

RESOLVING THE QUESTION OF DOUBT: GEOMETRICAL DEMONSTRATION IN THE *MEDITATIONS*

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Abstract. The question of what Descartes did and did not doubt in the *Meditations* has received a significant amount of scholarly attention in recent years. The process of doubt in Meditation I gives one the impression of a rather extreme form of skepticism, while the responses Descartes offers in the *Objections* and *Replies* make it clear that there is in fact a whole background of presuppositions that are never doubted, including many that are never even entertained as possible candidates of doubt. This paper resolves the question of this undoubted background of rationality by taking seriously Descartes' claim that he is carrying out demonstrations modeled after the great geometers. The rational order of geometrical demonstration demands that we first clear away previous demonstrations not proven with the certainty necessary for genuine science. This is accomplished by the method of doubt, which is only applied to the results of possible demonstrations. What cannot be doubted are the very concepts and principles employed in carrying out geometrical demonstration, which enable it to take place. It would be senseless to ask whether we can doubt the essential components of the structure through which questioning, doubting, and demonstration are made possible.

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Introduction

When Descartes proclaims the *ego sum, ego existo* in Meditation II, one gets the impression that this "Archimedean point" is an isolated truth, relying on nothing but its own self-certainty. Just several lines before, Descartes has summarized the results of the process of doubt from Meditation I:

So serious are the doubts into which I have been thrown as a result of yesterday's meditation that I can neither put them out of my mind nor see any way of resolving them. It feels as if I have fallen unexpectedly into a deep whirlpool which tumbles me around so that I can neither stand on the

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bottom nor swim up to the top. [...] I will suppose then, that everything I see is spurious. I will believe that my memory tells me lies, and that none of the things that it reports ever happened. I have no senses. Body, shape, extension, movement and place are chimeras. So what remains true? Perhaps just the one fact that nothing is certain.¹

If the level of doubt has reached such a hyperbolic pitch, it does not seem like there could be much left to serve as a basis for the pronouncement of the cogito. This veneer of skepticism is undermined, however, by several remarks Descartes makes at the beginning of Meditation I and in response to his objectors. For one, recall that when the method is presented in Meditation I, Descartes says that it is *reason* that will guide the process, and it is *reason* that convinces him that the form the method must take is the best one.² Our question in the present study is: What is this background rationality and what role does it play in the *Meditations*? To resolve this query we will need to take up the question of what is presupposed by the process of doubt.

We can begin to piece together the beginning of an answer from several texts. When the authors of the Sixth Objections put forward the challenge that “in order to be certain that you are thinking you must know what thought or thinking is, and what your existence is,” Descartes responds as follows:

It is true that no one can be certain that he is thinking or that he exists unless he knows what thought is and what existence is. But this does not require reflective knowledge, or the kind of knowledge that is acquired by means of demonstrations; [...] It is quite sufficient that we should know it by that inner knowledge [*cognitione illa interna*] which always precedes reflective knowledge. This inner knowledge of one’s thought and existence is so innate in all men that, although we may pretend that we do not have it if we are overwhelmed by preconceived opinions and pay more attention to words than to their meanings, we cannot in fact fail to have it.³

Thus we know that the background rationality includes at least the “inner knowledge” of certain innate concepts. This is to be distinguished from “reflective knowledge,” which is known through demonstrations. But Descartes does not explain just what this notion amounts to. Is this the last vestige of deduction from the early *Regulae*? Does Descartes mean demonstrations analogous to those appended to the Second Replies? Or do demonstrations simply mean arguments, requiring premises and inferences (in contrast to immediate intuitions)?

Descartes clarifies this further in the *Principles*, article 10:

And when I said that the proposition *I am thinking, therefore I exist* is the first and most certain of all to occur to anyone who philosophizes in an orderly way, I did not in saying that deny that one must first know what thought, existence and certainty are, and that it is impossible that that which thinks should not exist, and so forth. But because these are very simple notions, and

ones which on their own provide us with no knowledge of anything that exists, I did not think they needed to be listed.⁴

The distinction appears similar to the one made in the Sixth Replies, yet this time it is made between “very simple notions” and those that provide us grounds for making existence claims. The simple notions in this case are surely the same innate concepts mentioned previously. But now we have a second potential candidate for being susceptible of doubt. If one’s belief has existential import, it can be called into question.

This criterion coheres with much of the process of doubt: all beliefs derived from the senses seem to make claims about external existence; so do the more general beliefs upon which they depend – that there is a world, corporeal objects in general, etc.; the cogito itself is also quite obviously an existence claim (and even though it turns out to be impossible to doubt, the meditator’s own existence was momentarily questioned). But other moments during the doubting process do not seem to cohere with the existence criterion: general concepts like quantity, size, shape and duration do not make any claims about existence. Neither do mathematical truths about triangles or arithmetic. Does this mean that these items of knowledge were never doubted? And further than that, perhaps they are not even susceptible of doubt at all? Or maybe Descartes’ criterion itself is faulty?

These difficulties led Marjorie Grene to investigate the question of “what Descartes did and did not doubt” in the *Meditations*.⁵ Her main interest is showing that Descartes never truly doubted the truths of mathematics and more importantly that he never doubted reason: “Reason itself has been serenely in charge all along. Metaphysical doubt is just a pointer along the way, but even hyperbolic doubt, which is to be taken seriously, Descartes insists, in an intellectual undertaking, does not touch the secure domain of pure rational insight.”⁶ The latter includes at least causal principles useful for proving the existence of God and simple concepts such as thought, certainty and existence.

I don’t wish to enter into the debate about the status of the mathematical truths;⁷ rather, I want to take up the question of the undoubted beyond Grene’s brief initial investigation. In attempting to understand the background rationality that enables Descartes’ method of doubt to take place, we will see that it becomes less important to discuss what Descartes actually did and did not doubt, and more important to investigate the difference between what gets brought forth as a potential item of doubt and what is not even mentioned. As we have just shown, the first step will be to resolve the difficulties associated with the respective distinctions between knowledge that is reflective, syllogistic, and with existential import on the one hand, and innate, intuitive, and with no existential import on the other.

