The Quarterly Journal of
PHILOSOPHICAL INVESTIGATIONS
University of Tabriz

Vol. 15/ Issue: 36/ Autumn 2021

From Physics to Metaphysics: Islamic Perspective and Contemporary Outlook

Mehdi Golshani
Distinguished Professor in Sharif University of Technology- Iran
mehdigolshani@yahoo.com

Abstract

Before the advent of Modern Science, philosophy ruled over sciences. But, after the emergence of modern science, with the appearance of philosophers like Locke and Hume, empiricism which relied only on sense data became prevalent in most scientific circles. This was fortified by the advent of positivism of Aguste Comte which gave value only to the knowledge obtained from sensory experience. Thus, philosophy lost its status among scientists. But with the emergence of some schools of philosophy of science in the second half of the twentieth century, it became evident that all sciences are based on some general supra-scientific (metaphysical) principles. Then, some eminent physicists recognized the significant role of philosophy and several coalitions was formed between some eminent philosophers and physicists in several important universities of UK and USA, which has yielded fruitful results. With the revival of philosophy, religious studies, too, got momentum, and theists have used philosophical arguments to refute the challenges of atheists against theism.

Keywords: Physics, metaphysics, revival of philosophy, sensory experiences

Received date: 2021.07.10
Accepted date: 2021.10.06
DOI: 10.22034/jpiut.2021.46921.2899
Journal ISSN (print): 2251-7960 ISSN (online): 2423-4419
Journal Homepage: www.philosophy.tabrizu.ac.ir

Introduction

Science in its modern sense did not exist as a separate discipline, but was part of the so-called natural philosophy. After the development of modern science and especially after the manifestation of its success in explaining multitude of phenomena and in improving the practical aspects of life, science abandoned philosophy and went its own way. Furthermore, since the beginning of nineteenth century science became the supreme authority and philosophy lost its prestige in the eyes of scientists. The growth of some anti-metaphysical philosophies fortified this attitude. Thus, the refutation of metaphysics became a fashion among scientists.

The empiricist philosophy, which had started with some celebrated British philosophers of the seventeenth and eighteenth centuries, got dominance in the nineteen and the first half of the twentieth century. The schools of positivism, operationalism, pragmatism and similar trends are different species of empiricism. The common feature of all these schools is that they give primacy to sense experience and reject metaphysics. They hold that sense perception is the only source of our knowledge about the physical world. Thus metaphysical concepts should be excised from any physical theory, since they are not rooted in sense experience.

The school od empiricism, especially in its positivistic form, affected physicists tremendously, and in spite of the decline of positivism in the last several decades, the positivistic spirit is still dominant in most physics circles.

The most important claims of contemporary empiricists are the following:

- All knowledge about the physical world comes from sense-perception, and all statements about the world are statements about such experiences (phenomena).
- The aim of theorizing is to give an order to human experiences and to predict new experiences. The task of physics is not to describe any reality behind sense-perception. As Feynman put it:

> All I am interested in is trying to find a set of rules which would agree with the behavior of nature, and not try to go very far beyond that. I find most philosophical discussions are psychologically useful but, in the end, when you look back historically at what was being said, and being with such vigor, it's almost always – to a degree – nonsense! (Davies & Brown 1988:203)

- The value of scientific theories is in their usefulness as tools for predicting phenomena and not for their truthfulness (pragmatism). In fact, theories are merely tools for predicting phenomena and not referring to a reality behind phenomena (instrumentalism).
- Metaphysical assertions are neither scientific nor philosophical. The sole task of philosophy is to analyze the language of science.

The enthusiasm of the great physicists of the past for explaining our physical world is not shared by contemporary physicists. They are mostly content with models that can account for limited domains of phenomena.

Today, students of science are seldom aware of the fact that concepts like time, energy, probability, etc. are complicated concepts which are grounded on metaphysical presuppositions.

Challenges to Empiricism

It would be expedient to have a critical appraisal of empiricists' claims.

