

ARTICLE



The psychology of philosophy: Associating philosophical views with psychological traits in professional philosophers

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ABSTRACT

Do psychological traits predict philosophical views? We administered the PhilPapers Survey, created by David Bourget and David Chalmers, which consists of 30 views on central philosophical topics (e.g., epistemology, ethics, metaphysics, philosophy of mind, and philosophy of language) to a sample of professional philosophers (N = 314). We extended the PhilPapers survey to measure a number of psychological traits, such as personality, numeracy, well-being, lifestyle, and life experiences. We also included non-technical ‘translations’ of these views for eventual use in other populations. We found limited to no support for the notion that personality or demographics predict philosophical views. We did, however, find that some psychological traits were predictive of philosophical views, even after strict correction for multiple comparisons. Findings include: higher interest in numeracy predicted physicalism, naturalism, and consequentialism; lower levels of well-being and higher levels of mental illness predicted hard determinism; using substances such as psychedelics and marijuana predicted non-realist and subjectivist views of morality and aesthetics; having had a transformative or self-transcendent experience predicted theism and idealism. We discuss whether or not these empirical results have philosophical implications, while noting that 68% of our sample of professional philosophers indicated that such findings would indeed have philosophical value.

ARTICLE HISTORY

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1. Introduction

“The history of philosophy is to a great extent that of a certain clash of human temperaments.” – William James, Pragmatism (1907, p. 3)

Do psychological traits predict philosophical views? There are historical precedents for this question. Nietzsche claimed that the motivations for

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a given philosophical view often spring less from a disinterested search for truth than from the instincts and personal life of the philosopher, who then defends the view with *post hoc* rationalizations. In a section called “The Prejudices of Philosophers,” Nietzsche writes, “It has gradually become clear to me what every great philosophy up till now has consisted of—namely, the confession of its originator, and a species of involuntary and unconscious auto-biography” (Nietzsche, 1886/1989, p. 5).

William James takes a more balanced perspective and poses more specific hypotheses. James writes, “Of whatever temperament a professional philosopher is, he tries when philosophizing to sink the fact of his temperament. Temperament is no conventionally recognized reason, so he urges impersonal reasons only for his conclusions. Yet his temperament really gives him a stronger bias than any of his more strictly objective premises” (James, 1907/2003, p. 3). The striking hypothesis is that temperament is stronger than reason in determining one’s philosophical views. Further, for James, knowledge about this strong psychological or temperamental influence on one’s philosophical views is often actively suppressed.

Drawing on his background in psychological experimentation and physiology, James proposes two distinct temperaments or types—the *tough-minded* and the *tender-minded*—and postulates that these different types would have different psychological traits and tend to be attracted to different kinds of philosophical views (Table 1; James, 1907/2003, p. 5).

This particular hypothesis—as well as larger and more important questions regarding the psychological influences on one’s philosophical views and vice-versa—have gone relatively unexamined, with the exception of some indirectly related work described below.

1.1. Experimental philosophy

Experimental philosophy has made some progress in examining several psychological traits that impact one’s intuitions on philosophical thought experiments (for reviews, see Knobe et al., 2012). In a foundational article

Table 1. William James’s distinction between philosophical types.

THE TENDER-MINDED	THE TOUGH-MINDED
rationalistic	empiricist
(going by “principles”)	(going by “facts”)
intellectualistic	sensationalistic
idealistic	materialistic
optimistic	pessimistic
religious	irreligious
free-willistmonistic	fatalistic
dogmatical	pluralistic
	sceptical

From *Pragmatism* (James, 1907/2003, p. 5)

for this sub-field, “Normativity and Epistemic Intuitions,” Weinberg et al. (2001), draw on empirical findings showing psychological differences across culture and class (Nisbett et al., 2001; Haidt, Koller, & Dias, 1993) and then test whether epistemic intuitions differ across cultures, socioeconomic groups, and the number of philosophy courses one has taken. The authors present Gettier-style thought experiments to various samples and demonstrate that responses differ regarding whether participants think that the individual in the thought experiment “really knows” or “only believes” a proposition. In early studies, the majority of eastern and low SES subjects endorsed “really knows” whereas the majority of western and high SES subjects endorsed “only believes”.

The investigation of the psychosocial influences on intuitions in philosophical thought experiments raised a provocative question and opened a new avenue of philosophical and experimental investigation. While Weinberg et al.’s (2001) initial findings suggested some group differences, the preponderance of more recent research has actually pointed to consistent intuitions in Gettier cases across culture, class, and gender (Adleberg et al., 2015; Kim & Yuan, 2015; Machery et al., 2017; Seyedsayamdost, 2015). This has led some to the provisional conclusion that intuitions from philosophical thought experiments may be generally stable across various demographic differences (Knobe, 2019; Knobe, in press).

Other studies, closer to our primary question, investigate the impact of psychological traits on philosophical thought experiments, although these generally use samples drawn from the normal population. Bartels and Pizarro (2011) showed that the psychological trait of psychopathy predicts some kinds of utilitarian moral judgments in particular thought experiments, a finding that has since been empirically elaborated and clarified through further experimentation (e.g., Conway, Goldstein-Greenwood, Polacek, & Greene, 2018; Kahane et al., 2015). Other studies have found that moral judgments can be predicted by more deliberate, less intuitive reasoning styles (Byrd, 2014, [Under review](#); Byrd & Conway, 2019; Greene et al., 2001). These sorts of studies show that some psychological traits are associated with certain intuitions in philosophical thought experiments, but do not address the question of whether psychological traits impact or predict the views that professional philosophers hold.

Some research has been conducted on samples of professional philosophers. Across several studies, Schwitzgebel and Rust (2010) found that ethicists were no more likely to exhibit various moral behaviors than their colleagues who are professors in other areas of philosophy. Some studies show that the number of philosophy courses one has taken is predictive of better performance on the Cognitive Reflection Test (CRT; Byrd, 2014; Frederick, 2005; Livengood et al., 2010), which measures one’s tendency to engage in more careful analytic, as opposed to intuitive, modes of

thinking. These findings focus on professional philosophers and help to characterize this population, but they still do not address the psychological factors that might impact their views.

A few studies have used philosophy students to examine how particular traits might relate to intuitions on thought experiments. The Oxford Utilitarian Scale was validated on a sample of graduate students in philosophy, including a few professors, in order to demonstrate that the scale tracks the technical philosophical view in normative ethics (Kahane et al., 2015). Feltz and Cokely (2009) found in students of philosophy that the personality trait Extraversion is related to compatibilist intuitions about certain cases concerning free will. Holtzman (2013) examined correlations between nine philosophical thought experiments and personality on individuals who had received a PhD in philosophy and found that Neuroticism and Openness to Experience were associated with answers to the Gettier knowledge problem and that Neuroticism was associated with the Trolley problem, among additional findings related to other thought experiments.

In the present study, our interest was in how philosophical views (not merely intuitions about philosophical thought experiments) relate to psychological traits in professional philosophers. Our interest is largely descriptive; we aim to identify associations between psychological traits and philosophical views for further replication and study. In order for a more comprehensive investigation to be carried out, a wide-ranging yet parsimonious measure of a number of philosophical views would be needed. The questions within the PhilPapers Survey created by Bourget and Chalmers (2014) fit these criteria.

1.2. *The PhilPapers survey*

In 2009, Bourget and Chalmers launched a study, the PhilPapers Survey, to answer the question, “What are the views of contemporary professional philosophers?” (Bourget & Chalmers, 2014, p. 1). Bourget and Chalmers effectively created a survey of philosophical views across numerous topics of central significance to contemporary philosophy. The questions regarding one’s philosophical views were as follows:

1. *A priori knowledge: yes or no?*
2. *Abstract objects: Platonism or nominalism?*
3. *Esthetic value: objective or subjective?*
4. *Analytic-synthetic distinction: yes or no?*
5. *Epistemic justification: internalism or externalism?*
6. *External world: idealism, skepticism, or non-skeptical realism?*
7. *Free will: compatibilism, libertarianism, or no free will?*
8. *God: theism or atheism?*

9. *Knowledge: empiricism or rationalism?*
10. *Knowledge claims: contextualism, relativism, or invariantism?*
11. *Laws of nature: Humean or non-Humean?*
12. *Logic: classical or non-classical?*
13. *Mental content: internalism or externalism?*
14. *Meta-ethics: moral realism or moral anti-realism?*
15. *Metaphilosophy: naturalism or non-naturalism?*
16. *Mind: physicalism or nonphysicalism?*
17. *Moral judgment: cognitivism or non-cognitivism?*
18. *Moral motivation: internalism or externalism?*
19. *Newcomb's problem: one box or two boxes?*
20. *Normative ethics: deontology, consequentialism, or virtue ethics?*
21. *Perceptual experience: disjunctivism, qualia theory, representationalism, or sense- datum theory?*
22. *Personal identity: biological view, psychological view, or further-fact view?*
23. *Politics: communitarianism, egalitarianism, or libertarianism?*
24. *Proper names: Fregean or Millian?*
25. *Science: scientific realism or scientific anti-realism?*
26. *Teletransporter (new matter): survival or death?*
27. *Time: A-theory or B-theory?*
28. *Trolley problem (five straight ahead, one on side track, turn requires switching, what ought one do?): switch or don't switch?*
29. *Truth: correspondence, deflationary, or epistemic?*
30. *Zombies: inconceivable, conceivable but not metaphysically possible, or metaphysically possible?*

The results of this survey are of general interest. Its findings include the frequencies of views across the thirty questions, correlations among the views, and correlations between the views and various demographic variables such as age, geographic location, and gender. A factor analysis was performed on the thirty views to determine whether they group according to underlying dimensions. The first factor, labeled “Anti-naturalism” by the authors, included libertarian notions of free will, nonphysicalism about the mind, belief in God, non-naturalism, belief in the metaphysical possibility of philosophical Zombies, and the further fact view of personal identity. (Other factors included: “Objectivism/Platonism,” “Rationalism,” and “Externalism”). We made use of the Anti-Naturalism factor in the present study.

The PhilPapers Survey is characterized by its authors in terms of the “sociological” and “historical” interest that it might hold for readers (Bourget & Chalmers, 2014), but not in terms of *psychological* interest. We observed that the survey would also be of significant psychological interest—if psychological measures were added.

1.3. *The psychology of philosophy survey*

The present study consists of a survey designed to be as similar as possible to the PhilPapers Survey in order to extend the purpose of the original survey and to complement its findings by including measures of psychological traits. We therefore followed the precedent of this survey closely when administering the philosophical views items. In order to measure psychological traits, we administered brief measures for personality, well-being, mental health, numeracy, varieties of life experiences, questions related to public education of philosophy, and demographics. Relatively little work has been done on this topic, so the survey is intended to be largely exploratory.

