Entelekya Logico-Metaphysical Review
Vol 10 No 1 May 2026: 31-47

An Evaluation of the Influence of Plato's Understanding of Mathematics on Modern Science in the Context of Martin Heidegger

AYDIN ÇİÇEK
Ministry of National Education

Research Article
Submitted: 06.03.2026 | Accepted: 12.05.2026
DOI: https://doi.org/10.5281/zenodo.20149086

Abstract: What science is constitutes one of the foremost topics of debate in the modern world. To draw attention to this debate, Heidegger stated that it is necessary to define what science is. According to him, science is a tool that presents everything related to what exists. This tool has acquired a new meaning in line with the modern understanding of science. This is because modern science is grounded in Ancient Greek philosophy. For this reason, from Heidegger's perspective, science can be seen as the theory of the real. The real, however, should not be evaluated as a result, but rather as a process. Therefore, the real is something that is constantly at work. This process can be explained by Aristotle's concept of 'energia'. Furthermore, theory means the fixation and objectification of the real. Therefore, what modern science does is to fix science by dividing it into parts. It is also an attack on the real. For this reason, the real is a process of work. The fact that the real is a process of work shows that it is a concept related to technique. The real emerges in a way that is dependent on working and doing. The fact that it is a working process also shows that it is not the result that emerges. Therefore, in this study, the nature of science will be discussed, and Plato's influence on modern science will be examined within the context of Heidegger.

Keywords: Plato, Heidegger, real, theoretical, modern science, mathematics.

AYDIN ÇİÇEK ✉
Ministry of National Education, Cezeri Private Academy and Technology College
Recep Tayyip Erdoğan Bul. No: 391, Haliliye, Şanlıurfa, 63100, TR [aydincicek6312@gmail.com]

Introduction

Heidegger criticized modern science. He claimed that modern science is based entirely on facts. This means that science is given certainty. The effort to make science certain has led to its being carried over into a metaphysical dimension. For modern science has constructed certainty in a way that is closed to criticism. This mode of construction has created ideas that, like metaphysics, cannot be questioned. Furthermore, the reason for this situation is that modern science essentially incorporates Ancient Greek philosophy. This is why modern science has been considered to be concerned with facts. Similarly, Ancient Greek philosophy and medieval science were also concerned with facts.

However, Descartes, who is considered the guardian of modern science, attempted to prove the certainty of mathematics. In doing so, he used the method of doubt. With the method of doubt, he constructed metaphysics of the subject. With this attempt at construction, he objectified everything else opposite the subject.[1] This objectification initiative led to the development of a new technique for the advancement of knowledge. The development of this technique began with Plato.[2] With Plato, it became a technical tool. This transformation led to philosophy taking on a different meaning. In this new meaning, philosophy became a tool that attempts to explain existing things within a theoretical framework.[3] For these reasons, technology has reached a level that threatens human existence.[4] The subject's metaphysics has been influential in the emergence of this situation. The objectification of everything in relation to the subject has profoundly affected modern science. This is because the modern scientific understanding bears the traces of Descartes' understanding of mathe-

1 René Descartes, *Metafizik Üzerine Düşünceler*, trans. Çiğdem Dürüşken (İstanbul: Kabalcı Yayınevi, 2013), 23; Kudret Aras, *Gilles Deleuze Felsefesinde Özne-Oluşun Ontolojik Tasarımı* (İstanbul: Çıra Akademi Yayınları, 2023), 22.

2 Ertuğrul İbrahim Kızılkaya, "Bilim, Teknik ve Heidegger Üzerine Bir Not", *Kesit Akademi Dergisi* 2 (2017): 78.

3 Adnan Esenyel, *Martin Heidegger: Varlığın Patikaları* (Ankara: Fol Kitap, 2020), 21.

4 Esenyel, *Martin Heidegger: Varlığın Patikaları,* 137.

matics. According to Descartes, knowledge obtained through mathematics is unchanging and fixed.[5] This understanding of immutability and permanence is based on Platonic mathematics. In Platonic philosophy, mathematics is immutable and leads to the knowledge of certainty. This understanding of certainty forms the foundations of modern science. Therefore, the influence of Plato is clearly visible in modern science. To understand this influence, it is necessary to have a good understanding of Heidegger's understanding of science.

