

Does god make mathematics



**ASSIGN
BUSTER**

In general, religions strictly depend on people's tendency to believe in rituals and mysticism. When followers of a religion face a fact that is conflicting with what they believe in, instead of drawing a result from that fact, they prefer to neglect it. In my paper I will question the tendency of people to neglect facts for the sake of the continuation of their system of beliefs and I will look at conflicts between science and religion which are two of our major themes in our course.

I will specifically focus on the Pythagoreans who lived around sixth century A. D. They obeyed the rules of Pythagorean order. This order contained ethical beliefs which had mathematical foundations. Pythagoreans believed that, God ordered universe by means of numbers. They claimed that every thing depends on the ratios of natural numbers (Katz, 1998). Later on, they discovered the existence of irrationals which they previously assumed not to exist. Because they realized that the existence of irrationals was conflicting with their belief system, they kept this as a secret.

Although their religion was constructed according to scientific foundations, their attempt to hide the fact shows us that science had lost its priority against religion, because Pythagoreans organized their lives according to their religion and they didn't want to change their life style. Science and religion, two ways people had chosen to satisfy their feeling of wonder against the secrets of the universe, may intersect according to some points of view.

But while science depends on questioning the previous founding and accepts the possibility of the falsity of them, religion rejects to change any idea

which is accepted to be true (James, 1997). Religion accepts those as absolute facts. That is what we call dogmatism. Against dogmatism, scientific facts lose its power. People can reject obvious facts, which is the case of Pythagoreans. In ancient Greece, where scientific thought first developed, religion had an important position in people's lives. For that reason, when people confused about what they observe in nature, they were looking for the answers of their questions in religious myths.

People set their religious beliefs according to those myths, which include gods (Segal; Ilin, 1983). In addition, similarly with the holy books of some religions, myths give information about life to guide people. According to Gi?? kberk (1985), these myths were unconsciously produced by creative minds of people, but they are believed to be related to gods. The practical information included is discovered by the people's wander about nature. This gives the people the chance to control the nature partially as Gi?? kberk states.

The question which is tried to be answered with the guidance of the myths before the emergence of science was, how the universe did occur and what is the position and destiny of humankind in the universe. Because people thought myths were of Gods, they believed them without questioning up to some point. But when the way of the religion and myths to explain the natural events start to be less satisfactory, people started to make comments on their observations which generally lead to contradictions with those myths. Critical thinking against religion made people to separate what is right, what is not (Segal ; Ilin, 1983).

People then started to use their mind not only to reach practical information to survive, but they also wanted to learn just to know. Greeks could not satisfy their sense of wonder with the answers of their religion, that's why; they tried to collect information systematically by questioning and observing the environment. As Gigerenzer (1985) stated, they reached theory, which was above practice. That means scientific founding was above its practical results. This is how science occurred. Philosophers' position was important in ancient Greece, where this term is firstly used because they were related to both science and religion.

In the eastern cultures the mission of the prophets was to sustain the communication between gods and his creatures, but instead of such a religious leader, in ancient Greece, there were philosophers who were also subject to great respect (Hilav, 1975). Although this may be true, being a philosopher only does not make someone gain a religious importance. In fact, being a follower of a religion and being a philosopher contradicts since one requires and the other rejects the act of questioning (Segal ; Iliadis, 1983).

When a person believes in something if he rejects questioning this, we can conclude that he has no suspicion about the truth of that thing. But a philosopher questions what he is told, the beliefs and information. He looks for the true facts. According to Hilav(1975), in a way he looks for the rules that may bring a meaning to one's life. A philosopher tries to live according to that rules. At the times, when the boundaries between science and religion were not so clear because science was just developing, Philosophers accepted their mission to seek for information (Hilav, 1975).

This special importance of that mission was it helped the people who were confused about the answers of religion about the events of nature that they observe, which are hard to understand. This looking for information was the first step in the development of science (Katz, 1998). They were looking for the answers to their questions. That's why while they were thinking, they were not only questioning the myths, but they were also trying to construct alternative answers. Philosophers were acting like scientists as they were looking for the true information, while they were doing this they didn't completely rejected content of the myths.

The term philosophy, which means the love of wisdom, is firstly used Pythagoras according to one of his students, Heraclites (Katz, 1998). He led the society, which was half religious and half scientific. This society followed a rule of secrecy. Pythagoras called himself as the lover of wisdom, not as the wise man. Because, according to his religious beliefs, being wise was a property of gods. He also believed the job of a philosopher was to seek for information without hesitation at all times. His real aim was to reach the truth.

Pythagoras became a legend in time like the prophets of other nations (Katz, 1998). In his Academia, he was at the center of the society who came together to learn and teach. According to followers of his path his set of beliefs was like a religion. A person who accepts the rules of a religion totally without questioning can not fulfill the requirement of being a philosopher which requires critical thinking. So Pythagoreans who claimed to be philosophers in fact were behaving in a conflicting way with being a

philosopher by accepting Pythagorean order without questioning (Hilav, 1975).

We can conclude this from their trial to reject the existence of irrationals and keeping that fact as a secret. Pythagoras gave special meanings to numbers. He thought that things are numbers and the whole cosmos is a scale or a number. A number represents justice, another represents soul, and another is the symbol of mind in his belief system. He found that the harmony in music is closely related with the number ratios, so they thought numbers were units of all the matters. The main matter of existence was numbers according to him.

