A " RIP VAN WINKLE HYPOTHESIS " TO RESOLVE THE REALISM - ANTIREALISM DEBATE

Afsar Abbas

Institute of Physics, Bhubaneswar - 751005, India

afsar@iopb.res.in

ABSTRACT

The intensity of debate between the realists and antirealists shows no sign of abating. Here a new hypothesis is proposed to resolve the issue. The requirement of consistency and continuity are built-in in the methodology of this hypothesis. This new hypothesis supports realism.

1

A persistent feature in the field of philosophy of science is that of antagonism between the respective advocates of realism and anti-realism. The debate has continued since antiquity and shows no sign of petering out. Both the sides have diligently stuck to their guns. In the present context, Nancey Murphy (1990) summarizes, ".. there are both modern and postmodern versions of realism and antirealism - hence the confusion, the inability to be quite sure of what one is arguing against".

This discussion between the various adherents of realism and those of antirealism is well documented in books and treatises on philosophy of science. I do not intend to go into details of the same here and would refer the reader to a clear and neat exposition of the issues involved by James Ladyman (Ladyman (2002)).

If this is the state of affairs, then clearly the question that one has to address is whether we have been missing some essential aspect in this debate between the realists and the antirealists. Given the significance of the issues involved, any new framework, which would help in clarifying the discussion should be welcome. Here I would like to present a new perspective to resolve this debate. This is done by proposing a new "Rip Van Winkle hypothesis".

To understand it, let me first remind the reader of the story of Rip Van Winkle. Washington Irving (1783 - 1859) wrote "Rip Van Winkle and the legend of sleepy hollow". The story is that of a Dutch by the name of Rip Van Winkle. He was an easy going fellow who liked to play with kids and did not want be bothered with work. He had a nagging wife. To escape her nagging he would often go wandering in the nearby Catskill Mountains with his faithful dog named Wolf. In one such trip he came across a group of dwarfs who were playing ninepins. He drank some brew from a keg they had with them and as a result of this he went to sleep. When he woke up he found that his dog was gone and he also saw a rusted weapon rather than his shiny rifle, lying by his side. He was extremely puzzled. On coming back to his village, he came to the amazing realization that he had woken up after some 20 years of sleep.

Let us conduct a Gedanken experiment (Gedanken in German means "thought"). Such gedanken experiments have been extensively used in science and in physics in particular to reach consistent and "correct" conclusions. Gedanken experiment is a powerful tool in science.

Imagine two persons named respectively "Antirealist" and "Realist". Mr. Antirealist is a hardcore antirealist living in 17th Century London. Mr.

Realist is a committed realist who loves to argue with Mr. Antirealist. (Here we are using the words realism and antirealism in the canonical manner that these words are used today in the field of philosophy of science in as broad a context as possible (Ladyman (2002))). Once they both went wandering into nearby woods. They came across some strange characters who had a cask of tempting brew with them. Being thirsty they could not resist drinking it and immediately went to sleep, just like what Rip Van Winkle had done. But these two slept for a much longer period and let us say, they wake up today in the 21st Century. How will they react to the new realities that they shall encounter?

Mr. Antirealist will be completely flabbergasted. His own antirealistic philosophical convictions would not allow him to make sense of what he shall observe. He would prefer to think that he is dreaming. He would have to make arbitrary assumptions like supernatural powers, magic etc to make sense of what he would be confronted with.

Mr. Realist, after overcoming the initial shock, would smile and say, " Aha, I understand it all. Just like in gravity and magnetism one has fields which exert forces far away, I can understand transmission of sound and pictures through some advanced technology as is available today. Well, that is your TV and mobile phone. I always fancied myself flying like a bird. They, through ingenious use of science have made these aeroplanes. The light bulbs are nothing more than controlled energy. What I could only imagine in my wildest dreams has actually come to pass. Wonderful! Quite clearly I was correct in believing in the reality of science and my friend Antirealist was quite clearly off the track. I hope he realizes that now."

From this gedanken "experiment" one may conclude that Mr. Realist was correct because his philosophy and understanding of nature was shown to be consistent and continuous. That is - consistency and continuity of his philosophical perspective over a span of several hundred years confirms the veracity of his ideology. On the other hand Mr Antirealist had to make inconsistent and sudden breaks in his perspective of the physical world. Self consistency and continuity are essential minimum requirements for the correctness of an ideological framework.

Existence of consistency is an extremely significant requirement of any theoretical or mathematical framework in physics or mathematics. In the 1920's the distinguished mathematician D. Hilbert (Hilbert (1926)) launched an ambitious programme to provide a formalization of both logic and arith-

metic and which would prove rigorously the complete consistency of the fundamental axioms. No one doubted that mathematics being so basic should indeed be self-consistent as well. However Kurt Goedel shocked everyone by showing that Hilbert's expectations were absolutely wrong! He showed (Goedel (1931)) that finitary proofs of self-consistency cannot be established within the formalism of classical mathematics, or of set theory, or of the axioms of Russell and Whitehead's Principia Mathematica supplemented by Peano's axioms. This was a shocking blow to the consistency programme in mathematics. This shows how significant can the requirement of consistency be for any discipline of knowledge.

The gedanken experiment exemplified by the Rip Van Winkle hypothesis above proves that due to the in-built consistency, the hypothesis of realism is correct. Note that here self-consistency means that what was empirically and theoretically understood to be true in the 17th century continues to be so at present in the 21st century. Science would have grown in the intervening period, and so it requires that there be just simple and natural embedding of the physical structure known then, into the present physical framework. On the other, hand antirealism fails miserably in this consistency test.

Equally significant is the test of continuity which is implied by the Rip Van Winkle hypothesis. This means that an ideology which can be demonstrated to hold continuously over a long period of time (for example in this case for several hundred years), demonstrates its resilience and intrinsic strength which can necessarily arise from it being on the right track. Realism has it and antirealism does not.

Note that the Rip Van Winkle hypothesis propounded here in support of realism is very different from Putnam's "no-miracles" hypothesis, which supports realism by pointing out that it is the only philosophy which does not require that the success of science be treated as a miracle. The no-miracles hypothesis directly compares realism and antirealism at a particular instant of time. So basically it is a "static" test of realism. By static one means that there is no concept of flow of time herein. On the other hand the Rip Van Winkle hypothesis is a dynamic test of realism. Dynamic means that realism still holds true in spite of passage of time. In addition the Rip Van Winkle hypothesis gains strength by relying upon the requirement of "consistency" and "continuity" to confirm the veracity of the ideology of realism. These ideas do not figure in the no-miracles hypothesis, which relies directly upon the concept of miracle itself.

4

REFERENCES

Goedel, K. (1931), " Ueber formal untenstche ... ", Mh. Math. Phys., 38, 173-198

Hilbert, D. (1926), " Ueber das unendliche ", Math. Annln, 95 , 161-190

Ladyman, J. (2002), " Understanding philosophy of science ", Routledge, London

Murphy, N. (1990), " Scientific realism and postmodern philosophy ". Brit. J. Phil. Sci., 41, 291-303

Putnam, H. (1975), " Mathematics, matter and method: philosophical papers " Vol I, Cambridge University Press, Cambridge