

DESCARTES ON MATHEMATICAL TRUTHS: COHERENCE AND CORRESPONDENCE IN THE REFUTATION OF SKEPTICISM

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I. EXTERNAL WORLD SKEPTICISM AND MODERN PHILOSOPHY

There is in Descartes's metaphysics a fundamental idea which was already adumbrated in the *Regulae ad Directionem Ingenii* and in the *Discours de la Méthode* (henceforth simply *Regulae* and *Discours*), but which only became fully developed in his later writings. This fundamental idea consists of two theses. (i) What we directly perceive are not the things themselves, but our ideas of them. In other words, our access to the objects of knowledge is always mediated by the ideas which we have of these objects.¹ This thesis constitutes the essentials of a philosophical tradition which emerged with Descartes, and which is sometimes referred to as the "philosophy of consciousness."² It was also accepted by other philosophers of this tradition, such as Berkeley, Hume, and Kant. A distinguishing feature of this philosophical tradition is the assumption that, regardless of the way the world really is, we can only know it via our own ideas. In this sense, ideas resemble a sort of "veil" which stands between ourselves and the reality outside of ourselves.³ However, unlike Berkeley, Hume, or Kant, Descartes also committed himself to a second thesis: (ii) Ideas and objects are essentially different things. This thesis appears in different passages from the *Meditations* and from the *Replies*. In the *Third Meditation*, for instance, Descartes affirms: "j'ai souvent remarqué, en beaucoup d'exemples, qu'il y avait une grande différence entre l'objet et son idée."⁴ Descartes's point is that some of our ideas seem to have been caused by "external things" (*res externae*), i.e., they have neither been formed by ourselves nor are they innate.⁵ But, for all we know, could it not be the case that some ideas which we assume to represent external things have, actually, been "invented" by ourselves, or put into our minds unbeknownst to us, so

that we cannot ever be certain as to their “origin”? This is, according to Descartes, one of the chief questions to be addressed in the *Third Meditation*.⁶ But, regardless of the origin of our ideas, they exist as a mode of thought, and the content of our ideas is said to have “objective reality.” This is not, of course, our modern sense of “objective,” for what is at issue here is the fact of something being an object in the mind. On the other hand, even though an idea may be at the origin of another idea, we cannot report *ad infinitum* the origin of an idea to a further idea. There must ultimately be something which causes our idea, but which is not itself an idea. This kind of non-mental thing has, according to Descartes, “formal reality.”⁷ Later in the *First Replies* Descartes returns to this point by arguing that the sun, for instance, exists “formally” in the heaven, but “objectively” in our own idea of the sun.⁸ Thus, even though we cannot know any extra-mental objects but by means of our ideas of them, in certain circumstances extra-mental objects may be depicted in our ideas exactly as they are in themselves. Descartes’s doctrine of clear and distinct ideas is an attempt at the establishment of such circumstances.

If we accept theses (i) and (ii), as Descartes did, then we can always ask if our ideas do in fact conform to the objects outside of ourselves; and ultimately, we can ask if our ideas correspond to anything at all outside of ourselves. Until we have established the existence of the external world, most of our usual knowledge claims will have to be considered doubtful. As is well known, Descartes strives to overcome these skeptical doubts by means of an alleged proof of the existence of the external world, in the *Sixth Meditation*. In this context, a refutation of skepticism consists in demonstrating that there are “external” objects outside of our ideas, and that our ideas somehow correspond to them. Even though attempts to refute skeptical doubts hark back to ancient philosophy, it was not until Descartes committed himself to theses (i) and (ii) that a proof of the existence of the external world came to be understood as an important philosophical issue.⁹

It is important to note, however, that although external world skepticism arises only in the context of the so-called philosophy of consciousness, other philosophers of this tradition, who did not endorse thesis (ii), did not have to concern themselves with an attempt to refute external world skepticism by providing a proof of the existence of the outer world. If we accept thesis (i), but deny thesis (ii), viz., that ideas and objects are essentially different things, then the problem of the external world turns out to be a false problem. Berkeley, for instance, seeks to show that the “very root of skepticism” stems from the combinations of theses (i), on the one hand, with thesis (ii), on the other, i.e., the fundamental principle of philosophy of consciousness with the

supposition that “real things” exist in themselves, regardless of the way they are perceived. Berkeley’s commitment to thesis (i) is attested in the following passage from the *Principles of Human Knowledge*: “When we do our utmost to conceive the existence of external bodies, we are all the while only contemplating our own ideas.”¹⁰ But, on the other hand, he rejected thesis (ii), as shown in a later passage from the same work: “All this skepticism follows, from our supposing a difference between things and ideas, and that the former have a subsistence without the mind, or unperceived.”¹¹ Thus, Berkeley does not have to advance a proof of the existence of the external world, for he does not attempt to combine theses (i) and (ii). Indeed, he argues that the external world skepticism rests on a “groundless” and “absurd notion”:

This which, if I mistake not, has been shown to be a most groundless and absurd notion, is the very root of *skepticism*; for so long as men thought that real things subsisted without the mind, and that their knowledge was only so far forth *real* as it was conformable to *real things*, it follows, they could not be certain that they had any real knowledge at all. For how can it be known, that the things which are perceived, are conformable to those which are not perceived, or exist without the mind?¹²

Hume, in like manner, accepts thesis (i), but denies thesis (ii). He assumes, on the one hand, that what we perceive are not extra-mental objects, but ideas and impressions. On the other hand, he is not forced, as Descartes was, to prove the existence of the external world, neither does he support a kind of external world skepticism, for he rejects thesis (ii), i.e., he denies that we are able to “conceive or form an idea of any thing specifically different from ideas and impressions.”¹³ For this reason, Hume does not endorse Descartes’s external world skepticism. As he puts in the *Enquiry concerning Human Understanding*:

The Cartesian doubt, therefore, were it ever possible to be attained by any human creature (as it plainly is not) would be entirely incurable; and no reasoning could ever bring us to the state of assurance and conviction upon any subject.¹⁴

In the *Critique of Pure Reason*, Kant seeks to show that the objects of knowledge are the result of a “constitution.” At the outset of the *Critique of Pure Reason*, in the “Transcendental Aesthetics,” Kant affirms that the space is the “pure form of intuition.”¹⁵ In the “Fourth Paralogism,” then, he calls “transcendental realism” the assumption that “external objects” exist independently of the way they are “represented” in the mind. Kant opposes “transcendental realism” to “transcendental idealism.” The latter, according to Kant, does not give vent to external world skepticism, for space and, consequently, the very notion of “externality,”

is also a kind of idea or “representation” (*Vorstellung*). In commenting upon Kant’s distinction between “transcendental realism” and “transcendental idealism,” Henry Allison maintains that Kant was not interested in establishing the existence of the external world, but in pointing out that external world skepticism is a pseudo-problem. As Allison puts it: “*Transcendental realism is thus presented as the source of the pseudo-problem of the external world and of the typically Cartesian version of skepticism that is associated with it.*”¹⁶ Thus, since Descartes committed himself to theses (i) and (ii), he also had to answer a question which had not ever been posed before him, and which even other philosophers in the tradition of philosophy of consciousness regarded as a misleading question, namely: whether there really is a world external to our ideas.

But did Descartes really envisage the *Meditations* as an attempt to refute a kind of skepticism that he himself had invented? Descartes occasionally refers to the *Meditations* as an attempt to refute skepticism. In order to refute the skeptic Descartes presented in the *First Meditation* some skeptical problems which the subsequent *Meditations* were supposed to overcome. But, in contrast to what I have just stated—that the *Meditations* seek to solve a skeptical problem which had never been formulated before Descartes—Descartes himself affirms in different texts that the *First Meditation* does not really advance any doubts different from the doubts of the skeptical tradition before him. In the *Second Reply to the Meditations*, for instance, he affirms:

C’est pourquoi, ne sachant rien de plus utile pour parvenir à une ferme et assurée connaissance des choses, que si, auparavant que de rien établir, on s’accoutume à douter de tout et principalement des choses corporelles, encore que j’eusse vu il y a longtemps plusieurs livres écrits par les Sceptiques et Académiques touchant cette matière, et que ce ne fût pas sans quelque dégoût que je remâchais une viande si commune, je n’ai pu toutefois me dispenser de lui donner une Méditation toute entière.¹⁷

The *Meditation* at issue here is certainly the *First*, for in his *Notae in Programma*, we read: “*Quod ut commodius & efficacius praestarem, proposui, initio Meditationum mearum, ista omnia tanquam dubia, quae non a me primum fuerunt inventa, sed a Scepticis dudum decantata.*”¹⁸ And in his unfinished dialogue, *La Recherche de la Vérité*, Descartes affirms: “*Ces doutes si généraux nous mèneraient tout droit dans l’ignorance de Socrate, ou dans l’incertitude des Pyrrhoniens; et c’est une eau profonde, où il ne me semble pas qu’on puisse trouver pied.*”¹⁹ If this is so, then Descartes’s refutation of skepticism—his attempt to overcome the doubts raised in the *First Meditation*—clearly aims at an already existing skeptical tradition, namely: Pyrrhonic skepticism. Indeed, if Descartes sought to solve the problem relative to the establishment of a criterion

of truth in the *Meditations* without begging the question—without using the criterion of truth to justify the validity of the very criterion—then it makes sense to suppose that he was discussing Pyrrhonic skepticism, for the latter clearly pointed out the difficulty to establish a criterion of truth without somehow committing a circle. In a well-known passage from the *Outlines of Pyrrhonism*, Sextus Empiricus poses the following question: “Is there really a criterion of truth [κριτήριον ἀληθείας]?” Then he adds:

[I]n order to decide the dispute which has arisen about the criterion [sc. of truth], we must possess an accepted criterion by which we shall be able to judge the dispute; and in order to possess an accepted criterion, the dispute about the criterion must first be decided. And when the argument thus reduces itself to a form of circular reasoning the discovery of the criterion becomes impracticable, since we do not allow them to adopt a criterion by assumption, while if they offer to judge the criterion by a criterion we force them to regress *ad infinitum*. And furthermore, since demonstration requires a demonstrated criterion, while the criterion requires an approved demonstration, they are forced into circular reasoning.²⁰

Even if we consider that Descartes was not acquainted with this text, he was well aware of the ongoing discussions on the problem of Pyrrhonic skepticism during the time he wrote the *Meditations*.²¹ But if this is so, then now we have to face the following problem: how shall we reconcile the thesis that Descartes’s refutation of skepticism is an attempt to solve a problem which had never actually been put before Descartes—the doubt concerning the very existence of the world—with the thesis I have just formulated, according to which Descartes’s refutation of skepticism aims at a specific philosophical tradition, namely Pyrrhonism? My concern in what follows is to show that the *Meditations* contain two different skeptical doubts, and that Descartes sought to give them different answers. I will not attempt to give a detailed analysis of Descartes’s *First Meditation*, for there is already a plethora of texts on this subject. It has been a sort of “commonplace” to recognize three levels of doubt in the *First Meditation*.²² I intend to concentrate on the last level of doubt, namely on the idea that there may be a God who deceives us whenever we make a knowledge claim. Henceforth this idea will be referred to as Descartes’s metaphysical doubt.