There is yet another development in the *Meditations* that is significant for our inquiry. In the pages immediately preceding the first proof, Descartes makes frequent use of the natural light, of which he says, “there cannot be another faculty [...] as trustworthy.”⁸ It is remarkable how often the natural light is invoked throughout Meditation III (nine times), as opposed to the other five Meditations (only mentioned

three times). The natural light is introduced as a faculty distinct from our natural impulses that lead us to believe that our thinking resembles external things (and presumably other beliefs derived from the senses). It is used variously to know “that there must be at least as much <reality> in the efficient and total cause as in the effect of that cause,”⁹ that ideas are like images of things,¹⁰ that ideas and their causes must adhere to their own form of the principle of reason,¹¹ and many other aspects of the causal principles needed to prove God’s existence “a posteriori.” Thus, we have another piece to the puzzle generated by Descartes’ announcement that reason will be our guide in the method of doubt; for in Meditation III, he says, “Whatever is revealed to me by the natural light [...] can in no way be doubtful [*nullo modo dubia esse possunt*].”¹² But of course, this part of the answer requires clarification – this will be the second step towards the interpretive solution to our problem.¹³

We have uncovered several aspects to the problem of the undoubted. First, there are the potentially inconsistent texts where Descartes explains that certain notions are presupposed by the statement of the cogito, or are not susceptible of doubt, or did not need to be mentioned, etc. The constellation of issues surrounding these texts includes innate ideas, syllogistic knowledge, reflective knowledge, and intuition. These will be investigated in section I. The second aspect of the problematic involves the natural light; this will be taken up in section II. I contend that the key to making sense of this complex situation is to recall that Descartes adheres to a strict geometrical order in the *Meditations*, where “items which are put forward first must be known entirely without the aid of what comes later; and the remaining items must be arranged in such a way that their demonstration depends solely on what has gone before.”¹⁴ When the *Meditations* is seen in this light, it becomes senseless to ask why the elements of Cartesian demonstration – innate concepts and principles known by the light of nature – are never considered as candidates of doubt.

Descartes’ Project as Geometrical Demonstration

The question of which concepts were available throughout the method of doubt was a recurring theme in the objections Descartes received to his *Meditations*.¹⁵ Aside from a brief passage in Meditation III,¹⁶ Descartes had done little to make his position on the matter clear in the original version he had disseminated in order to receive critical comments. In response to the queries, he attempted to clarify his position most notably in the *Objections* and *Replies* and *Principles*, but also in a few other various places. The problem is that in the many texts Descartes makes a host of distinctions that if not wholly inconsistent, are at least substantively different. I will first go through the various distinctions Descartes makes; then I will take up a few interpretations of these texts given in the literature; finally, I will offer my own perspective, showing how this goes some way toward resolving our initial question.

(1) *Syllogistic knowledge vs. intuition*. The first major discussion of the primary notions presupposed by the method of doubt occurs in response to the Second Objectors’ concerns with the so-called Cartesian circle:

Thirdly, when I said that we can know nothing for certain until we are aware that God exists, I expressly declared that I was speaking only of knowledge of those conclusions which can be recalled when we are no longer attending to the arguments by means of which we deduced them. Now awareness of first principles is not normally called 'knowledge' by dialecticians. And when we become aware that we are thinking things, this is a primary notion which is not derived by means of any syllogism. When someone says 'I am thinking, therefore I am, or I exist', he does not deduce existence from thought by means of a syllogism, but recognizes it as something self-evident by a simple intuition of the mind. This is clear from the fact that if he were deducing it by means of a syllogism, he would have to have had previous knowledge of the major premiss 'Everything which thinks is, or exists'; yet in fact he learns it from experiencing in his own case that it is impossible that he should think without existing. It is in the nature of our mind to construct general propositions on the basis of our knowledge of particular ones.¹⁷

The main distinction at work here is between knowledge arrived at by means of syllogism – and thus with certain major premises in hand – and self-evident "primary notions," which are known immediately through "simple intuition." The only example of a primary notion we are afforded in this passage is the inferential form of the cogito given in both the *Discourse* and *Principles*.¹⁸

(2) *Reflective knowledge gained by demonstration vs. innate knowledge.* The second major distinction Descartes makes is in response to questions by the Sixth Objectors about what must be known prior to the cogito:

It is true that no one can be certain that he is thinking or that he exists unless he knows what thought is and what existence is. But this does not require reflective knowledge, or the kind of knowledge that is acquired by means of demonstrations; still less does it require knowledge of reflective knowledge, i.e. knowing that we know, and knowing that we know that we know, and so on *ad infinitum*. This kind of knowledge cannot possibly be obtained about anything. It is quite sufficient that we should know it by that inner knowledge [*cognitione illa interna*] which always precedes reflective knowledge. This inner knowledge of one's thought and existence is so innate in all men that, although we may pretend that we do not have it if we are overwhelmed by preconceived opinions and pay more attention to words than to their meanings, we cannot in fact fail to have it. Thus when anyone notices that he is thinking and that it follows from this that he exists, even though he may never before have asked what thought is or what existence is, he cannot fail to have sufficient knowledge of them both to satisfy himself in this regard.¹⁹

On the one hand, we have "reflective knowledge," which is the result of demonstration. On the other hand, innate or internal knowledge is in us whether we acknowledge it or not. We may "pretend" not to have such knowledge, if we allow

preconceived opinions to blind us. The only concepts Descartes mentions here in this regard are thought and existence, as his response is tied to concerns with the cogito specifically.²⁰

(3) *Knowledge with existential import vs. knowledge without existential import.* Whereas the first two criteria left much to be explained, Descartes is more clear in *Principles I*, 10:

And when I said that the proposition *I am thinking, therefore I exist* is the first and most certain of all to occur to anyone who philosophizes in an orderly way, I did not in saying that deny that one must first know what thought, existence and certainty are, and that it is impossible that that which thinks should not exist, and so forth. But because these are very simple notions, and ones which on their own provide us with no knowledge of anything that exists, I did not think they needed to be listed.²¹

Here the contrast is between that which makes an existence claim and the “very simple notions” that do not. Again we are given a list of concepts – thought, existence, certainty – that never get doubted, but this time Descartes adds the modal principle “that it is impossible that that which thinks should not exist.” He explains how principles like this fit in to the scheme in a letter to Clerselier of June or July, 1646:

It is one thing to look for a *common notion* so clear and so general that it can serve as a principle for proving the existence of all the beings, or entities, to be discovered later; and another thing to look for a *being* whose existence is known to us better than that of any other, so that it can serve as a *principle* for discovering them.

In the first sense, it can be said that ‘It is impossible for the same thing both to be and not to be at the same time’ is a principle which can serve in general, not properly speaking to make known the existence of anything, but simply to confirm its truth once known, by the following reasoning: ‘It is impossible that that which is, is not; I know that such a thing is; so I know that it is impossible that it is not.’ This is of very little importance, and makes us no better informed.²²

Descartes makes it clear that he does not find principles like this ontological version of the law of contradiction to be helpful in discovering truth, even though they are obviously true. Both this principle and the previously mentioned modal one cannot “on their own” teach us about the existence of anything we did not already know of.

