Imagination, Geometry, and Substance Dualism in Descartes’s *Rules*

In his early text *Rules for the Direction of the Mind*, Descartes elevates the disciplines of arithmetic and geometry to paradigmatic status among the sciences because of the potential certitude of their results. While Descartes’s insistence on the priority of certainty for all knowledge is without a doubt contiguous with the ideas presented in his later work, the status of the characteristically Cartesian substance dualism in the *Rules* seems for the most part ambiguous, at least at first. However, there are several key concepts underlying much of Descartes’s early work that, when considered together, necessarily lead to and ultimately presuppose a dualist ontology of mind and body: (1) the rejection of the Scholastic theory of sense data, in favor of what may be understood as a ‘telecommunicative’ theory of perception; (2) an innovative conception of geometry, which in turn becomes not only the exemplar of the sciences but also a structure essential to mental activity; and (3) the frequent use of the metaphor of vision to describe perceptual and mental activity. These three complexes of ideas converge in Descartes’s treatment of the imagination, which despite its contribution to the ambiguity of the dualist status of the *Rules* ultimately evinces, I will argue, a fully developed dualism. Relying on Descartes’s reformulation of ancient mathematics and his concept of an imagination uneasily bridging two worlds, the gap between these worlds becomes manifest as a given on which the validity of Descartes’s visual metaphors depend.

Descartes, in his study of vision given in the *Optics* (I:152-175/VI:81-147), explicitly dispenses with the need for postulating that there is some extremely small matter that moves off objects in our field of vision directly into our eyes, thereby causing images of these objects to be perceived. He considers the scholastic doctrine of intentional forms to be rendered superfluous if one conceives of light as “nothing other than a certain movement, or
very rapid and lively action, which passes to our eyes through the medium of the air and other transparent bodies” (I:153/VI:84). To illustrate this idea, Descartes uses the analogy of a blind man who perceives various things in his environment by means of a guiding stick. By this example the reader is meant to understand how, via action transmitted through a medium (the stick) from an object to one’s sense organs, one can perceive an object without supposing that something resembling the object or one’s idea of it must physically travel between the object and the perceiver.

The blind man’s use of a stick in Descartes’s analogy posits a certain necessary distance between perceiver and perceived; this distance is fundamentally characteristic of vision. Touch and taste demand direct contact with their objects, while hearing requires relative proximity to a source of sound and smell an even closer proximity to its source. Sight, however, has a greater range than any other sense. It is not irrelevant to note here that Descartes begins his treatise by praising new inventions that augment the natural power of human vision: “those wonderful telescopes” that allowed Descartes and his contemporaries to extend their vision “much further than our forebears could normally extend their imagination” (I:152/VI:81). The telescopic extension of visual powers emphasizes an implicit association between sight and distance (as well as supporting the improbability of the theory of intentional objects).

Descartes’s blind man analogy is not only pertinent for vision, however, but it is also in fact analogous to all sense perception. According to his exposition in the Rules, the physiology of human perception is such that “when an external sense organ is stimulated by an object, the figure which it receives is conveyed at one and the same moment to another part of the body known as the ‘common’ sense, without any entity really passing from one to the other” (I:41/X:414). The conveyance of the “figure” received by one or another sense
organ—which, Descartes explains, is formed by an object of perception in literally the same way (even in the cases of sight and hearing) as an impression is formed by a seal in wax (I:40/X:412)—operates according to the same mechanical principle by which the blind man perceives objects using his stick: a certain movement is transmitted along our nerves from the point of contact to the brain, where the ‘common’ sense is located. The common sense then translates these movements into figures that it inscribes into the corporeal imagination, which is posited as the physical site not only of perception but also of memory and (figural, at least) conceptualization.

Two points should especially be emphasized regarding this account. First, this theory of perception is part and parcel of Descartes’s assertion that it is only the soul itself that, strictly speaking, has perceptions. The location of all sense perception at a common point reduces the various sense organs simply to mechanical instruments that convey data from the location of their occurrence to the place where they can be ordered and understood. Thus, sensation involves a certain telecommunication, as the effect of physical contact with an object (or motion effected by an object) is brought from the surfaces of the body into the common sense and imagination. Here, again, there is an implicit distance between the point of contact and the locus of perception.