II. TWO FORMS OF SKEPTICISM

Descartes’s metaphysical doubt aims at two different problems. On the one hand, it calls into question the relation of correspondence between our ideas and the world exterior to our ideas. On the other hand, the

metaphysical doubt also seeks to undermine the validity of a criterion of truth grounded on the truth of mathematical propositions:

Metaphysical Doubt	
(i) Doubt concerning the correspondence between our ideas and the external world	(ii) Doubt concerning evidence as a reliable criterion to find out truth
<p>Toutefois il y a longtemps que j'ai dans mon esprit une certaine opinion, qu'il y a un Dieu qui peut tout, et par qui j'ai été créé et produit tel que je suis. Or qui me peut avoir assuré que ce Dieu n'ait point fait <i>qu'il y ait aucune terre, aucun ciel, aucun corps étendu, aucune figure, aucune grandeur, aucun lieu, et que néanmoins j'aie les sentiments de toutes ces choses, et que tout cela ne me semble point exister autrement que je le vois?</i></p>	<p>Et même, comme je juge quelquefois que les autres se méprennent, même dans les choses qu'ils pensent savoir avec le plus de certitude, il se peut faire qu'il ait voulu que <i>je me trompe toutes les fois que je fais l'addition de deux et de trois, ou que je nombre les côtés d'un carré, ou que je juge de quelque chose encore plus facile, si l'on se peut imaginer rien de plus facile que cela.</i>²³</p>

On the left-hand side of the table, we have a problem concerning the correspondence between our ideas and the world. On the right-hand side, however, Descartes focuses on a problem other than the question of correspondence: his intention is to investigate if evidence may be trusted upon as a reliable criterion of truth. In different texts Descartes asserts that, at the very moment when we entertain a clear and distinct idea, we cannot doubt it—we have a sort of inner constraint which leads us to accept as true whatever ideas we perceive in a clear and distinct way.²⁴ But, from the mere fact that we have a natural inclination to recognize clear and distinct ideas as true, does it follow that they are, actually, true? In the *Regulae* and in the *Discours* Descartes gave a positive answer to this question: the simplicity of mathematical operations and the evidence of mathematical propositions could provide the grounds for a reliable method to find out truth. But, in the *Meditations*, if we seriously consider the metaphysical doubt, then we have to admit that even the most simple mathematical proposition may be false, so that a mere subjective constraint should not be enough to guarantee the validity of the method to find out truth proposed in the *Regulae* and in the *Discours*. The problem in the *Meditations*, therefore, as regards the question of the criterion of truth, concerns the possibility of demonstrating that the inner constraint which clear and distinct ideas exert on us is a reliable sign that an idea which is clearly and distinctly perceived is actually true.

The left-hand side of the table introduces an ontological question: it casts doubt on the existence of *corps étendu* (*res extensa*), *figure* (*figura*), *grandeur* (*magnitudo*), etc. At first glance, the ontological question raised in this context seems to be enough to undermine also the truth of mathematical propositions at large, for *res extensa*, *figura*, *magnitudo*, etc., are the very objects of mathematics. In other words, if the truth of an idea consists in its correspondence with the thing it

represents, and if the existence of things such as extension and figure is called into question, then the validity of mathematics as a whole is also questioned. Nevertheless, according to Descartes, the privilege enjoyed by mathematics in relation to other sciences is the fact that it does not have to presuppose the existence, *in rerum natura*, of the objects with which it deals.²⁵ Descartes clung to this thesis both in texts prior and posterior to the composition of the *Meditations*. In the *Discours*, for instance, he affirms: “*je voyais bien que, supposant un triangle, il fallait que ses trois angles fussent égaux à deux droits; mais je ne voyais rien pour cela qui m’assurât qu’il y eût au monde aucun triangle.*”²⁶ And the same idea reappears in the French version of the *Principia*: “*De même le nombre que nous considérons en général, sans faire réflexion sur aucune chose créée, n’est point hors de notre pensée.*”²⁷ Thus, we have *prima facie* reasons to consider mathematics in general as a reliable science, for neither numbers nor geometrical figures exist in *rerum natura*, or “in the world” (*au monde*), or “outside of our thoughts” (*hors de notre pensée*). Nonetheless, in the second part of the metaphysical doubt—in the right-hand side of the table—Descartes makes it clear that we can call into question even the simplest mathematical propositions, if we consider the possibility that there is an evil God who always deceives us. The second part of Descartes’s metaphysical doubt, therefore, introduces an epistemological question: it calls into doubt what seems to be the best criterion we possess to recognize the truth of an idea, i.e., a criterion which, in the *Regulae* and in the *Discours*, had been formulated in virtue of the validity of mathematics. It is, therefore, the left-hand side of the table which is concerned with the problem of the external world, i.e., a problem which had never been formulated before Descartes. But it is on the right-hand side of the table that Descartes sought to deal with the problem of the criterion of truth, a problem which had already been posed by the Pyrrhonic skeptical tradition.

This distinction between the doubt concerning the existence of the external world and the doubt concerning the evidence as a criterion of truth may also explain a passage from the *Conversation with Burman*, in which Descartes affirms that, in addition to the traditional skeptical questions, we are also to encounter in the *Meditations* questions which had not yet been posed by the skeptics.²⁸ Thus, in addition to the doubt on the criterion of truth, a kind of skepticism quite familiar in the Pyrrhonic tradition, Descartes also advanced in the *Meditations* some doubts of his own, i.e., the question relative to the very existence of the external world. It is interesting to note, however, that some commentators, such as Zbigniew Janowsky, mistakenly hold that it is in the second part of the metaphysical doubt (on the right-hand side of the table), where Descartes aims at the problem of the criterion of truth, which

presents Descartes's original contribution to the problem of skepticism. As Janowsky puts it: "*The second part of Descartes's hypothesis is much more original and, as far as we can determine, had no antecedents in the history of philosophy.*" The first part of the metaphysical doubt, on the other hand, where the existence of objects outside of the mind is systematically put into question, would not "*go beyond very well-known skeptical considerations.*"²⁹ This reading of Descartes's *First Meditation* involves a misunderstanding. In the *First Meditation* Descartes puts mathematical truths into doubt because he is ultimately interested in revisiting the Pyrrhonian skeptical claim that we cannot establish a reliable criterion of truth. Indeed, in the *Regulae* and in *Discours* he had accepted without further caveat that the typical evidence of mathematical propositions would enable us to formulate a trustworthy criterion to "search for truth."³⁰ But to which extent can we still trust this criterion once we have put its foundation into question? This is the question Descartes poses in the second part of the metaphysical doubt. But this question, understood as an inquiry into the problem of the criterion of truth, is far less original than Janowsky supposes. It is, rather, the question relative to the existence of the outer world which had no antecedents before Descartes, for it involves a commitment to the theses (i) and (ii), examined in the first section of this paper.

