

Mathesis Universalis and the Cartesian Unification of Philosophy, Science, and Religion

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Abstract: *In this paper we present the manner in which René Descartes discovered the principle of the autonomy of the spirit as a Mathesis Universalis, as a universal science, his perception being much different from the medieval scholastic one, where the intellect corresponded with the sensible reality. Descartes reversed this suitability, considering that the intellect should not be guided by things and build judgments according to them, but, on the contrary, things are analyzed according to the intellect's abilities to give them meanings and sense, to make them intelligible.*

Firstly, we will demonstrate that, for Descartes, the very existence, the reality of a thing depends on this light of the intellect that unifies all knowledge through Mathesis Universalis. For the French philosopher, order and measure, captured by Mathesis Universalis, become the qualities by which God, the only perfect Being, created the Universe that obeys a coherent mathematical model.

Secondly, we will highlight the fact that the starting point of this new metaphysics could be found in Descartes's view that God cannot be considered deceptive, that the world is not the creation of an evil and cunning Genius.

In conclusion, knowledge through Mathesis Universalis leads the spirit to that place where the reasons of universal peace can be founded, whose purpose is to overcome those structures of the imaginary that wing the irrational drives dressed in the clothes of war and death.

Keywords: *metaphysics, meditation, religion, Mathesis Universalis, order and measure.*

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Introduction

The young René Descartes felt a great disturbance before the truth of faith in the lonely nights spent at Neuburg an der Donau, where he had retired in the autumn of 1619, awaiting the great confrontations of time. It was the moment that pitted two fanatical armies, those of the Protestants and the Catholics that were going to plunge Europe into a bloodbath. Doubt had sown deep roots in the fragile soul of Descartes - the soldier, who could no longer understand the reasons for a fratricidal war, which had already made thousands of innocent victims. As the truth delayed to appear to him from under the light of the sensible Sun, the young philosopher delved into his interiority, this time looking for the light of the Sun from within, from the farthest place of his troubled consciousness. Aristotle could not offer him a solution for understanding this world, which had already become totally incoherent and irrational, when it had unconsciously slipped towards religious conflicts. A significant change appeared with Descartes' way of thinking as "*the place of mystical contemplation is taken by intellectual meditation*" (Cordoneanu, 2016). In his long meditations during the night, haunted by dreams and hallucinations, the young René will manage to find a new type of relationship with God, different from everything that had been sought until then. He was discovering a God of metaphysical meditations, other than that of Plato, who saw Him in an immutable world of eternal ideas that exists in itself and for itself, beyond the human being. He was also a Creator different from that of Aristotle, who deduced Him from syllogisms, as Thomas Aquinas had accepted, but also different from that of the exalted fanatics, who fought endlessly killing Creation. Descartes' solution to this desperate search for God was to open a new way in which science, philosophy and religion could work together.

In this work we will try to demonstrate that the main goal of Cartesian philosophy was that of a great unification, which had to start from the field of sciences, then expand to theology and finally build the bridges of dialogue that would overcome the religious conflicts between Catholics and Protestants, laying the foundations of a lasting peace founded on reason.

Inventi mirabilis* and the genesis of a new philosophical concept - *Mathesis universalis

On the night of November 10/11, 1619, Descartes had the three dreams while he was in the small town of Neuburg an der Donau and which he considered as "*coming from Above*", from Olympus, a place of the divine,

which is found above the sensible world, but also of Parnassus, as a place of human arts. The next day, the young philosopher noted his great enlightenment, which, however, was not sufficiently crystallized in its passage from the level of his unconscious to the levels of consciousness, which was not yet capable of providing a total transfer of unconscious contents: "*X Novembris. Cum plenus forem Enthousiasmo, et mirabilis scientiæ fundamenta reperirum*" (Baillet, 1691) ("*10 November. When I was full of Enthousiasm, I would discover the foundations of a wonderful science*"). Three days after the battle of White Mountain, one of the most important battle from the beginning of 'The Thirty Years' War, on November 11th, 1620, one year since his famous dreams, Descartes noted in the *Olympica* the following words: "*XI Novembris 1620, coepi intelligare fundamentum Inventi mirabilis*" (Baillet, 1691). This *wonderful discovery* (*Inventi mirabilis*) would prove to be the key to a great unification of all human knowledge in a new universal project, whose purpose was to overcome the limits of scholastic thought. The French philosopher saw the gap of all thinking up until then, which had bypassed the principle value of knowledge that mathematics holds.

