

HOW SCIENCE TRANSFORMED DESCARTES' PHILOSOPHICAL DISCOURSE

The Curious Case of Animal Spirits

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Abstract

This paper is about the relationship between science and philosophy, or about the naturalization of philosophy. In the first part of the paper, we aim to present Quine's theoretical framework related to the scientific impact on philosophical discourse and inquiry. In his philosophical writings, Quine emphasized the importance of science, in naturalized or normative epistemology forms. The idea of a more tenable, science-dependent knowledge position, is often seen as central to Quine's epistemology. Far from any form of cosmic exile, philosophers, according to Quine, adopt the best knowledge available to them at a given time.

Something very similar occurs in Descartes' concept of animal spirits, showing that the use of the best available scientific knowledge at a given moment can easily be found in the French philosopher's work. Quine's conception, developed in the field of analytic philosophy, is found in Descartes' notion of animal spirits, demonstrating the influence of the dominant scientific paradigm on philosophical discourse. Since we consider the Quinean framework very relevant, we have adopted his view as a sort of interpretative paradigm that helps us to better understand a particular problem from the domain of history of philosophy.

The second part of the paper presents the notion of animal spirits seen in Descartes' philosophy as intermediary entities linking mind and body. Once a powerful scientific notion, animal spirits withered away with the advancement of science and were substituted with other scientific paradigms. The notion of animal spirits was seen as Descartes' critical point and was often neglected in philosophical analysis. In this paper, we advance a hypothesis on how science transformed Descartes' philosophical discourse by analyzing the curious case of animal spirits, showing at the same time the limitations and shortcomings of this new *modus philosophandi*.

KEYWORDS: Quine, epistemology, cosmic exile, Descartes, animal spirits

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Introduction

Philosophy is often interpreted as if it were in opposition to scientific knowledge. Sometimes this understanding appears in the form of a critical relationship between the humanities and the positive sciences. The focus of criticism is on relatively abstract philosophical argumentation that does not meet the pragmatism, functionality, and productivity criteria that every scientific knowledge should fulfil. Sometimes, philosophy is understood as an *early cognitive form* predestined to evolve into more advanced scientific forms on the positivist matrix. Each understanding has a certain logic and cannot simply be dismissed as unfounded.

Nevertheless, it seems that modern philosophy did not remain immune to the call of (early) modern science and has often incorporated fundamental postulates or even technical standards into its philosophical systems. On the one hand, it was necessary to develop an authentic *modus philosophandi* for various motifs and gain popularity at a specific historical moment. Scientific knowledge served well for that purpose. However, it also represented a limitation, mainly because the scientific theories incorporated were relatively short-lived. We want to articulate this unusually intriguing philosophical topic of how science shapes philosophical discourse using the example of the father of modern philosophy, Descartes. In accounting for the mind-body problem, he used a concept from hydraulics — animal spirits. The naïve mechanical explanation Descartes adopted was perfectly in conformity with the scientific standards of his time. This popular paradigm, which existed for centuries, has been wholly abandoned today and is of no scientific relevance, except perhaps historiographical. As we will show later, almost nothing remains of the temporal scientific categories that philosophers adopt, except, from a contemporary perspective, a certain philosophical naivete.

1. *Best knowledge and naturalized epistemology. Quinean framework*

1.1. Quine's stand on the best knowledge

In a very famous passage, Willard Van Orman Quine stated, directly and compellingly, that inquiry depends not only on some conceptual scheme but also on “the best one we know” (Quine 2013, 4). Scientific or philosophical inquiry refers to the systematic search of a given topic and, at the same time, as deduced from Quine's idea, is heavily dependent on the conceptual scheme. Much has been written on the concept of the conceptual scheme, and various authors have offered diverse interpretations. Even Quine him-

self affirmed the possibility of divergent interpretations saying that “The only meaning I attached to it [conceptual scheme] is a vague one. Namely, the conceptual scheme would be the more abstract general structure of one’s overall theory” (Quine 1992).

