

Defense of Epistemic Reciprocalism

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Abstract

Scientific realists and antirealists believe that a successful scientific theory is true and merely empirically adequate, respectively. In contrast, epistemic reciprocalists believe that realists' positive theories are true, and that antirealists' positive theories are merely empirically adequate, treating their target agents as their target agents treat other epistemic agents. Antirealists cannot convince reciprocalists that their positive theories are true, no matter how confident they might be that they are true. In addition, reciprocalists criticize antirealists' positive theories exactly in the way that antirealists criticize their epistemic colleagues' theories. Reciprocalism is a better epistemic policy than realism and antirealism in the epistemic battleground in which we strive to be epistemically safe vis-à-vis our epistemic colleagues' theories and strive to convince our epistemic colleagues that our theories are true.

Keywords

Empirical Adequacy, Epistemic Reciprocalism, Scientific Antirealism, Scientific Realism, Truth

1. Introduction

Scientific realism and antirealism are defined herein as the views that a successful scientific theory is true and merely empirically adequate, respectively. Traditionally, the tenability of realism has been the focus of the debate between realists and antirealists. This paper, however, plays a different game with a different goal, although it is related to the traditional debate between realists and antirealists. The starting point of this paper is the observation that the traditional debate has neglected the insight of social epistemology (Goldman, 1999) that we are not cognitive agents isolated from one another but cognitive agents interacting with one another. Thus, this paper might be of interest to social epistemologists as well as to philosophers of science.

This paper is structured as follows: In Section 2, I develop a new position that I call epistemic reciprocalism. It holds that *ceteris paribus*, we ought to treat our epistemic colleagues in the way they treat their epistemic colleagues. Reciprocalism is grounded on the insight of social epistemology that we are social epistemic agents. In Section 3, I define 'epistemic egoists' and then argue that reciprocalists can handle epistemic egoists better than realists and antirealists can. In Section 4, I distinguish between transparent and opaque antirealists, and then argue that reciprocalists can deal with opaque antirealists better than realists can. In Section 5, I apply reciprocalism to Bas van Fraassen's (1980) contextual theory of explanation. In Section 6, I reply to a possible objection that reciprocalism is not a psychologically realistic doctrine.

Throughout this paper, all the epistemic agents – realists, antirealists, and reciprocalists – are equal in terms of evidence, i.e., none has better evidence than another for a theory. It is not the case, for example, that realists have more evidence for a theory than antirealists. The three groups of epistemic agents have the same evidence for a theory. They only take different epistemic attitudes towards them.

2. Realists, Antirealists, and Reciprocalists

Realists believe that a successful theory is true because they believe that the evidence for it warrants the belief that it is true. They determine their epistemic attitude towards a theory on the basis of their consideration of how weighty the evidence is for the theory and independently of whether the author of the theory is a realist or an antirealist. It is not the case that they believe that it is true on the grounds that the author of it is a realist. In that sense, realists are evidence-driven agents.

Antirealists believe that a successful theory is merely empirically adequate because they believe that the evidence for it only warrants the belief that it is empirically adequate. Like realists, they determine their epistemic attitude towards a theory on the basis of their consideration of how strong the evidence is for the theory and regardless of whether the author of the theory is a realist or an antirealist. It is not the case that they believe that it is merely empirically adequate on the grounds that the author of it is an antirealist. In that sense, antirealists are evidence-driven agents like realists.

In contrast, reciprocalists are partly evidence-driven agents and partly attitude-driven agents. They determine their attitude towards a theory, depending on how weighty the evidence for the theory is, and depending on what epistemic attitude authors of the theory take towards their epistemic colleagues' theories, including reciprocalists' theories. Suppose that realists and antirealists have their own positive theories, T_1 and T_2 , respectively. Realists believe that T_1 and T_2 are true, and antirealists believe that they are merely empirically adequate. By contrast, reciprocalists believe that T_1 is true, and that T_2 is merely empirically adequate. Thus, reciprocalists treat realists and antirealists exactly in the way realists and antirealists treat their epistemic colleagues. Reciprocalists believe that we ought to treat our epistemic colleagues, as they treat their epistemic colleagues, *ceteris paribus*, i.e., when there is no evidential difference.