(4) *Preconceived opinions vs. notions which involve no affirmation or denial.* Descartes presents a fourth way: primary notions can be distinguished from those which are susceptible to doubt in his letter to Clerselier of January 12, 1646, appended to the Fifth Set of Objections and Replies:

[...]The term ‘preconceived opinion’ applies not to all the notions which are in our mind (which I admit it is impossible for us to get rid of) but only to all the opinions which we have continued to accept as a result of previous judgements that we have made. [...] For, after all, in order to get rid of every kind of preconceived opinion, all we need to do is resolve not to affirm or deny anything which we have previously affirmed or denied until we have examined it afresh.²³

This line of thinking continues in response to a further objection a few pages later:

The second objection which your friends note is that in order to know that I am thinking I must know what thought is; and yet, they say, I do not know this at all, since I have denied everything. But I have denied only preconceived opinions – not notions like these, which are known without any affirmation or denial.²⁴

This portrayal of “preconceived opinions” as judgments that we have previously affirmed is reminiscent of the very first line of the *Meditations*: “Some years ago I was struck by the large number of falsehoods that I had accepted as true in my childhood [...].”²⁵ By contrast, primary notions that have never been doubted are not known through affirmative or negative judgments that we have made. Rather, they are innate in us, as Descartes says in a letter to Mersenne of July 22, 1641: “I explained in my Reply to the First Objections how a triangle inscribed in a square can be taken as a single idea or several. Altogether, I think that all those which involve no affirmation or negation are innate in us.”²⁶

I think (1) – (4) are the most important distinctions Descartes makes between primary notions that are not entertained in the method of doubt and those that are. However, he does say a few other things. He frequently contrasts preconceived notions with those known by the natural light; but we will enter the full discussion of this issue in section II. He also distinguishes that for which a definition is appropriate and that for which a definition will only render the concepts at issue more obscure.²⁷ At some points Descartes says that no clear perceptions that we are immediately attending to can be doubted, while our memory of those same perceptions can be called into doubt.²⁸ The texts associated with the latter two distinctions will be helpful to clarify (1) – (4), but I don’t think they are of essential importance on their own.

One valuable and rather thorough interpretation of these texts is offered by Murray Miles in his book-length study of the cogito, *Insight and Inference: Descartes’s Founding Principle and Modern Philosophy*. Miles contends that the distinction between implicit and explicit knowledge is the key for making sense of the above passages. Much of his discussion relies on the *Conversation with Burman*, where Descartes tries to explain the possible inconsistency of the Second Replies and *Principles* I, 10:

Before this conclusion [*conclusionem*], ‘I am thinking, therefore I exist’, the major ‘whatever thinks, exists’ can be known; for it is in reality prior to my

conclusion [*conclusionem*], and my conclusion [*conclusio*] depends upon it. That is why the author says in the *Principles* that the major premiss comes first, namely because implicitly it is always presupposed and prior. But it does not follow that I am always expressly and explicitly aware of its priority, or that I know it before my conclusion [*conclusionem*]. This is because I am attending only to what I experience within myself – for example ‘I am thinking, therefore I exist’. I do not pay attention in the same way to the general notion ‘whatever thinks, exists’. As I have explained before, we do not separate out these general propositions from the particular instances; rather, it is in the particular instances that we think of them. This, then, is the sense in which the words cited here should be taken.²⁹

Miles argues that this passage shows that “analytical reflexion” explicitly points us to the fact that we are aware of our own thought and existence in the cogito. The cogito does indeed rely upon principles such as “whatever thinks exists,” but we know these only implicitly until they are made explicit in further stages of reflexion *after* the cogito is understood. We can reason syllogistically only after this process of analytical reflexion has occurred.³⁰

Miles also takes seriously Descartes’ claim that “It is in the nature of our mind to construct general propositions on the basis of our knowledge of particular ones.”³¹ This is why the particular claim of the cogito is prior in the order of analysis to the general principles, even though the former depends on the latter. All stages of analytical reflexion make use of intuition, rather than discursive reasoning. The latter can help us clearly express what we have already discovered.³²

I think Miles’ take on this complex situation is helpful and insightful. He sums up his analysis as follows:

It appears from the foregoing that the task of reconciling the Second Replies and the *Principles*, while showing that the *cogito, ergo sum* cannot be part of a syllogism with a suppressed major premise, falls, not to the implicit-explicit distinction alone, but to three different distinctions, two of which (particular-general, intuitive-discursive) figured already in the previous replies to challenges to the primitiveness of the *cogito, ergo sum*. Still, the implicit-explicit distinction deserves pride of place.³³

I agree that the implicit-explicit distinction appears to be important for solving the puzzle; but why make it the most important piece? Miles’ main evidence for the claim comes from the *Conversation with Burman*. Yet, recent commentators have called into question the legitimacy of relying too heavily on this work, as we are simply unsure how accurately Burman remembered the interview when he relayed it to Clauberg, or how carefully Clauberg transcribed it; not to mention that many of the claims made there are not found anywhere else in the Cartesian corpus, or worse, are inconsistent with it.³⁴

This certainly does not mean that the implicit-explicit distinction plays no part in the story, as Descartes speaks this way on other, uncontested occasions (albeit less directly).³⁵ But if Miles' sole evidence for why it warrants "pride of place" comes in the *Conversation with Burman*, then we have reason to be suspicious.³⁶ Worse still, Miles follows this assertion with one that has even less support: "By contrast with these three [particular-general, intuitive-discursive, implicit-explicit], the further distinction between 'simple notions' having no existential import and existential propositions like 'I exist,' of which much appears to be made in the *Principles*, features in a relatively minor way."³⁷ It's hard to see why the second-hand comments from a disputed text should take precedence over the statement of the authoritative *Principles*, inked from Descartes' own quill.³⁸

At this point, it will be helpful to go through the different items of knowledge that we know Descartes never entertained in the process of doubt. First, there are principles Descartes explicitly says he knows by the natural light: "that there must be at least as much <reality> in the efficient and total cause as in the effect of that cause,"³⁹ "there is nothing in the effect which was not previously present in the cause, either in a similar or in a higher form," "nothing comes from nothing," and "all the reality or perfection which is present in an idea merely objectively must be present in its cause either formally or eminently."⁴⁰ These are all some form or variation of what Leibniz will later call the principle of sufficient reason; as for their being known by the natural light, we will postpone that discussion until the next section. Descartes variously calls all of the above principles "common notions," "primary notions" or "simple notions." Descartes also admits that the principle "that it is impossible that that which thinks should not exist" is known before the cogito is pronounced.⁴¹ One would imagine that other similar principles are probably presupposed by the method of doubt, but Descartes does not mention them. There are also a class of concepts that are never challenged such as thought,⁴² existence,⁴³ certainty,⁴⁴ doubt,⁴⁵ and truth.⁴⁶

Will any of the distinctions (1) – (4) above capture the criterion we are looking for? Distinction (1), between syllogistic knowledge and intuition, does not quite do the job. It is true that none of the principles and concepts listed above can be understood through syllogism, but only through self-evident intuition. Yet, several of the candidates in the process of doubt do not require syllogistic reasoning to be understood. The most obvious is the cogito, as Descartes makes clear in the Second Replies.⁴⁷ It is also unlikely that simple arithmetical calculations like $2 + 3 = 5$ necessitate the use of syllogism. Thus distinction (1) does not adequately express the criterion we are in search of.