III. TWO CONCEPTS OF TRUTH IN THE MEDITATIONS

There are two different problems at issue in Descartes's metaphysical doubt: one is an ontological problem, expressed with the question about what *exists* outside of our ideas; and the other is an epistemological problem, expressed with the question about the conditions that we should attend to in order to *know* anything at all, that is to say, in order to recognize an idea as true. But it might be argued that the metaphysical doubt is concerned with one and the same problem, namely: the problem of evidence as a reliable criterion of truth.³¹ The distinction between the right and the left-hand side of the table is merely a matter of generality. If we can call into question even the most elementary mathematical propositions, then we can also call into question the relation of correspondence between our ideas and the reality. In other words, it might be argued that the second part of the table advances a more general doubt than the first one: it questions the evidence as a criterion of truth and, once the reliability of the criterion of truth has been called into question, the problem of correspondence will also be automatically called into question. Accordingly, it would be false to suggest that the metaphysical doubt raises two different issues. In order to meet this objection, it is necessary to focus now on the meaning of the concept of truth within the context of mathematics, for once we have understood that Descartes

was not interested in the problem of correspondence within the context of mathematics, it becomes clearer that the metaphysical doubt aims, in fact, at two different problems.

If the truth of an idea consists in its correspondence with the outer world, and if in the *Fifth Meditation*, without any previous proof of the existence of the external world, Descartes established that the mathematical propositions are indeed true, then, to what must a mathematical idea correspond in order to be considered true? Descartes understood the concept of truth in the context of mathematics, not as correspondence, but as coherence, albeit he does not explicitly say so. Some commentators, on the other hand, maintain that, even though the validity of mathematics does not depend on the actual existence of the objects with which it deals, it does not necessarily mean that there can still be mathematical knowledge, if nothing exists in the external world. Harry Frankfurt, for example, affirms:

Now mathematics deals with these very simple and general characteristics of things, and it is for this reason that it is not concerned with the real existence of any particular complex object. This does not entail, however, that mathematics is not concerned at all with existence. From the statement that mathematics has nothing to do with any particular object or complex sort of object it does not follow that it has nothing whatever to do with existing things. Even if the truth of mathematics is independent of the existence of any particular thing or complex type of things, it does not follow that mathematics may be true even if nothing whatever exists. . . . Since *whatever* exists must possess the simple characteristics, mathematics does not depend as other sciences do upon the existence of any specific objects or types of objects. What it needs so far as existence goes is provided by the existence of *any* material thing.³²

Thus, if Frankfurt's interpretation is correct, the notion of truth as correspondence could be preserved even within the context of mathematics. However, this interpretation does not explain the fact that mathematics was proved to be a "true and certain science," in the *Fifth Meditation*, without any previous demonstration that there is "*any* material thing." The only external object the existence of which is established prior to the *Sixth Meditation*, is God. One might try to refute my argument against Frankfurt's contention by alleging that the notion of correspondence within the context of mathematics must be understood in a very particular way. In the case of empirical knowledge, to say that an idea is true means to say that it corresponds to some material thing. By the same token, in the case of mathematics, when we say that an idea is true, we mean that it somehow corresponds to an "ideal state of affairs." One proponent of this thesis is, for instance, Wolfgang Röd. As he puts

it: “*To the doubt on the conformity of ideas with material things there corresponds, at the level of intellectual knowledge, the doubt on the conformity of clear and distinct concepts with ideal state of affairs.*”³³ The idea of an “ideal state of affairs” may be suggested by an often-quoted passage from the *Fifth Meditation*, in which Descartes, rather hesitantly, refers to some “eternal and immutable essences”:

lorsque j’imagine un triangle, encore qu’il n’y ait peut-être en aucun lieu du monde hors de ma pensée une telle figure, et qu’il n’y en ait jamais eu, il ne laisse pas néanmoins d’y avoir une certaine nature, ou forme, ou essence déterminée de cette figure, laquelle est immuable et éternelle, que je n’ai point inventée, et qui ne dépend en aucune façon de mon esprit.³⁴

Thus, we might be tempted to interpret the notion of an “ideal state of affairs,” as suggested by Röd and other commentators, as the “eternal and immutable essences” to which Descartes alludes in this passage. In other texts, Descartes also referred to these “eternal and immutable essences” as “common notions” or “innate ideas.”³⁵ If this is so, then the notion of correspondence within the context of mathematics would consist, in fact, in a relationship between mathematical ideas and certain “common notions” or “innate ideas.” But, since “common notions” or “innate ideas” are themselves ideas, the alleged correspondence necessary to preserve the notion of truth as correspondence within the context of mathematics would consist, in fact, in a relationship between ideas and ideas. However, we misunderstand the traditional idea of truth as correspondence, if we suppose that this relationship between two different kinds of ideas—or two different kinds of mental entities—constitutes the sort of relationship at issue when we speak of truth as correspondence. Thus, if we cannot really accept the thesis that Descartes committed himself to a conception of truth as correspondence within the context of mathematics, it is clear, then, that there are two different conceptions of truth at stake in the *Meditations*. Within the context of mathematics, the concept of truth must be understood in terms of coherence, and not in terms of correspondence. There is, indeed, some textual support for this interpretation. In a letter of 1639 to Mersenne, Descartes presents the following definition of truth.