1. They say that sense experience is the sole source of our knowledge. This may be challenged on the following grounds:

- We never encounter nature with empty minds. Our interpretation of experimental data depends to some extent upon presuppositions that are held by the investigator.
- Many concepts are not derivable from sense experience. For example, the concept of causality is not derived from sensory impressions. All we receive through our senses is that, e.g., B comes after A regularly. That there is a causal relation between A and B is a judgement of our intellect.
- We often use concepts (e.g. quarks in particle physics) that do not seem to be directly observable. Strict empiricism forbids such concepts.
- In the history of physics, there are many cases in which an abstract mathematical concept was introduced when there was no physical ground for it, but subsequently turned out to be essential for the development of some physical theory. For example, when David Hilbert introduced the idea of Hilbert Space, quantum theory had not been introduced. It was von Neumann who subsequently made use of this concept in his formulation of quantum theory.
- The number of experiments that verify a universal law of nature is always limited. Thus, in accepting a preposition as a general law one is exceeding experience.
- A scientist's work is always based; consciously or unconsciously, on some general principles. These so-called guiding or regulative principles are not deducible from experiments; rather, they are metaphysical assumptions which provide a framework for a scientist's line of research. For Dirac, `beauty´ was a prerequisite for the acceptability of a theory, and for Heisenberg `mathematical simplicity´ was a general principle.

The metaphysical assumptions used by scientists in their theory making are not deducible from the science itself. Rather, they are taken from some schools of philosophy or from some religion. For example, Einstein considered the idea of comprehensibility of nature to have been taken from the sphere of religion:

> To this [sphere of religion] there also belongs the faith in the possibility that the regulations valid for the world of existence are rational, that is comprehensible to reason. I cannot conceive of a genuine scientist without that profound faith.(Schlipp 1970:285)

Andre Linde, an eminent Russian cosmologist, who is not a theist, believes that the prevalent idea of searching for a theory of everything is rooted in the monotheistic religions:

> The whole of modern cosmology has been deeply influenced by the Western tradition of monotheism…the idea that it is possible to understand the universe through one ultimate "Theory of Everything" is an outgrowth of belief in one God.(3)

2. Scientists' interest in the practical aspects of science is not to acquire economic wealth, but to insure one's correct understanding of nature. As Heisenberg put it:

> This interest in the practical application of science is frequently misunderstood as the trivial attempt of the scientist to acquire economic wealth. It is true that this trivial motive does play a role, depending of course on the individuals. But this motive should not be overestimated. There is another much stronger motive which fascinates the good scientist in connection with the practical application, namely, to see that one has correctly understood nature (Blum & others 1985: 442).

3. Physicists' arguments against some metaphysical principles were philosophical rather than scientific. For example, in refuting causality, Heisenberg argued in the following way: All experiments are subject to the rules of quantum mechanics which does not admit a deterministic description of them. (Wheeler & Zurek 1983:83) The attribution of universality to quantum mechanics is not derivable from experience, but is simply a metaphysical assumption. Similarly, Max Born admitted in 1926 that his renunciation of determinism in the atomic domain had been a philosophical decision:

> I myself am inclined to give up determinism in the world of atoms, but that is a philosophical question for which physical arguments alone are not decisive(Wheeler & Zurek 1983:83).

4. Physics raises questions for which answers lie beyond its domain. We just mention a few examples:

- Where do the laws of physics come from?
- Why are they comprehensible to us?
- Why is there a universe in which such laws apply?

Whereas science has been successful in many applied fields, it has not had that much success in settling many of its fundamental theoretical problems.

5. In fact, the work of every scientist involves some philosophical presuppositions, even though he might not be aware of this fact. The rejection of metaphysics does not solve any problem. Rather, it replaces an explicit philosophy with an uncontrolled philosophy. As Heisenberg put it:

> I believe that certain erroneous developments in particle theory – and I am afraid that such developments do exist – are caused by a misconception by some physicists that it is possible to avoid philosophical arguments altogether. Starting with poor philosophy, they pose the wrong questions. It is only a slight exaggeration to say that good physics has at times been spoiled by poor philosophy... (Heisenberg 1976:32)

And in the words of Hermann Weyl (an eminent mathematician of the twentieth century):

> In spite of the fact that the views of philosophy sway from one system to another, we cannot dispense with it unless we are to convert knowledge into a meaningless chaos.(Jaki 1992: 386)

The revival of philosophy in recent decades

As we mentioned, physicists neglected philosophical considerations for more than a century, and this trend is still continuing in many scientific circles. But, in the last several decades, there has been a movement in the direction of the revival of philosophical concerns among some eminent physicists. Here we mention some evidences for this current:

- In recent decades many conferences have been performed about philosophical aspects of some important problems in physics, and several physics journals are publishing articles dealing with philosophical aspects of physics.