Heidegger's Understanding of Science

From Heidegger's perspective, modern science is the final form of metaphysics. An important indicator of this is the attempt to base every approach in human life – art, education, politics, industry – on science. At the same time, this attempt at grounding is based on the certainty of science. This constitutes a different dimension of metaphysics. These dimensions manifested themselves differently in Ancient Greece and the Middle Ages. This is because the approach to science in Ancient Greece and the Middle Ages was different. In Ancient Greece, science existed as the observation of nature. Here, the search for certainty is not an issue. For this reason, in Ancient Greek episteme, humans did not possess objects. Humans observed objects and gained knowledge about them. They understood things as they were, clearly and transparently. In the Middle Ages, the influence of Christianity was also evident in science. Science was shaped by faith. Modern science, on the other hand, involves the investigation and transformation of knowledge about nature through mathematics. Modern science has replaced medieval religious thought with its claim to certainty; it has become the dominant force.[6] Therefore, the search for certainty has led to the continuation of metaphysics in science in a different form.

According to Heidegger, "science is a way in which everything that exists presents itself to us, and it is actually a decisive way."[7]

5 Kızılkaya, "Bilim, Teknik ve Heidegger Üzerine Bir Not", 80.

6 Tuğba Genç, "Heidegger, Modern Bilim ve Sanat", *Ethos: Felsefe ve Sosyal Bilimlerde Diyaloglar* 2, no.4 (2008), 2-3.

7 Martin Heidegger, *Bilim Üzerine İki Ders*, trans. Hakkı Hünler (İstanbul: Paradigma Yayınları, 1998), 14.

Moreover, according to him, science is the theory of the real.[8] The fact that science is the theory of the real negates the medieval understanding of science. Similarly, it differs from the Ancient Greek episteme. As a result of this differentiation, modern science emerged. For the Ancient Greeks, science was the knowledge of the universal, as the existence of existing things. For the Middle Ages, the definition was not the real but doctrine. Doctrine is a set of principles and rules accepted within a particular belief and ideology system, insofar as it is the unchanging, absolute principles of a field. Episteme, on the other hand, is mathematically based knowledge grounded in rationality. This understanding of science, even if considered different from the Platonic understanding, has its foundations in metaphysical thought. Therefore, from Heidegger's perspective, the essence of modern science is the thought of the Ancient Greeks, which has been called philosophy since Plato. This is why it is a real working process. The fact that the real is a working process shows that it is a concept related to technology. Real emerges in a way that is tied to working and doing.[9] This understanding of science, even if considered different from the Platonic understanding, has its foundations in metaphysical thought. Therefore, from Heidegger's perspective, the essence of modern science is the thought of the Ancient Greeks, which has been called philosophy since Plato. This is why it is a real working process. The fact that the real is a working process shows that it is a concept related to technology. The real emerges in a way that is tied to working and doing.[10] The fact that it is a process of working also shows that it is not the result that emerges. Aristotle explained this process with the concept of 'energia'. Energia means continuation within the process of working. However, in Rome, this word changed to 'octio'. It is what emerges, what is brought to the fore. It is now real. The real becomes the thing that stands opposite as an object. This means treating it only as a result, placing it in the realm of objectivity, and separating it from the doer, the agent. In other words, the real has become the factual. The

[8] Heidegger, *Bilim Üzerine İki Ders*, 15.
[9] Sinan Kılıç, *Martin Heidegger'de Metafizik Fark: Çoklukta Birlik*(Konya: Çizgi Kitabevi, 2019), 185.
[10] Kılıç, *Martin Heidegger'de Metafizik Fark: Çoklukta Birlik,* 185.

factual has taken on a state of certainty in modern science.[11] Therefore, the process has emerged as a certainty in the modern world.