Ainsi on peut bien expliquer *quid nominis* à ceux qui n’entendent pas la langue, et leur dire que ce mot *vérité*, en sa propre signification, dénote la conformité de la pensée avec l’objet, mais que, lorsqu’on l’attribue aux choses qui sont hors de la pensée, il signifie seulement que ces choses peuvent servir d’objets à des pensées véritables, soit aux nôtres, soit à celles de Dieu; mais on ne peut donner aucune définition de logique qui aide à connaître sa nature.³⁶

Descartes's definition of truth in terms of "conformity" (*conformité*) seems to contradict my interpretation. But just what is the kind of "conformity" (or correspondence) which Descartes has in mind here? He affirms that in its "proper meaning" (*propre signification*) the word "truth" denotes the conformity of thought with object. The concept of object, as we have already seen, may have at least two different meanings: on the one hand, it means a thing which appears in the mind (something which has "objective reality"). In this case, the object is a kind of mental entity. On the other hand, it can also mean a mind-independent thing (something which has "formal reality"). When Descartes affirms that the word "truth" signifies the conformity of thought with object, he understands "object" in its first sense, i.e., as a kind of mental entity. This becomes clear in the sequence of the text, for Descartes recognizes that "truth" may also be used with a second, and perhaps improper, meaning. In this case, "truth" denotes the conformity of thought with objects understood as "things which exist outside of thought" (*choses qui sont hors de la pensée*). For a long tradition of philosophical investigation into the concept of truth, the notion of conformity was supposed to qualify a kind of relationship between a truth-bearer (ideas, propositions, judgements, thoughts, etc.) and some mind-independent thing.³⁷ But this is exactly the conception of truth which Descartes rejects as not being the "proper" meaning of "truth." Why is this so? Descartes assumes that the traditional conception of truth as conformity between thought and mind-independent things is misleading because we cannot ever directly perceive any extra-mental objects. What we directly perceive are ideas which, in some cases, do conform to real (non-mental) entities. This is, indeed, the thesis (i) referred to above. Because we cannot compare a thought, on the one hand, with a non-mental object, on the other, so as to verify if one conforms or corresponds to the other, Descartes is forced to introduce a new conception of truth which only apparently may be comprehended as truth as correspondence without further qualification. Descartes conceives of conformity as a new kind of relationship, namely not between thoughts (or whichever truth-bearers) and mind-independent state of affairs, but as a relationship between two different kinds of mental entities, namely: thoughts and (mental) objects. But how, more precisely, can our thoughts conform to mental objects?

My thought (or judgement), for instance, that a triangle has three sides conforms (or corresponds) to the picture-like idea of a three-sided object that I perceive in my mind.³⁸ On the other hand, if I see a three-sided figure drawn on a piece of paper, it would be a misunderstanding, according to Descartes, to argue that my thought that it is a triangle is true because it conforms to the figure drawn on the piece of paper, for what I directly perceive is not the object on the paper, outside of

my mind, but its representation within my mind.³⁹ As he puts it in the letter of 1639, the objects outside of my thought “may be the objects of true thoughts” (*peuvent servir d’objets à des pensées véritables*). Thus, even though Descartes preserves the traditional definition of truth in terms of correspondence or “conformity,” he introduces, actually, a new conception of truth according to which truth concerns a relationship between two kinds mental entities.

It might be argued, however, that truth as correspondence does not require that the truth-bearer conform to non-mental entities. As Richard Kirkham puts it: “*It is perfectly possible to hold that truth consists in correspondence with facts and to hold also that facts are mind-dependent entities.*”⁴⁰ Thus, in order to defend a conception of truth as correspondence, it is not necessary to commit oneself to ontological realism. Kirkham argues that Kant, for instance, endorsed a correspondentist conception of truth without having assumed, however, that the thing which the truth-bearer must correspond to in order to be true must be a mind-independent object.⁴¹ But does this mean that Descartes, after all, did not introduce a new, non-correspondentist conception of truth in the *Meditations*? Before Descartes, truth as correspondence had always been conceived of in terms of correspondence between a truth-bearer, on the one hand, and a non-mental entity, on the other. It was due to the acceptance of the thesis (i), quite alien for the tradition prior the emergence of modern philosophy, that the traditional conception of truth had to be changed. Kant was able to adopt this modified conception of truth as correspondence because he, unlike Descartes, did not endorse thesis (ii). Since an object, for Kant, is the result of a “constitution,” and not a thing in itself, our knowledge of objects concerns a relationship between mind-dependent entities. Descartes, on the other hand, given his commitment to thesis (ii), is forced to provide an account of truth in the case of knowledge relative to non-mental objects, i.e., objects which, other than the objects of mathematics, do exist in the external world. In this case, he is forced to abandon his modified conception of truth and stick to the more traditional notion of truth as conformity between ideas and non-mental entities. In a passage from the *Third Meditation*, Descartes considers that he has two quite different ideas of the sun: one idea is provided through the senses, the other idea stems from astronomy, but these two different ideas cannot both “conform” to the sun. In this case conformity or non-conformity is a matter of a relationship between ideas and non-mental objects. Let me quote this passage from the *Third Meditation* at full length:

je trouve dans mon esprit deux idées du soleil toutes diverses: l’une tire son origine des sens, et doit être placée dans le genre de celles que j’ai dit ci-dessus venir de dehors, par laquelle il me paraît extrême-

ment petit; l'autre est prise des raisons de l'astronomie, c'est-à-dire de certaines notions nées avec moi, ou enfin est formée par moi-même de quelque sorte que ce puisse être, par laquelle il me paraît plusieurs fois plus grand que toute la terre. Certes, ces deux idées que je conçois du soleil, ne peuvent pas être toutes deux semblables au même soleil; et la raison me fait croire que celle qui vient immédiatement de son apparence, est celle qui lui est le plus dissemblable.⁴²