There were some hypotheses that we tested, which we preregistered on the Open Science Framework (<https://osf.io/uf5cr>). In particular, we aimed to test aspects of James's tough-minded vs. tender-minded distinction. For these hypotheses, we drew on research from the psychology of religion, reasoning that philosophical views associated with Anti-Naturalism may relate to psychological traits in professional philosophers similarly to how they do in the normal population. Consistent with previous research in personality and religion (Saroglou, 2002), we hypothesized that participants higher on Conscientiousness and Agreeableness will tend to have more non-naturalistic beliefs, as measured by the items and total Anti-Naturalism factor. The preponderance of previous research has shown a relationship between well-being and religion (Hackney & Sanders, 2003), so we hypothesized that the Anti-Naturalism factor as well as the individual items that comprise the factor would positively correlate with well-being. Turning to the tough-minded type, we hypothesized that the Anti-Naturalism factor and items would negatively correlate with numeracy and the CRT, as previous research has shown that religiosity is correlated with more intuitive and less analytical thinking styles (Shenhav et al., 2012; Stagnaro et al., 2018).

We included more speculative hypotheses as well. Drawing on L. A. Paul's (2014) work on transformative experience, we hypothesized that individuals who report having had a transformative experience would be more comfortable with other apparent threats to identity continuity, and would thus be more likely to report the teleporter (a hypothetical device that scans your molecules and recreates that pattern of matter in another location) results in the survival of the self. We also hypothesized that higher numeracy would correlate with consequentialist views concerning normative ethics. The consequentialist and utilitarian line of thinking was based in in mathematical-type evaluations (i.e., Bentham coined the term "felicific calculus" to describe one such view).

We include exploratory analyses, as the entire topic under investigation is underexplored and ripe for hypothesis generation. Lastly, we hope to

eventually measure these views in the normal population. To that end, we “translated” and then compared the Bourget and Chalmers (2014) items into non-technical language that educated laypeople can understand.

2. Setup and methods

2.1. Procedure

We administered a survey using a link from Qualtrics, an online survey platform, which was emailed to 3,683 individuals from the top philosophy programs (according to Philosophical Gourmet rankings) as well as some other major universities. The e-mail asked philosophers to respond to a survey about better understanding philosophical beliefs among professional philosophers and mentioned aims related to public education about philosophy. The link to the survey was also posted on Eric Schwitzgebel’s *The Splintered Mind* blog and on social media by L. A. Paul. Participants were asked to provide their consent and then answered a series of survey items broken into three parts: 1) the original thirty items used by Bourget and Chalmers (2014), p. 2) a battery of psychological scales and demographic items, and 3) “translations” of the original items into non-technical language. The Institutional Review Board at the University of Pennsylvania approved this study.

2.2. Analysis plan

We first compared the frequencies of responses to each Philosophical View with the frequencies reported by Bourget and Chalmers (2014). We then computed correlations between various Philosophical Views and compared them with the correlations between views reported in Bourget and Chalmers (2014). Next, we show the results of pre-registered hypothesized correlations between psychological traits and philosophical views (most use the Anti-Naturalism factor reported by Bourget and Chalmers).

We then report the results of exploratory analyses. In order to summarize the large number of variables in the study, we report a factor analysis and multiple regressions using these factors at the request of a reviewer. Lastly, as stated in our pre-registration, we provide correlations between the Philosophical Views and psychological traits strictly corrected for multiple comparisons and other criteria. We report the correlations per philosophical view, both uncorrected and corrected for multiple comparisons, in the supplemental materials. The correlations reported in the results section are only those that remained significant after applying Bonferroni correction (70 comparisons specified). We applied this very conservative criterion in order to increase the likelihood that the reported correlations would

replicate by reducing Type I errors (false positives), although we acknowledge that we substantially increased the risk of Type II errors (false negatives).

2.3. Participants

Several hundred participants (589) provided their consent and began the survey. Some participants (40) were removed for failing an attention check. Participants dropped out of the survey at different points throughout; 331 completed the entire survey (a 56% completion rate of those who began the survey). Only participants with complete survey data and who indicated that they were Professors, Post-Docs, or Graduate Students in Philosophy (i.e., “Professional Philosophers”) were retained, making the total sample $N = 314$ (the majority of these responses were Professors of Philosophy; $n = 264$).

The sample characteristics were quite similar to that obtained by (Bourget & Chalmers, 2014). The mean age was 47.5, and the sample was: 78% male, 86.3% White, and 84.4% politically left of center. In terms of geography, 78% of the sample received their PhD in the US and 77.4% of the sample had a current academic affiliation in the US. In terms of philosophical tradition, 75.8% of the sample identified as belonging to the analytic tradition.

2.4. Measures

Philosophical Views. The Philosophical Views items come from the 30 questions (which result in 70 views due to the number of response options) about primary topics in philosophy designed that was designed and administered by Bourget and Chalmers (2014) in their PhilPapers Survey. These questions focus on core areas of analytic philosophy: epistemology, ethics, metaphysics, philosophy of mind, and philosophy of language.¹ We administered these items using the same format used in that study, which provided the following response options: “Accept X” (scored -2), “Lean X” (scored -1), “Lean Y” scored (1), “Accept Y” scored (2), and “Other.” If participants selected “Other”, then they were asked to provide some further clarification about their response by selecting one of several other options, which were then coded according to the procedure described in Bourget and Chalmers (2014; see Table 2), which breaks some psychometric norms. Items were then dummy coded into different variables per item, individually representing each possible view (e.g., *A priori: Yes* becomes a variable and *A priori: No* becomes another variable, resulting in 70 total views from the 30 original questions).

Non-Technical Translations of Philosophical Views. The thirty Philosophical Views items from Bourget and Chalmers (2014) were

Table 2. Conversion scheme for “other” answers from Bourget and Chalmers (2014).

Choices	Values
Accept/reject both	Set to 2/-2
Accept another alternative	Set to -2
Accept more than one	Don't count
Reject one, undecided between others	Don't count
Skipped	Don't count
Other answers	Set to 0

rephrased in non-technical language in order to facilitate future surveys about these views beyond samples of philosophers (see supplemental materials: SM-1). The “translation” process occurred over the course of one year with input from several dozen psychologists and philosophers². The Trolley Problem question was taken from Greene et al. (2001).

Personality. A brief five factor personality measure was administered (Rammstedt & John, 2007).³ It has five sub-scales, with two items for each factor: Openness to Experience (e.g., “I see myself as someone who has an active imagination”), Conscientiousness (e.g., “I see myself as someone who does a thorough job”), Extraversion (e.g., “I see myself as someone who is outgoing sociable”), Agreeableness (e.g., “I see myself who is generally trusting”), and Neuroticism (e.g., “I see myself as someone who gets nervous easily”).

Numeracy. The Subjective Numeracy Scale (SNS; Fagerlin et al., 2007) is a measure to assess self-reported numeracy with two sub-scales: numeric *competence* (e.g., “how good are you at working with fractions?”) and numeric *interest* (e.g., “When reading the newspaper, how helpful do you find tables and graphs that are part of the story?”).⁴

Cognitive Reflection Test. The Cognitive Reflection Test (CRT; Frederick, 2005) is a three-item test of *intuitive thinking* as opposed to *analytic thinking* styles. In each math question, an intuitively correct (but actually false) answer is available, but further reflection can reveal the non-intuitive, correct answer (e.g., “If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?” the intuitive answer is 100, but the actual answer is 5).⁵

Satisfaction with Life. This subjective well-being measure is a single item that consists of a cognitive assessment of how one’s life is going overall (Bjørnskov, 2010). This item has been used in large-scale surveys such as World Values Survey, OECD surveys, and Gallup surveys (“All things considered, how satisfied are you with your life as a whole these days?”).

Happiness. This subjective well-being measure is a single item that asks about an overall assessment of one’s overall level of happiness on the preceding day from Gallup surveys. This item (“Did you experience

happiness during a lot of the day yesterday?”) has also been used in several large-scale measurement initiatives (e.g., Kahneman & Deaton, 2010).

Emotional Well-being. This subjective well-being measure assesses one’s emotional state with more granularity across a four-week period of time (Yaden & Haybron, *in prep*). It includes a positive affect sub-scale (e.g., “felt happy”) and a negative affect sub-scale (e.g., “felt sad”).

Mental Illness. The short version of the Patient Health Questionnaire (PHQ-4 Löwe et al., 2010) measures symptoms of depression and anxiety in four items (e.g., “feeling down, depressed, or hopeless”).

Narcissism. The Single Item Narcissism Scale (SINS; Konrath et al., 2014) was administered: “To what extent do you agree with this statement: ‘I am a narcissist.’

(Note: The word ‘narcissist’ means egotistical, self-focused, and vain.)”.

Loneliness. The UCLA Loneliness Scale (Hughes et al., 2004) is a three-item scale that measures social isolation (e.g., “How often do you feel isolated from others?”).

Life Experiences. Items related to childhood socioeconomic status and whether or not one has had a transformative experience (a single item generated in collaboration⁶ with L.A. Paul drawing on her philosophical work; Paul, 2014; “I have had a transformative experience of some kind, after which I felt like a different person”), a self-transcendent experience (two items drawn from work in psychology on experiences of unity and self-loss (Yaden et al., 2017a; “I have had a transformative experience in which my sense of self completely faded away”; “I have had a transformative experience of feeling closely connected to everything”), and religious experience (“I have had a profound religious experience or awakening that changed the direction of my life”; Gallup Organization, 2003).

Lifestyle. Questions related to exercise, meditation, and substance use (alcohol, marijuana, and psychedelic substances) were assessed using single items (in the form, “how often do you use . . .”).

Demographics. Age, nationality, aspects of religious affiliation, political affiliation, relationship status, current income, childhood socioeconomic status, gender, ethnicity, current professional status, philosophical tradition (analytic or continental), were each assessed using single item questions.

Science and Philosophy. Exploratory single items were administered related to the relationship between scientific data and their relevance to philosophical views. Items were administered asking the extent to which one’s philosophical work informs their personal life (e.g., “I apply my professional philosophical work to aspects of my personal life on a regular basis.”) and whether or not participants believe that there should be more or less efforts to educate the public about philosophy (“I believe that philosophers should participate in initiatives outside of academic settings to educate the public about philosophical thinking more than they do at present”).

Items asked about the extent to which 1) temperament and 2) life circumstances might impact one's philosophical views, and, finally, 3) whether or not empirical information regarding relationships between psychological traits and philosophical views would have philosophical value (e.g., "Do you believe that anything of philosophical value could result from knowing that certain dispositions or life experiences are strongly associated with certain philosophical views?").

3. Results

As in the Bourget and Chalmers (2014) paper, we begin by summarizing the frequencies of professional philosophers endorsing various views. In Table 3, we present the original Bourget and Chalmers (B&C) findings alongside results from the present sample, using the authors' initials (Y&A). Following precedent in Bourget and Chalmers (2014), "accept" and "lean" answers have been collapsed, as have all "other" options. Frequencies of endorsement for Translations are included in the supplemental materials (SM-2) and correlations between the Translations and the Philosophical Views are also in the supplemental materials (SM-3).

