What are the alternatives to scientific realism philosophy essay

ASSIGN BUSTER

Philosophy is the study of understanding and understanding converts observations into a reality; without understanding there is no reality and no truth; truth is the beliefs or realisations of an understanding. These self-evident truths convert philosophy into a science.

In twentieth century, the most lively and persistent debate in philosophy of science is that between scientific realism and antirealism. Scientific realism suggests a certain classification of what a scientific theory is, and how a scientific theory is to be understood, what it to accept or hold a scientific theory and what scientific activity really is. The aim of scientific realism is to give us a literally true generalized description of reality, so truth plays an important role in the formulation of the basic realist position. [2]

The correct statement of scientific realism is,

Science aims to give us, in its theories, a literally true story of what the world is like; and acceptance of a scientific theory involves the belief that it is true. [3]

According to above statement, realist claims that aim of science telling a true story, not that the story science tells is true, and truth is a chief virtue of scientific theories. In short, acceptance of a theory requires belief in its truth.

The aim of science tells a true story, but the aim of science is not to consider an individual scientist’s motives, because scientist’s collective struggle for the truth in scientific realism. Just like as the bees make honey. Honeybees collect the nectar from different flowers and plants. And return to the hive and pass the nectar onto other worker bees. Then these honeybees spread

the nectar throughout the honeycombs and homogenize the nectar into a single. This is the collective work to make a honey. This collective honey has no discrimination, so that there is no claim that, I am the honey (nectar) of this flower or that plant. On the other hand when all scientific theories have become merged in a scientific realism come out as the truth. The scientific realists are belief that scientific theories are true. The essential part of science's purpose is discovery and understanding of reality in our world. The invention can't be borne without discovery; a lot of discovery comes due to invention, on the earth this might look like the chicken or the egg problem, which of them came first. But invention needs discovery. We can't do something unless we are first aware about its underlying nature. [4]

In " Rational Belief Systems", Brian Ellis gives the following formulation

I understand scientific realism to be the view that the theoretical statements of science are, or purport to be, true generalized descriptions of reality [5].

This formulation focuses on the understanding of scientific theories and belief that current scientific theories to be true. But according to Bas C. Van Fraassen, this formulation has two type of statements; First, it focuses on the understanding of the scientific theories without reference to reasons for belief and to be a realist it suggest that you must belief current scientific theories to be true. Second, Brian Ellis used a word ' purport', which may generate its own puzzles [5].

Therefore, the common belief of scientific realist is that the succession of scientific theories is getting closer to the truth. Putnam gives a forthright

version of the realist’s explanation of the success of science in the following passage:

The positive argument for realism is that it is the only philosophy that doesn’t make the success of science a miracle. That term in mature theories typically refer (this formulation is due to Richard Boyd), that the theories accepted in a mature science are typically approximately true, that the same term can refer to the same thing even when it occurs in different theories– these statements are viewed by the scientific realist not as necessary truths but as part of the only scientific explanation of the success of science, and hence as part of any adequate scientific description of science and its relations to its objects [6].

Putnam’s no-miracles argument and Richard Boyd’s approximately true argument explaining the success of science, so the key idea of Putnam-Boyd in explanation of success of science is that mature theories are ‘ typically approximately true’ but Newton-Smith’s view is more developed than Putnam’s idea. Newton-Smith’s analysis has two main virtues. First, it does not depend on reference being preserved across successive theories. Second, it makes explicit the connection between increasing truth-likeness and scientific progress. In particular, Newton-Smith proves that theories with greater truth-likeness must have a higher probability of observational success.

James Robert Brown’s paper (“ Explaining the success of Science”) is especially helpful for our discussion of scientific realism. Brown offers three criticism of Newton-smith’s analysis. First, asks Brown, how well does it

account for the three features of successful theories-empirical (adequacy, increasing adequacy and novel predictions)? Second, Brown thinks that Newton-Smith's definition of truth-likeness (verisimilitude) is too crude to do justice to scientific theories that assign numerical values to physical constants. Finally, Brown notes some historical cases in which later theories make progress by focusing on narrower domains than their predecessors had. But on Newton-Smith's account, a later theory with less content than its predecessor cannot have greater truth-likeness than the theory it replaces, despite the fact that, intuitively, the late theory might be closer to the truth. According to Brown's relatively weak connection between realism and the success of science, realism may explain success, but we can no longer expect success to justify our belief in realism [7].

The realist's argument that successful theories are approximately true, in other words its natural phenomena if a scientific theory is true then it will be successful. So the succession of theories is getting closer to the true is a common belief of scientific realist. So the main support for idea of realism is that science should be considered as approximately true or close to the truth. The claim generally amounts to this pair: If a theory is approximately true, then it will be explanatorily successful; and if a theory is explanatorily successful, then it is probably approximately true [8].

In other sense, Karl Popper thinks that the success of science is not to be explained; it is a miracle. But Putnam gives a positive argument for realist's explanation of the success of science is that it is only philosophy that does not make the success of science a miracle. Moreover the idea of typically approximately true by Newton-Smith's is more developed than Putnam's

idea. Newton-Smith’s analysis has two main qualities. First, it does not depend on reference being preserved across successive theories. Second, it makes explicit the connection between increasing truth-likeness and scientific progress. Newton-smith proves that theories with greater truth-likeness must have a higher probability of observational success.

