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Classical American Pragmatism as Antiscientism

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Abstract

Scientism has recently experienced a resurgence of interest in philosophy. One version of scientism often defended is ontological scientism—the view that any kind or property not mentioned in the theories of science has only a subordinate, secondary kind of reality. It is worth noting that a dominant tradition in the history of philosophy of science—classical American pragmatism—undertook decades of critical engagement with contemporaneous scientific beliefs, many of which resemble those being debated at the present time. This antiscientific philosophy has multiple points of relevance for contemporary debates and defenses of ontological scientism.

1. Introduction

Scientism has recently experienced a resurgence of interest in philosophy. A significant body of literature now seeks to establish scientism as a topic of philosophical attention. In this literature, “scientism” is no longer considered a derogatory term signifying a naively deferential attitude toward science. Rather, “scientism” denotes a set of positions deserving neutral evaluation and, amid the critics, we now find self-professed scientizers defending one or many of its forms. One version of contemporary scientism often defended is ontological scientism—the view that “a specific kind of thing is nothing but (a collection of) those things acknowledged by the natural sciences” (Peels 2018, 36). Popular arguments in favor of ontological scientism are those appealing to the superior empirical adequacy of scientific explanations of the world, and to the superior predictive power and technological applications of scientific theories.

As this topic takes shape in the discipline, it is worth noting that a dominant tradition in the history of philosophy of science—classical American pragmatism—undertook decades of critical engagement with contemporaneous scientific beliefs, many of which resemble those being debated at the present time. This antiscientific philosophy, finding various articulations in the work of James (1918), Dewey (1985), and Whitehead (1948),¹ has multiple points of relevance for contemporary debates

¹ I follow Morris (1970) and many contributors to Henning et al. (2015) in taking Whitehead’s philosophy to be continuous with pragmatist thought.

and defenses of ontological scientism. As a critique of scientism, the pragmatist philosophical position can be expressed as a two-step argument. Pragmatists first rejected what they referred to as “subjectivist” concepts of experience, which grounded claims for the superior empirical adequacy of scientific theories. In the process, they showed that the rejection of subjectivist concepts of experience rendered scientific conclusions concerning the purportedly inferior ontological status of nonscientific kinds or properties as non sequitur. This first step of the pragmatist critique of scientism therefore rejected positions that resemble contemporary ontological scientism, as well as one major contemporary argument in its support—that of science’s superior empirical adequacy. As a second step, pragmatists constructed a functional (rather than strictly epistemological) account of the predictive and technological success of scientific methods. This account offered an alternative, nonscientific explanation for science’s superior predictive and technological success, rejecting another major contemporary argument for scientific philosophies. In doing so, pragmatists also presented scientific theories of the world as necessarily incomplete, providing further reason to reject ontological-scientific conclusions.

After defining, in section 2, contemporary ontological scientism and the arguments frequently offered in favor of it, section 3 presents the two-step pragmatist argument against scientism and justifications of scientism by appeal to empirical adequacy and predictive and technological success. Section 3.a presents the pragmatist critique of subjectivist theories of experience, and section 3.b presents the pragmatist functionalist account of the predictive and technological success of the sciences.

2. Ontological scientism

Ontological scientism involves claims about the existence or reality of elements of the world beyond the purview of science. When defining ontological scientism, however, some caution is required. It has sometimes been defined as the position that the only things that exist are the ones that the sciences can discover (Stenmark 2018, 68). However, in addition to the stretches of the universe as yet unexplored by science, the current consensus in physics tells us that vast stretches of the universe exist beyond our cosmological horizon and therefore beyond what the sciences can discover. A more charitable way of understanding ontological scientism is as the view that “a specific kind of thing is nothing but (a collection of) those things acknowledged by the natural sciences” (Peels 2018, 36), that any kind or property not mentioned in the theories of science “has only a subordinate, secondary kind of reality” (Stevenson and Byerly 2000, 247), or that only the kinds or properties featuring in scientific investigation “ultimately exist” (Stenmark 2018, 68). It is this view that grounds claims that our ordinary, everyday understandings of morality, aesthetics, spirituality, sociality, or lived experience are in fact “illusions”—for example, misapprehensions of what are really manifestations of our cognitive and biological makeup—which can be cleared away through scientific analysis and classification. This point of view is expressed by molecular biologist Francis Crick in his statement that “[y]ou, your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behavior of a vast

assembly of nerve cells and their associated molecules” (Crick 1994, 3), and by Rosenberg when he claims that “reality is completely different from what most people think” (Rosenberg 2011, ix).