In the Middle Ages, mathematics was divided into a special cycle called the *Quadrivium*, meaning the four sciences considered separately, respectively: arithmetic, geometry, astronomy and music. There was no understanding of the unity and the common basis of all these sciences. The unity was reduced only to a unity of the name, which belonged more to tradition than to a clear understanding of the essential unity of the entire branch of mathematical disciplines. Descartes would give a first answer to this misunderstanding in his youthful treatise, which he did not finish, entitled *Regulae ad directionem ingenii* (*Rules for the Direction of the Mind*). Here and only here, Descartes will mention, in writing, the idea of *Mathesis Universalis* (Descartes, 1952a), of a universal science, which would have mathematics as its model, understood in the most general sense possible.

Descartes brought to this matter an entirely new idea; he noticed that the mathematical sciences are united not only by the common name, but also by the fact that they all refer to *order* and *measure*. In this sense, it is not essential that this order and measure is particularized in concrete structures such as numbers, figures, stars, sounds or anything else. Once this discovery was made, Descartes' entire life was channelled towards the discovery of this admirable science, behind all sciences, a general science that captures the intimate nature of order and measure, without entering into the research of particular objects. Descartes explains the name *Mathesis* by the fact that, if the concept of "mathematics" meant only science for the ancients, then the

sciences must name parts of this *science of sciences*, which is *Mathesis Universalis* (Descartes, 1952a).

Regulae ad directionem ingenii was planned to contain 36 rules, but only 21 were completed. The unity of science is attested from the *First Rule* itself and is based, as in the initial period, on the unity of the human spirit, which remains the same even though it applies to different things. "*For since the sciences taken all together are identical with human wisdom, which always remains one and the same, however applied to different subjects, and suffers no more differentiation proceeding from them the light of the sun experiences from the variety of the things which it illumines*" (Descartes, 1952a). As objects do not change the light of the Sun, which makes them shine, so the variety of things does not in the least change the nature of our spirit. Thus *Universal Mathematics (Mathesis Universalis)* defines its object very clearly: it must be a *science of the spirit*, of that power which can deny the entire sensible reality because it is different from it. Descartes started from the idea of a science in itself which he required to be able to solve all problems, but he discovered that such a science could only be thought from its metaphysical foundations (Alquie, 1950).

The discovery of the autonomy of the spirit as *Mathesis Universalis* is the element of novelty brought by Descartes, being very different from the medieval scholastic conception in which the intellect was guided by things. The thinking subject, thinking of himself, discovers in himself the ideas of God and those of things, without needing for a mysterious communication, which becomes even more inappropriate in a dualistic system (Blanchet, 1985).

For the scholastics, who had Aristotle's thinking as their principle of authority, truth was nothing but *adequatio rei et intellectus (the adequacy between intellect and things)*. In Descartes' view, all the problem data changes because the intellect no longer conforms to different classes of things, it no longer varies in relation to them, but surpasses them remaining the same.

The French philosopher reversed this suitability, considering that the intellect should not be guided by things and build judgments according to them, but, on the contrary, things are analyzed according to the intellect's abilities to give them meanings and sense, to make them intelligible. A thing is known more or less according to the light of the intellect that can be captured by it. In fact, the very existence, the reality of a thing, depends on this light, without which it is in an area of non-existence. In this idea lies the great difference between the thinking of Descartes and that of Ptolemy. Ptolemy mathematized the cosmic model described by Aristotle in *On the Heavens*. Aristotle, however, had a poetic vision, inspired by the data of the senses. But Descartes invoked the power of the intellect, which must not be

left idle. The priority of a new logic, born from mathematical calculation, led him, following the footsteps of Copernicus, Kepler, and Galileo, towards the heliocentric theory.