All the vagueness and ambivalence of Quine’s notion of conceptual scheme is less relevant than the fact that a conceptual scheme represents a sort of more abstract general theory in which the individual researcher is embedded. The general epistemological context shapes any systematic inquiry in terms of accepting the general theory present at a certain historical moment. The inquiry, seen as the starting point for scientific or philosophical theorizing, cannot abstract from a broader epistemic context whose central notion is knowledge. Similar ideas are found in Kuhn’s notion of paradigm (Kuhn 1962) and Foucault’s notion of episteme (Foucault 2005).

Returning to Quine’s topic, we could use an illustrative analogy and link the best conceptual scheme with the best knowledge in a given moment. Quine asserted that the notion of a conceptual scheme is interrelated with the idea of knowledge. From a common-sense point of view, it seems quite plausible and entirely logical to accept and adopt the best available knowledge in any given situation. One of the recurring ideas of this paper is to relate philosophical inquiry with the notion of the best available knowledge and, in the second part of the analysis, to point to its shortcomings and pitfalls.

If we were to invert Quine’s dictum slightly, substituting “the best” with “the worst”, where would it take us? Why would anyone deliberately prefer to use “the worst” knowledge at their disposal in any given circumstance?

Nevertheless, various psychological forms of self-deception or cognitive bias might prove the contrary. However, for this article’s purpose, these cognitive modes of (un)intentional self-deception in adopting “the worst knowledge” are relatively irrelevant. Contemporary social dynamics, related to e.g., the anti-vaxxer position in times of COVID-19, or the preference for a xenophobic political stance, show that very negative knowledge forms can be adopted and used deliberately in the public sphere. These phenomena go beyond the scope of this paper.

From a philosophical point of view, according to Quine, adopting the best available knowledge shows us the epistemic interplay between philosophy and science. Therefore, Quine’s epistemic stance is to adopt the best available knowledge at a given moment. The etymology of the adjective “available” helps us expand the interpretative horizons of Quine’s idea of “the best knowledge.” The etymology itself points us to a type of practical and beneficial knowledge, valid and functional at the same time. Quine uses superlatives, so we might as well use the term “optimal knowledge”, meaning the best or most effective possible knowledge in any given inquiry.

1.2. Naturalized epistemology and the impossibility of philosopher's cosmic exile

The idea of a more tenable knowledge linked to scientific knowledge is often seen as central to Quine's naturalized epistemology (Almeder 1990, 263–279). Quine's famous dictum, whose aim is to explain the very essence of naturalized epistemology, states that “it is within science itself, and not in some prior philosophy, that reality is to be identified and described” (Quine 1981, 21).

The naturalization of epistemology can be both a limitation and a liberation for science and philosophy. Quine affirmed that the naturalization of epistemology “brings a salutary blurring of such boundaries (between science and philosophy).” He emphasized the continuity between naturalistic philosophy and natural science, stating that:

“It undertakes to clarify, organize, and simplify the broadest and most basic concepts, and to analyze scientific method and evidence within the framework of science itself. The boundary between naturalistic philosophy and the rest of science is just a vague matter of degree.” (Quine 1995, 256–257)

Despite sharp criticism of Quine's position on naturalized epistemology (Stroud 1981, 455–471), various authors (Kelly 2014, 17–37; Almeder 1990; Pacherie 2002) have agreed that a central feature of Quine's position is the importance of science in any philosophical inquiry.

Elisabeth Pacherie linked naturalistic epistemology with the idea of epistemic normativity (Pacherie 2002, 299–317) in a very plausible manner. Etymology can be very insightful here, as it links the term “normativity” to the idea of a carpenter's square, a synonym for conformity to common standards. Despite the possible ambivalence the term “normal” may cause (even Kuhn stated that his elaboration of normal science was *badly confused* (Kuhn 1970, 231–278), our reading places emphasis on the standardization of scientific inquiry which is conducted within a normal context, shaped by actual scientific findings. Quine stated the following, using an engineering metaphor:

“For me normative epistemology is a branch of engineering. It is the technology of truth-seeking, or, in a more cautiously epistemological term, prediction. Like any technology, it makes free use of whatever scientific findings may suit its purpose.” (Quine 1986, 664–665)

