

***Weak Scientism* Defended Once More: A Reply to Wills**

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Bernard Wills (2018) joins Christopher Brown (2017, 2018) in criticizing my defense of *Weak Scientism* (Mizrahi 2017a, 2017b, 2018a). Unfortunately, it seems that Wills did not read my latest defense of *Weak Scientism* carefully, nor does he cite any of the other papers in my exchange with Brown. For he attributes to me the view that “other disciplines in the humanities [in addition to philosophy] do not produce knowledge” (Wills 2018, 18). Of course, this is not my view and I affirm no such thing, contrary to what Wills seems to think. I find it hard to explain how Wills could have made this mistake, given that he goes on to quote me as follows: “Scientific knowledge can be said to be qualitatively better than non-scientific knowledge insofar as such knowledge is explanatorily, instrumentally, and predictively more successful than non-scientific knowledge” (Mizrahi 2018a, 7; quoted in Wills 2018, 18). Clearly, the claim ‘Scientific knowledge is better than non-scientific knowledge’ entails that there is non-scientific knowledge. If the view I defend entails that there is non-scientific knowledge, then it cannot also be my view that “science produces knowledge and all the other things we tend to call knowledge are in fact not knowledge at all but something else” (Wills 2018, 18).

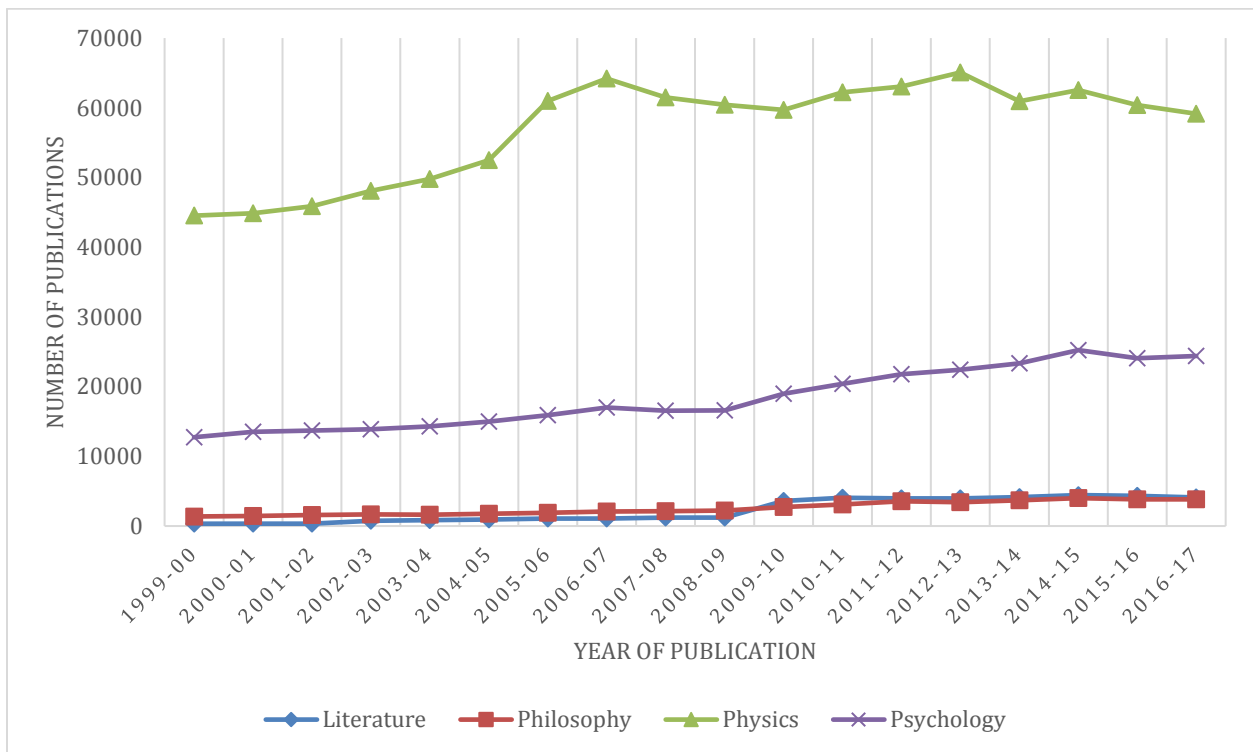
Even if he somehow missed this simple logical point, reading the other papers in my exchange with Brown should have made it clear to Wills that I do not deny the production of knowledge by non-scientific disciplines. In fact, I explicitly state that “science produces scientific knowledge, mathematics produces mathematical knowledge, philosophy produces philosophical knowledge, and so on” (Mizrahi 2017a, 353). Even in my latest reply to Brown, which is the only paper from my entire exchange with Brown that Wills cites, I explicitly state that, if *Weak Scientism* is true, then “philosophical knowledge would be inferior to scientific knowledge both quantitatively (in terms of research output and research impact) and qualitatively (in terms of explanatory, instrumental, and predictive success)” (Mizrahi 2018a, 8). If philosophical knowledge is quantitatively and qualitatively inferior to scientific knowledge, then it follows that there is philosophical knowledge. For this reason, only a rather careless reader could attribute to me the view that “other disciplines in the humanities [in addition to philosophy] do not produce knowledge” (Wills 2018, 18).