Let me emphasize that reciprocalists are not blind to evidence. They believe antirealists' theories more than realists' theories, provided that antirealists' theories are better supported by evidence than realists' theories. As I stated in the introduction, however, this paper assumes that realists, antirealists, and reciprocalists are equal in terms of evidence, that they have the same evidence for a theory, that they only take different epistemic attitudes towards it. To put differently, the reciprocalist consideration is defeasible by the evidential consideration, and it kicks in only when epistemic agents interacting with one another have the same amount of evidence.

Realists are generous agents whereas antirealists are economical agents. Realists are generous agents in that they believe that their target agents' theories are true, even if their target agents do not believe that their epistemic colleagues' theories, including realists' theories, are true. In contrast, antirealists are economical agents in that they do not believe that their target agents' theories are true, even if their target agents believe that their epistemic colleagues' theories, including antirealists' theories, are true.

Reciprocalists, on the other hand, are neither generous agents nor economical agents. Unlike realists, they believe that antirealists' theories are merely empirically adequate. Unlike antirealists, they believe that realists' theories are true. Thus, reciprocalists accept realists'

theories and antirealists' theories exactly to the extent that realists and antirealists accept their epistemic colleagues' theories. Moreover, reciprocalists criticize antirealists' theories exactly in the way antirealists criticize their epistemic colleagues' theories. An example will be provided in Section 5 where I apply reciprocalism to van Fraassen's contextual theory of explanation. We will see how his criticisms against realism can be turned against his own contextual theory of explanation.

Most of us pursue two epistemic goals. The first epistemic goal is to be epistemically secure. When our epistemic colleagues put forward theories, we might refuse to believe that they are true for fear that we might form false beliefs about the world. The second epistemic goal is to propagate to others our own theories which we are confident about. Once we are convinced that our theories are true, the desire arises in our mind to share them with our epistemic colleagues. We tend to feel frustrated if we fail to fulfill this epistemic goal, i.e., if our epistemic colleagues refuse to believe that our theories are true. The second goal is particularly important in our epistemic life. It is the second goal, not the first goal, that drives scientific progress. We would still believe, for example, that the Earth is stationary at the center of the universe, had Copernicus kept his heliocentric theory to himself, and had he only wished to be epistemically safe.

One caveat is in order. I do not claim that all of us pursue the two epistemic goals. Nor do I claim that those who pursue them do so in equal degrees. Reciprocalism is compatible with the idiosyncrasy of epistemic agents. Therefore, it is wrong to reject reciprocalism on the grounds that some people do not mind forming false beliefs or do not feel frustrated even if their theories are rejected.

Suppose that realists and antirealists introduce their positive theories, scientific or philosophical, to each other. Realists believe that antirealists' theories are true, whereas antirealists believe that realists' theories are merely empirically adequate. Antirealists achieve both the first epistemic goal of being secure and the second epistemic goal of disseminating their theories to others. Realists, on the other hand, fulfill none of the two epistemic goals. They run the epistemic risk of forming false beliefs about the world, and fail to spread their theories to antirealists. In a nutshell, antirealists win and realists lose in the epistemic battleground to achieve the two epistemic goals.

Imagine now that reciprocalists interact with realists and antirealists. Reciprocalists believe that realists' theories are true, and that antirealists' theories are merely empirically adequate. Realists believe that reciprocalists' theories are true, and antirealists believe that reciprocalists' theories are merely empirically adequate. Reciprocalists and realists achieve the second epistemic goal. Reciprocalists and antirealists fail to achieve the second epistemic goal. Antirealists now believe that reciprocalists' theories are true, giving up antirealism in the hope that reciprocalists will believe that their theories are true. In response, reciprocalists believe that the ex-antirealists' theories are true. Note that unlike realists, reciprocalists do not lose against antirealists in the epistemic battleground, and that reciprocalists have epistemic resources to change antirealists' attitude.

Suppose that there are a famous senior scientist and an unknown junior scientist, and that they have positive scientific theories. The senior scientist believes that the junior scientist's theory is merely empirically adequate. In such circumstances, a referee asks, what should the junior scientist do? Should he believe that the senior scientist's is true or empirically adequate? Reciprocalism says that he should believe that it is merely empirically adequate, despite the fact that it takes gumption to do so. Reciprocalism, however, also says that if the junior scientist believes that the senior scientist's theory is true, the senior scientist should also believe that the junior scientist's theory is true. So reciprocalism is a fair doctrine.