3.1. Correlations between views

Following Bourget and Chalmers (2014), we provide the top 10 correlations with the correlation coefficients found in the original article alongside those views in the present study (Table 4). We found a very similar magnitude of effect and an identical direction of effect in all cases suggesting a convergence of findings between the Bourget and Chalmers (2014) study and the present study.

3.2. Results of hypotheses

The pre-registered hypothesized correlations were largely not supported—with a few exceptions (Table 5). In terms of numeracy, the Anti-Naturalism Factor was significantly correlated with less Numerical Interest ($r = -.14$, $p = .016$). This factor level correlation was driven by just a few items in the factor—Mind: Nonphysical ($r = -.18$, $p = .002$), Freewill: Libertarian ($r = -.12$, $p = .036$), and Metaphilosophy: Anti-Naturalism ($r = -.17$, $p = .002$). These and all other p-values in this study are two-tailed.

In terms of personality, the Anti-Naturalism Factor was *not* related to either Agreeableness nor Conscientiousness. However, God: Theism, an item within the Anti-Naturalism Factor, was related to Agreeableness ($r = .12$, $p = .038$) and Zombies: Metaphysically Possible was related to Conscientiousness ($r = .13$, $p = .021$).

Table 3. Frequencies of endorsement of philosophical views in original and present survey.

Philosophical Topic	Philosophical Views	Survey
A priori knowledge	Yes 71.1%, No 18.4%, Other 10.5%	B&C
A priori knowledge	Yes 73.2%, No 22.6%, Other 4.1%	Y&A
Abstract objects	Platonism 39.3%, Nominalism 37.7%, Other 23.0%	B&C
Abstract objects	Platonism 37.3%, Nominalism 49.7%*, Other 13.1%	Y&A
Aesthetic Value	Objective 41.0%, Subjective 34.5%, Other 24.5%	B&C
Aesthetic value	Objective 43.3%, Subjective 44.3%, Other 12.4%	Y&A
Analytic-Synthetic Distinction	Yes 64.9%, No 27.1%, Other 8.1%	B&C
Analytic-Synthetic Distinction	Yes 59.6%, No 33.8%, Other 6.7%	Y&A
Epistemic justification	Externalism 42.7%, Internalism 26.4%, Other 30.8%.	B&C
Epistemic justification	Externalism 46.8%, Internalism 33.4%, Other 19.7%.	Y&A
External world	Non-skeptical realism 81.6%, Skepticism 4.8%, Idealism 4.3%, Other 9.2%	B&C
External world	Non-skeptical realism 75.5%, Skepticism 8.9%, Idealism 7.3%, Other 8.3%	Y&A
Free will	Compatibilism 59.1%, Libertarianism 13.7%, No free will 12.2%, Other 14.9%	B&C
Free will	Compatibilism 59.9%, Libertarianism 16.6%, No free will 13.4%, Other 10.2%	Y&A
God	Atheism 72.8%, Theism 14.6%, Other 12.6%	B&C
God	Atheism 67.2%, Theism 20.4%, Other 13.3%	Y&A
Knowledge Claims	Contextualism 40.1%, Invariantism 31.1%, Relativism 2.9%, Other 25.9%	B&C
Knowledge Claims	Contextualism 59.2%*, Invariantism 20.4%*, Relativism 2.9%, Other 17.5%	Y&A
Knowledge	Empiricism 35.0%, Rationalism 27.8%, Other 37.2%	B&C
Knowledge	Empiricism 51.3%*, Rationalism 23.2%, Other 25.5%*	Y&A
Laws of Nature	Non-Humean 57.1%, Humean 24.7%, Other 18.2%	B&C
Laws of Nature	Non-Humean 51.9%, Humean 30.6%, Other 17.5%	Y&A
Logic	Classical 51.6%, Non-classical 15.4%, Other 33.1%	B&C
Logic	Classical 51.6%, Non-classical 20.7%, Other 27.7%	Y&A
Mental content	Externalism 51.1%, Internalism 20.0%, Other 28.9%	B&C
Mental content	Externalism 48.7%, Internalism 28.0%, Other 23.2%	Y&A
Meta-Ethics	Moral realism 56.4%, Moral anti-realism 27.7%, Other 15.9%	B&C
Meta-Ethics	Moral realism 59.2%, Moral anti-realism 29.6%, Other 11.1%	Y&A
Metaphilosophy	Naturalism 49.8%, Non-naturalism 25.9%, Other 24.3%.	B&C
Metaphilosophy	Naturalism 54.5%, Non-naturalism 26.4%, Other 19.1%	Y&A
Mind	physicalism 56.5%, nonphysicalism 27.1%, other 16.4%	B&C
Mind	physicalism 55.4%, nonphysicalism 29.9%, other 14.6%.	Y&A
Moral judgment	Moral judgment: cognitivism 65.7%, non-cognitivism 17.0%, other 17.3%	B&C
Moral judgment	Moral judgment: cognitivism 64.6%, non-cognitivism 20.7%, other 14.6%	Y&A
Moral motivation	Internalism 34.9%, Externalism 29.8%, Other 35.3%	B&C
Moral motivation	Internalism 37.6%, Externalism 31.2%, Other 31.2%	Y&A
Newcomb's problem	Two boxes 31.4%, One box 21.3%, Other 47.4%	B&C
Newcomb's problem	Two boxes 29.9%, One box 27.1%, Other 43.0%	Y&A
Normative Ethics	Deontology 25.9%, Consequentialism 23.6%, Virtue ethics 18.2%, Other 32.3%	B&C
Normative Ethics	Deontology 21.7%, Consequentialism 25.8%, Virtue ethics 27.7%, Other 24.8%	Y&A
Perceptual experience	Representationalism 31.5%, Qualia theory 12.2%, Disjunctivism 11.0%, Sense-datum theory 3.1%, Other 42.2%	B&C
Perceptual experience	Representationalism 27.7%, Qualia theory 13.7%, Disjunctivism 12.4%, Sense-datum theory 5.7%, Other 40.4%	Y&A
Personal identity	Psychological view 33.6%, Biological view 16.9%, Further-fact view 12.2%, Other 37.3%	B&C
Personal identity	Psychological view 41.7%, Biological view 15.3%, Further-fact view 14.0%, Other 29.0%	Y&A
Politics	Egalitarianism 34.8%, Communitarianism 14.3%, Libertarianism 9.9%, Other 41.0%	B&C
Politics	Egalitarianism 42.0%, Communitarianism 26.1%, Libertarianism 8.6%, Other 23.2%	Y&A
Proper names	Millian 34.5%, Fregean 28.7%, Other 36.8%	B&C
Proper names	Millian 32.5%, Fregean 32.2%, Other 35.4%	Y&A
Science	Scientific realism 75.1%, Scientific anti-realism 11.6%, Other 13.3%	B&C
Science	Scientific realism 70.1%, Scientific anti-realism 17.5%, Other 12.4%	Y&A
Teletransporter	Survival 36.2%, Death 31.1%, Other 32.7%	B&C
Teletransporter	Survival 36.3%, Death 34.7%, Other 29.0%	Y&A

(Continued)

Table 3. (Continued).

Philosophical Topic	Philosophical Views	Survey
Time	B-theory 26.3%, A-theory 15.5%, other 58.2%	B&C
Time	B-theory 24.5%, A-theory 19.7%, other 55.7%	Y&A
Trolley problem	Switch 68.2%, Don't switch 7.6%, Other 24.2%	B&C
Trolley problem	Switch 72.9%, Don't switch 6.4%, Other 20.7%	Y&A
Truth	Correspondence 50.8%, Deflationary 24.8%, Epistemic 6.9%, Other 17.5%	B&C
Truth	Correspondence 48.4%, Deflationary 22.0%, Epistemic 10.5%, Other 19.1%	Y&A
Zombies	Conceivable but not metaphysically possible 35.6%, Metaphysically possible 23.3%, Inconceivable 16.0%, Other 25.1%	B&C
Zombies	Conceivable but not metaphysically possible 36.9%, Metaphysically possible 24.5%, Inconceivable 16.6%, Other 22.0%	Y&A

B&C refers to the Bourget and Chalmers (2014) findings and Y&A refers to findings from the present study by Yaden and Anderson. Asterisks indicate a greater than 10 percentage point difference between the PhilPapers Survey (Bourget & Chalmers, 2014; B&C) and the current *Psychology of Philosophy* survey (Y&A).

Table 4. The ten top correlations between philosophical views in original and present survey.

Philosophical View Variable 1	Philosophical View Variable 2	(Y&A) <i>r</i>	(B&C) <i>r</i>
Metaphilosophy: Naturalism	Mind: Physicalism	.54	.49
God: Theism	Mind: Nonphysicalism	.52	.36
Free will: Libertarian	Mind: Nonphysicalism	.47	.39
Knowledge: Rationalism	Metaphilosophy: Non-Naturalism	.46	.36
Free will: Libertarian	God: Theism	.45	.39
A Priori Knowledge: No	Analytic-Synthetic Distinction: No	.43	.44
Abstract Objects: Platonism	Knowledge: Rationality	.43	.31E
External World: Realism	Science: Scientific Realism	.43	.39
Aesthetic Value: Objective	Meta-Ethics: Moral Realism	.41	.41
Abstract Objects: Nominalism	Metaphilosophy: Naturalism	.41	.32

Correlations between views were Pearson correlations, as computed in Bourget and Chalmers (2014). B&C refers to findings from Bourget and Chalmers (2014) and Y&A refers to findings from the present study. All correlations are significant at $p < .001$ after p -values were Bonferroni corrected for 70 comparisons.

In terms of well-being, *none* of the well-being measures were related to Anti-Naturalism, including: Life Satisfaction, Happiness, Positive Emotions, and Negative Emotions.

Regarding the two other hypotheses, having had a Transformative Experience was *not* related to endorsing Teletransporter Survival. Endorsing the Normative Ethics view of Consequentialism was related to Numeric Interest ($r = .22$, $p = < .000$); however, it was *not* related to Numeric Comprehension, nor performance on the CRT.

3.3. Results of exploratory analyses

The survey resulted in a number of additional interesting associations between various Philosophical Views and psychological traits. In what follows, we present factor analyses of the philosophical views and the psychological traits, multiple regressions using these factors, and then correlations that survive strict correction for multiple comparisons and other criteria. Note that these items were scored (see the Methods section for details) and correlations were computed (using Pearson's r) according to

Table 5. Pre-registered hypothesized relationships between psychological traits and philosophical views.