Before moving on to the other potential criteria, a few remarks are in order. We said earlier that it was unlikely Descartes ever seriously doubted the truths of mathematics. And it is obvious that the cogito is impossible to doubt. Why, then, do these items rule out distinction (1)? Recall that the key to our discussion is what Descartes *entertained* in the process of doubt, not what he *actually doubted*. Doubt is even attempted with respect to the meditator's own existence, even though it turns out to be illegitimate:

In that case am not I, at least, something? But I have just said that I have no senses and no body. This is the sticking point: what follows from this? Am I not so bound up with a body and with senses that I cannot exist without them? But I have convinced myself that there is absolutely nothing in the world, no sky, no earth, no minds, no bodies. Does it now follow that I too do not exist?⁴⁸

I have two reasons for thinking all of this is significant. For one, Descartes invokes the natural light in order to ascertain certain principles required for the proof of God's existence. Why couldn't the natural light be used to show the certainty of mathematics? Secondly, why aren't the principles of the natural light mentioned during the passage about the possibility of a deceiving God in Meditation I? Wouldn't they be considered on the same footing as simple mathematics? These questions lead me to believe that the criterion we are investigating is a significant one.

Back to our question: what about distinction (2), between reflective and innate knowledge? It is difficult to tell exactly what Descartes has in mind by the term "reflective knowledge." For the most part, we can ignore his talk about knowledge of reflective knowledge, since this was merely a response to the Sixth Objectors' claim that "you do not even know that you are saying or thinking anything, since this seems to require that you should know that you know what you are saying; and this in turn requires that you be aware of knowing that you know what you are saying, and so on *ad infinitum*."⁴⁹ None of this is at all essential to reflective knowledge, which is simply "the kind of knowledge that is acquired by means of demonstrations."⁵⁰

Descartes normally uses the word "demonstration" [*demonstratio*] in mathematical contexts, or what he labels his proofs for the existence of God and the distinction between soul and body. We might call the latter *metaphysical demonstration*. Most scholastic textbook writers followed Aristotle in understanding demonstration as one form of syllogism, suitable for science.⁵¹ Descartes, on the other hand, talks about two different modes of demonstration: synthesis, which involves definitions, axioms, postulates and theorems, and analysis, which "shows the true way by means of which the thing in question was discovered methodically."⁵² We need not get entangled in the many scholarly debates about analysis and synthesis here; for our purposes, it will be sufficient to point out that both modes are set out in geometrical fashion, following a strict order, where "items which are put forward first must be known entirely without the aid of what comes later; and the remaining items must be arranged in such a way that their demonstration depends solely on what has gone before."⁵³

The knowledge that is exhibited in the major metaphysical works like the *Discourse*, the *Meditations*, and the *Principles* Part I, would be considered reflective, since Descartes explicitly says they are the result of metaphysical demonstration, modeled after geometrical demonstration. Likewise, none of the undoubted principles and concepts would be known via demonstration, since the demonstrations of the cogito, the existence of God, etc. depend on them. At first glance, then, distinction (2) appears to be a good candidate for doing the work of sorting between items

entertained in the doubting process and items not entertained. The only problematic item might be the cogito, which is never explicitly considered the result of a demonstration.⁵⁴ Even though the cogito does not look like an argument in Meditation II, it does depend on principles and concepts in the same way that the proofs for the existence of God do in Meditation III.⁵⁵ In any event, even if we do consider the cogito reflective knowledge, distinction (2) alone does not clarify our puzzle. For we now must ask why certain items are susceptible to demonstration, while others are not.

To make matters worse, we have only considered things from one half of the distinction. The other half is “inner knowledge [*cognitione illa interna*] which always precedes reflective knowledge,” and is “so innate in all men” that we simply cannot fail to have it.⁵⁶ Clearly, the cogito is innate in us, as is our idea of God. The former is enough to doom distinction (2), but interestingly, it is our *idea* of God, not the proof for his existence, that is innate. Although distinction (2) itself may not be the one we are seeking, we now see that Descartes’ conception of demonstration will play a significant role.

The third distinction, between knowledge with and without existential import, seems to me to be the most robust of the four. Unfortunately, the increase in the substantive content of distinction (3) is matched by its failure to adequately express the criterion we are looking for. Case in point here is mathematics. Neither the truths of mathematics themselves nor their demonstrations make any claims to existence, even though they are one of the more startling inclusions in the process of doubt (while nonetheless never being truly doubted).⁵⁷ The natural light itself is always available and potentially could have been used to ascertain mathematical truths, even before the criterion of clarity and distinctness was known. But alas, it was not. It appears, then, that distinction (3) is better understood as a possible criterion for what Descartes actually doubted.

Finally, let us consider distinction (4), which cleaves preconceived opinions from notions which involve no affirmation or denial. Descartes is primarily thinking of concepts such as thought and existence when he talks of notions that are not judgments. Just having a concept in one’s mind does not necessitate making a judgment about it. Principles are a bit more tricky. When Descartes is classifying his thoughts in Meditation III, he says, “the chief and most common mistake which is to be found [with respect to judgments] consists in my judging that the ideas which are in me resemble, or conform to, things located outside me.”⁵⁸ Although the main issue involves judgments about external things, Descartes does not say that propositions such as “that nothing comes from nothing,” “that there is as much reality in the cause as in the effect,” and so on are not judgments. These appear to involve affirmation, or at the very least are susceptible to affirmation or denial, even if we have never actually made a previous judgment about them. This brings to the forefront which side of the distinction Descartes privileges, previous judgments that we have made *in fact*, or knowledge that involves affirmation or denial *in principle*.

Based on the principle of charity, I think we must opt for the former option, since Descartes explicitly mentions items of knowledge that involve affirmation or

denial, but are never entertained in the doubting process. So, distinction (4) becomes (4'): previous judgments we have made vs. innate knowledge that is not the result of previous judgments. This seems to work better than the previous possibilities; all the stages of doubt in Meditation I are beliefs that the meditator has previously accepted. None of the concepts or principles that we later find out have been presupposed all along are judgments that have been explicitly affirmed at any point. But if we do take distinction (4') seriously, we have to admit that Descartes' reasons for entertaining doubt with respect to some things and not others are non-philosophical and contingent. It is not inconceivable that at some point the meditator could have affirmed simple principles like "nothing comes from nothing" and "it is impossible to think without existing" similar to the way basic principles of mathematics are accepted. I don't think Descartes has in mind things that we just happened to have chanced upon and affirmed as true in our past. So, distinction (4') captures the extensional aspect of the criterion; yet, it does not give us much help in understanding the essential reasons why some elements fall on one side of the fence and some on the other.