3. Epistemic Egoists

Let me define ‘epistemic egoists’ as epistemic agents who believe that their own theories are true, but do not believe that their epistemic colleagues’ theories are true. They believe that their epistemic colleagues’ theories are empirically adequate or less than empirically adequate. Thus, they apply a double standard to their own theories and their epistemic colleagues’ theories. Let me explore how egoists would interact with realists, antirealists, and reciprocalists in the epistemic battleground. The advantages of reciprocalism over realism and antirealism will become clear in this section.

Imagine that egoists and realists advance their theories to each other. They believe that their own theories are true. Egoists believe that realists’ theories are empirically adequate or less than empirically adequate. Realists, on the other hand, believe that egoists’ theories are true. Egoists fulfill both the first epistemic goal and the second epistemic goal, but realists fulfill none of them. So realists feel frustrated, but egoists do not. Egoists win and realists lose in the epistemic battleground.

Suppose that egoists and antirealists put forward their theories to each other. Egoists believe that antirealists’ theories are less than empirically adequate. Antirealists believe that egoists’ theories are empirically adequate. Egoists are closer to the two epistemic goals than antirealists is. Thus, egoists win and antirealists lose in the epistemic battleground. Note, however, that both of them feel frustrated due to the failure to achieve the second epistemic goal of conveying their theories to others.

Imagine that egoists and reciprocalists present their theories to each other. Egoists believe that reciprocalists’ theories are merely empirically adequate, while believing that their own theories are true. In response, reciprocalists believe that egoists’ theories are merely empirically adequate while believing that their own theories are true. They are even. Egoists now wish to spread their theories to reciprocalists. So they abandon egoism and believe that reciprocalists’ theories are true. In response, reciprocalists also believe that the ex-egoists’ theories are true. They all fulfill the second epistemic goal.

This story makes clear what the advantages of reciprocalism over realism and antirealism are. Neither realists nor antirealists have an epistemic resource to change egoists’ attitude. In contrast, reciprocalists have epistemic resources to change egoists’ attitude. They reward and punish egoists, depending on whether egoists believe or not that reciprocalists’ theories are true. Accepting egoists’ theories is a kind of reward, and rejecting egoists’ theories is a kind of punishment. Thus, the advantages of reciprocalism over realism and antirealism are that reciprocalism brings justice to our epistemic world, and that our epistemic colleagues are likely to accept our theories in the hope that we accept their theories and for fear that we reject their theories.

4. Opaque Antirealists

Let me distinguish between two kinds of antirealists: transparent and opaque antirealists. Both of them believe that a successful theory is merely empirically adequate. There is, however, an important difference between them. While transparent antirealists speak as if they believe that a theory is merely empirically adequate, opaque antirealists speak as if they believe that a theory is true. Thus, while transparent antirealists’ speech act coincides with what they believe, opaque antirealists’ speech act does not coincide with what they believe. This section shows how advantageous reciprocalism is over realism in coping with opaque antirealists.

Let me offer an example to illuminate the difference between transparent and opaque

antirealists. When thrown upwards, a stone falls down. Why does the stone fall down? Transparent and opaque antirealists give different explanations. Transparent antirealists say, “The stone falls down because all stones fall down.” They believe that the law of gravity is empirically adequate, and that the empirical adequacy of the law of gravity entails that all stones fall down. So they speak as they believe. Their language perfectly fits their doxastic state. In contrast, opaque antirealists say, “The stone falls down because the gravitational force exists between the Earth and the stone.” Note that they speak as if they believe that the law of gravity is true, when in fact they do not believe so. The empirical adequacy of the law of gravity does not entail that the gravitational force is real. They know that their appeal to the gravitational force goes beyond their belief that the law of gravity is empirically adequate. Despite the knowledge, however, they invoke the gravitational force to explain why the stone falls down. In a nutshell, they speak as if they are realists, and they are verbally indistinguishable from realists.

