
SCIENCE AND FAITH
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Since the beginning of human civilization, the relationship between science and faith has always been an important issue. While religion believes in the existence of supernatural being, scientific research studies the objective principles of nature. Understanding the relationship between science and faith is not only an issue for the religious, but also becomes the necessary path that leads scientists to religious beliefs. The rapid development of science and technology now makes it more necessary for us to ponder the relationship between modern science and faith.

Modern science began during the Renaissance in Europe. A major case reflecting the conflicting views between science and religion occurred at that time, which has been cited for future discussion on the issue. Scientist Galileo discovered and provided scientific proof for the earth's rotation on its own axis. However, the Pope claimed that the Earth was the center of the universe and was eternally static. He abused his power to find Galileo guilty of sins against God. After Galileo had read the guilty verdict, he still insisted that "it (the Earth) rotates." Today, four hundred years later, history has confirmed undoubtedly that Galileo was correct. The Roman Catholic Church has also formally apologized to Galileo. However, this case has raised a more profound question. An important reason for the Church's attack on Galileo was the threat posed by the latter to undermine the Pope's personal authority. But, any faith or belief must be based on a worldview and take nature into consideration. Though faith itself is subjective and abstract, the worldview based on religious faith does share some common ground with scientific research. At that time, the Roman Catholic Church's belief that the earth was the center of the universe conflicted with science.

When pondering the relationship between science and faith, we must answer a few important questions:

What is Christianity's worldview?

Does this worldview conflict with scientific knowledge known today or in the future?

How is the worldview of Christianity different from those of other religions?

The Truth and Fallacy of Galileo's Theory

Whether Galileo was right or wrong, we must understand the relationship between science and faith. We first need to understand what knowledge has been gained from modern science.

Galileo's most important contribution to science was not his discovery of the Earth's rotation but the establishment of the scientific methodology. Galileo believed that all knowledge comes from experiments rather than subjective thoughts, and that, given enough time and sufficiently accurate instruments, we could measure and understand everything in nature.

Although Galileo's perspective accelerated the development of science in a major way, it also brought up a profound "faith crisis." If we could understand everything in nature by conducting experiments, why do we still need to have faith? Indeed, Galileo was correct about the Earth's rotation; however, his belief that everything was experimentally measurable has been disproved by the physics of the twentieth century. If we want to know the position of an object, we must use experiments to measure the position. But, there are inevitably errors in the process, which would prevent us from knowing the exact position of the object. Galileo believed that experimentation would continue to improve, and that errors would continue to decrease, so that we could measure the position of an object more and more precisely. This argument seemed to be correct in the macroscopic world, but it was proven to be wrong in the atomic world. This is because the measurement process would also alter the nature of the object. This effect is negligible in the macroscopic world, but it is prominent in the microscopic world. For example, when we want to measure the position of an object, we could use a microscope. However, a light source is needed for the microscope. Though the position of an object could be seen more clearly, the velocity of the object would be changed to make the measurement inaccurate.

Quantum mechanics has proven a more precise statement of the above fact: no matter how accurate the experimental apparatus is, the product of its errors in measuring the position and the momentum of an object is always greater than a constant. In other words, we could never know exactly the position and the velocity of an object simultaneously. It is impossible today, tomorrow, and forever.

In physics, position and momentum are the two most basic properties of a substance. The discovery of the "uncertainty principle" by German physicist Werner Heisenberg is worrisome.

The great Einstein was deeply bothered by this up to his death. This principle limits Galileo's belief in principle that "experiments can explain everything in nature." Measuring the position and the velocity of a substance is a scientific question, but it cannot be answered by experiments.

Barber Paradox

There is incompleteness in physics. The Barber Paradox demonstrates the incompleteness in mathematics as well. Mathematics is based on a set of axioms. From these axioms, ones can derive many theorems and build the fundamental structures of mathematics. Although it is not necessary to use experiments for verifying the correctness in mathematics, it is necessary to prove that there are no contradictory theorems within the mathematics structure. In the past, mathematicians believed that the propositions of any axiom systems could ultimately be proved or disproved. Unfortunately, this belief of more than two thousand years is also incorrect. In the 1930s, mathematician Gödel proved that in any mathematical axiom system, there are some mathematical propositions that cannot be proved or disproved. The Gödel's theorem is very profound, but his principle can be explained by a very simple example (Barber Paradox): A barber from a village claims that he only shaves those who do not shave themselves. When this statement is applied to others, the answer is simple and straightforward. But it is contradictory when applied to the barber himself. The barber cannot shave himself as he only shaves those who do not shave themselves. As such, if he shaves himself, he ceases to be the barber. Conversely, if the barber does not shave himself, then he fits into the group of people who would be shaved by the barber, and thus, as the barber, he must shave himself. In conclusion, this proposition is self-contradictory. Perhaps some readers consider it a word game. In fact, the contradiction is caused by the inaccuracy of the human language. Surprisingly, even in the most rigorous and precise mathematical language, there exist self-contradictory statements.

So, what do the two examples above reveal? They have fundamentally changed our worldview.

