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Social Epistemology
Review & Reply Collective

http://social-epistemology.com
ISSN: 2471-9560

Philosophical Sentiments Toward Scientism: A Reply to Bryant

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Mizrahi, Moti. 2021. "Philosophical Sentiments Toward Scientism: A Reply to Bryant." *Social Epistemology Review and Reply Collective* 10 (11): 19-24. https://wp.me/p1Bfg0-6h9.

SERRC
Social Epistemology
Review & Reply Collective
10 (11): 19-24. 2021.
https://wp.me/p1Bfg0-6h9

Abstract

In a reply to Mizrahi (2019), Bryant (2020) raises several methodological concerns regarding my attempt to test hypotheses about the observation that academic philosophers tend to find "scientism" threatening empirically using quantitative, corpus-based methods. Chief among her methodological concerns is that numbers of philosophical publications that mention "scientism" are a "poor proxy for scholarly sentiment" (Bryant 2020, 31). In reply, I conduct a sentiment analysis that is designed to find out whether academic philosophers have negative, positive, or neutral sentiments toward "scientism." The results of this analysis suggest that, for the most part, articles on "scientism" written by academic philosophers tend to contain mostly negative rather than positive (or neutral) sentiments about "scientism."

1. Introduction

I would like to thank Amanda Bryant for taking the time to read my "The Scientism Debate: A Battle for the Soul of Philosophy?" (2019) and write a thoughtful reply. Bryant (2020) raises several methodological concerns about my attempt to test hypotheses about the observation that academic philosophers tend to find "scientism" threatening empirically using quantitative, corpus-based methods. Chief among her methodological concerns is that numbers of philosophical publications that mention "scientism" are a "poor proxy for scholarly sentiment" (Bryant 2020, 31). As Bryant (2020, 31) puts it:

> [T]he prevalence of publications mentioning the word "scientism" is a poor measure of philosophers' level of concern regarding scientism. First, as Bishop (2019, 48) correctly points out, significantly many uses of the term could be *neutral* or *positive* (emphasis added).

In other words, without having some sense of the attitude or sentiment expressed by academic philosophers in publications that contain a discussion of "scientism," either positive or negative, we cannot be confident that occurrences of the term indicate some level of concern.

Nevertheless, Bryant (2020) hints that she might be open to an empirical investigation of the positive and/or negative sentiments or attitudes of academic philosophers toward "scientism." As Bryant (2020, 30) writes:

> An analogous research program might ask whether and why "naturalism" has *positive* or *negative associations* among philosophers. Projects of this kind are potentially interesting in their own right. Mizrahi's method seems to point in this direction, since it involves mining JSTOR for publications including the word "scientism" (emphasis added).

In this reply, then, I aim to do just that. That is, using corpus-based methods, as I did in Mizrahi (2019), I conduct a sentiment analysis that is designed to find out whether academic philosophers have negative, positive, or neutral sentiments toward "scientism." For the purpose of such an analysis, we do not need a clear and precise definition of "scientism" for, as Bryant says, we are "interested in patterns that emerge when we aggregate philosophers' individual attitudes toward the views they individually associate with the word."[1]

2. Methods

A sentiment analysis, also known as "opinion mining" (Liu 2017), "is a process of automatically extracting opinions or emotions from text, especially in user-generated textual content. Sentiment analysis is considered a classification task which classifies text into positive, negative, or neutral classes" (Kumar and Harish 2020, 1122). Of course, academic articles written by academic philosophers are user-generated textual content, too, and so they can be classified into positive, negative, or neutral classes as well. Accordingly, we can run a sentiment analysis on a random sample of philosophical texts about "scientism" to find out whether academic philosophers generally express positive or negative sentiments toward—or have positive or negative attitudes or opinions about—"scientism" in their published works. To do this, I searched through PhilPapers (https://philpapers.org) for published articles with "scientism" in the title of the article. I selected the first 30 journal articles that came up in the search results on PhilPapers. These journal articles are the following:

1. Dupré, J. 1988. "Materialism, Physicalism, and Scientism." *Philosophical Topics* 16 (1): 31-56.
2. Manicas, P. T. 1988. "Pragmatic Philosophy of Science and the Charge of Scientism." *Transactions of the Charles S. Peirce Society* 24 (2): 179-222.
3. Watkins, J. W. N. 1953. "Scientism and Society." *Ethics* 64 (1): 56-59.
4. Maffie, J. 1995. "Naturalism, Scientism and the Independence of Epistemology." *Erkenntnis* 43 (1): 1-27.
5. Stenmark, M. 1997. "What Is Scientism?" *Religious Studies* 33 (1): 15-32.
6. Woelfel, J. 2013. "Challengers of Scientism Past and Present: William James and Marilynne Robinson." *American Journal of Theology & Philosophy* 34 (2): 175-187.
7. Scruton, R. 2013. "Scientism in the Arts and Humanities." *The New Atlantis* 40: 33-46.
8. Hughes, A. L. 2012. "The Folly of Scientism." *The New Atlantis* 37: 32-50.
9. Goldfarb, W. 1989. "Wittgenstein, Mind, and Scientism." *The Journal of Philosophy* 86 (11): 635-642.
10. Broadhead, L. A., & Howard, S. 2010. "Nanotechnology and the Developing Critique of Scientism." *Science & Society* 74 (4): 553-562.
11. Code, M. 1997. "On the Poverty of Scientism, or: the Ineluctable Roughness of Rationality." Metaphilosophy 28 (1/2): 102-122.

[1] On definitions of "scientism," see Mizrahi (2017a), (2017b), (2018a), (2018b), and (2018c).

12. Werkmeister, W. H. 1959. "Scientism and the Problem of Man." *Philosophy East and West* 9 (1/2): 20-21.
13. Pigliucci, M. 2015. "Scientism and Pseudoscience: A Philosophical Commentary." *Bioethical Inquiry* 12: 569-575.
14. Fitzpatrick, S. J. 2015. "Scientism as a Social Response to the Problem of Suicide." *Bioethical Inquiry* 12: 613-622.
15. Vrahimis, A. 2018. "Aesthetics, Scientism, and Ordinary Language: A Comparison between Wittgenstein and Heidegger." *Proceedings of the European Society for Aesthetics* 10: 659-684.
16. Vrahimis, A. 2020. "Scientism, Social Praxis, and Overcoming Metaphysics: A Debate between Logical Empiricism and the Frankfurt School." *HOPOS: The Journal of the International Society for the History of Philosophy of Science* 10 (2): 562-597.
17. Nixon, G. M. 2013. "Scientism, Philosophy and Brain-Based Learning." *Northwest Journal of Teacher Education* 11 (1): 113-144.
18. Haack, S. 2012. "Six Signs of Scientism." *Logos & Episteme* 3 (1): 75-95.
19. Reid, L. 2018. "Scientism in Medical Education and the Improvement of Medical Care: Opioids, Competencies, and Social Accountability." *Health Care Analysis* 26 (2): 155-170.
20. Capaldi, N. 1995. "Scientism, Deconstruction, and Nihilism. *Argumentation* 9 (4): 563-575.
21. Haack, S. 1996. "Between Scientism and Conversationalism." *Philosophy and Literature* 20 (2): 455-474.
22. Nielsen, K. 1986. "Scientism, Pragmatism, and the Fate of Philosophy." *Inquiry: An Interdisciplinary Journal of Philosophy* 29 (1-4): 277-304.
23. Perring, C. 2007. "Against Scientism, For Personhood." *American Journal of Bioethics* 7 (1): 67-68.
24. Ginev, D. 2013. "Scrutinizing Scientism from a Hermeneutic Point of View." *Social Epistemology* 27 (1): 68-89.
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27. Peels, R. 2017. "Ten Reasons to Embrace Scientism." *Studies in History and Philosophy of Science Part A* 63: 11-21.
28. Gasparatou, R. 2017. "Scientism and Scientific Thinking." *Science & Education* 26 799-812 (2017).
29. Tvrdý, F. 2016. "Anti-Scientism, Conceptual Analysis and High-End Science Journalism." *Czech and Slovak Journal of Humanities: Philosophica* 3 (1): 70-76.
30. Regelski, T. A. 1996. "Scientism in Experimental Music Research." *Philosophy of Music Education Review* 4 (1): 3-19.

In order to find out whether these articles contain mostly positive or negative sentiments toward (or opinions about) "scientism," I ran a sentiment analysis on the abstracts of these 30 articles using the Azure Machine Learning add-in in Microsoft Excel (Microsoft Office 365). Azure Machine Learning is a free analytics tool that uses Natural Language Processing (NLP) to run analyses, such as sentiment analysis, on unstructured text. The Azure Machine Learning text sentiment analysis uses the Multi-Perspective Question Answering (MPQA)

Subjectivity Lexicon (http://mpqa.cs.pitt.edu/lexicons/subj_lexicon/), which is a commonly used subjectivity lexicon in NLP. The MPQA Subjectivity Lexicon includes 5,097 negative words and 2,533 positive words with strong and weak polarity annotations. As Wilson et al. (2005, 348) explain:

> The *positive* tag is for positive emotions (*I'm happy*), evaluations (*Great idea!*), and stances (*She supports the bill*). The *negative* tag is for negative emotions (*I'm sad*), evaluations (*Bad idea!*), and stances (*She's against the bill*). […] The *neutral* tag is used for all other subjective expressions: those that express a different type of subjectivity such as speculation, and those that do not have positive or negative polarity (emphasis in original).[2]

Accordingly, the output of a sentiment analysis performed by the Azure Machine Learning algorithm includes the sentiment tags of "positive," "negative," and/or "neutral," as well as their associated scores between zero and one. A score close to zero gets a "negative" tag, a score close to one gets a "positive" tag, and a score approximately midpoint between zero and one gets a "neutral" tag.

By running a sentiment analysis on the text from the abstracts of the aforementioned 30 published articles with "scientism" in the title, we can find out whether the authors of these published articles have mostly positive, negative, or neutral sentiments toward "scientism." Since our sample of published articles with "scientism" in the title was generated randomly (that is, presumably, any published article with "scientism" in the title has had a roughly equal chance of making it into the search results on PhilPapers), we can be quite confident that the results of the sentiment analysis will be fairly representative of the sentiments of academic philosophers toward "scientism" rather generally.

3. Results

The results of the sentiment analysis are as follows. Of the 30 articles on the list in Section 2, the Azure Machine Learning algorithm tagged 21 as "negative" (70%), 5 as "positive" (17%), and 4 as "neutral" (13%). The mean score of the negative articles is 0.09 ($M = 0.09$, $SD = 0.12$, $N = 21$), the mean score of the positive articles is 0.85 ($M = 0.85$, $SD = 0.12$, $N = 5$), and the mean score of the neutral articles is 0.53 ($M = 0.53$, $SD = 0.04$, $N = 4$). See Figure 1.

[2] See also Wiebe et al. (2005) for more details on sentiment analysis in NLP and the MPQA Subjectivity Lexicon.

10 (11): 19-24. 2021.
https://wp.me/p1Bfg0-6h9

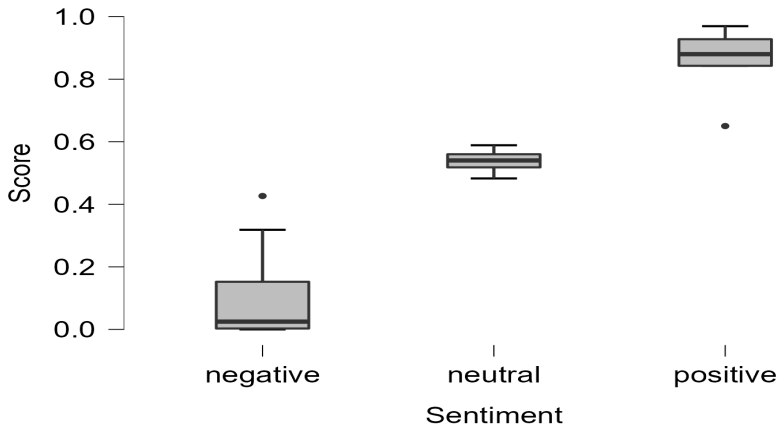

Figure 1. Classification of 30 Published Articles with "scientism" in the Title that are Written by Academic Philosophers into Negative, Positive, and Neutral Sentiment Classes Based on their Abstracts.

These results suggest that, for the most part, articles with "scientism" in the title that are written by academic philosophers tend to contain mostly negative rather than positive (or neutral) sentiments about "scientism." In other words, if we were to pick at random a journal article about "scientism" written by an academic philosopher, that article is more likely to contain negative rather than positive (or neutral) opinions about "scientism."

4. Discussion

As we have seen, the results of a sentiment analysis suggest that, for the most part, articles on "scientism" written by academic philosophers tend to contain mostly negative rather than positive (or neutral) sentiments about "scientism." This, in turn, suggests that academic philosophers are more likely than not to harbor negative sentiments against "scientism." Having negative sentiments toward something, however, does not mean that those negative sentiments are justified. That is why I set out to test hypotheses about the observation that academic philosophers tend to find "scientism" threatening empirically using quantitative, corpus-based methods in Mizrahi (2019). In other words, if academic philosophers do tend to have or express negative sentiments about "scientism," as the results of a sentiment analysis suggest, the next question is whether these negative attitudes are justified. Do academic philosophers have good reasons to fear "scientism" or find it threatening? This is a central question of a forthcoming edited collection on scientism and its perceived threat to academic philosophy (see Mizrahi 2022).

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