Second, Descartes maintains that according to this theory the actual figures inscribed in the corporeal imagination need not resemble the objects they represent. In fact, in the *Optics* Descartes argues that a lack of resemblance is often preferable in a representation, citing instances where, in a work of art, perspectival considerations demand that a circle or square be depicted by an oval or rhombus. Thus, the primary question Descartes attempts to answer is how our imaginal images “enable the soul to have sensory perceptions of all the
various qualities of the objects to which they correspond” (I:166/VI:113). Indeed, we already begin to find his solution in the *Rules*.

As we have already seen, Descartes conceives that all sensations converge in the common sense and are subsequently inscribed into the corporeal imagination. This supposition already entails that our imaginative figures need not resemble the objects of perception themselves, for it would be impossible to have an imaginative figure that resembles in form a sound, smell, or taste. Therefore, Descartes’s whole physiology of perception leads to his conclusion that all sensations are represented by the imagination as geometric shapes. Although Descartes’s exposition of this idea is initially presented as a merely hypothetical illustration, it is easy to identify the sincerity of the proposition. For instance, Descartes states that “the concept of shape is so simple that it is involved in everything perceivable by the senses” (I:40/X:413). If one accepts this, then the idea that in the process of perception everything perceivable gets reduced to this or that shape seems perfectly suitable. However, there are specific and subtler reasons that Descartes particularly chooses two-dimensional geometric figures to represent sense perceptions in our imagination. These have to do with Descartes’s understanding of the place and function of geometry itself not only in human intellectual activity but also in the world as a whole.

Descartes’s understanding of the nature of geometry marks a change from the conception that was traditional in his time; his innovation presents itself in two particular, related ideas. First, Descartes treats the concepts of number and magnitude as essentially interchangeable, whereas the ancient Greek mathematicians and their followers held these two to be fundamentally distinct. The ancient concept of number is based intrinsically on counting, such that even “abstract” numbers ultimately represent counted groups of basic individual units, which are present only to the intellect. One such unit would not even
constitute a single number in itself, for to be designated as “one” it must be counted as such with the implicit possibility of going on to count two, three, or infinitely many more units.\(^2\)

A consequence of this conception is that numbers are then inherently discrete. Magnitudes are, on the other hand, continuous and infinitely divisible. Magnitudes, being geometrical objects, also have for many ancients (including Plato) a quasi-ideal status.\(^3\) While the monad that would constitute the “pure” unit by which “abstract” counting is possible may be said to have an ontological status akin to the perfect triangle, for instance, numbers \textit{qua} counted sets do not.\(^4\) Thus, in ancient mathematics there is a distinction between number and magnitude on both a purely practical and an ontological level.

In the \textit{Rules}, Descartes does away with these distinctions entirely by conflating the use of number and magnitude while ignoring any ontological considerations. Dmitri Nikulin explains, “The reason that number and magnitude can be treated on an equal basis is that, in the last instance, the ontological status of the subject-matter of the strict science does not matter: it should only be subject to order and measure, so that the content of pure mathematics is to be limited to the study of relations or proportions only” (125). It is in Rule XIV that this becomes most apparent: Descartes explains that both multitudes (or numbers) and continuous magnitudes are subject to considerations of order and measure, and furthermore that magnitudes can always be at least partially reduced to multitudes (I:65/X:452). The motive behind this reformulation of mathematics is Descartes’s insistence on certitude. Placing order and measure at the foundation of his \textit{mathe sis universalis} allows Descartes, in principle, to achieve the highest level of certitude possible, and this consequence is in large part due to the implicit disregard for the nature of any actual objects intended by the mathematical objects under consideration.
Complicit with these considerations is the second facet of Descartes’s innovative approach to mathematics, namely, his use of symbolic logistic in arithmetic and more importantly geometry. In Rule IV, Descartes names algebra as one of the mathematical sciences that, along with geometry, possesses the simplicity, clarity, and fecundity of the method that he is attempting to explicate. Inasmuch as Descartes understands algebra and geometry to be founded on a common set of principles, which Descartes aims to uncover and put into use as *mathesis universalis*, he believes the two methods to be readily convertible. Thus, after the writing *Rules* he would go on to craft the analytic geometry that, perhaps more than his metaphysical or epistemological achievements, would earn him lasting fame.