We have now pieced together enough of the parts to be able to attempt to resolve our query. First, let's sum up what we have discovered about each side of the criterion. With respect to that which is entertained in the doubting process, we know that each item must be a preconceived opinion involving affirmation or denial and the kind of thing acquired by demonstration. On the side of that which is not entertained in doubt, the items of knowledge are innate, known through non-syllogistic intuition that precedes demonstration, and are without existential import. Thus far, most of the features listed are merely necessary conditions for their respective sides, since we saw some affirmative judgments that were ignored in the method of doubt and some innate, non-syllogistic intuitions without existential import that were not. Only demonstration remains as a clear-cut deciding factor, and I do not think this is a coincidence; now we must clarify exactly what is demonstrable and what precedes demonstration.

Descartes wishes to employ the method of demonstration, following the great geometers.⁵⁹ He explains what this means in the *Meditations* in a famous letter to Mersenne of December 24, 1640: "It should be noted that in all my writings I do not follow the order of topics, but the order of reasons."⁶⁰ Gueroult went so far as to call the order of reasons "the sine qua non of the value of Descartes' doctrine in his own eyes."⁶¹ The rational order of geometrical demonstration demands that we first clear away previous demonstrations not proven with the certainty necessary for true science. This is accomplished by the method of doubt, which is only applied to the results of possible demonstrations. What cannot be doubted are the very concepts and principles employed in carrying out geometrical demonstration that enable it to take place. It would be absurd to ask whether we can doubt the essential components of the structure through which questioning, doubting, and demonstration are made possible.

We have just shown that the question of what gets entertained in the doubting process is answered by that which can be geometrically demonstrated. Basic

concepts like thought, existence, doubt, and certainty are the very terms through which we can make sense of a system of demonstration. Principles such as the law of contradiction, or “it is impossible to think without existing” are the basis for making any rational connections whatsoever.⁶² The only remaining issue is how we can know which principles are presupposed by demonstration. The answer here is quite clearly the natural light, which Descartes invokes repeatedly in Meditation III.⁶³

The Natural Light

Having recourse to the natural light (*lumen naturale, lumière naturelle*) in order to affirm basic truths in Meditation III would have been less controversial to Descartes’ scholastic contemporaries than it is for the present day reader. Aquinas and Scotus primarily contrast the natural light with divine revelation.⁶⁴ In the preface to his *Disputationes metaphysicae*, Francisco Suárez writes:

Divine and supernatural theology relies on the divine light and on principles revealed by God; yet since it is carried out through human discourse and reasoning, it is also assisted by truths known by the light of nature, and employs such truths as ministers and, as it were, instruments in order to carry forward its theological inquiries and to shed light on divine truths. Among all the natural sciences, that which comes first of all, and has taken the name ‘first philosophy,’ does special service to sacred and supernatural theology. For it comes closest of all to the knowledge of divine things, and also explicates and confirms those natural principles that include universal things and in a certain way support and sustain all learning.⁶⁵

The division between pursuits of natural knowledge and theology is one Descartes regularly employs, often to shirk difficult questions about the faith. Furthermore, the *Meditations* are primarily about “first philosophy,” rather than the topics traditionally associated with a treatise on metaphysics (being, substance, accidents, etc.). Suárez later clarifies the role of the natural light, saying, “It is as it were an instrument joined to [a created] essence for the purposes of eliciting all the acts of understanding of which the essence itself, which is the basis of that light, is the proper and principal cause, acting through its own proper influence.”⁶⁶ Eustachius a Sancto Paulo, whom Descartes admired,⁶⁷ says, “By means of the natural light we can even in this life have imperfect awareness of God, not merely of his existence but even of his essence.”⁶⁸

The important takeaway from our brief survey of scholastics and their medieval predecessors is that the natural light is primarily employed in contrast to supernatural illumination. Descartes makes use of natural light or reason in much the same way. In his prefatory letter to the *Meditations*, dedicated to the Faculty of Theology at the Sorbonne, Descartes reveals the nature of his project:

I have always thought that two topics – namely God and the soul – are prime examples of subjects where demonstrative proofs ought to be given with the

aid of philosophy rather than theology. For us who are believers, it is enough to accept on faith that the human soul does not die with the body, and that God exists; but in the case of unbelievers, it seems that there is no religion, and practically no moral virtue, that they can be persuaded to adopt until these two truths are proved to them by natural reason.⁶⁹

He makes similar remarks in the preface to the French version of the *Principles*⁷⁰ and in many other places.⁷¹

Descartes also distinguishes the natural light from the “teachings of nature” or our “natural impulses.” He introduces the light of nature for the first time in the *Meditations* (after the synopsis) in this way:

When I say ‘Nature taught me to think this’, all I mean is that a spontaneous impulse leads me to believe it, not that its truth has been revealed to me by some natural light. [...] But as for my natural impulses, I have often judged in the past that they were pushing me in the wrong direction when it was a question of choosing the good, and I do not see why I should place any greater confidence in them in other matters.⁷²

Descartes reinforces this distinction in Meditation VI:

[...] I must more accurately define exactly what I mean when I say that I am taught something by nature. In this context I am taking nature to be something more limited than the totality of things bestowed on me by God. For this includes many things that belong to the mind alone – for example my perception that what is done cannot be undone, and all other things that are known by the natural light [...].⁷³

The “teachings of nature” are our inclinations to believe that our sense perceptions represent external things. Even though this is a natural proclivity, and one that is God-given, it is so tied up with the uncertainty of the senses that we cannot trust it in the same way as the pure natural light of reason.

In his “Descartes’ Natural Light,” John Morris offers an analysis of the term. He contends that the understanding has two parts: active and passive. The natural light is the passive part of the understanding, which “is what makes me recognize that something is true, and there is no further faculty, superior to the natural light, which can show that it is false.”⁷⁴ The active part of the understanding has the ability to conceive of ideas, while the passive natural light simply shows us what is true. This is an appealing interpretation; unfortunately, as Deborah Boyle argues convincingly, the textual evidence for Morris’ primary distinction is lacking.⁷⁵ His main support is that the French version of the *Meditations* employs the phrases *puissance de connaître* (“power of cognition”) and *puissance de concevoir* (“power of conceiving”). But it is far from clear that these phrases are meant to indicate passivity or activity. And Descartes never clearly distinguishes between active and passive sides to the understanding.