Psychological Trait	Philosophical View	<i>r</i>	<i>p</i>
Numeracy and Anti-Naturalism			
Numerical Interest	Anti-Naturalism Factor	-.14	.016*
<i>Numerical Interest</i>	<i>Free Will: Libertarian</i>	-.12	.036*
<i>Numerical Interest</i>	<i>Mind: Nonphysicalism</i>	-.18	.002**
<i>Numerical Interest</i>	<i>Meta Phil: Non-Naturalism</i>	-.17	.002**
Numerical Comprehension	Anti-Naturalism Factor	.01	.893
CRT	Anti-Naturalism Factor	.03	.563
Personality and Anti-Naturalism			
Conscientiousness	Anti-Naturalism Factor	.06	.277
<i>Conscientiousness</i>	<i>Zombies: Possible</i>	.13	.021*
Agreeableness	Anti-Naturalism Factor	.07	.193
<i>Agreeableness</i>	<i>God: Theism</i>	.12	.038*
Well-being and Anti-Naturalism			
Satisfaction with Life	Anti-Naturalism Factor	-.03	.633
Happiness	Anti-Naturalism Factor	-.01	.903
Positive Emotion: Happy	Anti-Naturalism Factor	.05	.403
Positive Emotion: Energy	Anti-Naturalism Factor	-.03	.662
Positive Emotion: Calm	Anti-Naturalism Factor	.07	.211
Numeracy and Consequentialism			
Numeric Interest	Normative Ethics: Consequentialism	.22	<.001**
Numeric Comprehension	Normative Ethics: Consequentialism	.07	.231
CRT	Normative Ethics: Consequentialism	.07	.269
Transformative Experience and Teletransporter			
Transformative Experience	Teletransporter: Survival	.05	.418

The Anti-Naturalism factor consists of the following items (from Bourget & Chalmers, 2014): Freewill: Libertarian, Mind: Nonphysicalism, God: Theism, Meta-Philosophy: Non-Naturalism, Zombies: Metaphysically Possible, and Personal Identity: Further Fact. Significantly correlated items from the Anti-Naturalism factor are shown indented and in italics, whereas non-significantly correlated items from the Anti-Naturalism factor are not shown. As these hypotheses were planned (and pre-registered), they are not corrected for multiple comparisons.

p* < .05. *p* < .01.

precedent in Bourget and Chalmers (2014), so that results from the present study could be directly compared to the results of the previous survey. However, while Bourget and Chalmers (2014) claim that the two answers within one question (e.g., “Knowledge: Empiricism or Rationalism?”) should be perfectly inversely correlated when separated into two variables, we found that their scheme to score “other” answers resulted in slightly different distributions of each of the resulting variables, leading to slightly different correlation coefficients with other items. For transparency, we report each variable for each view within each question separately (e.g., *Knowledge: Empiricism* and *Knowledge: Rationalism* become two different variables) so the original 30 questions become 70 variables.

3.3.1. Factor analysis

Following Bourget and Chalmers (2014), we performed Exploratory Factor Analysis. Bourget and Chalmers presented 7 factors but only interpreted the first few factors (Anti-Naturalism, Objectivism/Platonism, Rationalism,

Anti-Realism, and Externalism). Notably, when computing the reliability (Cronbach's alphas) of the factors reported by Bourget and Chalmers (2014) using the variables that they used but in the new sample, we found that only the first factor (Anti-Naturalism) had adequate reliability (Cronbach's Alpha $>.7$), so interpreting the other factors should be done with caution. We also conducted an exploratory factor analysis in our data, following Bourget and Chalmers (2014), by using the same sub-set of items that they selected to perform factor analysis on (30 items, one variable per philosophical view) and using the same rotation procedure that they did, Principal Component Analysis with a Varimax rotation. Parallel Analysis (PA) on this set of philosophical views suggested 6 factors (Figure 1). Analyses were conducted using the statistical software R (R Core Team, 2019).

We extracted two factors, Anti-Naturalism and Realism (Table 6), because factor solutions of three and above resulted in error factors due to

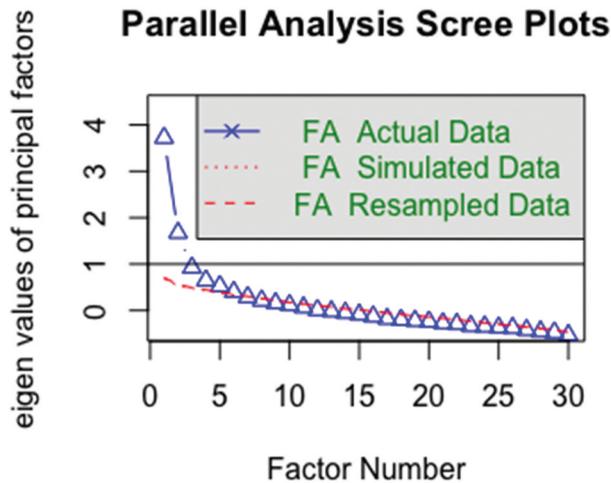


Figure 1. Parallel analysis and scree plot of philosophical views.

Table 6. Factor loadings of philosophical views.

	PC 1: Anti-Naturalism	PC 2: Realism
Mind: Nonphysicalism	.74	
Meta-Philosophy: Non-Naturalism	.63	
God: Theism	.59	
Freewill: Libertarian	.46	
Meta-Ethics: Moral Realism		.60
Abstract Objects: Platonism		.50
Moral judgment: Cognitivism		.49
External World: Realism		.47
Aesthetic Value: Objective		.43
Knowledge Claims: Invariantism		.42
Laws of Nature: Hume		-.44
Science: Anti-Realism		-.50
Component Cronbach Alphas	$\alpha = .77$	$\alpha = .71$

Factor loadings below .4 were not retained and are not shown. Knowledge: Rationalism loaded (marginally) on both factors so was dropped.

their inadequate reliability. Also, the Scree plot suggests a two-factor solution.

We then conducted the same analysis (using Varimax rotation) on the psychological trait variables at the behest of a reviewer. This item set included 39 single items as well as scale total variables, consisting of: demographics, personality, numeracy, well-being, life experiences, and life-style. Parallel Analysis suggested 8 factors (Figure 2).

We extracted two factors, Well-Being and Experiences (Table 7), because the three-factor solution (as well as additional factor solutions) resulted in error factors with inadequate reliability.

We computed scale scores from an unweighted average of the items comprising each factor. The philosophical views factors correlated with

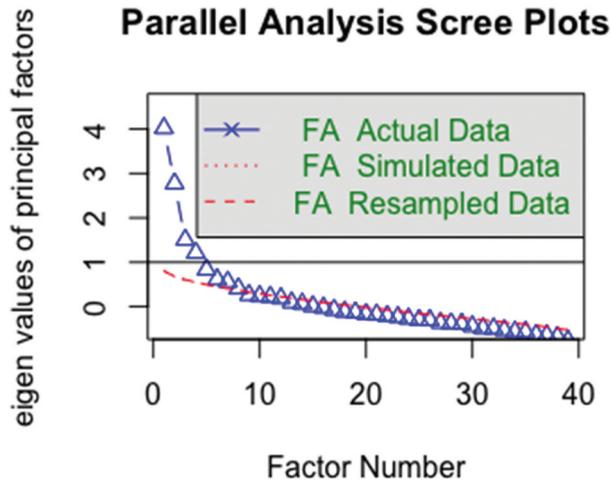


Figure 2. Parallel analysis and scree plot of psychological traits items.

Table 7. Factor loadings of psychological traits.

	PC 1: Well-Being	PC 2: Experiences
Life Satisfaction	.76	
Positive Emotion (ESAT)	.71	
Happiness	.62	
Personality: Neuroticism	-.52	
Loneliness	-.59	
Patient Health Questionnaire (PHQ)	-.76	
Negative Emotion (ESAT)	-.81	
Religious Experience		.69
Self-Transcendent Experience – Unity		.65
Spirituality		.62
Transformative Experience		.58
Meditation		.56
Self-Transcendent Experience – Self-Loss		.52
Religiosity		.45
Component Cronbach Alphas	$\alpha = .80$	$\alpha = .77$

Factor loadings below .4 were not retained and are not shown.

Table 8. Multiple regression of psychological traits predicting the Anti-Naturalism factor.

Predictor	β	Standard Error	<i>p</i> -value
(Intercept)	-1.0	.88	.253
Numeric Interest	-.18	.06	.002**
Personality: Conscientiousness	.11	.05	.047*
Religious Experience	.14	.04	.001**
Politically Right-Leaning	.16	.06	.012*
Religiosity	.58	.10	<.001**

p* < .05. *p* < .01.

Table 9. Multiple regression of psychological traits predicting the Realism factor.

Predictor	β	Standard Error	<i>p</i> -value
(Intercept)	-.94	.82	.251
Philosophical Tradition: Analytic	.25	.12	.028*
Positive Emotion (ESAT)	.26	.10	.008**
Numeric Interest	.13	.05	.015*

p* < .05. *p* < .01.

one another to a moderate degree ($r = .32$, $p = < .000$), while the psychological trait factors were not associated with one another ($r = .02$, $p = .703$).

3.3.2. Multiple regressions

We then used these newly derived factors as dependent variables in multiple regression in order to see which items predict them, which was also done due to a request by a reviewer. We first set the psychological factors as dependent variables and the sub-set of views used for the factor analysis above and in Bourget and Chalmers (2014) as predictors. We found that God: Theism was the sole predictor of the experiences factor ($\beta = .29$, $p < .000$) – and no item predicted the well-being factor.

However, when setting the philosophical views factors as dependent variables, several psychological traits predicted them, as shown in Tables 8 and 9 (non-significant predictors are not shown). A number of psychological trait variables were included as covariates, which were entered as predictors in this model. These variables include: Professional status: professor, Ethnicity: white, philosophical tradition: analytic, region of academic affiliation: USA, gender: male, Positive emotion (ESAT), Negative emotion (ESAT), Loneliness, Patient Health Questionnaire, Cognitive Reflection Test, Numeric Comprehension, Numeric Interest, Openness to Experience, Conscientiousness, Extraversion, Agreeableness, Narcissism, Life Satisfaction, Happiness, Transformative experience, Transcendent Experience–Self-loss, Transcendent experience–Unity, Religious experience, political orientation, age, religiosity, spirituality, meditation, philosophical value of knowing relationship between psychological traits and philosophical views, exercise, alcohol consumption, marijuana consumption, use of psychedelic substances, relationship status, current income, and childhood SES.

While procedures like factor analysis and multiple regression can be useful with such a large number of variables, they can also produce potentially misleading results, which is why these analyses were not recorded in our preregistration. In this case, the Philosophical View variables have an unusual coding scheme and are not normally distributed. Additionally, the various philosophical views cannot all be entered into a multiple regression due to issues with multicollinearity (i.e., many of the views are highly correlated with one another), so a sub-set of items was used following the items selected by Bourget and Chalmers (2014) for their factor analysis. The various psychological trait measures were also not designed to be combined into factors and the validity of doing so is unknown, and was done at a reviewer's request, so these factors should be interpreted cautiously.

3.3.3. *Correlations corrected for multiple comparisons*

Correlations can provide a more straightforward demonstration of the relationship between philosophical views and psychological traits, which is why we pre-registered this exploratory analysis. In this case, because there are so many comparisons, there is a substantial risk of false positives. Therefore, we have been careful about the correlations that we present in the tables that follow (all tables are available comparing top correlations between every psychological trait and Philosophical Views in the Supplemental Materials: SM-4). In the following section, we show correlations IFF they remain significant after p values have been corrected for multiple comparisons using Bonferroni correction indicating 70 comparisons for each table (as this is the total number of Philosophical Views once they have been broken apart into separate variables). Bonferroni correction involves multiplying the p value by the number of comparisons being made, and a result is deemed significant if it remains under the critical threshold ($p < .05$).