The cornerstone of Descartes’s concept of geometry is that it enabled him to move back and forth between algebraic equations and geometric figures, such that one could be said to describe the other. Thus, it is a necessary consequence of Descartes’s conception that geometric figures themselves become symbolic: “he identifies ‘algebra’ understood as symbolic logistic,” Jacob Klein writes, “with geometry *interpreted by him for the first time as a symbolic science*” (206). This understanding of geometry as symbolic, grounded in its convertibility to and from algebraic equations, rests on Descartes’s understanding of magnitude as interchangeable with number. Both of these related ideas help form the foundation of Descartes’s use of geometrical figures in his explanation of perception and imagination in the *Rules*.

Before taking up again this account of the function of imagination, let us explore one more facet of Descartes’s perspective on geometry. David Lachterman, in *The Ethics of Geometry*, argues that the essence of the modern conception of mathematics lies in its emphasis on *construction*. This is certainly true of Descartes; the method he begins to lay out in the *Rules* has as its *modus operandi* the construction of the simplest possible arrangements of
the elements of complex problems in order to reduce them to an easily manipulable size.

This move is dependent on those Cartesian innovations we have already discussed—namely, that number and magnitude are interchangeable and that geometry is understood as a symbolic science. Lachterman points out, “The whole idea of magnitude in the Rules is modeled on continuous, geometrical quantity. Number ... is suppressed in favor of a remarkable derivation of numerical multiplicity and discreteness from continua” (179). This “remarkable derivation” consists of Descartes’s position that a magnitude can be measured simply by comparing it to a given unit magnitude, the proportion of which is essentially arbitrary. In Rule XIV, he writes, “If no determinate unit is specified in the problem, we may adopt as unit either one of the magnitudes already given or any other magnitude, and this will be the common measure of all the others” (I:63/X:450, my emphasis). Thus, numerical multiplicity is denied any existence as such; it is something that is constructed by an operation of the mind. The establishment of determinate, discrete numbers rests ultimately on our own comparison of various continuous magnitudes.

Comparison is thus the foundation of the operations of measuring and of ordering, and thus it is the cornerstone of mathematics. Descartes goes further, however, to argue that these mathematical processes are in fact the foundation of any precise learning whatsoever. This is apparent in Rule IV, the only place where Descartes explicitly names his method a mathesis universalis. After noting the exemplary place arithmetic and geometry occupy in his exposition, he writes,

[O]ne will readily see that ordinary mathematics is far from my mind here, that it is quite another discipline I am expounding, and that these illustrations are more its outer garments than its inner parts. This discipline should contain the primary rudiments of human reason and extend to the discovery of truths in any field whatsoever (I:17/X:374).
Thus, the mathematical activities of ordering and measuring are maintained by Descartes to be “the primary rudiments of human reason.” That these rest ultimately on comparison is shown in Rule VI, where in the context of explaining the reduction of the complex to the simple Descartes asserts the existence of a small group of “simple natures” that the mind can “intuit straight off and per se (independently of any others)” (I:22/X:383). As Lachterman notes, the true and certain learning at which one can only arrive by means of the method comes about by either directly or indirectly comparing something one intends to learn with something one already knows clearly and distinctly (which will ultimately be only the simple natures) (177). In the end then, what Descartes maintains is that the *mathesis universalis*, the highest and most precise (and also most fundamental) means by which one can come to know anything, operates solely by intramental activities based ultimately on innate or immediate intramental givens.

The elevation of mathematical operations to the status of universal science leads almost necessarily to what Lachterman identifies as the priority of construction. The constructability of geometrical figures and other mathematical entities is part and parcel of mathematics’ status as the most exact of the sciences. As Nikulin notes, the recognition of the exactitude of mathematics was nothing new even in Descartes’s day. However, he writes that Descartes’s generalization of mathematics away from having its own particular content, was indeed a novelty:

New is Descartes’s attempt to abstract mathematics as the method and the presumably correct form of reasoning from the content of mathematics. ... In doing so, he tries to “upgrade,” as it were, this new mathematically structured science into a universal science that would operate with pure forms of description. Since, however, the content of the description is left out, ... description turns into prescription: in describing a phenomenon Descartes implicitly imposes the very structures of description upon the described (108).
Because Descartes asserts that mathematics presents us with the form of a universal science, he essentially reduces all matters capable of being objects of science *sensu stricto* to mathematical (more specifically, geometric) problems. Now, given what we have already observed regarding Descartes’s innovations in geometry, we can see that any problem that can be approached mathematically can be dealt with using a certain configuration and comparison of magnitudes. Yet, Descartes is able to be even more specific than this; if we follow Lacertian to the opening of the *Geometry*, we discover that Descartes contends, “All the problems of geometry can easily be reduced to such terms that afterwards we need only to know the length of some straight lines in order to construct them” (qtd. on 148). This reduction of the whole of geometry to a simple procedure echoes the last sentences of Rule XIV, where an almost identical assertion is made. Thus, Descartes (in explicating his concepts of geometry, mathematics, and science in general) reduces all that is properly called science to mathematical operation, all mathematical operation (potentially, at least) to geometry, and all geometry to simple two-dimensional constructions.

Now let us return to Descartes’s treatment of the imagination in the *Rules*. We have already pointed out that, in sense perception, the so-called common sense inscribes the content of the perception onto the corporeal imagination—a real, material part of the brain; this content held in the imagination is understood, not coincidentally, to be made up of two-dimensional geometrical forms. While in Rule XII the imaginal representation of perceptions—“which come, pure and without body, from the external senses” (I:41/X:414)—as symbolic two-dimensional figures is (ostensibly) merely hypothetical, in Rule XIV Descartes attempts to establish that this must certainly be the case. Having demonstrated the need (and therefore the possibility) to reduce all objects for consideration to comparable magnitudes, he posits that “nothing can be ascribed to magnitudes in general
which cannot also be ascribed to any species of magnitude” (I:58/X:441). The effect of this assertion is that, once it is accepted, there is no reason not to assume that any comparison of items in the same genus (which means, according to Rule VI especially, all entities) cannot be adequately represented by some geometrical figure. Indeed, it is precisely Descartes’s argument here that “the real extension of a body considered in abstraction from everything else about it save its having a shape” is “that species of magnitude which is most readily and distinctly depicted in our imagination” (I:58/X:441). In other words, the simplest and therefore most natural way for our imagination to work is to represent all its objects as two-dimensional figures, which would of course, on the one hand, be constructed according to and, on the other hand, be analyzable according to the rules of Cartesian geometry.

The importance of the convertibility of images in the imagination between geometric figures and algebraic expressions arises particularly when we consider the relationship of the imagination to the intellect. Algebraic expressions represent geometric figures without the use of shape or extension, yet extended geometric figures can be constructed with precision and accuracy from these algebraic expressions. Thus, because of the equivalence of the geometric figure and the algebraic formula that expresses it, Descartes is able to assume that extended bodies can be rendered incorporeally intelligible and that purely intellectual propositions can likewise be corporeally constructible. Therefore, there is no need for Descartes not to conceive of a completely incorporeal intellect that can nevertheless constantly communicate with the corporeal imagination.

Just as Descartes states explicitly that imagination has an actual corporeal location in the brain, so he states explicitly that pure intellect—the vis cognoscens taken by itself—is not corporeal in any way. “The power through which we know things in the strict sense is purely spiritual,” he writes in Rule XII, and “nothing quite like this power is to be found in
corporeal things” (I:42/X:415). However, Descartes goes on to explain that the various mental operations with which we are familiar are constituted by various relationships between the incorporeal cognitive power and the corporeal imagination, understanding (or “pure intellect”) being the only operation in which the cognitive power acts without the aid of the imagination. However, there is no (conscious) mental operation that occurs without the participation of the cognitive power, for as Nikulin explains, “it is a sui generis purpose of imagination to represent the corporeal and the extended to the not extended” (188). Thus, the structure and function of imagination is such that it implies a clear distinction between mind and body. In the Rules, the incorporeal vis cognoscens alone is the seat of the Cartesian subject. Thus, John Schuster rightly notes that the entire explanation of mental operations in Rule XII “rests upon an unexplicated ontological dualism,” because Descartes maintains that in all conscious processes “a single spiritual ‘power’ ‘applies itself’ to corporeal loci” (60).