1.3. The impossibility of philosopher's cosmic exile and the importance of scientific context

Naturalized epistemology supports reveals Quine's idea of how philosophical or scientific inquiry is conducted. To illustrate this evolving horizon of

knowledge, he used the example of the knowledge of the average man on the street, which corresponds to common-sense knowledge, while scientific knowledge represents more detailed knowledge. What is at issue here is the context-dependent idea of knowledge, illustrated by the knowledge “the man in the street already enjoys, in moderation, in relation to the commonplace things around him.” (Quine 1957, 2) Context is seen as a general structure (a more abstract general theory) mainly because it defines the meaning of a particular philosophical idea. Quine provides a more detailed framework, philosophically speaking, for understanding context as a conceptual framework for every inquiry.

According to Quine, philosophers accept the best knowledge available to them at a given time. The underlying methodological premise behind Quine’s understanding would be that philosophy is well anchored in the reality from which it originates. He challenges the idea of philosophy conceived as separate from reality. There is no such cosmic exile, emphasized Quine, mostly because the philosopher’s task does not differ “from the others [...] in no such drastic way as those suppose who imagine for the philosopher a vantage point outside the conceptual scheme that he takes in charge.” (Quine 2013, 254) According to many historians of science, this is what happened at the beginning of early modern philosophy, when the general scientific standard was extensively applied and translated into philosophical inquiry (Koyré 1968; Applebaum 2000; Westfall 1977). Quine himself summarized the historiographical approach in a few analytically written paragraphs. Speaking of the philosopher, he wrote the following:

He cannot study and revise the fundamental conceptual scheme of science and common sense without having some conceptual scheme, whether the same or another no less in need of philosophical scrutiny, in which to work. He can scrutinize and improve the system from within, appealing to coherence and simplicity; but this is the theoretician’s method generally. He has recourse to semantic ascent, but so has the scientist. And if the theoretical scientist in his remote way is bound to save the eventual connections with non-verbal stimulation, the philosopher in his remoter way is bound to save them too. True, no experiment may be expected to settle an ontological issue; but this is only because such issues are connected with surface irritations in such multifarious ways, through such a maze of intervening theory.” (Quine 2013, 254).

We hold that the criterion of pragmatism and relevance is a necessary presupposition of any reflection on the meaning, limits, and greatness of any philosophical idea. Regarding the optimal knowledge at a specific moment, mentioned earlier, it should be added that knowledge is understood here in the broadest sense as any form of cognition that has certain theoretical-normative and practical functions. In the following part, by introducing Descartes’ notion of animal spirits, we aim to provide an example from the history of philosophy to show the advantages and limitations of linking sci-

ence with philosophical discourse. The Quinean idea of the impossibility of philosopher's cosmic exile and the importance of the scientific context will be exemplified using Descartes' notion of animal spirits. As we consider the Quinean analytical framework for scientific inquiry very relevant, it helps us to better understand a particular problem from the domain of the history of philosophy.

2. *Descartes' case. How the animal spirits' paradigm turned into philosophical naivete*

2.1. The limitations of the scientific paradigm

Often labeled as the father of modern philosophy, Descartes is, without any doubt, one of the main canonical philosophers of the early modern age. The reasons he is considered that are many: the fact that the new *modus philosophandi* advanced through a new philosophical genre (method and meditations), his persuasive style, and providing a strong explanatory connection between philosophy and science. Descartes' novelty in the philosophical milieu was met with a strong reception, consolidating his philosophical position and making him a precursor of modern philosophical style. Still, some parts of Descartes' general philosophical system can be interpreted as philosophically and scientifically naïve. These elements are often neglected and are not of general interest to the philosophical audience. We intend to shed light on these critical elements embedded in Descartes' mind-body theory, showing its underlying motifs and limitations. More precisely, when Descartes adopts and applies the best knowledge of his time in his interpretation of, e.g., the connection between body and soul, he uses the hydraulic paradigm, probably the most intriguing available in his day.