Morris does, however, confirm some of the features we had postulated of the natural light before: it is a faculty of the understanding that recognizes truths, particularly causal principles; these truths are completely immune from doubt; and following medieval and scholastic practice, the natural light is in contrast to divine revelation. He also points out another important feature of the light of nature that we have not specifically mentioned, however obvious it might be. The natural light is a function of the understanding, and is not directly associated with the imagination or the will.⁷⁶ The most important thing to note is that the natural light is a faculty purely of the mind, unmixed with sensation or anything bodily.

With all of these pieces in place, we are now prepared to offer some insight on the natural light with respect to our larger interpretive goal. We know that Descartes never doubts – or even entertains the possibility of doubting – reason, since reason is our guide throughout the entire project. In the previous section, we also saw that Descartes is using the method of geometrical demonstration for metaphysical aims. The natural light furnishes us with the principles that enable demonstration to be carried out. Since Descartes is interested in proving metaphysical truths in the *Meditations*, many of the principles that are brought forth are causal principles. Unfortunately, Descartes is not entirely clear how we know which principles are known by the natural light, and in particular which ones are immune to the doubting process.

The ambiguity with respect to the natural light becomes apparent once one compares Descartes' use of it in other places. In the Second Postulate in the Second Set of Replies, Descartes asks his readers to

reflect on their own mind, and all its attributes. They will find that they cannot be in doubt about these, even though they suppose that everything they have ever acquired from their senses is false.⁷⁷

He continues in the Third Postulate as follows:

I ask them to ponder on those self-evident propositions that they will find within themselves, such as 'The same thing cannot both be and not be at the same time', and 'Nothingness cannot be the efficient cause of anything', and so on. In this way they will be exercising the vision which nature gave them, in the pure form which it attains when freed from the senses; for sensory appearances generally interfere with it and darken it to a very great extent.⁷⁸

The natural light is not specifically mentioned here, but the principles given as examples (a variation on the law of contradiction and a causal principle) and the language used ("the vision which nature gave them") leave us in no doubt that it is the implicit reference. We see that Descartes does not think that the pure faculties of our mind are susceptible to doubt. This seems to go well beyond what was known indubitably by the natural light in Meditation III. This may have to do with the

synthetic style adopted, which alters the order of demonstration (most notably the proofs for God's existence).

Descartes also makes use of the natural light in Part I of the *Principles* before he has proven God's existence (first accomplished in article 14). In article 11, he writes, "we should notice something very well known by the natural light: nothingness possesses no attributes or qualities."⁷⁹ And in article 13, titled "The sense in which knowledge of all other things depends on the knowledge of God," Descartes uses language very similar to that from the postulates in Second Replies:

The mind, then, knowing itself, but still in doubt about all other things, looks around in all directions in order to extend its knowledge further. First of all, it finds within itself ideas of many things; and so long as it merely contemplates these ideas and does not affirm or deny the existence outside itself of anything resembling them, it cannot be mistaken. Next, it finds certain common notions from which it constructs various proofs; and, for as long as it attends to them, it is completely convinced of their truth. For example, the mind has within itself ideas of numbers and shapes, and it also has such common notions as: *If you add equals to equals the results will be equal*; from these it is easy to demonstrate that the three angles of a triangle equal two right angles, and so on. And so the mind will be convinced of the truth of this and similar conclusions, so long as it attends to the premisses from which it deduced them.⁸⁰

This passage provides support for our interpretation in several respects. The class of ideas understood without reference to anything else seems to include the concepts discussed in the previous section – thought, existence, and so on – even though it also includes sensory and mathematical ideas. The common notions "from which [the mind] constructs various proofs" are the principles we can know by the natural light. Descartes does not explicitly reference the natural light, but at this stage what else could furnish us with the common notions, since the doctrine of clear and distinct perception does not appear until article 30? So, we have the two components required for geometrical demonstration: concepts and principles. Finally, our earlier issue regarding why mathematics was included in the process of doubting can now be resolved. Mathematical truths must be demonstrated on the basis of mathematical ideas (such as triangles and numbers) and common notions (like *adding equals to equals makes equal results*). While we attend to such demonstrations we cannot be in doubt as to their truth; but the order demands that we prove God's existence first, since we cannot give attention to these proofs at all times.⁸¹

We have gone beyond what Descartes has explicitly stated we know by means of the natural light. Perhaps it is what he meant by the term, or perhaps not. He gives us no precise criterion and so the concept remains a bit ambiguous. What has become less equivocal is our understanding of Descartes' criterion for what gets to count as a candidate of doubt. Metaphysical proofs using the method of geometrical demonstration are the desiderata. Neither our ability to demonstrate (reason) nor our

resources (concepts and principles) for constructing proofs are ever entertained in the doubting process.

Final Remarks

To conclude, recall the structure of Descartes' tree of knowledge from the preface to the French edition of the *Principles*: metaphysical roots, physical trunk and branches bearing the fruits of medicine, mechanics and morals.⁸² Descartes does not believe that logic is part of the tree, but is something that must be practiced before one studies philosophy in order to properly prepare the mind. Unlike scholastic textbook authors, who usually spend a good deal of time discussing syllogism, Descartes does not include any material on logic. Instead, he refers the reader back to his "summary" of the rules of logic given in the *Discourse*. The four rules offered are rather underwhelming: (1) never accept anything as true unless it is presented clearly and distinctly; (2) divide problems into as many parts as possible; (3) follow an order from the simplest to the gradually more complex; (4) make sure one is complete in all investigations.⁸³ Descartes does not believe these to be philosophically substantive, since they are not even included as part of the tree. Yet, we have shown that Descartes presupposes quite a bit more than these seemingly innocuous texts indicate prior to carrying out any philosophical demonstrations.

References

- ¹ Descartes, R., *Œuvres de Descartes*, eds. C. Adam and P. Tannery, 2nd ed. (Paris: Vrin, 1964–1974), 11 vols. (AT hereafter). I primarily use the translations from *The Philosophical Writings of Descartes*, trans. J. Cottingham, R. Stoothoff, and D. Murdoch (Cambridge: Cambridge University Press, 1984–1985), 2 vols. (CSM hereafter), and *The Philosophical Writings of Descartes*, vol. III, trans. J. Cottingham, R. Stoothoff, D. Murdoch, and A. Kenny (Cambridge: Cambridge University Press, 1991) (CSMK hereafter). When I do modify the translation, I note it in the text. I have also consulted the D. Cress translations contained in Descartes, R., *Philosophical Essays and Correspondence*, ed. R. Ariew (Indianapolis: Hackett, 2000). AT VII, 23–24; CSM II, 16.
- ² AT VII, 18; CSM II, 12.
- ³ AT VII, 413, 422; CSM II, 278, 285. Translation modified following D. Cress.
- ⁴ AT VIII-1, 8; CSM I, 196.
- ⁵ Grene, M., "Descartes and Skepticism", *The Review of Metaphysics* 53, 3 (1999): 553–571, here 558.
- ⁶ Grene, M. (1999), 570. Grene's point appears to be supported to some degree by Descartes' refusal to admit the possibility of being insane (AT VII, 18–19). Frankfurt takes this up in great detail in his extended treatment of the method of doubt in Frankfurt, H.G., *Demons, Dreamers, and Madmen: The Defense of Reason in Descartes's Meditations* (New York: Bobbs-Merrill, 1970). It will soon become clear that I do not share his view that one cannot glean Descartes' genuine positions from the internal dialogue of Meditation I.
- ⁷ On the whole, I tend to agree with Grene's position. The texts in Meditations I, II and III support this. In Meditation I, the evil genius never actually throws mathematics into doubt: "I shall think that the sky, the air, the earth, colours, shapes, sounds and all external things are merely delusions of dreams which [the evil genius] has devised to ensnare my judgement. I shall consider myself as not having hands or eyes, or flesh, or blood or senses, but as falsely