On the other hand, the prominence of factuality based on certainty in the modern world has led to discussions about what theory is. As a result of these discussions, Heidegger attempted to explain what theory means. For Heidegger, the word theory is derived from the Greek verb theorein. The noun associated with this verb is theoria. The verb "theoren" is formed from the combination of two root words, 'thea' and "horao." "Thea" is the external appearance of something showing itself, the external appearance of something presenting itself. The second root word in theorein, horao, means to look at something carefully, to examine it, to look at it closely. Accordingly, theorein is thean horan; it is to look carefully at the external appearance of what is present, which has become visible, and not to take one's eyes off it thanks to such seeing. Theo and horao can be read as thea and ora. Thea is divine. The Greek word ora signifies what we are, what we bestow, honor and respect. In this case, theoria becomes a respectful listening to what is present emerging from its concealment.[12] Thus, in modern science, theory means manipulating and fixing what is real, objectifying it. At the same time, classifying objects in certain fields and focusing on them in groups is what we call specialization in science. Specialization means the division of modern science into disciplines. According to Heidegger, modern science contradicts the essence of science with this approach. For science opposes the manipulation of the real. Science, on the contrary, attacks the real. It organizes the real, making it something that can be examined and followed.[13] Therefore, in the modern world, the scientist does not allow things to exist as they are. He seizes them, objectifies them, and places them before him, shaping them according to his own will. What exists has become the thing standing before him.

As can be seen, Heidegger's statement that "science is the theory of the real" refers to the observation of objects. This observation has

[11] Genç, "*Heidegger* Modern Bilim ve Sanat", 3.
[12] Heidegger, *Bilim Üzerine İki Ders*, 22-23.
[13] Kılıç, *Martin Heidegger'de Metafizik Fark: Çoklukta Birlik*, 184.

transformed science into a research activity within the context of cause-and-effect relationships. This research activity has driven the effort to define its own methodology by dividing the sciences into parts. At the same time, this effort has gained functionality with the new methodology. Functionality means that every objectively defined field is designed within its relationship with what exists. The result is the accountability of what exists with the concern of knowing. Being calculable has become an important feature of modern science. Therefore, being calculable has led to the foregrounding of the mathematical. For this reason, it is necessary to have a good understanding of Heidegger's mathematical thought. For the essence of modern science contains the mathematical.

Heidegger's Concept of Mathematics and Modern Science

Modern science has been concerned with facts, just as it was in Ancient Greece and the Middle Ages. However, all scientific ideas presented begin by criticizing the understanding of science in the medieval world. In fact, Ancient Greek and medieval science, like modern science, is based on facts. The way these facts are conceptualized has created scientific differences between the periods. This form of creation has also revealed the difference in the modern understanding of science. This is because modern science has changed the concept of conceptualization while designing facts. This change can be seen in the philosophers of the 17th and 18th centuries, when modern thought was formed. At the same time, these philosophers brought the concept of conceptualization to the fore without explaining the facts. Furthermore, conceptualization led to modern science being considered in opposition to medieval science. This is because modern science was thought to be based on facts, while medieval science was thought to be based on conceptualization. This way of thinking is partially true from Heidegger's perspective. However, what Heidegger fails to see is that ancient and medieval science also contain factuality. According to Heidegger, Galileo Galilei, one of the guardians of modern science, also criticizes medieval science because it starts from general propositions. In his view, while Galileo is critical, he himself is in

the same situation.[14] Therefore, Ancient Greek science and modern science are concerned with the conceptualization of phenomena. The fundamental difference between modern science and Ancient Greek science lies in how they conceptualize phenomena. Similarly, it lies in how they construct conceptualization.

On the other hand, the way phenomena are conceptualized was clearly evident in the 16th and 17th centuries; because it was thought that phenomena could not exist on their own. Therefore, phenomena came into existence through conceptualization. Similarly, they are also dependent on conceptualization. This idea of dependence was attempted to be overcome by positivism. This is because the positivist way of thinking criticized the idea of conceptualization in science directed towards facts. At the same time, the idea of conceptualization can be seen as a philosophical way of thinking. Furthermore, the reason modern science is defined as the science of facts is to distinguish it from medieval and ancient Greek science. However, medieval and ancient Greek science emphasized facts. This emphasis was ignored, and modern science was defended as being based on facts. For this reason, the purpose of modern science is described as follows: "It is seen in the experiments of the new science and in the experimental verification of knowledge."[15] For Heidegger, experimentally obtained knowledge is something known in medieval and ancient Greek thought. The idea of 'experiment' here lies in taking things as a whole. In this way of thinking, experimental knowledge obtained through observation is not important. For this reason, observation itself has not been considered important. Unlike observation, the way of constructing observation has been brought to the fore. The form of observation is related to conceptual thinking that concerns phenomena as a whole.[16] Thus, the observation method has facilitated conceptualization.