Descartes's point is that in order to enact true judgements in the context of astronomy, we have to be cautious so as not to take appearances at their face value. When I look at the sky, the sun appears in my mind as a quite small object. But, considering "some inborn ideas" (*certaines notions nées avec moi*), in addition to the sheer contemplation of a mental object which supposedly resembles the actual sun, I am forced to admit that the actual sun is, in fact, far greater than it seems to be. The innate ideas at issue here, which Descartes affirms to constitute the "reasons of astronomy" (*raisons de l'astronomie*) are, perhaps, our idea of perspective, the principles of triangulation, and other geometrical notions. If astronomy turns out to be a reliable science—in the context of the *Third Meditation* it is still uncertain whether there really is any external object at all—it is because our judgements conform to external objects. Innate ideas enable us to make true judgements, but my judgements are true, not in virtue of their conforming to innate ideas (or some other mental entity), but because they conform to a real (non-mental) state of affairs. Even considering that we cannot ever know the sun but through our idea of the sun, astronomy, given Descartes' commitment to thesis (ii), is not a science about our idea of the sun, but about the sun itself. If this is so, then it is clear that there are two different conceptions of truth in the *Meditations*. On the one hand, in his account of our knowledge of material objects, Descartes takes the traditional correspondentist conception of truth for granted. But, on the other hand, in his account of mathematical objects, which do not really exist *in rerum natura*, Descartes introduces a new conception of truth which would be misleading to describe in terms of correspondence. What is at issue in the realm of mathematics is not correspondence, but coherence.

IV. SKEPTICISM AND COHERENCE THEORY OF TRUTH

The self-conscious attempt to articulate a new conception of truth defined in terms of coherence only appeared in the context of the nineteenth century. But it is not amiss to suppose that Descartes was a precursor of this theory, even considering that he never referred to his philosophical project in these terms. (He never referred to himself as a "rationalist" either; this is also a nineteenth-century terminological invention.)⁴³ The whole idea of a coherence theory of truth emerged out of an attempt to

face the kind of skepticism resulting from one's commitment to theses (i) and (ii), examined in the first section of this paper. Coherence theory of truth is, thus, a consequence of Cartesian external world skepticism. According to Kirkham, what lies at the root of non-realist conceptions of truth, such as coherence theory of truth, is the skeptical claim that our ideas may be radically different from the mind-independent objects they are supposed to represent. Truth would be unattainable if, as the skeptic takes it, our ideas had to correspond to extra-mental entities in order to be true. Coherence theory of truth, then, is a strategy to meet the skeptical challenge by denying that correspondence to a non-mental entity is an indispensable truth-condition.⁴⁴ Descartes employs exactly the same strategy in his claim that "truth," in its proper meaning, denotes a relationship between two kinds of mental entities. But does the application of this strategy by itself make Descartes a supporter *avant la lettre* of a coherence theory of truth? It might be objected that what is at stake in the context of a coherence theory of truth is not a relationship between, on the one hand, a truth-bearer and, on the other, the pictorial mental representation of an object. Truth as coherence concerns, rather, a relationship between propositions (or whichever truth-bearers). In the claim that my thought that a triangle is a three-sided figure is true because it conforms with a picture-like idea which I perceive in my mind, what is at stake is a relationship between a mental entity which clearly has a propositional structure—otherwise this entity could not be said to be either true or false—and a mental entity which, at first glance, lacks this property. If this is so, then Descartes's modified conception of truth need not necessarily be comprehended in terms of truth as coherence.

The text of the *Sixth Meditation*, however, makes it clear that Descartes by no means assumed that, in order to verify if a mathematical judgement is true, we would have necessarily to compare it with a picture-like idea. There Descartes explains the difference between what he calls the "imagination" and the "pure understanding." When I imagine, for instance, a triangle, I "see with the mind's eye" (*acie mentis intueor*) the image of a triangle, as though it were present before myself, but I also "simultaneously" (*simul*) understand that it is a figure bounded by three lines.⁴⁵ While the mental image of a triangle is a non-propositional entity, my understanding *that* this image presents a figure bounded by three lines is clearly propositional. Nevertheless, the mental representation of an image is not a more primitive phenomenon than the judgement about what is presented, for we can sometimes understand that something is the case without, however, being able to associate clearly what we understand with a mental image. Descartes seeks to explain this point by considering the idea of chiliagon. On the one hand,

we *understand* the idea of a chiliagon as a polygon which has a thousand straight sides and a thousand angles. What we understand is something that is either true or false. But, on the other hand, we cannot clearly and distinctly *imagine* a chiliagon. Our idea of a chiliagon—considered simply as the pictorial representation of a geometrical figure in the imagination—does not differ in any special respect from the mental representation of a myriagon, or any other polygon with a very large number of sides. When we see a chiliagon, as it were, with the “mind’s eyes,” the object we “see” is so indefinite that we could not correctly describe it in a judgement. We do not “see” with a great degree of precision whether this image which presents itself in the imagination has a thousand or, say, a thousand and three sides. Alternatively, we can entertain the idea of a chiliagon—understood as a geometrical figure *that* has a thousand straight lines and a thousand angles—without simultaneously entertaining any picture-like idea.