How would realists respond to opaque antirealists? Realists believe that opaque antirealists’ explanation is true. After believing antirealists’ explanation, however, realists somehow come to know that opaque antirealists do not believe that the law of gravity is true. They complain to opaque antirealists, “You don’t believe the law of gravity is true. How can you say, ‘The stone falls down because the gravitational force exists between the Earth and the stone?’ Your language is misleading!” Opaque antirealists retort, “Although I don’t believe the law of gravity, I accept it.” Realists are struck speechless.

Reciprocalists have a different response to opaque antirealists. Imagine that once upon a time, opaque antirealists thought about their death. It occurred to them that their life was meaningless unless they could live forever. Just then, a cult leader approached them and said, “If you follow my god, he’ll grant you an external life.” Opaque antirealists became the cult leader’s avid followers, and then donated their house and money to the cult leader. They, however, somehow came to know that the cult leader was an atheist. They complained to the cult leader, “You’re an atheist. How could you say, ‘If you follow my god, he’ll grant you an external life?’ Your language was misleading!” The cult leader responded, “Although I don’t believe God exists, I accept God exists.” The cult leader was a reciprocalist! The cult leader was verbally indistinguishable from the atheist, just as opaque antirealists are verbally indistinguishable from realists.

Are there philosophers in the literature who claim that opaque antirealists are viable epistemic agents? My answer is yes. Dellsén (forthcoming-a; forthcoming-b; 2016: 74) claims that scientists can explain phenomena in terms of a theory without believing that it is true, and that they can do it with the mere acceptance of the theory. Also, van Fraassen says that “*acceptance of a theory involves as belief only that it is empirically adequate*” (1980: 12), and that if “the acceptance is at all strong, it is exhibited in the person’s assumption of the role of explainer, in their willingness to answer questions *ex cathedra*” (1980: 12). On van Fraassen’s account, we can assume the role of an explainer without believing that an explanatory theory is true. So Dellsén and van Fraassen would say that opaque antirealists are feasible epistemic agents.

5. Contextual Theory

Van Fraassen (1980; 1985) argues that the principle of economy favors antirealism over realism. He admits that some risk is involved in the inference from evidence to empirical adequacy, but he claims that “it is not an epistemological principle that one might as well hang for a sheep as for a lamb” (van Fraassen, 1980: 72). In other words, it does not follow that we ought to infer truth rather than empirical adequacy from evidence. He also claims that

antirealism is better than realism because “it makes better sense of science, and of scientific activity, than realism does and does so without inflationary metaphysics” (van Fraassen, 1980: 73). The virtues of explanation provide at best “reasons for acceptance of the theory, but not for belief” (van Fraassen, 1985: 294). In other words, the fact that a theory explains a wide variety of phenomena gives us reason to believe at best that it is empirically adequate. To sum up, the principle of economy directs us to settle for empirical adequacy as opposed to truth.

How would reciprocalists respond to antirealists’ appeal to the principle of economy? First, reciprocalists would point out that antirealists ought not to believe, in accordance with the principle of economy, that their own positive theories are true, no matter how confident they might feel that they are true. Second, reciprocalists would refuse to believe, to antirealists’ dismay, that antirealists’ positive theories are true. So antirealists would not be able to transmit their theories to reciprocalists. These disadvantages of antirealism can be illustrated with van Fraassen’s positive philosophical theory, the contextual theory of explanation.

The contextual theory of explanation holds that an explanation is an answer to a why-question, and that appropriateness of the answer depends on context, viz., on what the interests of the explainer and the explainee are and what the contrast-class is. Let me briefly summarize how van Fraassen (1980, Chapter 5) undertakes to justify his theory. He first claims that a *successful* and *correct* theory of explanation must account for rejections and asymmetries:

To be successful, a theory of explanation must accommodate, and account for, both rejections and asymmetries. I shall now examine some attempts to come to terms with these, and gather from them the clues to the correct account. (van Fraassen, 1980: 112)

A rejection is a scientific practice that the request for explanation is rejected in certain cases (van Fraassen, 1980: 111), and an asymmetry is a phenomenon that we can explain one event in terms of another event, but not vice versa. Van Fraassen accuses his rival theories of being incapable of handling rejections and asymmetries. Those rival theories are the ones developed by Carl Hempel (1966), Wesley Salmon (1971), and Michael Friedman (1974). He, then, formulates his own theory, applies it to rejections, and then predicts that it should also be applicable to asymmetries. He takes this prediction to provide a crucial test for his theory:

In addition, it should then also be possible to account for specific asymmetries in terms of the interests of questioner and audience that determine this relevance. These considerations provide a crucial test for the account of explanation which I propose. (van Fraassen, 1980: 130–131)

Finally, he provides the famous example of the tower and the shadow to illustrate that his contextual theory can account for asymmetries (van Fraassen, 1980: 132–134). This paper need not be concerned with the details of how he arrives at the contextual theory. What matters in this paper is that he uses inference to the best explanation to establish the truth of the contextual theory. He claims that his theory is true because it explains rejections and asymmetries whereas the aforementioned rival theories cannot.

Reciprocalists would point out that van Fraassen ought not to believe, in keeping with the antirealist spirit, that his contextual theory is true, but ought to believe that it is empirically adequate. There is a substantial difference between the truth and empirical adequacy of the contextual theory. The truth of the theory means that an explanation is an answer to a why-question, and that appropriateness of the answer depends on context. The

empirical adequacy of the theory, on the other hand, means that what it explains, viz., the phenomena, such as rejections and asymmetries, occur in scientific practices. Van Fraassen is entitled to believe that the explananda of the contextual theory occur in science, but not that an explanation is an answer to a why-question, and that appropriateness of explanation depends on context. It is wrong to apply a double standard to his theory and his epistemic colleagues' theories.

In addition, reciprocalists would refuse to believe, to van Fraassen's despair, that the contextual theory is true on the grounds that he refuses to believe that scientific theories are true. Reciprocalists believe instead that the contextual theory is merely empirically adequate. Van Fraassen might protest that his contextual theory has passed the crucial test, and that it is the best of all the conceived rival theories of explanation, so we are justified in believing that it is true. Reciprocalists only reply that the principle of economy enjoins us to settle for the empirical adequacy of the contextual theory, thus refusing to budge beyond their previous belief that the explananda of the contextual theory occur in science.

Van Fraassen is not the only philosopher who holds a double standard to the contextual theory and scientific theories. Ian Hacking (1983) believes that the contextual theory is true, but does not believe that scientific theories are true, however high explanatory power they might have. His rejection of scientific theories is predicated on the observation that appropriateness of explanation depends on human interests:

Explanations are relative to human interests. I do not deny that explaining – ‘feeling the key turn in the lock’ as Peirce put it – does happen in our intellectual life. But that is largely a feature of the historical or psychological circumstances of a moment. ... Feeling the key turn in the lock makes you feel that you have an exciting new idea to work with. It is not a ground for the truth of the idea... (Hacking, 1983: 53)

Take note of Hacking's reasoning that since explanations are relative to human interests, high explanatory power is incapable of showing that a theory is true. He uses the contextual theory as a premise for the antirealist view that high explanatory power cannot be the grounds for believing that a theory is true.

There is something peculiar about Hacking's appeal to the contextual theory. The author of the theory, van Fraassen, is not entitled to believe that it is true simply because he is an antirealist, but Hacking believes that it is true. It is not clear what justifies Hacking's belief. Hacking rejects scientific theories having high explanatory power on the grounds that explanations are relative to human interests, i.e., the contextual theory is true. He takes the realist attitude towards the contextual theory, and then uses the contextual theory as the reason for taking the antirealist attitude towards scientific theories. Imagine that Einstein realizes that Hacking refuses to believe that the special theory of relativity is true on the grounds that the contextual theory is true. Einstein, if he is a reciprocalist, would believe that the contextual theory is merely empirically adequate, and argue that the contextual theory cannot be the grounds for refusing to believe that the special theory of relativity is true because no sufficient evidence is given for the contextual theory. Thus, it would be unfair for Hacking to expect that scientists would believe that the contextual theory is true.

6. Psychologically Unrealistic?

Suppose that realists and antirealists have positive theories of their own. Reciprocalists believe that realists' theory is true, and that antirealists' theory is empirically adequate. An objection arises. The weight of the evidence for the two theories is equal. How can reciprocalists take different attitudes towards them? How can they take the realist attitude

towards one theory and the antirealist attitude towards the other theory when the two theories are equally successful? None of us can change attitudes at will. Our attitude is determined exclusively by the strength of evidence. Hence, reciprocalism is not a psychologically realistic doctrine.