Right from the start, then, Wills gets *Weak Scientism* wrong, even though he later writes that, according to *Weak Scientism*, “there may be knowledge of some sort outside of the sciences” (Wills 2018, 18). He says that he will ignore the quantitative claim of *Weak Scientism* and focus “on the qualitative question and particularly on the claim that science produces knowledge and all the other things we tend to call knowledge are in fact not knowledge at all but something else” (Wills 2018, 18). Wills can focus on whatever he wants, of course, but that is not *Weak Scientism*. *Weak Scientism* is *not* the view that only science produces real knowledge; that is *Strong Scientism* (Mizrahi 2017a, 353). Rather, *Weak Scientism* is the view that, “Of all the knowledge we have [i.e., there is knowledge other than scientific knowledge], scientific knowledge is the *best* knowledge” (Mizrahi 2017a, 354). In other words, scientific knowledge “is *simply the best; better than all the rest*” (Mizrahi 2017b, 20). Wills’ criticism, then, misses the mark completely. That is, it cannot be a criticism against *Weak Scientism*, since *Weak Scientism*

is *not* the view that “science produces knowledge and all the other things we tend to call knowledge are in fact not knowledge at all but something else” (Wills 2018, 18).

Although he deems the quantitative superiority of scientific knowledge over non-scientific knowledge “a tangential point,” and says that he will not spend time on it, Wills (2018, 18) remarks that “A German professor once told [him] that in the first half of the 20th Century there were 40,000 monographs on Franz Kafka alone!” Presumably, Wills’ point is that research output in literature exceeds that of scientific disciplines. Instead of relying on gut feelings and hearsay, Wills should have done the required research in order to determine whether scholarly output in literature really does exceed the research output of scientific disciplines. If we look at the Scopus database, using the data and visualization tools provided by Scimago Journal & Country Rank (www.scimagojr.com), we can see that research output in a natural science like physics and a social science like psychology far exceeds research output in humanistic disciplines like literature and philosophy. On average, psychology has produced 15,000 more publications per year than either literature or philosophy between the years 1999 and 2017. Likewise, on average, physics has produced 54,000 more publications per year than either literature or philosophy between the years 1999 and 2017 (Figure 1).

Figure 1. Research output in Literature, Philosophy, Physics, and Psychology from 1999 to 2017 (Source: Scimago Journal & Country Rank)



Contrary to what Wills seems to think or what his unnamed German professor may have told him, then, it is not the case that literary scholars produce more work on Shakespeare or Kafka alone than physicists or psychologists produce. The data from the Scopus database show that, on

average, it takes literature and philosophy almost two decades to produce what psychology produces in two years or what physics produces in a single year (Mizrahi 2017a, 357-359).