believing that I have all these things” (AT VII, 22–23; CSM II, 15). And the possibility of a deceiving God entertained beforehand only questions our own ability to reason mathematically, not the eternal truths themselves: “What is more, since I sometimes believe that others go astray in cases where they think they have the most perfect knowledge, may I not similarly go wrong every time I add two and three or count the sides of a square, or in some even simpler matter, if that is imaginable?” (AT VII, 21; CSM II, 14) In Meditation II, Descartes does not include mathematics in his list summarizing what has been doubted (AT VII, 23–25; CSM II, 16). Most convincing of all is Descartes’ situating of simple facts of arithmetic alongside the cogito as “the things themselves which I think I perceive clearly” and appear to be beyond doubt: “let whoever can do so deceive me, he will never bring it about that I am nothing, so long as I continue to think I am something; [...] or bring it about that two and three added together are more or less than five, or anything of this kind in which I see a manifest contradiction” (AT VII, 36; CSM II, 25). However, one text that does seem to support the opposing position comes during the discussion of the deceiving God: “I have no answer to these arguments, but am finally compelled to admit that there is not one of my former beliefs about which a doubt may not properly be raised” (AT VII, 21; CSM II, 14–15). As it turns out however, the deceiving God hypothesis is not even a possible doubt, since the very concept is contradictory.

⁸ AT VII, 38; CSM II, 27.

⁹ AT VII, 40; CSM II, 28.

¹⁰ AT VII, 42.

¹¹ AT VII, 41–42.

¹² AT VII, 38; CSM II, 27; trans. mod.

¹³ It would seem that the appeal to the natural light is supported by Descartes’ claim at the beginning of Meditation III that “I now seem to be able to lay down as a general rule that whatever I perceive very clearly and distinctly is true” (AT VII, 35; CSM II, 24), as clear and distinct perception is associated with the natural light in another place (AT VIII-1, 16–17). Yet, this criterion is immediately rescinded in the next sentence of Meditation III, and is not available in the order of reasons until Meditation IV.

¹⁴ AT VII, 155; CSM II, 110.

¹⁵ In addition to the text cited above from the Sixth Replies, the Jesuit Bourdin spends the majority of his lengthy set of objections complaining that Descartes’ positive arguments are doomed to fail based on how much he has doubted at the start. For a full treatment of the Seventh Objections see Ariew, R., “Pierre Bourdin and the Seventh Objections”, in *Descartes and His Contemporaries: Meditations, Objections and Replies*, eds. R. Ariew and M. Grene (Chicago: University of Chicago Press, 1995). And in the appendix to the Fifth Objections and Replies, Cleselier’s “friends” objected, “that when I say ‘I am thinking, therefore I exist’ I presuppose the major premiss ‘Whatever thinks exists’, and hence I have already adopted a preconceived opinion” (AT IX-1, 205; CSM II, 271).

¹⁶ AT VII, 38; CSM II, 26: “My understanding of what a thing is, what truth is, and what thought is, seems to derive simply from my own nature.”

¹⁷ AT VII, 140–141; CSM II, 100.

¹⁸ This is rather interesting, as Descartes takes pains to phrase the cogito as a simple intuition in Meditation II (AT VII, 25; CSM II, 17): “this pronouncement, *I am, I exist*, is necessarily true whenever it is put forward by me or conceived in my mind.” And this statement from Second Replies is his clearest indication that the cogito is not a syllogistic inference, even though he reverts back to the more familiar *cogito, ergo sum*. See E. Curley’s analysis of the cogito in

Descartes Against the Skeptics (Cambridge, MA: Harvard University Press, 1978); especially chapter 4 is helpful for clarifying Descartes' anti-syllogistic leanings in this regard.

¹⁹ AT VII, 422; CSM II, 285; trans. mod. following D. Cress.

²⁰ In the dialogue *The Search for Truth*, Eudoxus, seemingly the best representative of Descartes' own views, says, "I quite share your view, Epistemon [the scholastic interlocutor], that we must know what doubt is, what thought is, what existence is, before being convinced of the truth of this reasoning [*ratiocini*], 'I am doubting, therefore I exist', or what amounts to the same thing, 'I am thinking, therefore I exist'. [...] But someone who wants to examine things for himself, and to base his judgments about them on his own conceptions, must surely have enough mental capacity to have adequate knowledge of what doubt, thought and existence are, whenever he attends to the question, without having to be taught the difference between them" (AT X, 523; CSM II, 417; trans. mod.). So it seems that we can add the concept of doubt to our list of innate notions that precede all reflective knowledge.

²¹ AT VIII-1, 8; CSM I, 196.

²² AT IV, 444; CSMK, 290.

²³ AT IX-1, 204; CSM II, 270.

²⁴ AT IX-1, 206; CSM II, 271.

²⁵ AT VII, 17; CSM II, 12.

²⁶ AT III, 417–418; CSMK, 187.

²⁷ In the Letter to Mersenne, October 16, 1639 Descartes writes: "I have never had any doubts about truth, because it seems a notion so transcendently clear that nobody can be ignorant of it. [...] But no logical definition can be given which will help anyone discover its nature. I think the same of many other things which are very simple and are known naturally, such as shape, size, motion, place, time, and so on: if you try to define these things you only obscure them and cause confusion" (AT II, 596–598; CSMK, 139). Similar sentiments are expressed in *The Search for Truth*: "[...] There are, in my view, some things which are made more obscure by our attempts to define them: since they are very simple and clear, they are perceived and known just on their own, and there is no better way of knowing and perceiving them. Perhaps some of the most serious errors in the sciences are those committed by those who try to define what should only be conceived, and who cannot distinguish between something which needs and merits a definition if it is to be known and something which is at best known just on its own. But doubt, thought and existence can be regarded as belonging to the class of things which have this sort of clarity and which are known just on their own. [...] Thus it would be pointless trying to define, for someone totally blind, what it is to be white: in order to know what that is, all that is needed is to have one's eyes open and to see white. In the same way, in order to know what doubt and thought are, all one need do is to doubt or to think. That tells us all it is possible to know about them, and explains more about them than even the most precise definitions" (AT X, 523–524; CSM II, 417–418).