While a conventional significance is probably too liberal of a threshold in the context of this study due to the large number comparisons, likely leading to a number of false positives, the correction for multiple comparisons that we computed is quite conservative, running a substantial risk of false negatives. Our justification for this highly conservative approach is to maximize the possibility that the reported results will replicate in similar samples. This decision, however, results in a strict threshold for showing correlational results considered significant and one could reasonably argue that the risk of false negatives here is too high.

The effect size provides a useful guide to the magnitude of the results regardless of significance testing. We suspect that philosophers who are unaccustomed to thinking about effect sizes might be unsure how to gauge the relative magnitude of our findings. We report Pearson's r following Bourget and Chalmers (2014). Pearson's r is a type of correlation coefficient

that indicates the extent to which two variables vary linearly in terms of one another, where -1 is perfectly negatively related, 0 is not related, and 1 is perfectly positively related. Early guidelines suggested that an effect size using Pearson's r should be considered small in magnitude if it is about $r = .1$, medium for $r = .3$, and large for $r = .5$ (Cohen, 1988). However, these guidelines are now considered too stringent in psychology by some (Gignac & Szodorai, 2016) and new guidelines suggest $r = .11$ for small, $r = .19$ for medium, and $r = .29$ for large. Some real-world examples (from Meyer et al., 2001) may help to illustrate the practical relevance of these effect sizes: combat exposure in Vietnam and subsequent PTSD ($r = .11$); low-level lead exposure and reduced childhood IQ ($r = .12$); ibuprofen on pain reduction ($r = .14$); effects of alcohol and aggressive behavior ($r = .23$); height and weight in adults ($r = .40$); nearness to the equator and daily temperature ($r = .60$).

The following sections are organized in terms of the type of psychological trait being correlated with the Philosophical Views. Every Philosophical View (70, in total) was correlated with each psychological trait. We highly recommend that readers examine the Supplemental Materials (SM-4) for a much fuller list of correlations between views and traits.

3.3.3.1. *Demographics. Demographics*

No correlations remained significant for gender, age, relationship status, being a professor as opposed to graduate student or post-doc, place of academic affiliation, current income, and ethnicity--that is, again, after controlling for multiple comparisons.

Politics

Being more politically right leaning was associated with several views (Table 10).

3.3.3.2. *Philosophical identification. Analytic Philosophy*

Several views were associated with identifying within the Analytic tradition in philosophy as opposed to other traditions such as Continental (Table 11).

Table 10. Correlations between Philosophical Views and Right-leaning Political Orientations.

Philosophical View	r	Unadjusted p value	Bonferroni Adjusted p value
Politics: Libertarian	.36	<.001	<.001**
God: Theism	.32	<.001	<.001**
Free will: Libertarian	.30	<.001	<.001**
Mind: Nonphysicalism	.29	<.001	<.001**
Truth: Correspondence	.20	<.001	.026*
God: Atheism	-.30	<.001	<.001**
Politics: Egalitarianism	-.26	<.001	<.001**
Mind: Physicalism	-.22	<.001	.005**
Logic: Non-Classical	-.21	<.001	.011*

These findings remain significant after Bonferroni correction (70 comparisons specified). * $p < .05$. ** $p < .01$.

Table 11. Correlations between Philosophical Views and the Analytic Philosophical Tradition.

Philosophical View	<i>r</i>	Unadjusted <i>p</i> value	Bonferroni Adjusted <i>p</i> value
Truth: Correspondence	.26	<.001	<.001**
External World: Realism	.24	<.001	.002**
Knowledge Claims: Invariantism	.23	<.001	.002**
Trolley: Switch	.23	<.001	.003**
Science: Scientific Realism	.22	<.001	.004**
External World: Idealism	-.25	<.001	.001**
Knowledge Claims: Contextualism	-.19	.001	.048*

These findings remain significant after Bonferroni correction (70 comparisons specified). **p* < .05. ***p* < .01.

3.3.3.3. *Psychological traits. Personality*

The Five Factor Model of personality includes, Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (OCEAN). However, none of these findings remained significant after correcting for multiple comparisons.

Numeracy

Numeracy decomposes into two factors, Numeric Comprehension and Numeric Interest. In terms of Numeric Comprehension, no views were significant after controlling for multiple comparisons. For Numeric Interest, several correlations remained significant (Table 12).

Cognitive Reflection Task

The only view that remained significantly correlated with performance on the Cognitive Reflection Test (CRT) was Truth: Correspondence (Table 13).

Mental Health: Depression and Anxiety, Loneliness, and Narcissism

The only view that remained significantly correlated with negative mental health status was Free Will: No Free Will (Table 14). No views remained significantly correlated with Loneliness or Narcissism after correcting for multiple comparisons.

Well-being: Life Satisfaction, Happiness, Positive/Negative Emotion

Table 12. Correlations between Philosophical Views and Numerical Interest.

Philosophical View	<i>r</i>	Unadjusted <i>p</i> value	Bonferroni Adjusted <i>p</i> value
Truth: Correspondence	.28	<.001	<.001**
Science: Scientific Realism	.23	<.001	.003**
Normative Ethics: Consequentialism	.22	<.001	.011*
Mind: Physicalism	.20	<.001	.022*
External World: Realism	.20	<.001	.024*
Normative Ethics: Virtue	-.25	<.001	.001**
Science: Anti-Scientific Realism	-.24	<.001	.002**
Politics: Communitarianism	-.19	.001	.047*

These findings remain significant after Bonferroni correction (70 comparisons specified). **p* < .05. ***p* < .01.

Table 13. Correlations between Philosophical Views and the Cognitive Reflection Test.

Philosophical View	<i>r</i>	Unadjusted <i>p</i> value	Bonferroni Adjusted <i>p</i> value
Truth: Correspondence	.25	<.001	.001**

These findings remain significant after Bonferroni correction (70 comparisons specified). **p* < .05. ***p* < .01.

Table 14. Correlations between Philosophical Views and the Patient Health Questionnaire (Anxiety/Depression).

Philosophical View	<i>r</i>	Unadjusted <i>p</i> value	Bonferroni Adjusted <i>p</i> value
Free Will: No Free Will	.21	<.001	.011*

These findings remain significant after Bonferroni correction (70 comparisons specified). **p* < .05. ***p* < .01.

The only view that remained significantly correlated with Life Satisfaction (negatively) was Free Will: No Free Will (Table 15). No views remained significantly correlated with Happiness, Positive Emotion, or Negative Emotion after correcting for multiple comparisons.

Lifestyle: Exercise, Meditation

Neither exercise nor meditation were associated with any views after correcting for multiple comparisons.

Varieties of Experiences: Transformative, Transcendent, and Religious

A few views were related to various life experiences, particularly related to Transformative Experience (Table 16), Self-Transcendent Experience of Self-Loss (Table 17), Self-Transcendent Experience of Unity (Table 18), and Religious Experience (Table 19).

Psychoactive Substances: Psychedelics, Marijuana, and Alcohol

Table 15. Correlations between Philosophical Views and Life Satisfaction.

Philosophical View	<i>r</i>	Unadjusted <i>p</i> value	Bonferroni Adjusted <i>p</i> value
Free Will: No Free Will	-.24	<.001	.002**

These findings remain significant after Bonferroni correction (70 comparisons specified). **p* < .05. ***p* < .01.

Table 16. Correlations between Philosophical Views and Transformative Experience.

Philosophical View	<i>r</i>	Unadjusted <i>p</i> value	Bonferroni Adjusted <i>p</i> value
God: Atheism	-.25	<.001	.001**

These findings remain significant after Bonferroni correction (70 comparisons specified). **p* < .05. ***p* < .01.

Table 17. Correlations between Philosophical Views and Self-Transcendent Experience–Self-Loss.

Philosophical View	<i>r</i>	Unadjusted <i>p</i> value	Bonferroni Adjusted <i>p</i> value
Logic: Non-Classical	.21	<.001	.013*

These findings remain significant after Bonferroni correction (70 comparisons specified). **p* < .05. ***p* < .01.

Table 18. Correlations between Philosophical Views and Self-Transcendent Experience–Unity.

Philosophical View	<i>r</i>	Unadjusted <i>p</i> value	Bonferroni Adjusted <i>p</i> value
God: Theism	.22	<.001	.007**
God: Atheism	-.25	<.001	<.001**
External World: Realism	-.20	<.001	.020*

These findings remain significant after Bonferroni correction (70 comparisons specified). **p* < .05. ***p* < .01.

Table 19. Correlations between Philosophical Views and Religious Experience.

Philosophical View	<i>r</i>	Unadjusted <i>p</i> value	Bonferroni Adjusted <i>p</i> value
God: Theism	.63	<.001	<.001**
Mind: Nonphysicalism	.38	<.001	<.001**
Free Will: Libertarianism	.38	<.001	<.001**
Metaphilosophy: Non-Naturalism	.27	<.001	<.001**
Normative Ethics: Virtue	.22	<.001	.012*
Abstract Objects: Platonism	.21	<.001	.011*
Meta-Ethics: Moral Realism	.21	<.001	.012*
Knowledge: Rationalism	.20	<.001	.028*
God: Atheism	-.63	<.001	<.001**
Mind: Physicalism	-.45	<.001	<.001**
Metaphilosophy: Naturalism	-.32	<.001	<.001**
Abstract Objects: Nominalism	-.27	<.001	<.001**
Free Will: Compatibilism	-.26	<.001	<.001**
Meta-Ethics: Anti-Moral Realism	-.26	<.001	<.001**
Normative Ethics: Consequentialism	-.21	<.001	.020*
Mental Content: Externalism	-.21	<.001	.012*
Knowledge: Empiricism	-.20	<.001	.020*

These findings remain significant after Bonferroni correction (70 comparisons specified). **p* < .05. ***p* < .01.

Table 20. Correlations between Philosophical Views and Marijuana Use.

Philosophical View	<i>r</i>	Unadjusted <i>p</i> value	Bonferroni Adjusted <i>p</i> value
Laws of Nature: Humean	.27	<.001	<.001**
Aesthetic Value: Subjective	.22	<.001	.010*
Aesthetic Value: Objective	-.25	<.001	.001**
Laws of Nature: Non-Humean	-.23	<.001	.004**

These findings remain significant after Bonferroni correction (70 comparisons specified). **p* < .05. ***p* < .01.

Table 21. Correlations between Philosophical Views and Psychedelic Use.

Philosophical View	<i>r</i>	Unadjusted <i>p</i> value	Bonferroni Adjusted <i>p</i> value
Aesthetic Value: Objective	-.22	<.001	.007**
Meta-Ethics: Moral Realism	-.21	<.001	.012*

These findings remain significant after Bonferroni correction (70 comparisons specified). **p* < .05. ***p* < .01.