Science’s success in terms of empirical adequacy has been recognized as one of the most common, and perhaps one of the most promising, arguments in favor of ontological scientism (Peels 2017). We find science’s superior empirical adequacy being employed to buttress Kornblith’s scientism when he states that science, as “the best available empirical theory,” determines “what we should believe about the world around us, and about ourselves” (Kornblith 2018, 144). Science’s success in terms of predictive accuracy and technological application is also frequently cited in favor of scientism (Williams 2014, 15; Peels 2017). Rosenberg’s reasons for taking physics as “the whole truth about reality,” for example, are “[t]he phenomenal accuracy of its prediction” and “the unimaginable power of its technological application” (Rosenberg 2011, 24).

These ontological-scientistic views, however, are not confined to our contemporary moment. In the decades leading up to the twentieth century, ideas about science transformed from that of a practice largely continuous with other forms of intellectual and cultural activity into that of “an unquestionably special and distinct brand of information” (Thurs 2011, 311). The early decades of the twentieth century then marked the rise of authority of scientific understandings of the world (Canales 2015, 8). But as science became increasingly authoritative, it was simultaneously coming into tension with other forms of understanding, including humanistic and philosophical intellectual practices, everyday common sense, intuitions, and value judgments. Debates therefore arose concerning whether nonscientific (or extrascientific) forms of understanding had any role to play in determining what the world was really like. In this context, classical pragmatists sought to construct a philosophy that could “freely accept the standpoint and conclusions of modern science” and yet uphold the ontological significance of extrascientific intellectual and cultural practices and the forms of understanding they provided (Dewey 1985, 4). The next section presents a philosophical position held by a number of pragmatists who sought to refute ontological claims resembling contemporary ontological scientism and to provide alternative, nonscientistic interpretations of science’s success in terms of empirical adequacy and predictive and technological power. The position is explained in two steps. Section 3.a presents the pragmatist critique of subjectivist forms of empiricism by which science’s superior empirical adequacy to nonscientific modes of classification is denied, and it explains why ontological scientism is rejected in the alternative pragmatist version of empiricism. Section 3.b presents the pragmatists’ functionalist explanation of science’s predictive and technological power and demonstrates why scientific explanations are necessarily incomplete ontological accounts in this pragmatist view, in direct opposition to ontological-scientistic views.

3. The pragmatist critique of scientism

a. Pragmatist critiques of subjectivist empiricism

The pragmatist rejection of scientism takes as its first step a critique of a concomitant account of experience and empirical processes. Pragmatists complained of an unempirical assumption in subjectivist theories of experience, that is, that “the

nature of our immediate experience is the outcome of the perceptive peculiarities of the subject,” contrasted with the objective world of nature (Whitehead 1948, 89). They argued that subjectivist theories of experience had “already torn in two the subject-matter of experience and the operation and states of experiencing” (Dewey 1985, 19)—that is, they had already assumed a distinction between two types of meta-property in the events of empirical processes. Some properties of empirical processes were assumed to originate in the objects experienced, while others were assumed to originate in the mind of the experiencing subject. So, although emotions, intuitions, and aesthetic and moral values occur in empirical processes just as do material properties, in subjectivist conceptions, the former properties “apply only to the strictly private world of psychological experience” (Whitehead 1948, 195). Moreover, these properties were determined to be of an ontologically different sort, with the latter presumed to somewhat adequately conform to the real properties of nature and its objects, and the former presumed to be merely perspectival imports (or distorts) of the mind.