A mathematical idea always has a propositional content, but this does not mean that we firstly entertain a picture-like idea, and then entertain a thought with a propositional structure about the picture-like idea. Nor does it mean that at the moment we entertain a mathematical idea, we always simultaneously “see” a geometrical object (as though it were before us) and understand that this object has such and such properties. These two phenomena—“mentally seeing” something and “understanding” that something is the case—are to a certain extent independent of each other. The extent to which one may occur without the occurrence of the other depends on the kind of idea we have. When we entertain the idea of a triangle we *simultaneously* entertain a mental image and also the idea *that* it has such and such properties; when we entertain the idea of a chiliagon, we entertain the idea *that* a chiliagon is an object with such and such properties, but only occasionally do we also entertain the mental image of a chiliagon. And even when a mental image is associated with the idea of chiliagon, it is depicted in the imagination in a very vague way.⁴⁶

In the *Regulae*, Descartes refers to arithmetic and geometry as sciences which “*consist entirely in deducing conclusions by means of rational arguments.*” (“*Arithmetica & Geometria . . . totae consistunt in consequentiis rationabiliter deducendis*”).⁴⁷ Truth in the realm of mathematics is a matter of “conformity” between mental entities which have a propositional structure. This kind of conformity is best described in terms of coherence, not correspondence. The idea that Descartes held a conception of truth as coherence in the *Meditations* is not entirely new. A well-known supporter of this thesis is Frankfurt.⁴⁸ However, Frankfurt does not defend this thesis with the same arguments put forward here—with an analysis of Descartes’s conception of truth within the

context of mathematics. According to Frankfurt, and in stark contrast to my interpretation, even mathematics must presuppose the “existence of *any* material thing” in its operations.⁴⁹ The gist of my argument against this thesis is that, if the validity of mathematics depended upon the “existence of *any* material thing,” then Descartes could not have proved the validity of mathematics, in the *Fifth Meditation*, without any previous proof of the existence of material things, which is only provided in the *Sixth Meditation*. Moreover, Descartes advanced a coherentist conception of truth in the *Meditations* only as far as mathematical knowledge is concerned. In the context of empirical knowledge, such as knowledge in the field of astronomy, Descartes remained faithful to the traditional conception of truth as correspondence.⁵⁰

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NOTES

1. See, for instance, AT III, 474, 13–18 (letter to Gibieuf, 19 January 1642): “*Car, étant assuré que je ne puis avoir aucune connaissance de ce qui est hors de moi, que par l’entremise des idées que j’en ai eues en moi, je me garde bien de rapporter mes jugements immédiatement aux choses et de leur rien attribuer de positif, que je ne l’aperçoive auparavant en leurs idées.*” And in the same letter: “*Mais il en faut revenir à la règle ci-devant posée, à savoir, que nous ne pouvons avoir aucune connaissance des choses, que par les idées que nous en concevons.*” See also AT VII, 520, 5: “*a nosse ad esse consequentia valet.*” In this paper I will follow the usual pattern of reference to Descartes’s works. “AT” stands for *Oeuvres de Descartes* (Paris: Vrin, 1996), ed. C. Adam and P. Tannery, then volume (Roman numerals), page, and line number.

2. See, for instance, Ernst Tugendhat, *Traditional and Analytical Philosophy: Lectures on the Philosophy of Language* (Cambridge: Cambridge University Press, 1982), p. 56ff.

3. See P. Dlugos, “Yolton and Rorty on the Veil of Ideas in Locke,” *History of Philosophy Quarterly*, vol. 13 (1996), pp. 317–329. See also Peter Bieri, “Der Schleier der Ideen,” in *Analytische Philosophie der Erkenntnis* (Frankfurt: Beltz, 1994), p. 49ff.

4. AT IX, 31.

5. The expression *res externae*, in its genitive form, occurs, for instance, at AT VII, 39, 13–14.

6. AT IX, 30.

7. AT IX, 32–33. See also AT IX, 124–125 (*Second Replies*).

8. AT IX, 82.

9. See, for instance, M. Burnyeat, "Idealism and Greek Philosophy: What Descartes Saw and Berkeley Missed," *The Philosophical Review*, vol. 90 (1982), pp. 3–40. See also José Bermúdez, "The Originality of Cartesian Skepticism: Did it Have Ancient or Mediaeval Antecedents?" *History of Philosophy Quarterly*, vol. 17 (2000), pp. 333–360; Michael Williams, "Descartes and the Metaphysics of Doubt," in *Essays on Descartes's Meditations*, ed. Amélie Oksenberg Rorty (Berkeley: University of California Press, 1986), p. 118ff.; and Richard Foley, "Skepticism and Rationality," in *Doubting: Contemporary Perspectives on Skepticism*, ed. M. Roth and G. Ross (Dordrecht: Kluwer, 1990), p. 69.

10. Berkeley, *Principles of Human Knowledge*, §23, ed. Roger Woolhouse (London: Penguin Classics, 1988).

11. *Ibid.*, §87. See also *ibid.*, §3: "as to what is said of the absolute existence of unthinking things without any relation to their being perceived, that seems perfectly unintelligible. Their esse is percipi, nor is it possible they should have any existence, out of the minds or thinking things which perceive them."

12. *Ibid.*, §86.

13. Hume, *A Treatise of Human Nature*, ed. L. A. Selby-Bigge (Oxford: Clarendon Press, 1978), p. 67.

14. Hume, *An Enquiry concerning Human Understanding*, ed. Antony Flew (Open Court, 1996), p. 181.

15. Kant, *Critique of Pure Reason*, A 39, trans. Norman Kemp Smith (New York: St Martin's Press, 1965): "Time and space, taken together, are the pure forms of all sensible intuition, and so are what make a priori synthetic propositions possible. But these a priori sources of knowledge, being merely conditions of our sensibility, just by this very fact determine their own limits, namely, that they apply to objects only in so far as objects are viewed as appearances, and do not present things as they are in themselves."

16. Henry E. Allison, *Kant's Transcendental Idealism: An Interpretation and Defense* (New Haven, Conn.: Yale University Press, 1983), p. 15.

17. AT IX, 103. See also AT V, 165 (*Conversation with Burman*).

18. AT VIII 367, 7–10. See also AT IX, 133 (*Third Replies*).

19. AT X, 512, 16–20. See also AT II, 38, 29–31 (letter to unknown addressee, March 1638), where Descartes, three years before the publication of the *Meditations*, expresses his intention to provide a refutation of Pyrrhonic skepticism: "Bien que les Pyrrhoniens n'ayent rien conclu de certain en suite de leurs doutes, ce n'est pas à dire qu'on ne le puisse."