At first glance, how and why would one connect the complex mind-body interaction with an ingenious, hydraulic paradigm? Yet, already in the oral tradition of philosophy, we come across the curious fact that the dominant idea of natural origin shaped the philosophical discourse. Thales, who was fascinated by Egyptian irrigation systems and was involved in hydraulic engineering himself, explained everything in terms of a link to or from water. This view based on natural philosophy was mostly defined as prephilosophical. With Descartes' new *modus philosophandi* the dominant style of explanation, dependent on science, became the standard, slowly pushing the previous philosophical standard out of the rational domain. We fully acknowledge the incompleteness and limitations of every philosophical discourse, and we want to raise awareness that even the almighty scientific standard is not exempt from this theoretical and argumentative incompleteness and obvious limitations. Mariafranca Spallanzani provides several il-

lustrative examples, stating that “not much remains of the Cartesian theses on meteors”, “little remains of Cartesian mechanics and dynamics of fluids”, and “nothing remains of Descartes’ ‘paradoxical’ theory of the animal–machines” (Spallanzani 2018, 21). In the 17th century, Descartes encountered cutting–edge science and technology, making a remarkable contribution to the advancement of these fields, but only a few centuries later, as Spallanzani argues, almost nothing remains, except for the idea of a short–lived scientific paradigm, so powerful at one historical moment and yet, so weak in another. Something else that remains is the fact that the scientific standard he adopted generated a typical philosophical problem — the problem of mind and body. In Descartes’ time, the dominant scientific standard was the mechanical standard, which profoundly influenced his philosophy. Before devoting part of this paper to the exegesis of Descartes’ notion of animal spirits, seen as intermediary entities linking body and soul, a few remarks on the mechanical standard should be made, mostly to show how this type of scientific standard shaped the general world picture of the time. As is commonly known, hydraulics is related to fluid mechanics and is a constituent part of the mechanical standard in science.

In the introductory part of his famous work *The Mechanization of the World Picture*, Eduard Jan Dijksterhuis, a versatile Dutch author, emphasized “that the adoption of the mechanistic view has had profound and far reaching consequences for the whole of society.” He interprets the emergence and process of the mechanization of the world picture as “an historical fact which gives rise to the most divergent opinions” (Dijksterhuis 1986, 3)”. Dijksterhuis does not explain in minute detail the use of the “mechanization of the world picture and mechanistic conception” (Dijksterhuis 1986, 4), but rather aims to “discover to what extent is possible to speak” about this mechanical world picture. The concept of the world picture is often found in various authors (Wittgenstein, Husserl, Heidegger). Despite its diverse philosophical articulation, it is commonly linked with a paradigm, world-view, or structured image. For Dijksterhuis, the mechanization of the world picture has a paradigmatic function and is seen as a general framework for all scientific activity.

Early modern science advanced a new paradigm of scientific explanation — the mechanical paradigm. Richard S. Westfall succinctly said that mechanical philosophy and mechanical modes of explanation reshaped and defined the framework within which scientific work was conducted. Westfall wrote almost poetically that “in its (mechanical) language questions were formulated; in its language answers were given” (Westfall 1977, 41–43). Formulating the problem using the new mechanical scientific language and providing answers in it would later influence the formation of a new philosophical style. A novelty is always connected with the substitution of former

explanatory genres (e.g., medieval *modus philosophandi*, Aristotelian physics) with new discursive forms. Mechanics, a branch of physics, provided good scientific explanations, and, as Clarke pointed out, this explicatory standard gained a special status as a fundamental description of the world (Clarke 2005, 16–18).

It seems that the new scientific paradigm provided better scientific explanations and represented a more tenable option in philosophical discourse. The previous scientific paradigm, Aristotelian physics, had been rejected from the dominant scientific discourse as inadequate and was replaced with the mechanistic conception of nature (Garber 2001, 1–5).