According to Heidegger, modern science has two fundamental characteristics. These are: being factual and experimental.[17]

[14] Heidegger, *Bilim Üzerine İki Ders*, 46.
[15] Heidegger, *Bilim Üzerine İki Ders*, 46.
[16] Heidegger, *Bilim Üzerine İki Ders*, 47.
[17] Heidegger, *Bilim Üzerine İki Ders*, 47.

In addition to these two features, another feature is that it must be a calculator.[18] According to him, modern science calculates while also specifying the measure. What is important here is how the calculation is determined. When modern science is explained as factual, experimental, and measured, its fundamental characteristic is lost.[19] For this reason, Heidegger describes the fundamental characteristic of modern science as follows: "This fundamental characteristic must consist of that which governs and determines the fundamental movement of science itself. This characteristic is the way of working with things and the metaphysical conception of the thingness of things."[20] Therefore, the fundamental characteristic of modern science lies in its metaphysical design. This design stems from its mathematical nature. Thus, modern science is mathematical.

From Heidegger's perspective, the way in which the mathematical is explained is one of the significant problems in the modern world. The way to overcome this problem lies in turning to the understanding of mathematics in the ancient Greek world. For the mathematical essence of modern science has dominated science since ancient Greece. Regarding this dominance, Heidegger states the following in his work Two Lectures on Science: "In terms of its formation, the word mathematical derives from the Greek expression ta mathémata, which means that which can be learned and therefore also that which can be taught; manthanein means to learn, mathésis means to teach, and it is so in both senses. Mathésis, first, means study and learning; then, it means the teaching that is taught. Teaching and learning are considered here in a broad and essential sense, not in the narrow and stereotypical sense of schools and scholars that came to be understood later."[21] Thus, the ancient Greek understanding of mathematics laid the foundations for modern science. At the same time, the basis of this development lies in the fact that mathematics can be taught

[18] Doğan Özlem, "Giriş", Martin Heidegger, *Tekniğe Yönelik Soru*, trans. Doğan Özlem (İstanbul: Afa Yayınları, 1997), 13.
[19] Martin Heidegger, *Teknik ve Dönüş & Özdeşlik ve Ayrım*, trans. Necati Açа (Ankara: Pharmakon Yayınevi, 2015), 31-32.
[20] Heidegger, *Bilim Üzerine İki Ders*, 47.
[21] Heidegger, *Bilim Üzerine İki Ders,* 48.

In Ancient Greece, mathematical meant teachable. Similarly, since the essence of modern science is mathematical, it is teachable; that is, things related to mathematics can be taught. Furthermore, when we think of the mathematical, the first thing that comes to mind is numbers. The reason for this is the connection between the mathematical and numbers. The mathematical is numerical, and the numerical contains the mathematical. This is because the numerical means teachable. Learning is the process of making a concept our own. However, not every act of making something our own is learning. We can take something, say a rock, familiarize ourselves with it, and put it in a rock collection. We can do the same with plants. Our cookbooks say, 'take it', meaning use it. Taking something, in a sense, means acquiring ownership of it and having control over it. Therefore, not every taking constitutes learning.[22] Therefore, things are learned to the extent that we learn them mathematically.

Mathematics consists of things that are known beforehand. The plant-ness of a plant, the object-ness of an object, the animal-ness of an animal, and the thing-ness of a thing are known beforehand. Furthermore, learning is the acquisition of what one possesses. This acquisition is a genuine acquisition. However, learning does not occur solely through acquisition; because acquisition, when experienced alongside existing knowledge, can result in complete learning. Regarding this matter, Heidegger stated the following in his work Two Lectures on Science: "Mathémate, the mathematical, is that which concerns things we already know. Therefore, we do not acquire it from things in the first place. But in a certain sense, we already bring it with us."[23] Therefore, knowledge of things exists as it is. At the same time, this existing thing is mathematical. For example, we can see three chairs. However, these three chairs do not tell us what three is. If we know what three is, other things become meaningful. When three is known, we can say three notebooks or three pens. That is why the numerical is mathematical. Similarly, the numerical is teachable.