- Some universities in UK, Canada, and USA are offering joint degrees in physics and philosophy.

-In the last decade some coalitions were formed between physicists and philosophers in some of the universities of UK and USA to work on philosophical aspects of some major problems in physics.

Relation of Physics and Metaphysics in Islamic Perspective

We saw that empiricists' philosophy is manifestly prevalent among contemporary physics circles, and anything not being rooted in sensory experience is negated. For example, metaphysics is refuted and supra-natural realities are denied. Furthermore, physical theories have only pragmatic significance.

With the revival of philosophy among some eminent physicists, there came a revival of religious concern among some first rate physicists, and they tried to embrace challenges against theistic religions by atheists. So, some eminent scientists in the Abrahamic religions used philosophical arguments to confront the challenges against theistic religions. Here we mention some Muslim philosophers' attempt to confront the challenges of empiricists against theistic religions:

1. According to the Qur'an, the general tools for the study of nature are our senses augmented by our intellect:

افلم سیروا فی‌الارض فتکون بهم قلوب یعقلون بها ... (الحج: ۴۶)

Have they not traveled in the land so that they should have hearts with which to understand (22: 46)

2. Sense perception gives us knowledge about the physical world if it goes through the channel of intellect. Thus, the function of sight is complete of it goes with insight, i.e., if sensory perception is augmented with the supra-sensory intellect. It is narrated from the prophet Muhammad(S.A.) that:

لیس الاعمی من یعمی بصره، انّ الاعمی من تعمی بصیرته

Blind is not a person who lacks eyes, but the one who lacks sight. (Al Muttaqi al-Hindi 1405)

3. Even though experimental work is necessary for understanding nature, not all of our information about nature comes directly from sensation.

In his well-known book, al-Isharat wa al-Tanbihat, Ibn Sina refutes the claim of those who say existence is restricted to sensibles. He offers the following arguments to support his own claim that being is more general than mere sensibles :(Avicenna 1413)

(i) Sense perception has access only to particulars rather than universals.

(ii) Things like love, anger, fear, etc., which are associated with some sensibles , are not sensible themselves.

4. According to the Qur'an, there are many realities in the world that we do not perceive through our senses:

فلا اقسم بما تبصرون و ما لا تبصرون (الحاقه: ۳۹-۳۸)

I swear by that which you see and that which you do not see (69: 38-39)

خلق السموات بغیر عمد ترونها (لقمان: ۱۰)

He created the heavens without pillars you see them (31: 10)

It is also emphasized that we should believe in the unseen (غیب), i.e. in the supernatural truth:

ذلک الکتاب لا ریب فیه هدی للمتقین. الذین یومنون بالغیب ... (البقره: ۲–۳)

This Book, there is no doubt in it. It is a guide to those who have "taqwä", those who believe in the unseen... (2: 2-3)

5. Some general metaphysical principles can be extracted from the Holy Quran. For example, one can deduce from some Quranic verses the general validity of the principle of causality:

انّا مکنّا له فی‌الارض و آتیناه من کل شئ سبباً (الکهف: ۸۴)

We made him might in the land and gave him means to (achieve) all things. (18: 84)

ورأو العذاب و تقّطعت بهم الاسباب ... (البقره: ۱۶۶) ...

… They see the torment, all recourse being cut off for them. (2: 166)

Sadr al-Din Shirazi (Mulla Sadra) explain Muslim philosophers' view in the following way:

> Another group of philosopher and some elite among our Imamiyyah scholars say that objects vary in their acceptance of existence from the Origin. Some do not yield to existence unless another being precedes them, in the same way that accident should follow substance. Thus, the Creator whose power is unlimited, grants the existence according to the possibilities through a particular order and in consideration of its various capabilities. Some come directly from Him, some through an intermediary or intermediaries. In the last form, nothing can come into existence unless its means and pre-requisites come into reality. God Himself is the cause without a cause. Requirements for existence are not the result of deficiency in the Almighty's power, but due to the weakness in the receiver of emanation. (Sadr al-Din Shirazi 1981:371)

6. Contrary to what Empiricists' claim, no collection of empirical data can ever lead directly to the construction of a theory. One has to assume some general principles or conditions or both before one can set up a theory.