Mechanical philosophy and related modes of explanation were seen as the best knowledge at that historical moment. In Descartes' case, it was used to describe the relationship between body and soul. The extension of mechanical explanation to the human person gave rise to a modern form of dualism. Dualism, simply put, is a philosophical stand that affirms the existence of two kinds of substance. In the case of Descartes, he postulated the existence of *res cogitans* and *res extensa*, linked by intermediate entities, namely animal spirits. Dualism may seem like a typical philosophical problem at first. It has almost all elements of fit. It is related to the previous philosophical tradition (e.g., Plato, Augustine) and therefore possesses, to a certain extent, elements of philosophical constant. However, as indicated earlier, we advanced a slightly different thesis, that Descartes' dualism is only a logical sequence of naturalization of epistemology based on reductive physical science in the 16th and 17th centuries, applied to the human person, soul, and body. Descartes revealed his intention to delineate “what there is in each of our actions which depends only on the body, and what there is which depends on the soul” (Descartes 1664b, 316; AT 227). Establishing a demarcation line between two substances, Descartes emphasized that one substance, *res extensa*, belongs to the domain of the physical world, while *res cogitans* represents to a certain extent a narrowed version of the former conceptions of the soul. The underlying idea advanced by the French philosopher is the separation of all non-geometrical properties from *res extensa*, by placing them in mind, *res cogitans* (Burt 2003, 122).

Typical of the 17th century, and probably trendy, was the adoption of mathematization and physicalization of nature. In the context of the mind-body problem, the mind became an abstract entity that follows mathematical rules, while the body was embedded into the mechanistic domain. To bluntly explain Descartes' idea, it is enough to assert that we should think of human beings as combinations of two radically different types of reality (Clarke 2005, 17). Princess Elisabeth, Descartes' famous penfriend, raised a sharp critique of his dualistic conception, beseeching him to “tell [...] how the soul of man (since it is but a thinking substance) can determine the spir-

its of body to produce voluntary actions” (Atherton 1994, 11). A fragment of their correspondence summarizes the complexity of thinking about human beings as combinations of two types of reality. In the final analysis we discuss, how are the mind and the body connected?

2.2. Pertinent knowledge: Hydraulics and animal spirits

Concerns raised by princess Elisabeth were caused by the explanatory gap present in this particular aspect of Descartes' thought. The French philosopher extended the mechanistic world view to the living phenomena (human person, soul, body), as we emphasized earlier. Descartes' approach is indeed an example of reductionism, despite the fact that he saw the body “as a machine [...] made by hands of God [...] incomparably better than any machine that man can devise”, containing, “movements more wonderful than those in any such machine” (Descartes 1637, 139; AT 65). In *Treatise of Man* Descartes emphasized the completeness of the mechanical explanation of the human body:

“In order to explain these functions, then, it is not necessary to conceive of this machine as having any vegetative or sensitive soul or other principle of movement and life, apart from its blood and its spirits, which are agitated by the heat of the fire burning continuously in its heart—a fire which has the same nature as all the fires that occur in inanimate bodies” (Descartes 1985a, 108; AT XI 202).

His account on animal spirits is very coherent throughout his entire oeuvre. Therefore, in his *L'Homme*, Descartes shows that the soul and the body “would have to be joined and united to constitute men who resemble us” (Descartes 1985a, 99; AT XI 119–120). He starts from the assertion that man is composed “of a soul and a body” and “finally I must show how these two natures would have to be joined and united in order to constitute men who resemble us” (Descartes 1985a, 99; AT XI 119–120). He uses the antiquated idea of animal spirits to explain the above interaction. Animal spirits are initially defined as “parts of the blood” which penetrate the human brain and produce “a certain very fine wind, or rather a very lively and pure flame” (Descartes 1664a, 100; AT XI 129). According to Descartes' view, animal spirits enter the brain and then “they pass from there into the pores of its substance, and from these pores into the nerves” (Descartes 1985a, 100; AT XI 130). They are not localized but rather move through the body as intermediate entities. Descartes uses a fountain metaphor in order to provide a more illustrative account:

“Indeed, one may compare the nerves of the machine I am describing with the pipes in the works of these fountains, its muscles and tendons with the various devices and springs which serve to set them in motion, its animal spirits with the water which drives them, the heart with the source of the water, and the cavities of the brain with the storage tanks” (Descartes 1985a, 100; AT XI 131).