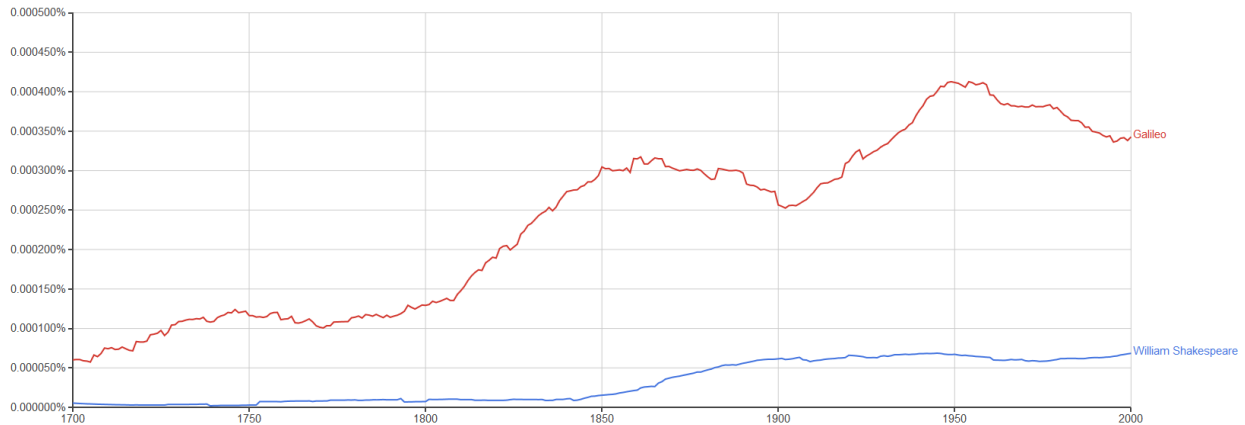
In fact, using JSTOR Data for Research (www.jstor.org/dfr), we can check Wills' number, as reported to him by an unnamed German professor, to find out that there are 13,666 publications (i.e., journal articles, books, reports, and pamphlets) on Franz Kafka from 1859 to 2018 in the JSTOR database. Clearly, that is not even close to "40,000 monographs on Franz Kafka alone" in the first half of the 20th Century (Wills 2018, 18). By comparison, as of May 22, 2018, the JSTOR database contains more publications on the Standard Model in physics and the theory of conditioning in behavioral psychology than on Franz Kafka or William Shakespeare (Table 1).

Table 1. Search results for 'Standard Model', 'Conditioning', 'William Shakespeare', and 'Franz Kafka' in the JSTOR database as a percentage of the total number of publications, n = 12,633,298 (Source: JSTOR Data for Research)

	Number of Publications	Percentage of JSTOR corpus
Standard Model	971,968	7.69%
Conditioning	121,219	0.95%
William Shakespeare	93,700	0.74%
Franz Kafka	13,667	0.1%

Similar results can be obtained from Google Books Ngram Viewer when we compare published work on Shakespeare, which Wills thinks exceeds all published work in other disciplines, for he says that "Shakespeare scholars have all of us beat" (Wills 2018, 18), with published work on a contemporary of Shakespeare (1564-1616) from another field of study, namely, Galileo (1564-1642). As we can see from Figure 2, from 1700 to 2000, 'Galileo' consistently appears in more books than 'William Shakespeare' does.

Figure 2. Google Books results for 'William Shakespeare' and 'Galileo' from 1700 to 2000 (Source: Google Books Ngram Viewer)



Wills continues to argue fallaciously when he resorts to what appears to be a fallacious *ad hominem* attack against me. He asks (rhetorically?), “Is Mr. Mizrahi producing an argument or a mere rationalization of his privilege?” (Wills 2018, 19) It is not clear to me what sort of “privilege” Wills wants to claim that I have, or why he accuses me of colonialism and sexism, since he provides no arguments for these outrageous charges. Moreover, I do not see how this is at all relevant to *Weak Scientism*. Even if I am somehow “privileged” (whatever Wills means by that), *Weak Scientism* is either true or false regardless. After all, I take it that Wills would not doubt his physician’s diagnoses just because he or she is “privileged” for working at a hospital. Whether his physician is “privileged” for working at a hospital has nothing to do with the accuracy of his or her diagnoses. For these reasons, Wills’ *ad hominem* is fallacious (as opposed to a legitimate *ad hominem* as a rebuttal to an argument from authority, see Mizrahi 2010). I think that SERRC readers will be better served if we focus on the ideas under discussion, specifically, *Weak Scientism*, not the people who discuss them.

Speaking of privilege and sexism, however, it might be worth noting that, throughout his paper, Wills refers to me as ‘Mr. Mizrahi’ (rather than ‘Dr. Mizrahi’ or simply ‘Mizrahi’, as is the norm in academic publications), and that he has misspelled my name on more than one occasion (Wills 2018, 18, 22, 24). Studies suggest that addressing female doctors with ‘Ms.’ or ‘Mrs.’ rather than ‘Dr.’ might reveal gender bias (see, e.g., Files et al. 2017). Perhaps forms of address reveal not only gender bias but also ethnic or racial bias when people with non-white or “foreign” names are addressed as Mr. (or Ms.) rather than Dr. (Erlenbusch 2018).