In fact, this “unexplicated ontological dualism” pervades the whole text of the Rules, for it is the presumption upon which the endeavor of the mathesis universalis is founded. Descartes’s abstraction of mathematics from any ontological consideration of its objects, and therefore from any special content that is by its nature particularly mathematical, assumes the relative independence of the intellectual operations that drive mathematic inquiry. Even though the cognitive power, when applying itself to a mathematical problem, must rely on the corporeal imagination in almost all cases, the agency lies completely with the former. Descartes’s language of “forming” or “constructing” an idea in the imagination—or “addressing” an idea already present in the imagination—brings to mind an image of the geometer at the desk. If the corporeal imagination corresponds to the paper on which the geometer’s figures are drawn, then the incorporeal cognitive power corresponds to the
geometer who may, when the time comes, lean back from the desk to consider the elements
of a proposition without the hindrance of the desk’s corporeal aids. Descartes’s innovative
conception and elevation of mathematics thus posits as a presupposition a conceptual
distance between the corporeal functions of perception and imagination and the incorporeal
cognitive power by which all thought properly occurs.

Yet, there is another important facet of Descartes’s treatment of the function of
imagination in the *Rules* that we have until now avoided addressing in detail: his use of vision
as both an explicit and implicit metaphor. This is closely linked to those aspects of his use
of geometry we have examined so far, and it will further support our understanding of the
strongly dualist presuppositions of the *Rules*.

As we have already noticed, Descartes’s explanation of the mechanics of sense
perception rely heavily on the optical theories prevalent in his day, including the ideas that he
puts forth in his own *Optics*. Catherine Wilson argues that the early modern reversal of
medieval optical theory converted vision from an active to a passive process. The camera
obscura served as the primary model for the physiology of human sight.⁹ What this implies
is that the seer occupies a distant, isolated position (at least conceptually) with regard to the
thing seen: “By meditating on the cameral aspect of the camera obscura model, rather than
thinking of the eye as the inlet for light and the means by which we remain in contact with
the world, one can generate the Cartesian subject’s privacy and interiority” (121). The
passivity and receptivity characteristic of the understanding of vision in Descartes’s day
became characteristic of the other senses also; Descartes writes, in a passage from Rule XII
to which we have already referred, “Sense-perception occurs in the same way in which wax
takes on an impression from a seal” (I:40/X:412). The sense organs are literally moved by
their respective stimuli; they are therefore passive, except to the extent that they are directed in this way or that by the mind.

Now, the constructive and analytic operations of the intellect—if not its power to simply direct the attention of the sense organs—might lead one to believe that the Cartesian mind is active in a way contrary to the passivity of the bodily senses, and in a certain sense it is true that the *vis cognoscens* possesses an agency that is wholly absent in any corporeal faculty. However, this should not mislead us to assume that the mind is for Descartes essentially active. Vision is for him, as it is for many of his predecessors and successors, the primary metaphor for knowledge; Descartes often uses phrases such as “the mind’s eye” or the “light of reason” to describe that by which one understands. The continued use of visual metaphors in Descartes’s texts suggests that the camera obscura model is applicable to the incorporeal processes of knowledge as well as the corporeal processes of sense perception. If we carry the implications of this model through, therefore, we see that knowledge must retain for Descartes a certain passive character. Where this passivity is evident is in the very structure of mental activity, for more often than not the intellect must rely on the aid of the imagination in order to carry out its deductive operations. As the intellect directs its own attention to this or that figure preserved in the corporeal imagination, it nevertheless perceives the figure in the same receptive way that the eyes perceive this or that object in the field of vision. Even in pure understanding it does escape this framework, for Descartes’s insistence on the universality of comparison and the existence of the simple natures (some of them completely incorporeal) ensures that the intellect always has before it some object of mental “perception.”

