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Philosophers and Scientists Are Social Epistemic Agents

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In this paper, I reply to Markus Arnold's comment and Amanda Bryant's comment on my work "Can Kuhn's Taxonomic Incommensurability be an Image of Science?" in Moti Mizrahi's edited collection, *The Kuhnian Image of Science: Time for a Decisive Transformation?*

Arnold argues that there is a gap between the editor's expressed goal and the actual content of the book. Mizrahi states in the introduction that his book aims to increase "our understanding of science as a social, epistemic endeavor" (2018: 7). Arnold objects that it is "not obvious how the strong emphasis on discounting Kuhn's incommensurability thesis in the first part of the book should lead to a better understanding of science as a social practice" (2018: 46). The first part of the volume includes my work. Admittedly, my work does not explicitly and directly state how it increases our understanding of science as a social enterprise.

Knowledge and Agreement

According to Arnold, an important meaning of incommensurability is "the decision after a long and futile debate to end any further communication as a waste of time since no agreement can be reached," and it is this "meaning, describing a *social* phenomenon, which is very common in science" (Arnold, 2018: 46). Arnold has in mind Kuhn's claim that a scientific revolution is completed not when opposing parties reach an agreement through rational argumentations but when the advocates of the old paradigm die of old age, which means that they do not give up on their paradigm until they die.

I previously argued that given that most recent past paradigms coincide with present paradigms, most present paradigms will also coincide with future paradigms, and hence "taxonomic incommensurability will rarely arise in the future, as it has rarely arisen in the recent past" (Park, 2018: 70). My argument entails that scientists' decision to end further communications with their opponents has been and will be rare, i.e., such a *social* phenomenon has been and will be rare.

On my account, the opposite social phenomenon has been and will rather be very common, viz., scientists keep communicating with each other to reach an agreement. Thus, my previous contention about the frequency of scientific revolutions increases our understanding of science as a social enterprise.

Let me now turn to Bryant's comment on my criticism against Thomas Kuhn's philosophy of science. Kuhn (1962/1970, 172–173) draws an analogy between the development of science and the evolution of organisms. According to evolutionary theory, organisms do not evolve towards a goal. Similarly, Kuhn argues, science does not develop towards truths. The kinetic theory of heat, for example, is no closer to the truth than the caloric theory of heat is, just as we are no closer to some evolutionary goal than our ancestors were. He claims that this analogy is "very nearly perfect" (1962/1970, 172).

My objection (2018a: 64–66) was that it is self-defeating for Kuhn to use evolutionary theory to justify his philosophical claim about the development of science that present paradigms will be replaced by incommensurable future paradigms. His philosophical view entails that evolutionary theory will be superseded by an incommensurable alternative, and hence evolutionary theory is not trustworthy. Since his philosophical view relies on this untrustworthy theory, it is also untrustworthy, i.e., we ought to reject his philosophical view that present paradigms will be displaced by incommensurable future paradigms.

Bryant replies that “Kuhn could adopt the language of a paradigm (for the purposes of drawing an analogy, no less!) without committing to the literal truth of that paradigm” (2018: 3). On her account, Kuhn could have used the language of evolutionary theory without believing that evolutionary theory is true.

Can We Speak a Truth Without Having to Believe It True?

Bryant’s defense of Kuhn’s position is brilliant. Kuhn would have responded exactly as she has, if he had been exposed to my criticism above. In fact, it is a common view among many philosophers of science that we can adopt the language of a scientific theory without committing to the truth of it.

Bas van Fraassen, for example, states that “*acceptance of a theory involves as belief only that it is empirically adequate*” (1980: 12). He also states that if “the acceptance is at all strong, it is exhibited in the person’s assumption of the role of explainer” (1980: 12). These sentences indicate that according to van Fraassen, we can invoke a scientific theory for the purpose of explaining phenomena without committing to the truth of it. Rasmus Winther (2009: 376), Gregory Dawes (2013: 68), and Finnur Dellsén (2016: 11) agree with van Fraassen on this account.