Aside from unsubstantiated claims about the amount of research produced by literary scholars, fallacious appeals to the alleged authority of unnamed German professors, and fallacious *ad hominem* attacks, does Wills offer any good arguments against *Weak Scientism*? He spends most of his paper (pages 19-22) trying to show that there is knowledge other than scientific knowledge, such as knowledge produced in the fields of “Law and Music Theory” (Wills 2018, 20). This, however, does nothing at all to undermine *Weak Scientism*. For, as mentioned above, *Weak Scientism* is the view that scientific knowledge is superior to non-scientific knowledge, which means that there is non-scientific knowledge; it’s just not as good as scientific knowledge (Mizrahi 2017a, 356).

Wills finally gets to *Weak Scientism* on the penultimate page of his paper. His main objection against *Weak Scientism* seems to be that it is not clear to him how scientific knowledge is supposed to be better than non-scientific knowledge. For instance, he asks, “Better in what context? By what standard of value?” (Wills 2018, 23) Earlier he also says that he is not sure what are the “certain relevant respect” in which scientific knowledge is superior to non-scientific knowledge (Wills 2018, 18). Unfortunately, this shows that Wills either has not read the other papers in my exchange with Brown or at least has not read them carefully. For, starting with my first defense of *Weak Scientism* (2017a), I explain in great detail the ways in which scientific knowledge is better than non-scientific knowledge. Briefly, scientific knowledge is quantitatively better than non-scientific knowledge in terms of research output (i.e., more publications) and research impact (i.e., more citations). Scientific knowledge is qualitatively better than non-scientific knowledge in terms of explanatory, instrumental, and predictive success (Mizrahi 2017a, 364; Mizrahi 2017b, 11).

Wills tries to challenge the claim that scientific knowledge is quantitatively better than non-scientific knowledge by exclaiming, “Does science produce more knowledge that [sic] anything else? Hardly” (Wills 2018, 23). He appeals to Augustine’s idea that one “can produce a potential infinity of knowledge simply by reflecting recursively on the fact of [one’s] own existence” (Wills 2018, 23). In response, I would like to borrow a phrase from Brown (2018, 30): “good luck getting that published!” Seriously, though, the point is that *Weak Scientism* is a thesis about academic knowledge or research. In terms of research output, scientific disciplines outperform non-scientific disciplines (see Figure 1 and Table 1 above; Mizrahi 2017a, 357-359; Mizrahi 2018a, 20-21). Besides, just as “recursive processes can extend our knowledge indefinitely in the field of mathematics,” they can also extend our knowledge in other fields as well, including scientific fields. That is, one “can produce a potential infinity of knowledge simply by reflecting recursively on the” (Wills 2018, 23) Standard Model in physics or any other scientific theory and/or finding. For this reason, Wills’ objection does nothing at all to undermine *Weak Scientism*.

Wills (2018, 23) tries to problematize the notions of explanatory, instrumental, and predictive success in an attempt to undermine the claim that scientific knowledge is qualitatively better than non-scientific knowledge in terms of explanatory, instrumental, and predictive success. But it seems that he misunderstands these notions as they apply to the scientism debate. As far as instrumental success is concerned, Wills (2018, 23) asks, “Does science have (taken in bulk) more instrumental success than other knowledge forms? How would you even count given that craft knowledge has roughly 3 million-year head start?” Even if it is true that “craft knowledge has roughly 3 million-year head start,” it is irrelevant to whether *Weak Scientism* is true or false. This is because *Weak Scientism* is a thesis about academic knowledge or research produced by academic fields of study (Mizrahi 2017a, 356; Mizrahi 2017b, 11; Mizrahi 2018a, 12).