Alcohol was not associated with any views after correcting for multiple comparisons. Some views were associated with use of Marijuana (Table 20) and Psychedelics (Table 21).

Meta Psychology of Philosophy: Temperament, Life Experience, and Value

After correcting for multiple comparisons, no Philosophical Views were associated with the notion that temperament has an important impact on one's philosophical views. Theism was associated with the view that life experiences play an important role in one's philosophical views (Table 22).

Table 22. Correlations between Philosophical Views and Believing Life Experiences Impact Philosophy.

Philosophical View	<i>r</i>	Unadjusted <i>p</i> value	Bonferroni Adjusted <i>p</i> value
God: Theism	.19	.001	.042*
God: Atheism	-.21	<.001	.011*
Zombies: Conceivable but not Possible	-.20	<.001	.021*

These findings remain significant after Bonferroni correction (70 comparisons specified). **p* < .05. ***p* < .01.

Table 23. Correlations between Philosophical Views and Supporting More Public Education of Philosophy.

Philosophical View	<i>r</i>	Unadjusted <i>p</i> value	Bonferroni Adjusted <i>p</i> value
Knowledge Claims: Contextualism	.192	.001	.046*

These findings remain significant after Bonferroni correction (70 comparisons specified). * $p < .05$. ** $p < .01$.

Contextualism about Knowledge Claims was associated with supporting more public education about philosophy (Table 23). Naturalism was associated with the notion that surveys such as ours have philosophical value (Table 24). Our primary interest in this last question was in regards to its frequency of endorsement, as it pertains to the value of our survey itself (Figure 3).

3.3.4. Translations

Each of the translations of the original Philosophical Views into non-technical language remained highly significant when compared to the corresponding original technical view, even after controlling for multiple comparisons. However, correlation strength is a better indicator of convergent validity. Therefore, we adopted the arbitrary threshold of a Pearson's

Table 24. Correlations between Philosophical Views and the Philosophical Value of Knowing Whether Temperament and Life Experiences Impact Philosophical Views.

Philosophical View	<i>r</i>	Unadjusted <i>p</i> value	Bonferroni Adjusted <i>p</i> value
Metaphilosophy: Naturalism	.20	<.001	.020*
Metaphilosophy: Non-Naturalism	-.19	.001	.045*

These findings remain significant after Bonferroni correction (70 comparisons specified). * $p < .05$. ** $p < .01$.

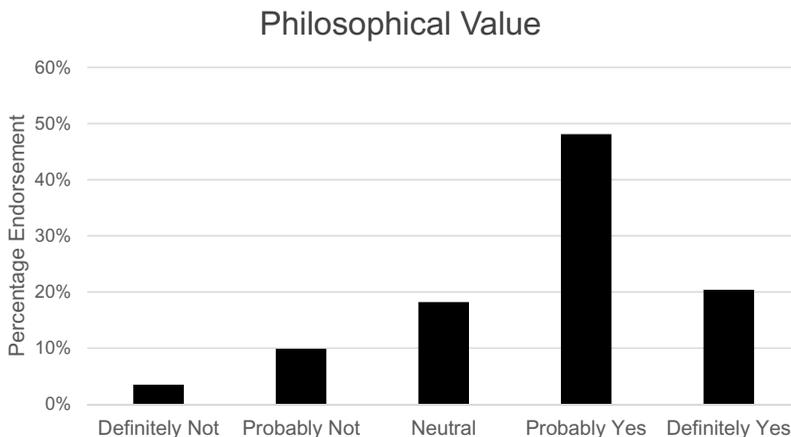


Figure 3. Philosophical value of knowing impact of temperament and life experiences on philosophical views. responses to the question, “Do you believe that anything of *philosophical* value could result from knowing that certain dispositions or life experiences are strongly associated with certain philosophical views?”.

r of $>.5$ in order to consider a translation successful (see Supplemental Materials for the frequencies of endorsing the translations: SM-2; see SM-3 for correlations between the original Bourget and Chalmers (2014) Philosophical Views items and their translations). We hope that these items can be used in additional psychological research and public education of philosophy initiatives. The correlation between the technical and non-technical ways of expressing these philosophical views, in a sample of professional Philosophers, represents a first step in validating these items and they may be used to help validate other measures of philosophical views.

4. Discussion

This survey resulted in similar descriptive findings to the PhilPapers Survey (Bourget & Chalmers, 2014). In the majority of the cases in the present survey, the frequencies of philosophers endorsing various views is within a few percentage points of the Philpapers Survey, the correlations between philosophical views were quite similar, and all of the directions of correlation were identical to the Philpapers Survey. The following sections discuss the results of the hypotheses, the exploratory analyses, and the potential philosophical implications of the findings.

4.1. Discussion of analysis of hypotheses

In general, we found quite limited support for our hypotheses regarding the tender-minded and tough-minded types described by James, *as we conceptualized and operationalized the distinction here*. We found that those who endorse God: Theism were more Agreeable, as has been found to be the case in the normal population (Saroglou, 2002). We also found that the Anti-Naturalism factor was related to less Numeric Interest, though it is not clear how directly this measure relates to more analytical versus intuitive forms of thinking. Indeed, the strength of the association between interest in numerical information and a number of philosophical views is puzzling in a few cases, and is worthy of further study.

Offering some support of James's distinction, we note that of the philosophical views that we measured that were mentioned in the tender/tough minded distinction – Knowledge: Rationalism, Freewill: Libertarian, and God: Theism on the one side, and Knowledge: Empiricism, non-libertarian notions of free-will, and Theism: Atheism on the other side were themselves inversely correlated. But only marginal support was found for the relationships between these clusters of philosophical views and the particular psychological traits that we measured. In addition to Agreeableness correlating with God: Theism, Free Will: No Free Will (hard determinism) was associated with lower Life Satisfaction and higher Depression/Anxiety,

although this was in the exploratory analysis. Taken together, this combination of findings could perhaps be seen to constitute some degree of “tender-mindedness.” Therefore, while our particular operationalizations relying on the Anti-Naturalism factor were largely not supported, James’s notion of the tough-minded and tender-minded types remains a live hypothesis—although certainly in a much more minimal way than we initially supposed.

We also found that the Normative Ethical view of Consequentialism is associated with more Numerical Interest, which comports well with the history of and some common intuitions surrounding consequentialism. However, we reiterate that we did *not* find evidence to support many of our other hypotheses. In particular, the Anti-Naturalism factor was largely unrelated to personality, well-being, and performance on the CRT in this sample of professional philosophers. We acknowledge here the complexities that arise from drawing evidence from a null finding; absence of evidence is not evidence of absence in the null hypothesis testing paradigm.

4.2. Discussion of exploratory findings

First and foremost, perhaps most notable is what we did *not* find in this study. Age, gender, relationship status, income, ethnicity, professional status yielded no significant findings—as might be predicted by Knobe (2019; in press). We did *not* find evidence for the impact of personality on one’s philosophical views, either, contrary observations reported in related work (Feltz & Cokely, 2009; Holtzman, 2013). We acknowledge that we may have been too strict in our correction of multiple comparisons, which is why we provide both the uncorrected and corrected p values in the results as well as a much more complete list of correlations in the supplemental materials (SM-4).

In terms of other psychological traits and philosophical views, there were a number of findings. Rather than the distinction of James’s philosophical types, we found more evidence related to some of other of James’s work, like his thoughts on free will. James famously wrote that his “first act of free will shall be to believe in free will” (Perry, 1935, p. 323) and that this leap helped him to resolve long-standing feelings of depression. We found some support for this anecdotal characterization, as believing in hard determinism was related to higher levels of depression/anxiety and it was the sole predictor of lower levels of well-being. A relationship between determinism and low levels of well-being has also been found in the normal population (Crescioni et al., 2016). It may be the case that some philosophical views tend to be psychologically active in terms of mental health and could, in some cases, constitute a motivation for or against holding a given belief.

Some of our findings seem less related to James’s views on temperament and more related to his thinking in *The Varieties of Religious Experience*

(1902). Among our strongest findings were those involving correlations between having had a religious experience and holding theistic beliefs. While there is no doubt a degree of tautology between “religious experience”—which could also connote religious belief—and religiosity, the argument from experience may nonetheless hold a justificatory role for some theistic views. Self-transcendent experiences involving unity (e.g., Yaden et al., 2017a), which make no mention anything religious or spiritual, were also related to views such as theism and idealism. Theism was also associated with Transformative Experiences (i.e., Paul, 2014), which likewise makes no mention of any supernatural content.

Related varieties of experiences have been shown to increase religious/spiritual beliefs in the normal population. For example, the emotion of awe, which can be an intense emotional experience involving a felt sense of unity, has been shown to increase religious and spiritual beliefs as well as agency detection in general (Valdesolo & Graham, 2014). Gallup polls (Gallup Organization, 2003) also show that having a religious affiliation is associated with higher rates (41%) of having had a religious or mystical experience than those reporting such experiences who have no religious affiliation (25%).

We also found that the use of psychoactive substances such as psychedelics and marijuana may relate to non-realism regarding aesthetics and morality, which may have implications for the recreational and therapeutic use of such substances (Yaden & Anderson, [under review](#)). Such findings could fit broadly within the emerging field of experimental philosophical bioethics (Earp et al., 2020). Of course, as with each of these findings, causation cannot be inferred from these correlational findings. Some emerging evidence suggests that psychedelic experiences are associated with philosophically relevant beliefs in the normal population, though generally having to do with a perceived spiritual significance (Griffiths et al., 2011; Griffiths, Hurwitz, Davis, Johnson, & Jesse, 2019; Yaden et al., 2017b). Measures having to do with aesthetics and moral realism, or indeed any technical philosophical views, have not yet been administered in studies involving the administration of psychedelic substances—although the present results suggest a potentially fertile area at the intersection of philosophy and psychopharmacology.

Interest in numeracy was associated with a number of philosophical views, such as realism, physicalism, consequentialism, and correspondence theories of truth. Again, the direction of causality here is not known. It could be that these are philosophical views that prioritize empirical data such that an interest in numeracy is almost entailed by endorsing the view. However, it could also be the case that those who value numerical information are drawn to this particular set of philosophical views. Lastly, the only result predicted by performance on the CRT was endorsement of correspondence theories of truth, about which we have no particular interpretation to suggest.

4.3. *Philosophical implications*

The question of what philosophical implications, if any, these results might have remains. Empirically, we found that the overwhelming majority of our sample (~68%) *did* think that empirical evidence about the relationship between psychological factors and philosophical views would have philosophical value. Undoubtedly, the potential implications turn on many unanswered questions about the relationships between psychological variables and philosophical beliefs. The potential philosophical implications thus serve to frame a future empirical research program as well as a philosophical discussion.