I have been pondering this issue for the past several years. The more I reflect upon it, however, the more I am convinced that it is problematic to use the language of a scientific theory without committing to the truth of it. This thesis would be provocative and objectionable to many philosophers, especially to scientific antirealists. So I invite them to consider the following two thought experiments.

First, imagine that an atheist uses the language of Christianity without committing to the truth of it (Park, 2015: 227, 2017a: 60). He is a televangelist, saying on TV, “If you worship God, you’ll go to heaven.” He converts millions of TV viewers into Christianity. As a result, his church flourishes, and he makes millions of dollars a year. To his surprise, however, his followers discover that he is an atheist.

They request him to explain how he could speak as if he were a Christian when he is an atheist. He replies that he can use the language of Christianity without believing that it conveys truths, just as scientific antirealists can use the language of a scientific theory without believing that it conveys the truth.

Second, imagine that scientific realists, who believe that our best scientific theories are true, adopts Kuhn's philosophical language without committing to Kuhn's view of science. They say, as Kuhn does, "Successive paradigms are incommensurable, so present and future scientists would not be able to communicate with each other." Kuhn requests them to explain how they could speak as if they were Kuhnians when they are not Kuhnians. They reply that they can adopt his philosophical language without committing to his view of science, just as scientific antirealists can adopt the language of a scientific theory without committing to the truth of it.

The foregoing two thought experiments are intended to be *reductio ad absurdum*. That is, my reasoning is that if it is reasonable for scientific antirealists to speak the language of a scientific theory without committing to the truth of it, it should also be reasonable for the atheist to speak the language of Christianity and for scientific realists to speak Kuhn's philosophical language. It is, however, unreasonable for them to do so.

Let me now diagnose the problems with the atheist's speech acts and scientific realists' speech acts. The atheist's speech acts go contrary to his belief that God does not exist, and scientific realists' speech acts go contrary to their belief that our best scientific theories are true. As a result, the atheist's speech acts mislead his followers into believing that he is Christian. The scientific realists' speech acts mislead their hearers into believing that they are Kuhnians.

Moore's Paradox

Such speech acts raise an interesting philosophical issue. Imagine that someone says, "Snow is white, but I don't believe snow is white." The assertion of such a sentence involves Moore's paradox. Moore's paradox arises when we say a sentence of the form, "P, but I don't believe p" (Moore, 1993: 207–212). We can push the atheist above to be caught in Moore's paradox. Imagine that he says, "If you worship God, you'll go to heaven." We request him to declare whether he believes or not what he just said. He declares, "I don't believe if you worship God, you'll go to heaven." As a result, he is caught in Moore's paradox, and he only puzzles his audience.

The same is true of the scientific realists above. Imagine that they say, "Successive paradigms are incommensurable, so present and future scientists would not be able to communicate with each other." We request them to declare whether they believe or not what they just said. They declare, "I don't believe successive paradigms are incommensurable, so present and future scientists would not be able to communicate with each other." As a result, they are caught in Moore's paradox, and they only puzzle their audience.

Kuhn would also be caught in Moore's paradox if he draws the analogy between the development of science and the evolution of organisms without committing to the truth of evolutionary theory, *pace* Bryant. Imagine that Kuhn says, "Organisms don't evolve towards a goal. Similarly, science doesn't develop towards truths. I, however, don't believe organisms don't evolve towards a goal." He says, "Organisms don't evolve towards a goal. Similarly,

science doesn't develop towards truths" in order to draw the analogy between the development of science and the evolution of organisms. He says, "I, however, don't believe organisms don't evolve towards a goal," in order to express his refusal to believe that evolutionary theory is true. It is, however, a Moorean sentence: "Organisms don't evolve towards a goal. I, however, don't believe organisms don't evolve towards a goal." The assertion of such a sentence gives rise to Moore's paradox.