After all, even the history of science would disclose that scientific theories come and go; moreover, scientists think that current theories will be outdated, since acceptance of current scientific theories are tentative and realists, who admit that acceptance of a scientific theory that belief on truth and voluntarily admit that scientists are tentatively believe that our scientific theories are true. To says that a scientist’s belief in a scientific theory is tentative. But this statement little bit generates an ambiguity that scientist’s belief in scientific theories is uncertain. So it means that, scientist are not fully confident that the scientific theories are true or approximately true, so tentative belief has less confidence in the truth of scientific theories than full confidence in the truth of the scientific theories [9].

Alternatives to Realism (Anti-realism)

In the philosophy of science, anti-realism includes instrumentalism, constructive empiricism, conventionalism, logical positivism and logical empiricism have raised special challenges to realism.

Anti-realists believe that scientific theories that are proved incorrect and majority of scientific theories are refined or rejected. Looking into the history there are many theories are refined or rejected such as Newton’s laws. In the meanwhile the anti-realists believe that modified and adopted scientific

theories are still useful in majority of cases For example Newton’s laws and Relativity [4].

Two main forms of anti-realism know as instrumentalism and positivism. Positivism on a literal construal, capable of being true or false and instrumentalism, a literal construal can elaborate. If a scientific theory says that something is exist, then a literal construal may elaborate on what that something is, but will note remote the implication for existence. The idea of a literally true account has two aspects: The language is to be literally construed; and so construed, the account is true. This divides the anti-realists into two types. The first type says that the aim of science to be true, properly (but not literally) construed. The second type says scientific theories need not be true to be good but the language of science should be literally construed [10].

It is not easy to explain a literal construal. Bas C. Van Fraassen emphasized that the word literal does not mean ‘ truth-valued’. This term is well known for philosophical use. The word literal describe, what the world is like and word construed, a successful theory is one that is true. Van Fraassen is an anti-realist of this statement. He disagrees that a scientific theories do not have to be true to be successful [10].

The most fundamental opponents of realism are instrumentalists and deny that scientific theories have truth values. So, instrumentalists used as a general term for anti-realism. Most modern instrumentalists admit that scientific theories have truth values but deny that every aspect of them should be interpreted realistically or that reason to accept a scientific theory

as literally true. Thomas S. Kuhn is an instrumentalist and rejects realism. T. S. Kuhn locates the value of scientific theories in their ability to solve complex instrumental, mathematical and conceptual puzzles. According to instrumentalists, scientific theories may have truth values, but their truth or falsity is irrelevant to our understanding of science [11].

Van Fraassen's " constructive empiricism" is the version of scientific anti-realism. The constructive empiricism holds two arguments.

First, science aims to give us scientific theories that are empirically adequate. Second, acceptance of a scientific theory involves as belief only that it is empirically adequate [12].

A scientific theory is empirically adequate when it says about observable objects, events and properties are true. On this understanding of observable entities (objects, events and properties) to accept a theory is be true. To accept a scientific theory is to argue that it accurately describes the understanding of observable phenomena in nature. This does not demand that talk of theoretical observable objects is meaningless, nor does it demand that such observable objects are fictional or real. By distinguishing in this way between accepting a theory and believing it to be true, the constructive empiricist recommends a position of agnosticism about the theoretical [13].

A prominent recent anti-realist explanation of Darwinian account of the success of science is defended by van Fraassen. Just as there are many species struggling for existence, so too there are many theories competing for our acceptance; and just as species that fail to adapt to their

environment become extinct, so too theories that fail to make true observational predictions are given up. So there is no need to assume that theories are true or approximately true in explaining the success of science. The most general problem in Darwinian account is implicitly committed to the notion that rational theory choice and empirical success go hand in hand. According to the empiricist we choose our theories on that very basis. But according to Brown, rational theory choice does not rest solely on empirical adequacy [14].

Logical empiricism is a kind of anti-realism. The logical empiricist is to emphasize a distinction between the observation objects and theoretical objects. The observation objects and properties are directly observable and theoretical objects and properties are not directly observable. The observational theoretical distinction has two aspects, ontological and terminological. As an ontological, distinguish between observable and unobservable components. By contrast, the terminological distinction applies not to components but to the language and vocabulary of scientific theories [15].

Summary

In short, the scientific realist claims that scientific realism explains facts about science and they also claims that science explains facts about the world. One prominent realist explanation for the success of science is based on the claim that theories are true or approximately true. Actually realist claims that aim of science telling a true story, not that the story science tells is true, and truth is a chief virtue of scientific theories. In short, acceptance of a theory requires belief in its truth. Van Fraassen understands scientific

realism, it is the view that science aims to give us literally true theories about the world and that to accept a theory is to accept it as true. Antirealists deny this. Moreover, according to Brown’s relatively weak connection between realism and the success of science, realism may explain success, but we can no longer expect success to justify our belief in realism. According to van Fraassen’s constructive empiricism, the aim of science is to offer theories that are empirically adequate, and when we accept a theory, we accept it, not as true, but as empirically adequate. Mostly anti-realist believes that scientific theories are proved incorrect and majority of theories are rejected or refined. The most fundamental opponents of realism deny that scientific theories have truth values. But some admit that scientific theories have truth values but deny that every aspect of them should be interpreted realistically or that reason to accept a scientific theory as literally true.