Contrastingly, the pragmatists put to one side (initially, at least) attributions of “subjective” versus “objective” classifications, choosing instead to start “from the immediate facts of our psychological experience, as surely an empiricist should begin” (*ibid.*, 75). The pragmatist approach to empirical processes took for granted no built-in ontological division between “object” and “subject,” nor between “reality” and “appearance”—between properties we can rightly attribute to nature and those that belong largely or exclusively to a (mis)perceiving mind. It instead attended equally to all properties presenting themselves in empirical processes, taking an “integrated unity as the starting point for philosophical thought” (Dewey 1985, 19). Basing their empiricist ontology on a “direct inspection of the nature of things as disclosed in our own immediate present experience” (Whitehead 1948, 20), these pragmatists took all properties that manifest in empirical processes as *prima facie* plausible candidates for the real properties of nature and its objects. Under such a view, one does not presume a straightforward division between elements of empirical processes that adequately reflect the real properties of the world and those that represent “an adventitious, irrelevant addition” (*ibid.*, 204).

Though as yet incomplete, this first step of the pragmatist critique already indicates why ontological scientism—the view that only the kinds or properties featuring in scientific investigation ultimately exist—is rejected within classical pragmatist philosophy. Because decidedly unscientific (e.g., aesthetic and moral) properties manifest in empirical processes, “these traits may also be supposed to reach down into nature, and to testify to something that belongs to nature as truly as does the mechanical structure attributed to it in physical science” (Dewey 1985, 13). This could result in the externalization of a much vaster host of empirical properties outward into nature and reality. Instead of concluding the “bare valuelessness of mere matter” (Whitehead 1948, 195), we may legitimately find that, empirically speaking, the objects of the world really are “poignant, tragic, beautiful, humorous, settled, disturbed, comfortable, annoying, barren, harsh, consoling, splendid, fearful” (Dewey 1985, 82).

The implications for justifications of ontological scientism from empirical adequacy are also evident. As echoed in more recent discussions of naturalism and empiricism, the pragmatists recognized that there is a selection involved in what is

taken to be the starting point for legitimate empirical evidence. The claim that scientific theories have superior empirical adequacy to other ways of characterizing reality depends on the selection (usually presumed self-evident) of a subset of experienced properties for which an ontological description is *worth* being empirically adequate. But because our empirical processes contain aesthetic, moral, emotional, and so forth properties, there is an important sense, according to the pragmatists, in which descriptions of the world in terms of these properties are empirically adequate for a domain for which scientific descriptions are not. The pragmatists therefore rejected the claim, used to buttress ontological scientism, that scientific descriptions were more empirically adequate than those framed in terms of intuitions, emotions, aesthetic and moral values, commonsense social apprehensions, and folk psychological concepts. To take empirical adequacy as a mark of the success of scientific characterizations of the world, and yet narrow the concept of properly empirical properties to exclude nonscientific properties (presumed subjective), would beg the question.

In direct contradiction to contemporary claims of ontological scientism, the pragmatists argued that nonscientific kinds and properties cannot be reduced on the basis of empirical adequacy to “nothing but” scientific properties partially apprehended, nor to only a subordinate, secondary kind of reality. Empirical processes possess these properties “immediately and in their own right and behalf” (Dewey 1985, 82); properties that are “as genuine as the characteristics of sun and electron” (*ibid.*, 14). Pragmatists refused to bifurcate empirical processes, or to map such bifurcation onto distinctions of reality and appearance. Ontological-scientistic claims that the world is “nothing but” a collection of those kinds and properties discovered and analyzed by the sciences therefore find no grounding in a superior empirical adequacy of science.

The intuitive distinctions between subjective and objective properties and between reality and appearance were not, however, theoretically ignored by pragmatists. These distinctions are deeply embedded in our ontologies. If the argument were to rest as it stands, it would (paradoxically) fail to account for these powerful and widely shared bifurcating concepts. The pragmatists therefore sought to account for the intuitiveness and usefulness of the bifurcations within empirical processes while reinterpreting what these distinctions ontologically imply about the content they structure. Rather than take the bifurcations as ontologically basic in empirical processes, pragmatists theorized them as *a posteriori* operations performed within and upon empirical processes (James 1918, ch. 21; Dewey 1985). For them, it was precisely the philosopher’s task to make no such metaphysical presumptions, but “to note how and why the whole is distinguished into subject and object, nature and mental operations” (Dewey 1985, 19). This analysis was undertaken as part of the second step of the pragmatist critique of scientism, which constructed an explanation for science’s predictive and technological success. In explaining how and why empirical processes are bifurcated into mind/nature, subject/object, and reality/appearance, the second step fills gaps remaining in the preceding argument given against ontological scientism. In providing an alternative, nonscientistic explanation of science’s predictive and technological powers, it also removes the force of a second major contemporary argument offered in favor of scientistic positions.