Scientific antirealists would also be caught in Moore's paradox, if they explain phenomena in terms of a scientific theory without committing to the truth of it, *pave* van Fraassen. Imagine that scientific antirealists say, "The space between two galaxies expands because dark energy exists between them, but I don't believe that dark energy exists between two galaxies." They say, "The space between two galaxies expands because dark energy exists between them," in order to explain why the space between galaxies expands.

They add, "I don't believe that dark energy exists between two galaxies," in order to express their refusal to commit to the truth of the theoretical claim that dark energy exists. It is, however, a Moorean sentence: "The space between two galaxies expands because dark energy exists between them, but I don't believe that dark energy exists between two galaxies." Asserting such a sentence will only puzzle their audience. Consequently, Moore's paradox bars scientific antirealists from invoking scientific theories to explain phenomena (Park, 2017b: 383, 2018b: Section 4).

Researchers on Moore's paradox believe that "contradiction is at the heart of the absurdity of saying a Moorean sentence, but it is not obvious wherein contradiction lies" (Park, 2014: 345). Park (2014: 345) argues that when you say, "Snow is white," your audience believe that you believe that snow is white. Their belief that you believe that snow is white contradicts the second conjunct of your Moorean sentence that you do not believe that snow is white.

Thus, the contradiction lies in your audience's belief and the second conjunct of your Moorean sentence. The present paper does not aim to flesh out and defend this view of wherein lies the contradiction. It rather aims to show that Moore's paradox prevents us from using the language of a scientific theory without committing to the truth of it, *pave* Bryant and van Fraassen.

The Real Consequences of Speaking What You Don't Believe

Set Moore's paradox aside. Let me raise another objection to Bryant and van Fraassen. Imagine that Kuhn encounters a philosopher of mind. The philosopher of mind asserts, "A mental state is reducible to a brain state." Kuhn realizes that the philosopher of mind espouses the identity theory of mind, but he knows that the identity theory of mind has already been refuted by the multiple realizability argument. So he brings up the multiple realizability argument to the philosopher of mind. The philosopher of mind is persuaded of the multiple realizability argument and admits that the identity theory is not tenable.

To Kuhn's surprise, however, the philosopher of mind claims that when he said, "A mental state is reducible to a brain state," he spoke the language of the identity theory without committing to the truth of it, so his position is not refuted by Kuhn. Note that the philosopher of mind escapes the refutation of his position by saying that he did not believe what he stated. It is also reasonable for the philosopher of mind to escape the refutation of his position by saying that he did not believe what he stated, if it is reasonable for Kuhn to escape the refutation of his position by saying that he did not believe what he stated. Kuhn would think that it is not reasonable for the philosopher of mind to do so.

Kuhn, however, might bite the bullet, saying that it is reasonable for the philosopher of mind to do so. The strategy to avoid the refutation, Kuhn might continue, only reveals that the identity theory was not his position after all. Evaluating arguments does not require that we identify the beliefs of the authors of arguments. In philosophy, we only need to care about whether arguments are valid or invalid, sound or unsound, strong or weak, and so on.

Speculating about what beliefs the authors of arguments hold as a way of evaluating arguments is to implicitly rely on an argument from authority, i.e., it is to think as though the authors' beliefs determine the strength of arguments rather than the form and content of arguments do.

We, however, need to consider under what conditions we accept the conclusion of an argument in general. We accept it, when premises are plausible and when the conclusion follows from the premises. We can tell whether the conclusion follows from the premises or not without the author's belief that it does. In many cases, however, we cannot tell whether premises are plausible or not without the author's belief that they are.

Imagine, for example, that a witness states in court that a defendant is guilty because the defendant was in the crime scene. The judge can tell whether the conclusion follows from the premise or not without the witness's belief that it does. The judge, however, cannot tell whether the premise is plausible or not without the witness's belief that it is. Imagine that the witness says that the defendant is guilty because the defendant was in the crime scene, but that the witness declares that he does not believe that the defendant was in the crime scene. Since the witness does not believe that the premise is true, the judge has no reason to believe that it is true. It is unreasonable for the judge to evaluate the witness's argument independently of whether the witness believes or not that the premise is true.