On the other hand, according to Heidegger, until the reality of the

[22] Heidegger, *Bilim Üzerine İki Ders,* 49.
[23] Heidegger, *Bilim Üzerine İki Ders,* 51.

mathematical emerged, truth was thought of as the truth of the church and faith. Therefore, the process of acquiring knowledge about existing things passed through the interpretation of revelation. Furthermore, worldly knowledge was not excluded or considered valuable. In this context, Heidegger's importance has been understood once again. For he eliminated the measurement of natural knowledge, which is important in the history of science, by supernatural knowledge.[24] This has been achieved through mathematics; because the rejection of revelation has also led to a critique of tradition. With this critique, mathematics has emerged as a truth. The truth of the mathematical has revealed a different dimension of human freedom. This dimension concerns human freedom. Humans can create their own freedom.[25] Therefore, Heidegger has enabled the emergence of new possibilities in the history of science.

According to Heidegger, liberation from theology began with Descartes. Recognizing the importance of the mathematical, Descartes argued that truth is mathematical. This argument also led to his being regarded as the guardian of modern science. Furthermore, Descartes removed philosophy from being a tool serving theology. He achieved this through the method of doubt. For he used the method of doubt to compel people to think for themselves. This compulsion forced people to obtain knowledge from within the world.[26]. The world has given rise to a conception of knowledge based not on revelation but on the idea of 'I'. For there is only one thing that is beyond doubt, and that is doubt itself; that is, I have begun to doubt my own existence. According to him, 'I' has taken on human characteristics. Similarly, the self has come to be seen as the center of thought. This perception has created the 'I' perspective and the subject metaphysics that form the center of modern thought.[27] Therefore, Descartes is an important philosopher in terms of the separation of thought from theology. However, he also contributed to the formation of the metaphysics

[24] Heidegger, *Tekniğe Yönelik Soru,* 20.
[25] Heidegger, *Bilim Üzerine İki Ders*, 72.
[26] Tülin Bumin, *Tartışılan Modernlik: Descartes ve Spinoza* (İstanbul: Yapı Kredi Yayınları, 2010), 34-35.
[27] Heidegger, *Bilim Üzerine İki Ders*, 74.

of the subject, which forms the basis of modern thought.

On the other hand, Heidegger did not doubt Descartes because he was skeptical. He argued that mathematics is the foundation of knowledge. This led to all knowledge being tied to this foundation. This connection transformed him into a skeptical person. Furthermore, according to Heidegger, what Descartes was trying to do was not to find a fundamental law for nature. What he was trying to do was to find the first and highest principle for the Being of beings. This principle must be a mathematical principle. The mathematical principle did not possess anything before itself. Similarly, it does not allow anything to be given before itself. The principle that can be given is a proposition. The proposition is mathematical.[28] "If anything is given, it is generally only as a proposition, that is, as an affirmation in the sense of assertive thinking, as a positing, as a position. Affirmation finds itself only as something that can be posited as a proposition. The proposition is absolutely mathematical only where thinking thinks itself, that is, it is the acquisition of knowledge of what we already possess."[29] Therefore, mathematical propositions must be true statements.

Thinking lies at the foundation of mathematical truths. Therefore, according to Heidegger, every assertion is a thought.[30] This way of thinking is the thought of 'I'. For this reason, thinking is always 'I think', ego cogito, that is, the most certain proposition reached. I can reach this. According to him, this thinking that Descartes reached is not a 'sum' result but the basis of thinking. This way of thinking is not pre-given; it is a way of thinking that arises from itself. In this way of thinking, I am the one who thinks and affirms. As a result of affirmation, the proposition can be 'subjectum'. Similarly, as a result of this, what is affirmed is the affirmation of 'I'. I have turned into 'objectum'. Therefore, I am the affirmation of affirmation. For the reason I begins to be defined objectively is that it begins to affirm itself; because today, 'I' has become an object. Furthermore, until Descartes, everything

[28] Heidegger, *Bilim Üzerine İki Ders*, 79.
[29] Heidegger, *Bilim Üzerine İki Ders*, 79.
[30] Martin Heidegger, *Metafizik Nedir?*, trans. Yusuf Örnek (Ankara: Türkiye Felsefe Kurumu Yayınları, 2009), 10-11.

was thought of holistically, that is, everything was subjective.