b. Pragmatist-functionalist accounts of science's predictive and technological success

The pragmatist rejection of claims for the superior empirical adequacy of science relied upon a rejection of the ontological significance of the ordinary bifurcation of the properties of empirical processes into those originating in the object of nature and those originating in the perceptual peculiarities or deficits of the mental subject. This distinction, it was argued, is not given in the empirical process, but is rather an assumption, typically unrecognized, and cannot therefore be an empirical basis for distinguishing which properties are ontologically genuine. Nevertheless, such distinctions are deeply intuitive and typically drawn in empirical processes without hesitation. The pragmatists recognized that they could therefore not be ignored in their philosophical analysis. Rather than draw an ontological conclusion from the bifurcation of empirical processes, they theorized such bifurcations as functional operations serving practical purposes in activities guided by sense-awareness. This explanation in terms of practical purposes relates directly to yet another popular contemporary argument given in support of scientism—that of science's predictive and technological power. In providing a nonontological explanation of the bifurcation of empirical processes, the classical pragmatists therefore rejected another argument often claimed to lend support to ontological scientism.

If we consider those bifurcated properties of empirical processes we tend to consider objective—that is, attributed to the objects of the world—they tend to have certain meta-properties that make them available for use in certain forms of activity. Unlike the moral or aesthetic values or emotional states attributed to the mind, which can be complex and intricate, the properties of empirical processes we attribute to the objects of nature tend to be comparatively *simple* to define or describe. Properties recognized as objective also tend to be *less variable* across the experience of different human agents, while much disagreement occurs over aesthetic, moral, and emotional properties and intuitions. Such properties tend to be reliably *stable* across time and context, while those classified subjective tend to be capricious and fluctuate comparatively a great deal—the height of an object will remain the same from one day to the next but our aesthetic appraisal of it may not. Finally (and largely due to the aforementioned reliable stability), objective properties tend to be reliably *connected to other properties* of empirical processes, serving as indices for those properties.

The pragmatists analyzed “how the distinguished factors function in the further control and enrichment of the subject-matters of crude but total experience” (Dewey 1985, 19). Each of these meta-properties answers “genuine emotional, practical and intellectual requirements” (*ibid.*, 32), carrying functional value relative to a variety of human activities and goals. In a tangled and complex environment, we value properties that are simple; in relying on the cooperation of others, we value properties upon which we can agree; in an uncertain and ever-changing environment, we value properties that are reliably stable; and in our attempts to predict and control elements of the events of our lives, we value properties that reliably indicate, conjure, or block other properties. Were we not to draw distinctions between the properties of empirical processes—including bifurcations such as subject and object or mind and nature—we would have no grounds for determining which properties are likely to be pertinent to the better regulation and control of subsequent experience, whether by virtue of their meta-qualitative function as a reliable indicator of other properties, as

an agreed-upon significant property among social agents, or as readily definable, recognizable, and communicable. The bifurcations in empirical processes are not ontologically revelatory in the philosophical sense (recall that the philosopher's task is not to assume but to explain these bifurcations), however they form indispensable grounds for deciding between courses of action.

This practice of partitioning properties of empirical processes to render their practical (including predictive) functions more readily evident and available is precisely the specialized function of science. In a philosophical consensus popularized by Kuhn (1977), scientific methods and procedures are structured according to values such as simplicity, repeatability, scope, and reliable connections between properties (e.g., prediction and lawlikeness). For these preceding pragmatists as well, the sciences select and isolate those properties of complex empirical processes that are maximally generalizable across perceivers and contexts, and are reliably connected with other properties, so they can be used as means to conjure or avoid properties in subsequent experience. They are structured "to discover those properties and relations of things in virtue of which they are capable of being used as instrumentalities; ... [to disclose] those connections of things with one another that determine outcomes and hence can be used as means" (Dewey 1985, 6).