In the past, we assumed that scientific knowledge and experimental methods could be advanced indefinitely. Today's unknown can become tomorrow's discovery. Our faith today is beyond scientific proof and is in no contradiction with science. However, when science advances further, today's faith could become tomorrow's superstition, leading to a contradiction between faith and science, and reenacting the tragedy between the Roman Catholic Church and Galileo. The above

two examples have fundamentally changed our perceptions about science. The “uncertainty principle” tells us: when the position and the velocity of a substance are measured, the error is always greater than a constant. It is not because today’s experimental instruments are not precise enough but is because they will never be accurate enough. Similarly, Gödel’s theorem tells us that some propositions in mathematics cannot be proved or disproved. These two principles tell us that science itself has an eternal limitation that will not change in the future.

Is it meaningful to understand issues beyond the eternal limitation?

The aforementioned two principles demonstrate the fact that science has an eternal limitation and certainly cannot tell us what lies beyond this limitation. Many scientists think that seeking to understand the things that lie beyond this limitation is meaningless. However, human beings are always seeking a higher order of unity and completeness. These two principles alone cannot define what the higher order is. Instead, they can tell us that the higher order will not conflict with today’s science or even the science of the future, since it is beyond the eternal limitation of science.

What is the principle of this higher order? We can see that the success of science is due to the separation of the subjective and the objective. But this separation also introduces the limitation in science. The uncertain principle is based on the impact of the observer (subjective) on the observed (objective). Similarly, the cause of the Barber Paradox is to apply the proposition that is used for others (objective) to himself (subjective). Therefore, we can claim that beyond the limitation of science, there must be a unity of the subjective and the objective. The pursuit of the unity is the highest goal in the development of science. In the past, people thought that energy and mass were two different quantities. But Einstein’s formula $E = mc^2$ showed the mass-energy equivalence. Einstein’s lifelong dream was to unify all the forces of the universe. Pursuing the unity of the subjective and the objective is not only a scientific issue but also an ideal extension of science.

What is the unity of subjectivity and objectivity? Of course, the answer to this question is somewhat subjective. What follows are my own opinions: The ultimate pursuit of mankind can be summarized in three words “truth, goodness, and beauty.” Science may be able to distinguish true and false, yet, the judgment of goodness and beauty is subjective. Pursuing the unity of the

three is equivalent to pursuing the unity of the subjective and the objective. Einstein's formula $E = mc^2$ is scientific truth, which can be proven experimentally. Einstein used a simple formula to describe the equivalency of energy and mass, thereby showing the grandeur of the universe. That discovery thrilled scientists, as they saw the infinite beauty of this truth. This kind of feeling is subjective and cannot be proved experimentally. It comes from science, yet it is beyond science; it is not only the unity of subjectivity and objectivity, but also the unity of truth and beauty.

The Trilogy of "Truth, Goodness, and Beauty"

If the universe is disordered without a creator, it would be difficult to imagine that such a simple formula can describe the laws of the universe. If the existence of the universe has no purpose, how could objective truth bring such wonderful subjective beauty? The Bible tells us: "In the beginning was the Word, the Word was with God, the Word was God." The existence of the universe and the law of movement are God's Word. The Word is both an objective truth and a subjective experience of beauty. This is because the Word is the unity of truth and beauty; the Word is the unity of the subjective and the objective; the Word is God.

The truth leads to beauty, beauty brings forth love, and love brings forth goodness. The simplicity of God's creation surpasses all with its beauty. It is no doubt that He loves the universe and the mankind He created. Furthermore, it makes us believe that the way to God's salvation must be as simple and all encompassing as his creation. The Bible tells us that the way to God's salvation can be simply stated as "justification by faith." It is not by deed but by faith. The way is that simple and that universal. God loves the world. To save the world, his salvation must be simple and universal. The deed has a time factor; it is not eternal and cannot be achieved by everyone. But the faith is individual, eternal, and can be achieved by human beings. Simplicity and universality are the principles of creation as well as salvation. The way for salvation, similar to God's creation, is simple and universal. We witness the unity of truth and beauty through God's creation. Equivalently, we witness the unity of goodness and beauty through God's salvation. Therefore, seeking God's Word is to seek the ultimate unity of the subjective and the objective, to unify the trilogy of truth, goodness, and beauty, and it is the natural extension of scientific pursuit.

So, we see that science and faith are not contradictory to each other. Not today, not tomorrow, not ever. Science has eternal limitations and is always limited by the separation of the subjective and the objective. Faith is built on the principle of this limitation, and it is the unity of the subjective and the objective. Within the higher order principle, we witness the trilogy of truth, goodness, and beauty through God's creation and salvation, which is simple, beautiful, and all encompassing. Pursuing the principle beyond scientific limitations is not science; it surpasses science. As a scientist, it is to see the grandeur of the universe, to understand the true way of creation, to see the inclusiveness of the cosmos, to remember God's love for the world, to forget the suffering from disappointments, to thank God's mercy in salvation, and to glorify God's amazing grace. Joyful! Joyful! Joyful!

Yes, faith is a choice beyond science; it is an individual's personal and subjective choice. What a glorious and beautiful choice it is!