As far as explanatory success is concerned, Wills (2018, 23) writes, “Is science more successful at explanation? Hardly, if science could solve problems in literature or history then these fields would not even exist.” There are a couple of problems with this objection. First, explaining and problem solving are not the same thing (Mizrahi and Buckwalter 2014). Second, what makes scientific explanations good explanations are the good-making properties that are

supposed to make *all* explanations (both scientific and non-scientific) good explanations, namely, unification, coherence, simplicity, and testability (Mizrahi 2017a, 360-362; Mizrahi 2017b, 19-20; Mizrahi 2018a, 17). I have already made this point several times in my replies to Brown, which Wills does not cite, namely, that Inference to the Best Explanation (IBE) is used in both scientific and non-scientific contexts (Mizrahi 2017a, 362). That is, “IBE is everywhere” (Mizrahi 2017b, 20). It’s just that scientific IBEs are better than non-scientific IBEs because they exhibit more of (and to a greater extent) the aforementioned properties that make any explanation a *good* explanation (Mizrahi 2018b).

As far as predictive success is concerned, Wills (2018, 23) asks, “Does science make more true predictions? Again how would you even count given that for millions of years, human beings survived by making hundreds of true predictions daily?” There are a few problems with this objection as well. First, even if it is true that “for millions of years, human beings survived by making hundreds of true predictions daily,” it is irrelevant to whether *Weak Scientism* is true or false, since *Weak Scientism* is a thesis about academic knowledge or research produced by academic fields of study (Mizrahi 2017a, 356; Mizrahi 2017b, 11; Mizrahi 2018a, 12).

Second, contrary to what Wills (2018, 24) seems to think, testing predictions in science is not simply a matter of making assertions and then checking to see if they are true. For one thing, a prediction is not simply an assertion, but rather a consequence that follows from a hypothesis plus auxiliary hypotheses (Mizrahi 2015). For another, a prediction needs to be *novel* such that we would not expect it to be the case except from the vantage point of the theory that we are testing (Mizrahi 2012). As I have advised Brown (Mizrahi 2018, 17), I would also advise Wills to consult logic and reasoning textbooks, not because they provide support for the claim that “science is instrumentally successful, explanatory and makes true predictions,” as Wills (2018, 23) erroneously thinks, but because they discuss hypothesis testing in science. For Wills’ (2018, 24) remark about Joyce scholars suggests a failure to understand how hypotheses are tested in science.

Third, like Brown (2017, 49), Wills (2018, 23) admits that, just like science, philosophy is in the *explanation* business. For Wills (2018, 23) says that, “certainty, instrumental success, utilitarian value, predictive power and *explanation* all exist elsewhere in ways that are often not directly commensurable with the way they exist in science” (emphasis added). But if distinct fields of study have the same aim (i.e., to explain), then their products (i.e., explanations) can be evaluated with respect to similar criteria, such as unification, coherence, simplicity, and testability (Mizrahi 2017a, 360-362; Mizrahi 2017b, 19-20; Mizrahi 2018a, 17). In other words, there is no incommensurability here, as Wills seems to think, insofar as both science and philosophy produce explanations and those explanations must exhibit the same good-making properties that make all explanations *good* explanations (Mizrahi 2018a, 17; 2018b).

If Wills (2018, 24) wants to suggest that philosophers should be “testing their assertions in the ways peculiar to their disciplines,” then I would agree. However, “testing” does not simply mean making assertions and then checking to see if they are true, as Wills seems to think. After all, how would one *check to see* if assertions about theoretical entities are true? To test a hypothesis properly, one must derive a consequence from it (plus auxiliary assumptions) that would be observed only if the hypothesis (plus the auxiliary assumptions) is true. Observations

and/or experimentation would then indicate to one whether the consequence obtains or not (Mizrahi 2012). Of course, some philosophers have been doing just that for some time now (Knobe 2017). For instance, some experimental philosophers test hypotheses about the alleged intuitiveness of philosophical ideas and responses to thought experiments (see, e.g., Kissinger-Knox et al. 2018). I welcome such empirical work in philosophy.

Contrary to what Wills (2018, 19) seems to think, then, my aim is not to antagonize philosophers. Rather, my aim is *to reform philosophy*. In particular, as I have suggested in my recent reply to Brown (Mizrahi 2018a, 22), I think that philosophy would benefit from adopting not only the experimental methods of the cognitive and social sciences, as experimental philosophers have done, but also the methods of data science, such as data mining and corpus analysis (see, e.g., Ashton and Mizrahi 2018a and 2018b). Indeed, the XPhi Replicability Project recently published a report on replication studies of 40 experimental studies according to which experimental studies “successfully replicated about 70% of the time” (Cova et al. 2018). With such a success rate, one could argue that the empirical revolution in philosophy is well under way (see also Knobe 2015). Resistance is futile!

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