With Descartes, this way of thinking changed. This change led to the emergence of a specific 'I'.[31]. This 'I' is an 'I' that determines everything based on itself. Everything else that remains in relation to this 'I' becomes an object. [32] For this reason, according to Heidegger, the reversal of the subjective and the objective must occur, transforming into Dasein. "This reversal of the meanings of the words 'subjectum' and 'objectum' is not merely a matter of usage; it is a radical transformation of Dasein, that is, a transformation concerning the unfolding of the Being of beings on the basis of the domination of the mathematical."[33] With this transformation, I will remember that thinking is related to being: because the modern self has forgotten that thinking is to be in relation to being and to think about Being.[34] Therefore, the fragmentation of the self is seen as a precondition for the emergence of Dasein. This also implies overcoming Cartesian philosophy.

As can be seen, modern science has positioned humans in opposition to nature. Humans do not exist within nature, but rather stand in opposition to it. For this reason, humans have begun to design reality according to their own perspective. This design has led to a distinction between humans and the external world. Accordingly, humans are reality itself. Opposite reality lies the object of thought. This has initiated the metaphysics of the subject. Thus, the subject of the Ancient Greeks has become the object. In Ancient Greece, the subject was within reality. The places of subject and object have changed. While modern humans play the role of owner, the calculable, controllable world has become an image standing opposite humans. Modern science is built upon this deep disconnect between object and subject.[35] Therefore, modern science is based on the foundations of the Ancient Greek world. At the same time, Plato's mathematical thinking was influential in the Ancient Greek world.

31 Heidegger, *Bilim Üzerine İki Ders*, 81.
32 Heidegger, *Tekniğe Yönelik Soru,* 20-21.
33 Heidegger, *Bilim Üzerine İki Ders*, 81.
34 Özlem, "Giriş", 13.
35 Genç "Heidegger, Modern Bilim ve Sanat", 4-5.

Plato's Mathematical Thought

Plato is an important philosopher from the perspective of modern science. This is because modern science is a scientific understanding based on mathematics. Similarly, in Plato's thought, mathematics has been of great value. Therefore, mathematics forms one of the cornerstones of the theory of ideas. There are pluralities in the world we live in. Where there is plurality, there must be a unity corresponding to that plurality. This plurality appears in Plato's thought as the unity of ideas.[36] According to Plato, all forms that appear in the sensory world (lines, surfaces, volumes, triangles, spheres, etc.) and numbers (odd numbers, even numbers, one, two, three, etc.) have their counterparts in the world of ideas. This is why, in his work The Republic, Plato classified knowledge by placing the mathematical under the world of ideas. Because the world of ideas and mathematics are conceptual knowledge.[37] Therefore, mathematics has served as a means of explaining ideas.

According to Pato, mathematical reasoning encompasses objects. At the same time, the fundamental method of mathematics is to start from assumptions. It is to obtain consistent results based on these assumptions. Obtaining consistent results demonstrates the existence of a world that makes it possible to use this method correctly. Similarly, the mathematical nature of this world ensures that it is meaningful.[38] In contrast, there is also the world of pure reason, pure thought, or intellectual intuition. These worlds cannot produce conclusions from assumptions. This is because they proceed from principles that contain no assumptions. Furthermore, based on this principle, assumptions are attempted to be explained. The dialectical method is used in this explanation. For this reason, a world has been created that provides the absolute reliability of dialectics.[39] Therefore,

[36] Serdar Saygılı, *Paul Karl Feyerabend'in Bilim Felsefesi* (Konya: Çizgi Kitabevi, 2019), 143.

[37] Platon, *Devlet*, trans. Sabahattin Eyüboğlu & M. Ali Cimcoz (İstanbul: Türkiye İş Bankası Kültür Yayınları, 2006), 522c-525b; Özgüç Güven, "Platon'da Sayının Temellendirilmesi", *Felsefe Arkivi* 43 (2015), 54.

[38] Simon Blackburn, *Devlet ve Platon*, trans. Merve Yüksel & Müzeyyen Baturay (Ankara: Versus Yayınları, 2014), 130-131.