The animal spirits, seen as intermediate entities linking body and soul, are depicted as being related to basic aspects of circulation. They “come from the heart,” pass through “the pores of the brain,” and are “distributed” throughout the body. Descartes stated that he wanted to provide only “an orderly account” (Descartes 1985a, 104; AT XI 165–166). A similar account is found in his famous *Discourse on method* (Descartes 1985c, 138–139; AT VI 54–55) and in his other works. Although not extensively, the notion of animal spirits is mentioned in other Descartes’ work, especially in *Description of the Human Body* (Descartes 1985b, 316; AT IX, 227) and in *The Passions of the Soul* (Descartes 1985d, 330; AT 332).

2.3. How animal spirits paradigm withered away

From our contemporary perspective, this model of Descartes’ is characterized as obsolete. But this is not the most important thing about the mentioned model. As Laura Otis stated, it shows that the human brain was often described using the terminology of the then-current technology. From Descartes’ perspective, his models of mind–body interaction were primarily influenced by the hydraulic model, extremely popular in his time. With advancement of science, the idea of animal spirits was dismissed, beginning with Galvani’s discoveries of animal electricity in his work *De Viribus Electricitatis* (1791). Galvani criticized the traditional model of animal spirits, and his new paradigm, based on the concept of animal electricity, replaced the previous animal spirits paradigm. Electricity, proclaimed by Galvani to be the true agent of nervous action, was a more reasonable explanatory concept (Finger 2004; Otis 2001). Provocation is admissible in philosophy, so we will use a hypothetical situation to sketch Descartes’ account of the interaction between mind and body, heavily dependent on the notion of animal spirits. The situation takes place in the present. A doctor, wholly embedded in Descartes’ thought, which he advocates, meets a typical patient, a son of his times. Before the scheduled brain surgery, the patient meets with the doctor, who is exceptionally qualified to explain the forthcoming intervention to him in a simple way. The patient is concerned about possible complications that could hinder communication between the sensory organs and the brain. Philosophically speaking, the patient is afraid of possible problems between the mind (brain) and the body. He wants to know some general information, such as how the brain works, or something related to the transmission between the mind and the body. The doctor paraphrases Descartes, arguing that the animal spirits will continue to do their work, namely they will keep acting as messengers between the mind and the body. In his explanation, the doctor borrows an idea from Descartes’ *Treatise on Man* using the example of the fountains, in which animal spirits are like water, moving towards the

cavities of the brain (Descartes 1985a, 100; AT XI 130). This would be, we could assume, a conversation–stopper for apparent reasons.

The hypothetical case we used shows us that the cutting–edge scientific idea such as animal spirits withered away with the advancement of science. From our present perspective, such a model may seem quite naive, but animal spirits were a very accepted explanatory model in explaining the nervous system (Smith, Frixione, Finger and Clower 2012, 104–107). Descartes built his theory of the mind–body relationship on these concepts, probably the best available in his time, embedded in the hydraulic paradigm. From our contemporary perspective, the view on these concepts is completely different, and the notion of animal spirits can be described as obsolete.

Conclusion

This article analyzed the influence of the dominant scientific paradigm on philosophical discourse. In Descartes' case, the relatively unknown notion of animal spirits was used in order to explain the connection between mind and body. By analyzing one such specialist argument, we noticed the impact of one scientific paradigm — the hydraulic paradigm, on a typical philosophical problem — the mind–body relationship. Philosophers often neglected Descartes' explanatory concept of animal spirits because it seemed far removed from classical philosophical discourse. Indeed, his approach may seem infinitely naive and an example of philosophical naivete. But his underlying motives were complex and showed a complex interplay between philosophical discourse and the dominant scientific standard. Descartes showed how adopting the best available knowledge can redefine certain aspects of philosophical discourse, and at the same time, can be a limiting factor, philosophically speaking. In Descartes' case, the limitations of the scientific standard are more than obvious, and have been showed previously in this paper. As the father of modern philosophy, he showed that philosophers are not isolated from contemporary scientific and social dynamics, and cannot create *ex nihilo*, but rather abstract entirely from the context in which they are immersed. As a model of optimal knowledge, the scientific standard reshaped the philosophical discourse. Cross–fertilization between science and philosophy influenced and gave birth to the new *modus philosophandi*. At the same time, the lifespan of philosophical theory was shortened, and it lasted only until new scientific standards were discovered.