In a nutshell, an argument loses its persuasive force, if the author of the argument does not believe that premises are true. Thus, if you aim to convince your audience that your argument is cogent, you should believe yourself that the premises are true. If you declare that you do not believe that the premises are true, your audience will ask you some disconcerting questions: "If you don't, why should I believe what you don't? How can you say to me what you don't believe? Do you expect me to believe what you don't?" (Park, 2018b: Section 4).

In case you still think that it is harmless and legitimate to speak what you do not believe, I invite you to imagine that your political rival commits murder to frame you. A false charge is

brought to you, and you are tried in court. The prosecutor has a strong indictment against you. You state vehemently that you did not commit murder. You, however, have no physical evidence supporting your statement. Furthermore, you are well-known as a person who speaks vehemently what you do not believe. Not surprisingly, the judge issues a death sentence on you, thinking that you are merely speaking the language of the innocent. The point of this sad story is that speaking what you do not believe may result in a tragedy in certain cases.

A Solution With a Prestigious Inspiration

Let me now turn to a slightly different, but related, issue. Under what condition can I refute your belief when you speak contrary to what you believe? I can do it only when I have direct access to your doxastic states, i.e., only when I can identify your beliefs without the mediation of your language. It is not enough for me to interpret your language correctly and present powerful evidence against what your language conveys.

After all, whenever I present such evidence to you, you will escape the refutation of what you stated simply by saying that you did not believe what you stated. Thus, Bryant's defense of Kuhn's position from my criticism above amounts to imposing an excessively high epistemic standard on Kuhn's opponents. After all, his opponents do not have direct access to his doxastic states.

In this context, it is useful to be reminded of the epistemic imperative: "*Act only on an epistemic maxim through which you can at the same time will that it should become a universal one*" (Park, 2018c: 3). Consider the maxim "Escape the refutation of your position by saying you didn't believe what you stated." If you cannot will this maxim to become a universal one, you ought not to act on it yourself. It is immoral for you to act on the maxim despite the fact that you cannot will it to become a universal maxim. Thus, the epistemic imperative can be invoked to argue that Kuhn ought not to use the language of evolutionary theory without committing to the truth of it, *pace* Bryant.

Let me now raise a slightly different, although related, issue. Recall that according to Bryant, Kuhn could adopt the language of evolutionary theory without committing to the truth of it. Admittedly, there is an epistemic advantage of not committing to the truth of evolutionary theory on Kuhn's part. The advantage is that he might avoid the risk of forming a false belief regarding evolutionary theory. Yet, he can stick to his philosophical account of science according to which science does not develop towards truths, and current scientific theories will be supplanted by incommensurable alternatives.

There is, however, an epistemic disadvantage of not committing to the truth of a scientific theory. Imagine that Kuhn is not only a philosopher and historian of science but also a scientist. He has worked hard for several decades to solve a scientific problem that has been plaguing an old scientific theory. Finally, he hits upon a great scientific theory that handles the recalcitrant problem. His scientific colleagues reject the old scientific theory and accept his new scientific theory, i.e., a scientific revolution occurs.

He becomes famous not only among scientists but also among the general public. He is so excited about his new scientific theory that he believes that it is true. Some philosophers, however, come along and dispirit him by saying that they do not believe that his new theory is true, and that they do not even believe that it is closer to the truth than its predecessor was. Kuhn protests that his new theory has theoretical virtues, such as accuracy, simplicity, and fruitfulness. Not impressed by these virtues, however, the philosophers reply that science does not develop towards truths, and that his theory will be displaced by an incommensurable alternative. They were exposed to Kuhn's philosophical account of science!

Epistemic Reciprocation

They have adopted a philosophical position called epistemic reciprocalism according to which "we ought to treat our epistemic colleagues, as they treat their epistemic agents" (Park, 2017a: 57). Epistemic reciprocalists are scientific antirealists' true adversaries. Scientific antirealists refuse to believe that their epistemic colleagues' scientific theories are true for fear that they might form false beliefs.