Indeed, this “perceptual” relation of the intellect to the ideas in the imagination is already implied by the premise that the imagination contains only two-dimensional geometric
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figures. A two-dimensional figure exists only in a plane and can be recognized only by a “viewer” positioned outside that plane, such that the plane acts as a screen upon which the figure is constructed or simply projected. Thus, a figure in the imagination must be “read” by something that is not located (at least) at the same point of the corporeal imagination as the figure if it is to be decipherable; in fact, it can only be the incorporeal *vis cognoscens* that possesses both the agency to direct itself towards a particular image and the receptivity to understand it. We may not have a second set of eyes with which to perceive the images that enter our brain, but (according to Descartes in the *Optics*) our soul (i.e., our incorporeal mind) nevertheless receives “pictures” from our brain according to a code of translation from extension to non-extension “ordained by nature” (I:167/VI:130). If we return to the metaphor of the geometer, we may say that a figure’s position on a piece of paper implies that the geometer look at it—facing it, yet separate and at a distance from it.

Schuster acknowledges that Descartes concept of vision is inextricably tied to the treatment of perception and imagination given in Rule XII. “A visual metaphor,” he writes, “lies at the very heart of this account, for it is as though the *vis cognoscens* constituted a second, spiritual pair of eyes within the brain, there to attend to patterns delivered up on the corporeal screen of the brain loci” (60). Schuster then goes on to point out that this structure is bound up not only with Descartes’s explanation of the physiology of perception and imagination, but with his entire project of the *mathesis universalis*, precisely because what Schuster terms the “optics-psychology-physiology nexus”—i.e., the explanation of perception Descartes gives in Rule XII and its complicity with his theory of vision—provides the foundation for the certainty of the *mathesis* (62). The universal mathematics of the *Rules* rests on the supposition that two-dimensional geometric figures are naturally perceived clearly by both the imagination and the intellect, and this proposition in turn
imagines a relationship between the intellect and the imagination that corresponds metaphorically to visual perception.

Schuster ultimately contends that the explanations given in the *Rules* led Descartes to a greater number of problems than solutions, and that in the more sophisticated metaphysical dualism of his later works he took pains to avoid the implication of incorporeal perception in the intellect precisely because of these problems. Schuster’s primary focus in this interpretation of Descartes’s evolution is what he understands as a deficiency in the *Rules*’ explanation of qualities present in the world we experience that do not seem to be well-conveyed by two-dimensional figures. These might include the subtle differences of the so-called “secondary qualities,” or even something as obvious and ubiquitous as depth. Schuster contends that the explanation of perception given in the *Rules* lacks the power not only to explain these phenomena adequately, but indeed to address their existence at all. He writes, “If, in sensing, imagining and remembering, we (that is, *vires cognoscentes*) apply ourselves directly to mechanically impressed patterns and shapes, then it is not at all clear what the perception of ‘secondary qualities’ is or how it comes about” (76). Now, it may be true that in isolating qualities such as color and supposing that they may be independently represented by a geometric figure, Descartes does not do justice to the actual phenomenon of sight. As Véronique Fóti points out, “[T]he mutual isolation of these visual categories is a fiction; we do not normally see pure light or color, or shapes identified merely by size, location, and distance” (47). However, Schuster’s argument is simply that Descartes’s account cannot sufficiently explain the perception of secondary qualities *at all*, no matter how they are understood.

What Schuster here overlooks is the importance of Descartes’s belief that the *vis cognoscens*, when “applying itself” to the patterns in our corporeal imagination, interprets the
two-dimensional figures according to an innate code “ordained by nature.” This interpretation is natural and, perhaps more importantly, immediate; the cognitive power does not have to reflect on the code of interpretation or even acknowledge its existence. Understanding the imaginal figures as symbolic may not in itself yield a theory sufficient to explain secondary qualities, but when this figure symbolism is combined with the presupposition of a natural code by which the figures are translated into true perceptions there is then no reason to deny the explanatory power of the Rules’ physio-epistemology.

The reliance upon the supposition of a pre-ordained natural order is certainly not uncharacteristic of Descartes’s entire philosophy, as is seen, for instance, in the discussions of God throughout the Meditations; it would be implausible to assume that this reliance is either less or more fundamental in Descartes’s earlier work than it is in his later work.