In this sense, scientific discourse is seen as ambivalent in relation to philosophical discourse. On the one hand, the epistemological ideal of normativity that it brings is popular, up to date, and communicative. But there is also a limiting aspect to it, as in Descartes' case, that turned into a sort of philosophical naivete, as shown earlier.

Our discussion of the critical points in Descartes' philosophy, which was neglected, intentionally or not, in a uniform systematic approach to the French philosopher, shows that these pitfalls are by no means an isolated case. It reveals the general tendency of modern philosophy to adopt the best available scientific knowledge, which at another moment can easily turn into its opposite. In a way, the limits of this particular scientific phenomenon are also the limits of Descartes' philosophy, often overlooked in the secondary philosophical literature. Even some aspects of the Quinean approach, embedded to a certain degree in the tradition of scientific optimism, could be revisited, given that any "best knowledge" at a certain historical moment, can easily turn into scientific naivete over time.

The aim of this paper was to show the influence of the dominant scientific paradigm, in Descartes' case of hydraulics, on the shaping of his philosophical discourse. Since we consider the Quinean framework very pertinent and applicable, his view has helped us create and use an interpretative paradigm to better understand a specific problem from the history of philosophy. Our methodological approach emphasized the cross-fertilization between notions from analytical philosophy (Quine) and elements from the history of philosophy (Descartes' animal spirits) in order to reach a clearer understanding of a specific philosophical problem and the importance of the scientific context for philosophical inquiry.

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Sažetak

KAKO JE ZNANOST TRANSFORMIRALA DESCARTESOV FILOZOFSKI DISKURS

Neobičan slučaj životinjskih duhova

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Ovaj rad govori o odnosu znanosti i filozofije ili, preciznije, o naturalizaciji filozofije. U prvom dijelu rada namjeravamo predstaviti Quineov teorijski okvir vezan za znanstveni utjecaj na filozofski diskurs i istraživanje. Quine je u svojim filozofskim spisima naglašavao važnost znanosti, u naturaliziranim ili normativnim epistemološkim oblicima. Ideja jedne održivije pozicije znanja utemeljena na znanosti često se smatra središnjom idejom Quineove epistemologije. Daleko od bilo kakvog oblika kozmičkog egzila, i filozofi, prema Quineu, prihvaćaju najbolje znanje koje im je u određenom trenutku dostupno.

Sličan fenomen pronalazimo u Descartesovom konceptu životinjskih duhova te se time potvrđuje teza o upotrebi najboljeg dostupnog znanstvenog znanja u određenom trenutku. Quineovu koncepciju, razvijenu u području analitičke filozofije, analiziramo na primjeru Descartesovog pojma životinjskih duhova, gdje se pokazuje utjecaj dominantne znanstvene paradigme na filozofski diskurs. Budući da Quineov okvir smatramo vrlo relevantnim, njegovo smo stajalište usvojili kao svojevrsnu interpretativnu paradigmu koja nam pomaže da bolje razumijemo određeni problem iz domene povijesti filozofije.

Drugi dio rada analizira pojam životinjskih duhova koji su u Descartesovoj filozofiji shvaćeni kao posrednički entiteti koji povezuju um i tijelo. Nekoć snažna znanstvena ideja, životinjski duhovi su gotovo iščezli s napretkom znanosti te su zamijenjeni drugim znanstvenim paradigrama. Pojam životinjskih duhova smatran je Descartesovom kritičkom točkom i stoga je često zanemaren u filozofskim analizama. U ovom radu iznosimo hipotezu o tome kako je znanost preobrazila Descartesov filozofski diskurs analizirajući neobičan slučaj životinjskih duhova, pokazujući u isto vrijeme ograničenja i nedostatke novog modusa philosophandi.

KLJUČNE RIJEČI: Quine, epistemologija, kozmički egzil, Descartes, životinjski duhovi

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