[39] Ahmet Arslan, *İlkçağ Felsefe Tarihi 2: Sofistlerden Platon'a* (İstanbul: İstanbul Bilgi

two types of worlds have been created. These are: the world based on the certainty of mathematics and the world based on the certainty of dialectics. Modern science has centered on the mathematical world created by Plato.

On the other hand, Plato claimed that the subject of true knowledge (episteme) is real existence or the comprehensible world. For this reason, when the object of inquiry is something visible, it cannot provide true knowledge. In this context, science is invisible, non-particular, unchanging, unalterable, and non-sensory. In other words, the subject of science is universal, unchanging, necessary, and rational. This situation has given rise to two distinct realms of existence, the visible and the thought-of, separated by clear lines. The realm of the senses, which constitutes one side of this ontological distinction, is subject to change, movement, formation, and decay. People have opinions (doxa) about these things. The other side of the distinction, the realm of the thought-about, is the subject of thought; people have knowledge (episteme) about such things. Therefore, it cannot be the subject of doxa. The thought of the knower is knowledge, while the thought of the appearance is opinion.[40] Therefore, science falls within the domain of episteme. There is no transition from doxa to episteme. For this reason, something particular, changing, and capable of being otherwise cannot be the subject of true knowledge. Therefore, sciences such as physics, chemistry, biology, and medicine cannot exist as true sciences. True science is based on episteme, and episteme has provided the classification of sciences.

The first science in Plato's classification of sciences is arithmetic (arithmitikos). Arithmetic, which leads man to true being, is the abstract science of numbers and numerical relationships. Its high institutional value in Plato's eyes stems from arithmetic's ability to free the human mind from the senses and the sensory, facilitating the transition to abstract thought. Arithmetic eliminates contradictions in sensory perception with its precise and exact quantitative methods. The

Üniversitesi Yayınları, 2006), 263.

[40] Eyüp Erdoğan, "Platon ve Aristoteles'in Bilimlere İlişkin Sınıflamaları" *FLSF Felsefe ve Sosyal Bilimler Dergisi* 7 (2009), 139.

importance of arithmetic stems fundamentally from its being a pure or abstract science.[41] Furthermore, its purity and abstraction have enabled the development of a scientific understanding that can be universally applicable. In line with this possibility, it demonstrates that a thought cannot be conveyed without relying on calculation and numbers. For there must be a science that can lead to the essence of existence. This must be an unchanging science based on the episteme. For this reason, Plato attached importance to numbers and calculation. "...If the eyes or any other sense perceive unity as it is, they cannot lead us to the essence of being..."[42] Therefore, sensory information does not provide knowledge belonging to the realm of truth. This means that knowledge based on the factual realm cannot provide certainty.

For Plato, the reason arithmetic is an important science is that it makes it possible to attain true knowledge, namely the idea of God. For God himself is an arithmetician. This is why, for Plato, arithmetic is an intermediate realm between the world of shadows and the world of ideas. It is also a passage connecting these two realms. The objects of arithmetic, which is the knowledge of what remains unchanged rather than what is in the process of becoming, especially geometric shapes, are sensory things. This is the distinction between the objects of arithmetic and the ideas. Accordingly, the objects of arithmetic are like an intermediate link between ideas and sensory objects.[43] Like ideas, these are timeless and eternal; they have not come into being and cannot cease to exist. They are the subject of intellectual knowledge. But unlike ideas, they are not pure and unadulterated, devoid of matter. Everything mentioned in arithmetic has an independent, concrete, real existence in the external world. In other words, Plato claimed that arithmetic has a reality that can only be grasped through reason. This reality exists in the mind and intellect.[44]

Conclusion

From Heidegger's perspective, modern science is the final form of

[41] Erdoğan, "Platon ve Aristoteles'in Bilimlere İlişkin Sınıflamaları", 139.
[42] Platon, *Devlet*, 525e.
[43] Blackburn, *Devlet ve Platon*, 130-134.
[44] Erdoğan, "Platon ve Aristoteles'in Bilimlere İlişkin Sınıflamaları", 140-141.