In return, epistemic reciprocalists refuse to believe that scientific antirealists' positive theories are true for fear that they might form false beliefs. We, as epistemic agents, are not only interested in avoiding false beliefs but also in propagating "to others our own theories which we are confident about" (Park, 2017a: 58). Scientific antirealists achieve the first epistemic goal at the cost of the second epistemic goal.

Epistemic reciprocalism is built upon the foundation of social epistemology, which claims that we are not asocial epistemic agents but social epistemic agents. Social epistemic agents are those who interact with each other over the matters of what to believe and what not to believe. So they take into account how their interlocutors treat their epistemic colleagues before taking epistemic attitudes towards their interlocutors' positive theories.

Let me now turn to another of Bryant's defenses of Kuhn's position. She says that it is not clear that the analogy between the evolution of organisms and the development of science is integral to Kuhn's account. Kuhn could "have ascribed the same characteristics to theory change without referring to evolutionary theory at all" (Bryant, 2018: 3). In other words, Kuhn's contention that science does not develop towards truths rises or falls independently of the analogy between the development of science and the evolution of organisms. Again, this defense of Kuhn's position is brilliant.

Consider, however, that the development of science is analogous to the evolution of organisms, regardless of whether Kuhn makes use of the analogy to defend his philosophical account of science or not, and that the fact that they are analogous is a strike against Kuhn's philosophical account of science. Suppose that Kuhn believes that science does not develop towards truths, but that he does not believe that organisms do not evolve towards a goal, despite the fact that the development of science is analogous to the evolution of organisms.

An immediate objection to his position is that it is not clear on what grounds he embraces the philosophical claim about science, but not the scientific claim about organisms, when the two claims parallel each other. It is *ad hoc* merely to suggest that the scientific claim is untrustworthy, but that the philosophical claim is trustworthy. What is so untrustworthy about the scientific claim, but so trustworthy about the philosophical claim? It would be difficult to answer these questions because the development of science and the evolution of organisms are similar to each other.

A moral is that if philosophers reject our best scientific theories, they cannot make philosophical claims that are similar to what our best scientific theories assert. In general, the more philosophers reject scientific claims, the more impoverished their philosophical positions will be, and the heavier their burdens will be to prove that their philosophical claims are dissimilar to the scientific claims that they reject.

Moreover, it is not clear what Kuhn could say to scientists who take the opposite position in response to him. They believe that organisms do not evolve towards a goal, but refuse to believe that science does not develop towards truths. To go further, they trust scientific claims, but distrust philosophical claims. They protest that it is a manifestation of philosophical arrogance to suppose that philosophical claims are worthy of beliefs, but scientific claims are not.

This possible response to Kuhn reminds us of the Golden Rule: Treat others as you want to be treated. Philosophers ought to treat scientists as they want to be treated, concerning epistemic matters. Suppose that a scientific claim is similar to a philosophical claim. If philosophers do not want scientists to hold a double standard with respect to the scientific and philosophical claims, philosophers should not hold a double standard with respect to them.

There “is no reason for thinking that the Golden Rule ranges over moral matters, but not over epistemic matters” (Park, 2018d: 77–78). Again, we are not asocial epistemic agents but social epistemic agents. As such, we ought to behave in accordance with the epistemic norms governing the behavior of social epistemic agents.

Finally, the present paper is intended to be critical of Kuhn’s philosophy of science while enshrining his insight that science is a social enterprise, and that scientists are social epistemic agents. I appealed to Moore’s paradox, epistemic reciprocalism, the epistemic imperative, and the Golden Rule in order to undermine Bryant’s defenses of Kuhn’s position from my criticism. All these theoretical resources can be used to increase our understanding of science as a social endeavor. Let me add to Kuhn’s insight that philosophers are also social epistemic agents.

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