 2. Observed correlations between personality and sociopolitical measures

	Big Five measures			Eysenckian measures	
	Openness	Conscientiousness	Agreeableness	Psychoticism	Lie
Conservative ideological self-placement	<b>-.21</b>	<b>.21</b>	.02	<b>-.22</b>	<b>.10</b>
Authoritarianism	<b>-.29</b>	<b>.19</b>	.04	<b>-.20</b>	<b>.17</b>
Social Dominance Orientation	<b>-.34</b>	.05	<b>-.39</b>	<b>.11</b>	.03

Note. Correlations significant at  $p < .05$  bolded

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