We consider that there are many reasons for the non-completion of the *Rules*. Descartes' times had become increasingly turbulent in the context of religious wars, and the philosopher's fear of the power of the Roman Inquisition, but also of the religious fanaticism of Protestant circles, made him extremely cautious when it came to publishing something. The idea of *Mathesis Universalis*, which gave wings to his spirit of youth, seemed an extremely dangerous one at a time when universality caught other types of expression.

The Catholic Church, a universal one, could feel hurt by this new universalism of science, of *Mathesis*.

Descartes, who was an extremely cautious person, tried to avoid a possible interpretation of his philosophy in the sense of a conflict with the universal (Catholic) Church: ecclesiastical universalism versus universalism of science (*Mathesis Universalis*). In another sense, perhaps Descartes foresaw the danger of the autonomy of science that can replace the inner dimension of man, founded on a morality offered by religion and philosophy, with the technologies of control, as artificial intelligence can do today.

However, Descartes would not use the term *Mathesis Universalis* in any other written text. In the attempt to impose the idea of *Mathesis* among the scientific community of the time, Descartes became a great philosopher. This path of the Cartesian evolution towards the *Mathesis Universalis* reaches its completion in the *Meditationes de prima philosophia*.

The fulfillment of the idea of *Mathesis* through a *more geometrico* metaphysics in *Meditationes de prima philosophia*

In *Meditationes de prima philosophia*, published in 1641, Descartes asserts the certainty of arithmetical, geometrical and *purely mathematical* truths. Of course, *pure and abstract mathematics* is something else than algebra and geometry, as the text shows; it is nothing but *universal Mathematics*.

It also appears at the end of *5th Meditation* in the mention: *purae Matheseos objectum* (Descartes, 1904) [*object of pure mathematics*] (Descartes, 1952b). A short distance away, the term is repeated even more clearly: "*Soleo vera alia multa imaginari, praeter illam naturam corpoream, que est purae Matheseos objectum*" (Descartes, 1904) [*But I am in habit of imagining many other things besides this corporeal nature which is the object of pure mathematics*] (Descartes, 1952b).

In the French translation, he abandons the Latin formula "*puram atque abstractam Mathesim*" or "*purae Matheseos*", preferring, in order not to

produce ambiguities, either to conceal the idea or to replace the term *Mathesim* with that of "*une science parfaite touchant une infinité de choses, non seulement de celles qui sont en lui, mais aussi de celles qui appartiennent à la nature corporelle, en tant qu'elle peut servir d'objet aux démonstrations des géomètres, lesquelles n'ont point d'égard à son existence*" (Descartes, 1904) ("*a perfect knowledge of an infinitude of things, not only those which are relate to God Himself and other intellectual matters, but also of those which pertain to corporeal nature in so far as it is the object of pure mathematics [which have no concern with whether it exists or not]*") (Descartes, 1952b).

Descartes' thinking, founded on a redoubtable onto-theology (Marion, 1986), created, definitively, the only way capable of giving authority to the *Mathesis* and, thus, heliocentrism could no longer be contested by the scholastic doctors of the Sorbonne, to whom the French philosopher dedicated the text of the *Meditations of the first philosophy*.

The key concept of the *Meditations*, the Cogito presents itself as the substance, anultimate reality, to which all ideational contents can be reduced. In addition to its onto-theo-logical dimension, it also acquires an epistemological meaning because, as Cartesian terminology describes it, this is a concrete reality, characterized by the fact that it is self-sufficient as something that presents itself as a "complete", as a whole (Gueroult, 1968).