For example, in our empirical interactions with water, its properties include potability, buoyancy, and use as a cleaning agent. One can swim in it, drown in it, put out fire with it. Water also possesses a host of symbolic, ritual, and aesthetic properties, depending on cultural and historical context. These everyday properties are localized to ordinary contexts in which we encounter and use water. The scientific property of H₂O, however, is abstracted and isolated from the properties of everyday experience that are limited in scope and generality. We privilege such physical and chemical classifications because they are maximally generalizable properties that reliably generate other properties we desire. The chemical property of H₂O is reliably connected to the presence of a drinkable substance; it can facilitate the production and purification of water, and precisely manipulate its distinct manifestation as a gas, liquid, or solid. It has rendered discernible formerly indiscernible properties, such as water's purity, and provided a safe and reliable method for distinguishing water from other transparent liquids, such as vodka, vinegar, and carbon tetrachloride. It has created new uses for water in chemistry, due to its distinctive properties as a solvent and reactant. H₂O is a property of water that creates new potentialities for its manipulation. Scientific inquiry enables the disclosure, isolation, and emphasis of fixed, instrumental properties, allowing easier and more diverse manipulation of elements of our empirical encounters in the world.

This folds back into arguments for scientism from the predictive accuracy and technological applications of science. By recognizing the functions of the distinctions between objective and subjective, mind and nature, and even (as we will shortly discuss) reality and appearance, but refusing to ontologically reify them,² pragmatists can acknowledge and account for the significance of science's predictive accuracy and technological application without drawing scientific ontological conclusions. Science partitions and ignores the majority of empirical properties of water that are localized to a context, focusing on those that are "dependable and fruitful signs of other things"

² Reality/appearance, for these pragmatists, is a functional distinction rather than a metaphysical one.

and can be harnessed for the manipulation of other properties that interest us (Dewey 1985, 106). This process, with its selective emphasis on properties in their connection to each other is precisely why science has predictive power. It also renders the sciences technologically powerful insofar as our ability to summon or dismiss properties of empirical encounters is made more extensive and secure. This scientific process of discovery, however, is simultaneously a process of exclusion, resulting in an incomplete characterization of the world. These instrumentalities, selected by science for this functional purpose, leave out many properties of the objects found in empirical processes. Science, as a form of selective emphasis, reduces objects “from their status as complete objects [so] as to be treated as signs or indications of other objects” (ibid.). Whole swaths of properties of an object are suppressed in scientific inquiry. In the understanding of water as H_2O , for example, we see nothing of our familiar perceptions of water.

In fact, in this pragmatist framework, science’s functionality in terms of its predictive accuracy and technological applications and its incompleteness as an ontological account are interconnected. The selective focus on specific properties is the foundation of science’s predictive accuracy and technological application. We can manage the water of empirical processes in functionally important ways precisely by suppressing its amalgam of properties. The “narrow efficiency” of scientific inquiry is “the very cause of its supreme methodological success . . . [f]or it direct[s] attention to just those groups of facts which . . . requir[e] investigation” (Whitehead 1948, 19). Although science expands empirical processes with new, abstract properties, and helps us predict and technologically intervene in the world, it does not thereby correct appearances in those empirical processes with a revelation of nature’s real properties. The distinctions we make between properties in empirical processes can be important for specific purposes, both as in ordinary and philosophical, but are misleading when reified into ontological dichotomies. For pragmatists, ontological-scientific conclusions are therefore no more justified by the predictive accuracy or technological applications of science than they are by appeals to empirical adequacy, dissipating the two most prominent arguments given in favor of contemporary scientific philosophies.