Pythagoras answered the question of cosmology, “ How matters can be constructed of numbers? ” by assuming numbers to be related with materials (James, 1997). Pythagoreans separated numbers into two as finite and infinite. They also made another classification of numbers as odd and even. They thought that they found this classification in the following ten basic opposite couples: odd-even, one-many, left-right, male-female, stable-unstable, direct-curved, light-dark, good-bad, and square-rectangle.

So they had a sense of duality in their ideas of the world, there is infinite, bad, even against odd, finite and good (Segal & Ilin, 1983). There they assumed number one to be both even and odd. So as being both even and odd of number one, these opposites exist in the world in a harmony.

Universe is a harmony of numbers. So the order of matter in the universe is a system of numbers. This is number mysticism. Science and religion may intersect according to some points of view. Pythagoras led a group of people

who believed in his ideas without questioning, not like philosophers but like followers of a religion.

Because of the distinction between science and religion, they were obviously not scientists. Science depends on questioning the previous founding and accepts the possibility of the falsity of them; religion rejects to change any idea which is accepted to be true (Segal&llin, 1983). Religion accepts its rules as absolute facts. Although Pythagoreans' loyalty to their beliefs and their tendency to reject any fact onflicting with their beliefs were harmful for the development of science, their studies and observations worked for science (James, 1997).

For instance, they had success in astronomy by noticing for the first time in history that the earth is not the center of universe, they assumed the earth to be sphere, turning around another sphere of flame (Katz, 1998).

Pythagoras also defined solar eclipse of the moon. They thought like all the objects moving fast, stars make a sound. The frequency of that sound is proportional to the distance of their center of the star to the central flame, so the universe has its own usic, but ordinary mortals can not hear that music. This generalization stemmed from Pythagoras's observations in music, mathematics and astronomy.

For his followers, he was the man who gave the secret of the universe by revealing special number ratios (Swetz, 1994). Pythagoras noticed that vibrating strings produce harmonious tones when the ratios of the lengths of the strings are whole numbers, and that these ratios could be extended to other instruments. He used music as a means to help those who were ill. He

created the special rules of Pythagoreans' like washing left foot first but wearing the right shoe before the other, not to eat beans, not to eat meat except lambs' meat (Segal & Ilin, 1983).

He was under the effect of Orphism who believed in Dionysus, wine god. This path included the idea of rebirth in a cycle. With the effect of Orphism, Pythagoras and his followers rejected to eat meat because of the belief that humans might be reborn in animal bodies. They also tried to keep themselves away from desires of the body to break the rebirth cycle. Religion was the main factor that kept Pythagoreans together but, science and music had important effects on that religion, because they tried to make their rules or beliefs depend on scientific foundations.

Although they tried to depend on the foundation about mathematics; they could not prevent themselves to believe in stereotypes like not to eat beans, because they are countable, not to sit as groups of four. They generalized their foundations on mathematics and accepted numbers as the base of existence. His followers applied these rules in their lives without thinking on them, because they believed their teacher. Pythagoreans thought they did not have the right to question Pythagoras' ideas (Bunt, 1988). Pythagoras claimed his belief system was depending on science.

On the contrary, with the discovery of the existence of irrationals which was against his belief in the magnificent ratios of the integers his rules lost their meaning. This was a logical scandal. An irrational number is a number which you can not express as a ratio of two integers. This went against Pythagoras's philosophy that all things are numbers and can be expressed by

ratios of integers. However, because of his belief that all things are numbers it would be a natural task to try to prove that the hypotenuse of an isosceles right angled triangle had a length corresponding to a number.

But simply the diagonal length of a square, which is the hypotenuse of that kind of a triangle, is an irrational number. This harms the idea of unity.

Pythagoreans tried to hide that fact with the usual behavior of people who believe in dogmas (Bunt, 1988). This kind of a behavior conflicts with the happiness of a scientist to discover what is not known. As Jones stated, science can not advance if it is a secret known only to initiates (Swetz, 1994). One of the followers of Pythagoras revealed the fact. Hippasus, who revealed the secret of their brotherhood, was punished by the gods according to a legend.

Gods killed him in the sea (Bunt, 1988). Science and religion are the two basic tools that we use to give a meaning to our lives. The major difference between them is, their different approaches to any possible change in the information that they depend on. Although their religion was constructed according to scientific foundations, their attempt to hide the fact shows us that science had lost its priority against religion because Pythagoreans organized their lives according to their religion and they didn't want to change their life style. There is no absolute fact in science.

Any information is true if you can prove it. If any logical disproof can be developed, the information changes. That's why, although Pythagoreans religion was constructed according to scientific foundations, their attempt to hide the changes the reliability of their information shows us that science

had lost its priority against religion in the case of Pythagoreans. But as we have seen in that case, facts can not be hidden forever. On the whole, although people reject scientific information because of their religious dogmas, the only way to solve the secret of the universe is to depend on science.

Because as the time goes, any set of beliefs can not be enough to organize new lives of people according to new facts. The main conflict between science and religion, the dogmatism in religion, still threatens the future of many countries which are ruled by the religious orders. Since science reveals the secrets of the universe, some beliefs of religions are proven to be false by science. So some people reject the discoveries of science. The duality between the people who rejects science and the ones who accept it is a source of problems for now and the future.