metaphysics. While criticizing metaphysical thinking, modern science has essentially continued metaphysical thinking. Modern science's critique of metaphysics has subjected all approaches entering the human sphere to scientific explanation; because what modern science seeks is certainty. In contrast, in Ancient Greek thought, science is the observation of nature, and there is no search for certainty. In medieval thought, science took shape under Christian thought. This understanding of science is the study of existing things. In this context, from Heidegger's perspective, science is our knowledge of existing things. This knowledge is mathematical. It provides knowledge of mathematical reality. Another philosopher who argued that mathematics provides knowledge of reality was Plato. Plato presents mathematics as conceptual knowledge under the world of ideas. This is because the mathematical is immutable and is a path to knowledge of being. Mathematics has also found the certainty sought by modern science. Therefore, mathematics provides immutable, certain knowledge. Consequently, mathematics is one of the important tools that constitute the essence of science.

In conclusion, Heidegger is not opposed to science itself. Science is the presentation of what exists. Therefore, science is a concept related to the existence of what exists. At the same time, this concept is based on culture. Its basis in culture means that science will vary from culture to culture. However, what is common to all cultures is the investigation of what the reality of science is. In contrast, modern science is based on any kind of thought; because the essence of modern science is not related to being. Therefore, the essence of modern science is the trapping of beings. In this context, thinking is trapped by modern science. In this case, thinking is reduced to mathematical measurement and condemned to certainty. Therefore, criticism of modern science will also enable the liberation of thought.

References

Arslan, Ahmet. *İlkçağ Felsefe Tarihi 2: Sofistlerden Platon'a* . İstanbul: İstanbul Bilgi Üniversitesi Yayınları, 2006.

Aras, Kudret. *Gilles Deleuze Felsefesinde Özne-Oluşun Ontolojik Tasarımı.* İstanbul: Çıra Akademi Yayınları, 2023.

Bumin, Tülin. *Tartışılan Modernlik: Descartes ve Spinoza*. İstanbul: Yapı Kredi Yayınları, 2010.

Blackburn. Simon. *Devlet ve Platon.* Trans. Merve Yüksel & Müzeyyen Baturay. Ankara: Versus Yayınları, 2014.

Descartes, René. *Metafizik Üzerine Düşünceler*. Trans. Çiğdem Dürüşken. İstanbul: Kabalcı Yayınevi, 2013.

Erdoğan, Eyüp. "Platon ve Aristoteles'in Bilimleri İlişkin Sınıflamaları". *FLSF Felsefe ve Sosyal Bilimler Dergisi* 7 (2009): 137-162.

Esenyel, Adnan. *Martin Heidegger: Varlığın Patikaları*. Ankara: Fol Kitap, 2020.

Heidegger, Martin. *Tekniğe Yönelik Soru*. Trans. Doğan Özlem. İstanbul: Afa Yayınları, 1997.

Heidegger, Martin. *Bilim Üzerine İki Ders*. Trans. Hakkı Hünler. İstanbul: Paradigma Yayınları, 1998.

Heidegger, Martin. *Metafizik Nedir?* Trans. Yusuf Örnek. Ankara: Türkiye Felsefe Kurumu Yayınları, 2009.

Heidegger, Martin. *Teknik ve Dönüş & Özdeşlik ve Ayrım*. Trans. Necati Açа. Ankara: Pharmakon Yayınevi, 2015.

Genç, Tuğba. "Heidegger, Modern Bilim ve Sanat". *Ethos: Felsefe ve Sosyal Bilimlerde Diyaloglar* 2, no.4 (2008): 1-14.

Güven, Özgüç. "Platon'da Sayının Temellendirilmesi". *Felsefe Arkivi* 43 (2015): 53-63.

Kızılkaya, Ertuğrul İbrahim. "Bilim, Teknik ve Heidegger Üzerine Bir Not". *Kesit Akademi Dergisi* 2 (2017): 74-85.

Kılıç, Sinan. *Martin Heidegger'de Metafizik Fark: Çoklukta Birlik.* Konya: Çizgi Kitabevi, 2019.

Platon. *Devlet*. Trans. Sabahattin Eyüpoğlu & M. Ali Cimcoz. İstanbul: Türkiye İş Bankası Kültür Yayınları, 2016.

Saygılı, Serdar. *Paul Karl Feyerabend'in Bilim Felsefesi*. Konya: Çizgi Kitabevi, 2019.