On close examination, however, reciprocalism is a more realistic doctrine than realism and antirealism from a psychological point of view. Suppose that you are confident that your theory is true, and that you propose it to your opponents. Your opponents, however, believe that your theory is merely empirically adequate for their own benefit of being epistemically secure. They in turn propose their own theory to you, and the weight of the evidence for their theory is equal to that for your theory. Your natural psychological inclination would be to believe that their theory is merely empirically adequate for your own benefit of being epistemically secure. You would feel that it is unfair for you to believe that their theory is true. It requires patience for you to reward them instead of punishing them when the evidence for their theory is no stronger than that for your theory.

Suppose that you are confident that your theory is true, and that you wish to propagate it to your epistemic colleagues. They believe that your theory is true despite the risk of forming a false belief. They in turn propose their theory to you, and the weight of evidence for their theory is equal to that for your theory. You would feel morally obligated to reciprocate their favor, i.e., to run the risk of forming a false belief as they did with respect to your theory. So your natural psychological inclination would be to believe that their theory is true. You would feel that it is unfair for you to believe that their theory is merely empirically adequate. It requires courage for you to punish them instead of rewarding them when the evidence for their theory is no weaker than that for your theory.

Let me introduce a famous psychological study (Asch, 1951) which shows that we are deeply social agents. In a psychological experiment, two cards were placed in front of a subject. On one card was one vertical line of a certain length. On the other card were three vertical lines of varying lengths. Let me call the three lines A, B, and C. A was clearly shorter than the original line of the first card. B was clearly of the same length as the original line. C was clearly longer than the original line. A subject was asked which of the three lines was of the same length as the original line. Of course, the correct answer was B. The subject, however, was with seven other subjects, and they gave their answers before the subject. All of them said that A was of the same length as the original line. They were the experimenter's associates. The experimenter instructed them beforehand to say that A was of the same length as the original line. Solomon Asch reports that 75% of the participants went along at least once with the other seven subjects, and only 25% never gave the incorrect answer. In other words, only 25% of the subjects answered in accordance with their perceptual evidence and independently of their epistemic colleagues' attitudes.

What does Asch's experiment show? It shows that our attitude is gravely affected by our epistemic colleagues' attitudes. It follows that both realists and antirealists are psychologically unrealistic agents. Recall that they are evidence-driven agents. They determine their attitudes towards a theory *solely* in consideration of how strong the evidence is for the theory, which implies that their attitudes are not affected by their epistemic colleagues' attitudes. Asch's experiment indicates such agents are rare.

7. Conclusion

Antirealists run less risk of forming false beliefs than realists. This advantage, however, comes with the following disadvantages: First, they cannot believe that their positive theories, philosophical or scientific, are true because a double standard would be involved in their

belief that their own theories are true and their epistemic colleagues' theories are merely empirically adequate. Second, reciprocalists would refuse to believe, to antirealists' despair, that antirealists' positive theories are true. So antirealism is not an epistemic policy recommendable to social epistemic agents.

How about realism? Realism is not an ideal epistemic policy either in a social world. Recall that realists believe that antirealists' theories and egoists' theories are true, when they do not believe that their theories are true. It follows that realists lose against antirealists and egoists in the epistemic battleground to achieve the two epistemic goals. In addition, realists are misled by opaque antirealists into believing theories that opaque antirealists do not believe. Realists do not have an epistemic resource to change antirealists, egoists, and opaque antirealists.

In contrast, reciprocalists have epistemic resources to change antirealists, egoists, and opaque antirealists. They accept their theories as a reward and reject their theories as punishment. They mislead opaque antirealists as punishment in the way opaque antirealists mislead other agents. If we embrace reciprocalism, we increase the chance that we propagate our theories to our epistemic colleagues, and decrease the chance that we are misled by them. Finally, reciprocalism is a psychologically realistic doctrine unlike realism and antirealism. Where there are interactions among epistemic agents, reciprocalism is a better epistemic policy than realism and antirealism.

This paper can be summed up in a simple slogan: "Believe me. I'll believe you."

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