20. Sextus Empiricus, *Outlines of Pyrrhonism*, II, 20, trans. R. G. Bury (Cambridge, Mass.: Harvard University Press, 1993), pp. 163–165.

21. See, for instance, Marcelo de Araujo, *Skepticism, Freedom and Autonomy: A Study of the Moral Foundations of Descartes's Theory of Knowledge* (New York/Berlin: De Gruyter, 2003), pp. 94–102.

22. The expression "commonplace" in this context is used by Walter O'Briant, "Doubting the Truth of Mathematics in Descartes's *Meditations*," *Southern Jour-*

nal of Philosophy, vol. 15 (1977), p. 527. See also Bernard Williams, "Descartes's Use of Skepticism," in *Descartes: Critical Assessments*, ed. G. Moyal (London: Routledge, 1991), vol. 1, p. 475.

23. AT IX, 16, emphasis added.

24. See, for instance, AT IX, 52.

25. AT VII, 20, 26.

26. AT VI, 36, 18–22.

27. AT IX-2, 50 (*Principes de la Philosophie*, part one, §58). See also AT V, 160 (*Conversation with Burman*).

28. AT V, 147.

29. Z. Janowsky, "How to Read Descartes's *First Meditation*," *The Southern Journal of Philosophy*, vol. 30 (1997), p. 324. See also on the same page: "Up to this point [*sc.* up to the end of the left-hand side of the table], *Descartes's argument does not go beyond very well-known skeptical considerations. In construing the first part of the deus deceptor hypothesis, Descartes could very well have been inspired either by Cicero or by Plutarch, in whose writings we find the idea that God can deceive man by inducing in his mind the images of non-existing objects.*"

30. See, for instance, AT X, 364, 22; AT X, 365, 14 (*Regula II*); and AT VI, 19, 17–29 (*Discours*).

31. See, for instance, Janowsky, "How to Read Descartes's *First Meditation*," pp. 328–329.

32. Harry Frankfurt, *Demons, Dreamers and Madmen: The Defense of Reason in Descartes's Meditations* (Indianapolis: Bobbs-Merrill, 1970), p. 75. See also Walter O'Briant, "The Malignant Demon and Mathematics," *Studia Leibnitiana*, vol. 10 (1978), p. 108ff.

33. Wolfgang Röd, *Descartes' erste Philosophie: Versuch einer Analyse mit besonderer Berücksichtigung der Cartesianischen Methodologie* (Bonn: Bouvier Verlag, 1971), p. 97, my translation. The German original reads as follows: "*Dem Zweifel an der Übereinstimmung von Wahrnehmungsideen und materiellen Dingen entspricht auf der Ebene der intellektuellen Erkenntnis der Zweifel an der Übereinstimmung von klaren und deutlichen Begriffen und idealen Sachverhalten.*"

34. AT IX, 51.

35. See, for instance, AT X, 419, 20; AT X, 420, 2 (*Regula XII*); AT IX-2, 46 (*Principes de la Philosophie*, part one, §49); AT III, 665, 9–24 (letter to Elisabeth, 21 May 1643). On this topic, see also Frederick P. Van De Pitte, "The Relation between Mathematics and the Doctrine of Eternal Truths in the Development of Descartes's Epistemology," in *Descartes: Critical Assessments*, ed. G. Moyal (London: Routledge, 1991), vol. 1, p. 401ff.

36. AT II, 597, 9–18 (letter to Mersenne, 16 October 1639).

37. In his definition of truth in the letter of 1639, Descartes assumes that the truth-bearers are *thoughts*, for he speaks in this context of *pensées véritables*. Throughout his work Descartes sometimes also speaks of true or false *ideas*. But, in the *Third Meditation*, (AT IX, 29) he argues that ideas, considered in themselves, are neither true nor false, for truth and falsity are attributes of *judgements*, not of ideas. See also AT IX, 236–237 (*Sixth Replies*).

38. Descartes sometimes defines the concept of idea in pictorial terms, as though ideas were “image[s] of things.” See, for instance, AT VII, 37, 3–4.

39. AT VII, 381, 20; AT VII, 382, 24 (*Fifth Replies*).

40. Richard L. Kirkham, *Theories of Truth: A Critical Introduction* (Cambridge, Mass.: MIT Press, 1997), pp. 133–134.

41. See, for instance, Kant, *Critique of Pure Reason*, A 58. Kirkham also refers to Wilfred Sellars and J. M. E. McTaggart as philosophers who endorsed a conception of truth as correspondence without commitment to ontological realism. See also Nicholas Rescher, *The Coherence Theory of Truth* (Washington: University Press of America, 1973), pp. 9–12.

42. AT IX, 31.

43. See, for instance, Hans-Jürgen Engfer, *Empirismus versus Rationalismus? Kritik eines philosophie-historischen Schemas* (Munich: Ferdinand Schöningh, 1996), p. 11ff.

44. Kirkham, *Theories of Truth*, p. 112.

45. AT VII, 72, 4–10. Both in the *Regulae* and in the *Meditations*, Descartes often refers to the “mind’s eyes” (*mentis oculis*) by means of which we are acquainted with the content of an idea. See, for instance, AT VII, 36, 11–12.

46. In Marcelo de Araujo, *Skepticism, Freedom and Autonomy*, pp. 18–27, I presented a more detailed account of the distinction between ideas as picture-like thoughts and ideas as propositions. In this and in the previous paragraphs I have adapted some passages from this work.

47. AT X, 365, 14–19 (*Regula II*).

48. Harry Frankfurt, *Demons, Dreamers and Madmen*, pp. 26, 170.

49. *Ibid.*, p. 75 (quoted above).

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