In the *Meditations*, considered the most complex text elaborated by Descartes, the hyperbolic doubt, introduced in the *First Meditation*, crowns the critique of substantial forms releasing scientific knowledge from mixing with data from the senses. Methodical doubt is nothing but a methodical denial of all probable contents, the source of which is found in the misdirection of the intellect (Gouthier, 1987).

Against this background of the isolation of the Ego in relation to its sensible experience, Descartes can open the order of reasons that chain the particular sciences according to their connection to a metaphysical order, founded on the *cogito* and at the core of which is the unity between God, thought, and existence. This unity makes the *Universal Science* able to ensure the coherence of all human and divine knowledge.

This special type of knowledge, which was meant to bring human being closer to God, had to make a great conversion into *Mathesis Universalis*, to reduce reality to an algebraic language. In turn, this language had to be able to capture the successions, respectively time and its pretences, which would ultimately lead, through a great effort of interpretation, to the authentic meanings of Creation. Descartes was, in fact, a great numerologist; he thought everything through numbers and mathematical equations and felt close to the angels when his science discovered the meanings of a coherent,

rational world, which is under the sign of the necessary, and free will could only be a sign of ignorance. The philosopher-mathematician interprets the success of a scientific theory as an obvious sign of divine grace, of the fact that man, a finite being, is on the right track,

Metaphysical Meditations, analyzed from the perspective of the four rules of the Cartesian method, reveal to us the program of a metaphysics that follows the geometric path (*more geometrico*), which aims, first of all, to discover some axioms that can be reached after a complex process of analysis. This geometric path, opened by Descartes, will be the method followed by all the great rationalist philosophers of the 17th century, from Spinoza to Leibniz.

The starting point of this new metaphysics, founded by Descartes, is found in the fact that God cannot be considered deceptive, and, correlated with this idea, that the world is not the creation of an evil, deceptive and cunning genius. Knowledge through *Mathesis* leads the spirit to that place where the reasons of truth and universal peace can be founded, whose purpose is to overcome those structures of the imaginary that wing the irrational drives dressed in the clothes of deception, war, and death.

Through the idea of *Mathesis Universalis*, Descartes offered a new identity to modern man beyond the fragmentations born from the games of imagination, thus reopening a "*metaphysical relationship to a fundamental unity of the world, which finds its origin in Plato's theory of ideas*" (Sandu, 2015), laying the foundations of what would later become the Academies of Europe, beginning with *The Royal Society of London for Improving Natural Knowledge*, then the *L'Académie Française* in Paris, followed by *Königlich-Preußische Akademie der Wissenschaften* in Berlin.

Conclusions

Descartes understood that mathematics is the universal tool of science, but also of the new theology, being the key to understanding how the entire cosmos works. Order and measure, captured by *Mathesis Universalis*, are the qualities by which God, as a perfect Being, created the Universe, which obeys to a coherent mathematical pattern.

It can be considered that a human being, who possesses *Mathesis Universalis*, the science of mathematics, can truly capture the essence and coherence of the world, discover its governing laws, and truly have a science of things that opens him to the universal, to that unique place of understanding of the Creator.

However, we cannot fail to note at the same time the fact that the access of the finite human mind to *Mathesis Universalis* made it possible for

the imitation of God, in his capacity as the Creator of the world, to acquire some incredibly dangerous accents, especially for contemporary man, who abused the autonomy of knowledge through science, being indifferent to aspects of a moral, philosophical and theological nature.

Descartes understood in this sense that *Mathesis Universalis* must be oriented primarily towards God and that metaphysics and morality are indispensable to any project of scientific knowledge.

The excessive instrumentalization of *Mathesis Universalis* through technology creates the false impression of control and the possibility of a world in which the inner dimension of man, his transcendent openness to the divine and moral, could be largely bypassed or rendered useless when, as Heidegger observed, technically everything works flawlessly well.

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