To the extent that reliable causal patterns emerge between philosophical beliefs and other psychological factors, we are presented with the opportunity to study the structure of belief in a way that is elided by typical discussions in the philosophy of mind. Epistemically significant mental states such as beliefs and credences are typically characterized in terms of their contents and/or their functional roles in rational inference. Relatively little attention has been paid to connections between philosophical beliefs/views and personality, mental health, life experiences, psychopharmacology, or other psychological variables. The present study suggests that there may be important relationships between philosophical beliefs and various psychological traits. These findings therefore could raise doubts about the adequacy of a purely rationalistic conception of belief.

It is also possible that certain psychological states provide evidence for philosophical positions. Perhaps, for example, some features of depression might (seem to) provide evidence for a lack of free will. Or perhaps experiences with some mind-altering substances (seem to) provide evidence related to objective esthetic value. These possibilities suggest empirical lines of research into the ways in which individuals understand or consciously perceive the evidential relationships between their psychological states and their philosophical views.

We have thus far been focused on the possibility that psychological variables causally prefigure philosophical belief. Philosophical beliefs could also causally prefigure psychological variables. For example, as mentioned above, a belief in hard determinism is correlated with depression. It may be that belief in hard determinism causally predisposes an individual to become depressed. More generally, there may be reliable causal relationships between philosophical views and psychological traits. If this is the case, then the present findings suggest an empirical research program into the pragmatic effects of philosophical beliefs (e.g., James, 1907/2003). What are the psychological consequences of holding various philosophical views?

Turning next to the epistemological dimensions of the present study, a significant amount of work in the experimental philosophy literature has

been devoted to answering the question of whether our rational faculties are impacted by extraneous factors in ways that call our conclusions into doubt. The present findings are interpretable along these lines (see Holtzman, 2013 for a discussion). Here again the implications depend on answering further questions about causal relationships, but many possibilities suggest themselves and all of them could potentially be mustered as premises in epistemological arguments.

One might ask whether the predictability of one's philosophical views on the basis of one's psychological traits casts some doubt on the reliability of one's belief forming mechanisms. Borrowing from work on religious beliefs, scientific evidence has been conceptualized as being either *debunking* (Wilkins and Griffiths, 2012), *justifying* (Clark and Barrett, 2011), or *irrelevant* (Thurow, 2013) to a given philosophical view. Thus, knowing the nature of a psychological trait and features of its relationship with various philosophical views could be seen as undermining, vindicating, or irrelevant to one's own views.

In the present study, we focused on philosophical views, not merely intuitions from thought experiments, which differentiates it from nearly all of the extant work in experimental philosophy. Furthermore, our significant findings extend beyond personality to include a number of psychological traits, including an interest in numeracy, well-being, mental health, life experiences, and even the use of psychoactive substances. These new aspects suggest that Feltz and Cokely (2012) "Philosophical Personality Argument" should be amended by expanding it to encompass other psychological traits beyond personality. We call this expanded version the *Psychology of Philosophy Argument*, which argues that some of one's philosophical views may be a function of some of one's psychological traits to some extent--and/or vice-versa. In cases where this is true, further study is warranted to determine whether the causal direction can be ascertained or if some additional variable is responsible for the correlation.

Another possibility is that psychological findings of the kind presented here have *no* epistemological significance for our philosophical beliefs. As White (2010) points out, the mere fact that we can identify reliable causal antecedents to the belief that P does not necessarily bear on our assessment of whether we should believe P. We agree that a reliance on philosophical methods is inevitable and desirable. Philosophical methods provide our best and most defensible means of answering philosophical questions. Nevertheless, we are hopeful that research into the psychology of philosophy can augment our understanding of philosophical methods and, perhaps more importantly, that it can reveal ways in which psychological variables affect how individual philosophers create, use, and participate in philosophical methods.

4.4. *Limitations*

This study was limited in a number of ways. Our sample was constrained by the number of responses that we received to our emailed invitation to philosophy faculty. A larger sample would have been more ideal. Additionally, the exploratory nature of our study encouraged us to include a number of psychological measures, which, combined with the thirty philosophical views that decomposed into seventy variables, resulted in a large number of comparisons. For this reason, we show both uncorrected p-values as well as p-values strictly corrected for multiple comparisons using the Bonferroni method. We acknowledge that some will find the uncorrected significance levels too lax, while others will find the corrected p-values as too strict, so we provided both for the purpose of transparency. We suspect that the Supplemental Materials will be of primary interest to most readers for this reason.

There is also reason for concern about which philosophers chose to participate in this study. Philosophers with an interest in empiricism would probably be more likely to participate in an empirical study. Future research could consider how to account for this participation bias. Additionally, some philosophers may have known the answers from the CRT from previous exposure and future research using this measure should account for this.⁷

We believe there may also be a confound concerning a possible distinction between what a philosopher personally believes and the views they professionally accept. Given the norms of the discipline, philosophers are expected to be able to defend whatever views they accept, but it is possible for a philosopher to have personal beliefs that they cannot adequately defend, and so disavow within their professional life. And while it is widely presupposed that philosophers personally believe the views they publicly defend, there is room for the possibility that a professional philosopher might develop or defend a view for which they feel no personal conviction. Insofar as this disconnect is possible, there is also an attendant possibility that different participants approached the Philosophy of Psychology survey differently: some may have answered according to personal conviction while others may have answered according to the views they “officially” endorse. Likewise, it is possible that psychological factors have a stronger influence in one domain or another, e.g., it could be that personality influences one’s personal convictions but not one’s professionally considered views. In future research, we intend to investigate whether and to what extent views are held personally as opposed to defended professionally. Additionally, and somewhat relatedly, we intend to investigate whether psychological traits are related to the questions that philosophers choose

to focus on professionally (rather than one's particular views *within* such questions).

A number of decisions made throughout the foregoing analyses stem from the precedent set by Bourget and Chalmers (2014). In order to better make direct comparisons with the 2014 Bourget and Chalmers article, we conducted parametric comparisons (using Pearson's r). Another issue arose due to the coding of 'Other' responses. While it makes sense that concepts on the opposite poles of particular items (e.g., *A Priori: Yes* and *A Priori: No*) should be perfectly inversely correlated with one another, the details of the Bourget and Chalmers (2014) coding scheme make this often not exactly the case. Issues with the coding scheme should be corrected in future studies. In general, while we followed precedent set by Bourget and Chalmers (2014) as closely as possible across a number of decisions in order to closely complement their study, future research should likely break with this precedent in order to improve on the psychometric measurement of philosophical views.

4.5. Future directions

An important next step in this line of research is to determine whether our findings replicate in additional studies of professional philosophers. As large-scale surveys of the field of philosophy are relatively rare, we hope that some of our findings can be added to future surveys in order to determine whether they are reliable. Additionally, it is important to move beyond cross-sectional, correlational studies and conduct experimental, longitudinal, and prospective studies.

The current findings can also be examined in the normal population using the non-technical translations that we created as part of this study. We are interested in whether these patterns hold or differ in the normal population and across cultures. We are also interested in surveying other academic fields (e.g., law, medicine, neuroscience) using these non-technical translations of philosophical views. These non-technical translations may also be helpful in efforts to educate the public in contemporary issues in philosophy.

In general, the findings of the present study may influence the degrees of credence one is willing to grant to a particular view. Whether such findings add or detract from one's level of confidence regarding various views might depend on the particular psychological trait and the particular philosophical view. The dynamics of this process of belief development and on-going evaluation, or the "genealogy of philosophical views," are a topic for further empirical research.

5. Conclusion

The fact that philosophical views are, in some cases, correlated with psychological factors does not necessarily help us decide the question of their truth. We acknowledge that the epistemic significance of a psychology of philosophy cannot be neatly separated from philosophical discourses themselves. Yet the findings in this study do require some explanation and may support a new topic for philosophical analysis and study in psychology as well as experimental philosophy.

Given our results, it seems that James went too far when he claimed, in regards to the relationship between temperament and philosophical views, that the “*potentest* of all our premises is never mentioned” [emphasis added] (James, 1907/2003, p. 3). James’s statement about the history of philosophy being a clash of temperaments is likewise not supported by these data. It does, however, seem likely that *some* psychological factors play *some* role in determining *some* of the philosophical views that one holds—and/or vice-versa.

Better characterizing and understanding the significance of the relationships between one’s psychological traits and one’s philosophical beliefs is a project requiring additional scientific research and further philosophical analysis. A psychology of philosophy may, we hope, help to illuminate the genealogy of philosophical views, inform our doxastic practices, elucidate the effects of certain psychological traits and salient experiences on our beliefs, reveal the effects of certain beliefs on our lives, and, in general, consist of a new empirical component of the ancient philosophical imperative to “know thyself.”

Notes

1. In studying the relationship between psychology and philosophy, one might hope for an analysis of what it is for a view to count as philosophical; however, we have no such analysis to offer. Our approach, following Bourget and Chalmers (2014), is to focus on questions and views that have been historically regarded as properly philosophical.
2. Special thanks to the Society for Philosophy and Psychology Conference, Jeremy Evans, and attendees of a focus group at the University of Pennsylvania.
3. Special thanks to Paul Bloom for the suggestion.
4. Special thanks to Jon Baron for the suggestion.
5. Special thanks to Barbara Mellers for the suggestion.
6. Special thanks to L. A. Paul.
7. Thanks Nick Byrd for pointing out this limitation.

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No potential conflict of interest was reported by the author(s).

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References

- Adleberg, T., Thompson, M., & Nahmias, E. (2015). Do men and women have different philosophical intuitions? Further data. *Philosophical Psychology*, 28(5), 615–641. <https://doi.org/10.1080/09515089.2013.878834>
- Bartels, D. M., & Pizarro, D. A. (2011). The mismeasure of morals: Antisocial personality traits predict utilitarian responses to moral dilemmas. *Cognition*, 121(1), 154–161. <https://doi.org/10.1016/j.cognition.2011.05.010>
- Bjørnskov, C. (2010). How comparable are the Gallup world poll life satisfaction data? *Journal of Happiness Studies*, 11(1), 41–60. <https://doi.org/10.1007/s10902-008-9121-6>
- Bourget, D., & Chalmers, D. J. (2014). What do philosophers believe? *Philosophical Studies*, 170(3), 465–500. <https://doi.org/10.1007/s11098-013-0259-7>
- Byrd, N. (2014). *Intuitive and reflective responses in philosophy*. University of Colorado.
- Byrd, N. (Revisions Requested). All measures are not created equal: Reflection test, think aloud, and process dissociation protocols.