7. According to the Quran, God is the true teacher of all knowledge:

اقرء باسم ربک الذی خلق .... الذی علّم بالقلّم. علّم الانسان ما لا یعلم الانسان ما لم یعلم (العلق: ۵–۱)

Read in the name of your Lord, Who created…. Who taught with the pen, Taught man what he knew not. (96: 1-5)

8. Some Muslim philosophers believe that the role of observation is to prepare man's soul for receiving knowledge from the spiritual world. Now, one can infer from the Qur'an that besides ordinary channels of observation, meditation and intellection, there is a more direct way of obtaining knowledge of the realities of the world from the Donor of knowledge. But this is not a general one and it is not available all the

time and for everyone. In the Islamic philosophy, this mental talent is called intuition (حدس) and Ibn Sina (Avicenna) was the first Muslim philosopher to elaborate on this:

> You may wish to have more evidence to prove the existence of the saintly faculty gift. So hark! Do you not know that 'intuition' exists, and people possess different levels of reflection? Some are so dull and stupid that they find no way to their goal; some others are moderately intelligent and can make use of their reasoning power and some others, more intelligent, can perceive intelligibles through intuition. This intelligence differs from person to person; at the lowest level, man is completely deprived from intuition; at the highest level, one does not need to learn (through regular course) or think through logical categories (for knowing the reality). (Avicenna 1413)

Many of contemporary scientists have accepted the existence of this power. As the Nobel Laureate physicist Charles Townes put it:

> Religion's discoveries often come by great revelations. Scientific knowledge, in the popular mind, comes by logical deduction, or by the accumulation of data which is analyzed by established methods in order to draw generalizations called laws. But such a description of scientific discovery is a travesty on the real thing. Most of the important scientific discoveries come about very differently and are much more closely akin to revelation. The term itself is generally not used for scientific discovery, since we are in the habit of reserving revelation for the religious realm. In scientific circles one speaks of intuition, accidental discovery, or says simply that "he had a wonderful idea." If we compare how great scientific ideas arrive, they look remarkably like religious revelation viewed in a non-mystical way. (Townes 1966: 307)

In conclusion, with the revival of philosophy in recent decades, we see a visible current towards the acceptance of the ontological and epistemological principles of monotheistic religions, ruling over science.

References

- A.P. Schlipp , *Albert Einstein*, *Philosopher-Scientist* (La Salle, Ill. : Open Court,1970), 285.
- Al Muttaqi al-Hindi, *Kanz al-'Ummal fi Sunan al-Aqwal Wa al-Af'al*, (Beirut: Mo'as-sisah al-Risalah, 1405 H), No. 1220.
- C.H. Townes, "The Convergence of Science and Religion", *Zygon, Vol. 1,* No. 3, 1966,
- Ibn Sina (Avicenna), *al-Isharat Wa al-Tanbihat*, (Beirut: Mo'assisah al No'man lil-Taba'ah wa al-Nashr, 1413 H), Vol. 3,
- Ibn Sina (Avicenna), al-*Isharat Wa al-Tanbihat*, Vol. 2,
- J.A. Wheeler and W.H. Zurek, eds., *Quantum Theory and Measurement*, (Princeton: Princeton University Press, 1983)

- P.C.W. Davies and J. Brown, eds., *A Theory of Everything*, (Cambridge: Cambridge University Press, 1988)
- S. Jaki, *the Relevance of Physics*. (Edinburgh: Scottish Academic Press, 1992),
- Sadr al-Din Shirazi, al-*Hikmah al-Muta'aliyah fi al-Asfar al-Aqliyyah al-Arba'ah* (Beirut: Dar Ihya al-Turath al-Arabi, 1981), Vol. 6,
- *The Cristian Science Monitor*, July 9, 1998, B4. See https://www.csmonitor.com/csm/contentmap/articles/1998-7-9
- W. Blum, H. Duerr and H. Rechenberg, eds., Werner Heisenberg, *Collected Works*, Series C /Part III, (Berlin: Springer-Verlag, 1985)
- W. Heisenberg. *The nature of elementary particles*, Physics Today, 29(3), 32 (1976)