We may still ask, however, what benefit Descartes derives by retaining a structure analogous to visual perception in order to explain intramental process, even if we accept that this structure is not overly problematic for him. It is not enough to cite the firmly established practice of using visual metaphors for knowledge in the Western philosophical tradition. In countless places in his treatises and letters, Descartes exhibits an eagerness to dispense with traditional conceptions. The appropriateness of the visual metaphor for Descartes’s early theories of imagination and knowledge lies rather its manifestation of that structure which we have already glimpsed in more than one facet of the Rules: the perceptual distance between the “seer” and “seen.” Vision shows itself as the most suitable metaphor for the activity of the vis cognoscens in Descartes’s early philosophy precisely because the distance it requires from its object mirrors the conceptual distance that Descartes already presupposes between the incorporeal mind and the corporeal body.
This dualism, “unexplicated” though it may be, is not simply a consequence of those conceptions we have examined—namely, the mechanisms and psychology of perception and imagination, and the innate, universal character of Descartes’s symbolic geometry. The telecommunication of motions that ultimately become sense data from the sense organs to the common sense, the codified inscription of these motions into the corporeal imagination, and the application of the *vis cognoscens* to these imaginal figures all rest on a dualism of mind and body that posits a conceptual distance between two poles. The qualities of the content of these two poles are in each case essentially different: for instance, the retina receives an image that resembles the thing seen, but the motion transmitted beyond it and received by the common sense does not resemble the thing seen. Nevertheless, there is posited a communication in each case between the two poles that upholds their distance by relying on some apparatus of translation, whether it be from impression to motion, motion to figure, or extension to thought. Obviously, it is only in the last case that a truly substantial dualism is manifest, but the bipolar structure of each step along the perceptual chain instantiates an example of the visual metaphor that is most aptly (and traditionally) applied to the relation between knower and known. Since Descartes is unambiguous even in his early texts regarding the assertion that not only knowledge but also perception truly happens only in the soul, and since in virtually every example of the search for knowledge in the *Rules* Descartes must enlist the aid of the corporeal imagination, we can conclude that the pervasiveness of a structure mirroring the metaphor of vision points to a presupposed dualism of corporeal and incorporeal substance.

Descartes abandoned the project of a *mathesis universalis*—at least in exactly the same form as presented in the *Rules*—long before he presented the substance dualist epistemology of the *Meditations*. He also attempted to eschew the metaphor of visual perception in his
description of the relationship between mind and body, opting instead for the language of “substantial union” that explains the connectedness of corporeal and incorporeal in a way that minimizes the conceptual distance between the two. However, Dalia Judovitz’s argument that Descartes’s move away from visual metaphors has more to do with his growing mistrust, first of optical illusion, and later of anything corporeal, seems more plausible than Schuster’s contention that the physiology and psychology of perception of the *Rules* as such created problems that Descartes ultimately found impenetrable. The dualism manifest in his early and later work, while structured somewhat differently in each, ultimately exhibits the same distinction between incorporeal cognition and the extension of the body.

**Notes**

1 Cf. Schuster, 62.
2 Cf. Klein, 46ff.
3 Cf. Nikulin, 127ff.
4 Cf. Klein, 79ff., regarding the complexities of this issue on which we cannot dwell here.
5 Cf. Rule XII: “It is not possible for us ever to understand anything beyond those simple natures and a certain mixture or compounding of one with another” (I:46/X:422).
6 Notice that Descartes here reinforces his argument that perceptions are transmitted along nerve fibers via an action that in no way resembles the form of the stimulus, while at the same time maintaining that the mind receives this perception as a figure, which must possess shape and body. The only way to reconcile these two arguments is to assume the imaginal figure is entirely a mental construction, which is precisely in agreement with the thesis of Lachterman that we have previously pointed out.
7 “[A]ll things can be arranged serially in various groups, not insofar as they can be referred to some ontological genus, ... but in so far as some things can be known on the basis of others.” (I:21/X:381); cf. Lachterman, 179.
8 “If, however, the intellect proposes to examine something which can be referred to the body, the idea of that thing must be formed as distinctly as possible in the imagination” (I:43/X:416).
10 Regarding this point, a couple of passages from the Fourth Meditation are particularly apt: “I recognize that it is impossible that God should ever deceive me,” and “I know by experience that there is in me a faculty of judgment which, like everything else which is in me, I certainly received from God” (II:37/VII:53).
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