- Byrd, N. (2021). Great minds do not think alike: Philosophers' Views Predicted by Reflection, Education, Personality, and Other Demographic Differences. *Review of Philosophy and Psychology*. <https://doi.org/10.1007/s13164-022-00628-y>
- Byrd, N., & Conway, P. (2019). Not all who ponder count costs: Arithmetic reflection predicts utilitarian tendencies, but logical reflection predicts both deontological and utilitarian tendencies. *Cognition*, 192. <https://doi.org/10.1016/j.cognition.2019.06.007>
- Byrd, N., Gongora, G., Joseph, B., & Sirota, M. (Under review). Tell us what you really think: A think aloud protocol analysis of the verbal cognitive reflection test.
- Clark, K. J., & Barrett, J. L. (2011). Reidian religious epistemology and the cognitive science of religion. *Journal of the American academy of religion*, 79(3), 639–675
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Erlbaum.
- Crescioni, A. W., Baumeister, R. F., Ainsworth, S. E., Ent, M., & Lambert, N. M. (2016). Subjective correlates and consequences of belief in free will. *Philosophical Psychology*, 29(1), 41–63. <https://doi.org/10.1080/09515089.2014.996285>
- Earp, B. D., Demaree-Cotton, J., Dunn, M., Dranseika, V., Everett, J. A., Feltz, A., Hannikainen, I. R., Jansen, L. A., Knobe, J., Kolak, J., Latham, S., Lerner, A., May, J., Mercurio, M., Mihailov, E., Rodríguez-Arias, D., Rodríguez López, B., Savulescu, J., Sheehan, M., Tobia, K., & Geller, G. (2020). Experimental philosophical bioethics. *AJOB Empirical Bioethics*, 11(1), 30–33. <https://doi.org/10.1080/23294515.2020.1714792>
- Fagerlin, A., Zikmund-Fisher, B. J., Ubel, P. A., Jankovic, A., Derry, H. A., & Smith, D. M. (2007). Measuring numeracy without a math test: Development of the subjective numeracy scale. *Medical Decision Making*, 27(5), 672–680. <https://doi.org/10.1177/0272989X07304449>
- Feltz, A., & Cokely, E. T. (2009). Do judgments about freedom and responsibility depend on who you are? Personality differences in intuitions about compatibilism and incompatibilism. *Consciousness and Cognition*, 18(1), 342–350. <https://doi.org/10.1016/j.concog.2008.08.001>
- Feltz, A., & Cokely, E. T. (2012). The philosophical personality argument. *Philosophical Studies*, 161(2), 227–246. <https://doi.org/10.1007/s11098-011-9731-4>
- Frederick, S. (2005). Cognitive reflection and decision making. *Journal of Economic Perspectives*, 19(4), 25–42. <https://doi.org/10.1257/089533005775196732>
- Gallup Organization. (2003). *Religious awakenings bolster Americans' faith*. Available from: <https://news.gallup.com/poll/7582/religious-awakenings-bolster-americans-faith.aspx>
- Gignac, G. E., & Szodorai, E. T. (2016). Effect size guidelines for individual differences researchers. *Personality and Individual Differences*, 102, 74–78. <https://doi.org/10.1016/j.paid.2016.06.069>
- Greene, J. D., Sommerville, R. B., Nystrom, L. E., Darley, J. M., & Cohen, J. D. (2001). An fMRI investigation of emotional engagement in moral judgment. *Science*, 293(5537), 2105–2108. <https://doi.org/10.1126/science.1062872>
- Griffiths, R. R., Hurwitz, E. S., Davis, A. K., Johnson, M. W., & Jesse, R. (2019). Survey of subjective “God encounter experiences”: Comparisons among naturally occurring experiences and those occasioned by the classic psychedelics psilocybin, LSD, ayahuasca, or DMT. *PloS one*, 14(4), e0214377
- Griffiths, R. R., Johnson, M. W., Richards, W. A., Richards, B. D., McCann, U., & Jesse, R. (2011). Psilocybin occasioned mystical-type experiences: Immediate and persisting dose-related effects. *Psychopharmacology*, 218(4), 649–665. <https://doi.org/10.1007/s00213-011-2358-5>
- Hackney, C. H., & Sanders, G. S. (2003). Religiosity and mental health: A meta-analysis of recent studies. *Journal for the Scientific Study of Religion*, 42(1), 43–55. <https://doi.org/10.1111/1468-5906.t01-1-00160>

- Holtzman, G. (2013). Do personality effects mean philosophy is intrinsically subjective? *Journal of Consciousness Studies*, 20(5–6), 27–42.
- Hughes, M. E., Waite, L. J., Hawkey, L. C., & Cacioppo, J. T. (2004). A short scale for measuring loneliness in large surveys: Results from two population-based studies. *Research on Aging*, 26(6), 655–672. <https://doi.org/10.1177/0164027504268574>
- James, W. (1907/2003). *Pragmatism: A new name for some old ways of thinking*. Barnes & Noble.
- Kahane, G., Everett, J. A., Earp, B. D., Farias, M., & Savulescu, J. (2015). ‘Utilitarian’ judgments in sacrificial moral dilemmas do not reflect impartial concern for the greater good. *Cognition*, 134, 193–209. <https://doi.org/10.1016/j.cognition.2014.10.005>
- Kahneman, D., & Deaton, A. (2010). High income improves evaluation of life but not emotional well-being. *Proceedings of the National Academy of Sciences*, 107(38), 16489–16493. <https://doi.org/10.1073/pnas.1011492107>
- Kim, M., & Yuan, Y. (2015). No cross-cultural differences in the Gettier car case intuition: A replication study of Weinberg et al. 2001. *Episteme*, 12(3), 355–361. <https://doi.org/10.1017/epi.2015.17>
- Knobe, J. (2019). Philosophical intuitions are surprisingly robust across demographic differences. *Epistemology & Philosophy of Science*, 56(2), 29–36. <https://doi.org/10.5840/eps201956225>
- Knobe, J., Buckwalter, W., Nichols, S., Robbins, P., Sarkissian, H., & Sommers, T. (2012). Experimental philosophy. *Annual Review of Psychology*, 63(1), 81–99. <https://doi.org/10.1146/annurev-psych-120710-100350>
- Konrath, S., Meier, B. P., Bushman, B. J., & Wicherts, J. M. (2014). Development and validation of the single item narcissism scale (SINS). *PLOS One*, 9(8), e103469. <https://doi.org/10.1371/journal.pone.0103469>
- Livengood, J., Sytma, J., Feltz, A., Scheines, R., & Machery, E. (2010). Philosophical temperament. *Philosophical Psychology*, 23(3), 313–330. <https://doi.org/10.1080/09515089.2010.490941>
- Löwe, B., Wahl, I., Rose, M., Spitzer, C., Glaesmer, H., Wingenfeld, K., Schneider, A., & Brähler, E. (2010). A 4-item measure of depression and anxiety: Validation and standardization of the patient health questionnaire-4 (PHQ-4) in the general population. *Journal of Affective Disorders*, 122(1–2), 86–95. <https://doi.org/10.1016/j.jad.2009.06.019>
- Machery, E., Stich, S., Rose, D., Chatterjee, A., Karasawa, K., Struchiner, N., Sirker, S., Usui, N., & Hashimoto, T. (2017). Gettier across cultures 1. *Nous*, 51(3), 645–664. <https://doi.org/10.1111/nous.12110>
- Meyer, G. J., Finn, S. E., Eyde, L. D., Kay, G. G., Moreland, K. L., Dies, R. R., Eisman, E. J., Kubiszyn, T. W., & Reed, G. M. (2001). Psychological testing and psychological assessment: A review of evidence and issues. *American Psychologist*, 56(2), 128. <https://doi.org/10.1037/0003-066X.56.2.128>
- Nietzsche, F. W. (1886/1989). *Beyond good and evil: Prelude to a philosophy of the future*. Vintage.
- Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. *Psychological Review*, 108(2), 291. <https://doi.org/10.1037/0033-295X.108.2.291>
- Paul, L. A. (2014). *Transformative experience*. Oxford University Press.
- Perry, R. B. (1935). *The thought and character of William James* (Vol. 2). Boston, Little, Brown.
- R Core Team. (2019). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. URL <https://www.R-project.org/>

- Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the big five inventory in English and German. *Journal of Research in Personality*, 41(1), 203–212. <https://doi.org/10.1016/j.jrp.2006.02.001>
- Saroglou, V. (2002). Religion and the five factors of personality: A meta-analytic review. *Personality and Individual Differences*, 32(1), 15–25. [https://doi.org/10.1016/S0191-8869\(00\)00233-6](https://doi.org/10.1016/S0191-8869(00)00233-6)
- Schwitzgebel, E., & Rust, J. (2010). Do ethicists and political philosophers vote more often than other professors? *Review of Philosophy and Psychology*, 1(2), 189–199. <https://doi.org/10.1007/s13164-009-0011-6>
- Seyedsayamdost, H. (2015). On gender and philosophical intuition: Failure of replication and other negative results. *Philosophical Psychology*, 28(5), 642–673. <https://doi.org/10.1080/09515089.2014.893288>
- Shenhav, A., Rand, D. G., & Greene, J. D. (2012). Divine intuition: Cognitive style influences belief in God. *Journal of Experimental Psychology. General*, 141(3), 423. <https://doi.org/10.1037/a0025391>
- Stagnaro, M. N., Pennycook, G., & Rand, D. G. (2018). Performance on the cognitive reflection test is stable across time. *Judgment and Decision Making*, 13(3), 260.
- Thurrow, J. C. (2013). Does cognitive science show belief in god to be irrational? The epistemic consequences of the cognitive science of religion. *International Journal for Philosophy of Religion*, 74(1), 77–98. <https://doi.org/10.1007/s11153-011-9300-y>
- Valdesolo, P., & Graham, J. (2014). Awe, uncertainty, and agency detection. *Psychological Science*, 25(1), 170–178. <https://doi.org/10.1177/0956797613501884>
- Weinberg, J. M., Nichols, S., & Stich, S. (2001). Normativity and epistemic intuitions. *Philosophical Topics*, 29(1/2), 429–460. <https://doi.org/10.5840/philtopics2001291/217>
- White, R. (2010). You just believe that because ... *Philosophical Perspectives*, 24(1), 573–615. <https://doi.org/10.1111/j.1520-8583.2010.00204.x>
- Wilkins, J. S., & Griffiths, P. E. (2012). Evolutionary debunking arguments in three domains. *A new science of religion*, 23, 133–146
- Yaden, D. B., & Anderson, D. E. (in prep). Inferences and altered states. [Unpublished manuscript].
- Yaden, D. B., Haidt, J., Hood, R. W., Jr, Vago, D. R., & Newberg, A. B. (2017a). The varieties of self-transcendent experience. *Review of General Psychology*, 21(2), 143. <https://doi.org/10.1037/gpr0000102>
- Yaden, D. B., & Haybron, D. (in prep). The E-SAT scale: Bridging philosophical and psychological theories of emotional well-being. [Unpublished manuscript].
- Yaden, D. B., Le Nguyen, K. D., Kern, M. L., Belser, A. B., Eichstaedt, J. C., Iwry, J., Smith, M. E., Wintering, N. A., Hood, R. W., & Newberg, A. B. (2017b). Of roots and fruits: A comparison of psychedelic and nonpsychedelic mystical experiences. *Journal of Humanistic Psychology*, 57(4), 338–353. <https://doi.org/10.1177/0022167816674625>
- Knobe, J. (in press). Philosophical Intuitions Are Surprisingly Stable Across both Demographic Groups and Situations.. *Filozofia Nauki*.