Additionally, the functional account of bifurcations of empirical processes encompasses even an explanation (and criticism) of the very urge to draw ontological-scientific conclusions. James, assessing the functional-psychological principles of ontological judgments, argues that “as thinkers with emotional reaction, we give what seems to us a still higher degree of reality to whatever things we select and emphasize and turn to with a will” (James 1918, 297). Dewey continues in this vein, arguing that people (and philosophers in particular) tend “to take that which is of chief value to them at the time as the real. Reality and superior value are equated” (Dewey 1985, 31). So, when we select properties in empirical processes on the basis of a purpose that requires permanence, simplicity, and perspectival universality, we tend to take these properties as the exclusively “real” properties at that time, forgetting momentarily that they were originally isolated “because of a particular need and in order to effect specifiable consequences” (ibid., 33). This distinction ordinarily “does no particular harm; it is at once compensated for by turning to other things which since they also present value are equally real” (ibid., 31). “[T]he reality lapses with the attention,” and other properties in turn, relevant to other practicalities and areas of concern, are assumed “real after [their] own fashion”

(James 1918, 293). The attribution of reality and appearance to the properties of empirical processes is made according to the context, then properly abandoned with the shift to a different context in which different properties are pertinent and useful. Problems arise, however, when this distinction, temporarily implemented for contextual purposes, is reified into a metaphysical bifurcation. The ontological-scientific fallacy is the leap from “most pertinent in a scientific context” to “exclusively real in every context” (or from “not useful in a scientific context” to “merely phenomenal in every context”). It is “not noted and remembered that the favored subject-matter is chosen for a purpose and that what is left out is just as real and important in its own characteristic context” (Dewey 1985, 31).

For example, the science of neuropharmacology has identified stable, relatively simple, and generalizable properties of various instances of depression and addiction that are reliably connected with other properties—specifically, it has identified the hormones and receptors that correlate with specific emotional states or impulses. Studies of these neurological and endocrinological properties of instances of depression and addiction have enabled the development of targeted treatments to alleviate these forms of suffering. Neuropharmacology has thereby allowed us to manipulate subsequent moods of depressed people or alleviate people’s impulses of addiction, constituting an example of science’s impressive technological applications in manipulating empirical processes. But as we have seen, the superior value of these neurological properties for this specific purpose and context does not justify an ontological claim of their superior reality when compared to the more complex, varied, and shifting emotional properties manifested in a first-person experience of depression or addiction. The aligned but distinct purposes of psychodynamic therapy, for example, are to render conscious and flexible patients’ self-narratives, conceptual associations, and personal beliefs to afford them a greater ability to navigate encountered problems and relationships. The moral, aesthetic, and emotional properties of the “inner lives” of patients (to borrow a distinctly unpragmatist turn of phrase) would be attributed a higher degree of reality in this context because they would be indispensable for the practical purposes of psychotherapy. While both neuropharmacology and psychotherapy practices are oriented broadly toward the alleviation of suffering, their more proximate purposes are distinct, and the kinds of properties they employ and their methods for engaging them are appropriate for those purposes.

For these pragmatists, ontological-scientific claims that whatever kind or property “is not mentioned in the theories of science . . . has only a subordinate, secondary kind of reality” (Stevenson and Byerly 2000, 247), that only the kinds or properties of entities and processes of scientific investigation “ultimately exist” (Stenmark 2018, 68), or that understandings of the world not found within science are “illusions” (Rosenberg 2011), would not have been supported by a superior empirical adequacy of scientific claims, nor warranted from the impressive predictive accuracy or technological applications of scientific inquiry. Rather, the distinctions we draw within our complex and tangled experience between subject and object, mind and nature, and even reality and appearance, function to provide us with control of that, and any subsequent, experience. But they do not delimit reality any more than they exhaust the activities and associated outcomes in which people participate. Science’s purposes “are not the only purposes, and . . . the order of uniform causation which

she has use for, and is therefore right in postulating, may be enveloped in a wider order, on which she has no claims at all" (James 1918, 576).

4. Conclusion

It is sometimes tempting to believe that philosophical analysis makes linear conceptual progress on a topic or problem, overcoming the antiquated conceptions of prior traditions. The extensive classical pragmatist engagement with scientific views resembling those being debated at the present time is one example from the history of philosophy that would suggest otherwise. Pragmatists presented arguments that speak directly against not only the view of ontological scientism, but two of the arguments most frequently cited in support of it. Having also been some of the most renowned philosophers, scientists, and mathematicians of the early twentieth century, it will undoubtedly be edifying to consider their arguments in the context of contemporary debates.

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