And of course, this is stated most definitively in the *Principles* passage cited previously: "*Matters which are very simple and self-evident are only rendered more obscure by logical definitions, and should not be counted as items of knowledge which it takes effort to acquire.* I shall not here explain many of the other terms which I have already used or will use in what follows, because they seem to me to be sufficiently self-evident. I have often noticed that philosophers make the mistake of employing logical definitions in an attempt to explain what was already very simple and self-evident; the result is that they only make matters more obscure" (AT VIII-1, 8; CSM I, 195–196). It is interesting that Descartes insists upon this immediately after he has defined the term "thought" in the preceding article, even though he lists "thought" as one of the simple notions

in the very next sentence! It is also the first definition listed in the synthetic exposition of the *Meditations* offered in “geometrical fashion” in the Second Replies (AT VII, 160; CSM II, 113).

²⁸ AT VII, 460; CSM II, 309: “So long as we attend to a truth which we perceive very clearly, we cannot doubt it. But when, as often happens, we are not attending to any truth in this way, then even though we remember that we have previously perceived many things very clearly, nevertheless there will be nothing which we may not justly doubt so long as we do not know that whatever we clearly perceive is true.”

²⁹ AT V, 146; CSMK, 333; trans. mod. In rather confusing fashion, Miles translates *conclusio* at first as ‘conclusion’, but throughout the rest of the passage as ‘inference’ (Miles, M., *Insight and Inference: Descartes’s Founding Principle and Modern Philosophy* (Toronto: University of Toronto Press, 1999), 148–149).

³⁰ Miles, M. (1999), 231–239.

³¹ AT VII, 141; CSM II, 100.

³² Miles, M. (1999), 231–239.

³³ Miles, M. (1999), 238.

³⁴ Garber, D. and Cohen, L., “A Point of Order: Analysis, Synthesis, and Descartes’ *Principles*”, in Garber, D., *Descartes Embodied: Reading Cartesian Philosophy through Cartesian Science* (Cambridge: Cambridge University Press, 2001), chapter 3, originally published in *Archiv für Geschichte der Philosophie* 64 (1982): 136–147; Ariew, R., “The Infinite in Descartes’ Conversation with Burman”, *Archiv für Geschichte der Philosophie* 69 (1987): 140–163.

³⁵ In Meditation III, after summarizing the knowledge he had discovered in Meditation II, Descartes says, “In this brief list I have gone through everything I truly know, or at least everything that I have so far discovered that I know” (AT VII, 35; CSM II, 24; emphasis added). And in the appendix to the Fifth Objections and Replies, he writes, “The author of the Counter-Objections claims that when I say ‘I am thinking, therefore I exist’ I presuppose the major premiss ‘Whatever thinks exists’, and hence I have already adopted a preconceived opinion. Here he once more misuses the term ‘preconceived opinion’. For although we can apply the term to the proposition in question when it is put forward without attention and believed to be true only because we remember that we judged it to be true previously, we cannot say that it is always a preconceived opinion. For when we examine it, it appears so evident to the understanding that we cannot but believe it, even though this may be the first time in our life that we have thought of it [...]” (AT IX-1, 205; CSM II, 271; emphasis added). Lastly, in the Letter to Mersenne of October 16, 1639, Descartes mentions that “there are many things which can be known by the natural light, but which no one has yet reflected on” (AT II, 598; CSMK, 139).

³⁶ Miles makes reference to the controversy very briefly in a different context (Miles, M. (1999), 490–491, n. 29), and in lieu of giving an argument as to why he believes the *Conversation* to be a legitimate source, he simply cites a footnote from Curley, E., “Analysis in the *Meditations*: The Quest for Clear and Distinct Ideas”, in *Essays on Descartes’ Meditations*, ed. A. Rorty (Berkeley: University of California Press, 1986), 153–176, n. 13, calling it an “apt rejoinder.” (The issue in this case was whether the *Principles* was written synthetically; in his rejoinder, Curley contends that it was; and it may very well be an apt one, but nonetheless gives us no reason to put our confidence in the *Conversation* as a whole.)

³⁷ Miles, M. (1999), 238.

³⁸ This line of criticism is not entirely fair to Miles, as his discussion is embedded in a context somewhat different than the one pursued here. His concern is with the nature of the inferential aspect of the cogito, while ours is with Descartes’ criterion of doubt. Nevertheless, the two issues are clearly inter-related.

³⁹ AT VII, 40; CSM II, 28.

⁴⁰ AT VII, 135; CSM II, 97.

⁴¹ VIII-1, 8; CSM I, 196.

⁴² AT VII, 422; VIII-1, 8; IX-1, 204; X, 524.

⁴³ AT VII, 422; VIII-1, 8; X, 524.

⁴⁴ AT VIII-1, 8.

⁴⁵ AT X, 524.

⁴⁶ AT II, 596–598. Hart, A., “Descartes’s ‘Notions’”, *Philosophy and Phenomenological Research* 31, 1 (1970): 114–122 makes a similar distinction between “simple notions” (innate concepts) and “common notions” (axioms) that he believes runs through all of Descartes’ work.

⁴⁷ AT VII, 140.

⁴⁸ AT VII, 24–25; CSM II, 16.

⁴⁹ AT VII, 413; CSM II, 278.

⁵⁰ AT VII, 422; CSM II, 285.

⁵¹ Scholastic textbooks were typically split into four topics: Logic, Ethics, Physics, and Metaphysics. Demonstration would be dealt with in the logic chapter. For example, in his *Corpus of Philosophy*, Scipion Duplex says: “The Philosopher [Aristotle] says that demonstration is a *scientific* syllogism, that is, [something] making and producing science. Only this kind of syllogism has deserved the name demonstration, because it alone shows not only the being of the thing, but also whence it came and because of what it is – because it shows, I say, the effect by its cause, which is to induce or produce science. It is this difference that distinguishes demonstration from the other two kinds of syllogism, namely, *probable and captious* [...]” (*Descartes’ Meditations: Background Source Materials*, eds. R. Ariew, J. Cottingham, and T. Sorell (Cambridge: Cambridge University Press, 1998), 102). Eustachius a Sancto Paulo expresses similar sentiments about demonstration in the Third Part of his logic chapter in *Summa philosophiae quadripartita*, (Paris: C. Chastellain, 1609), Part I, 222–265.

⁵² AT VII, 155; CSM II, 110.

⁵³ AT VII, 155; CSM II, 110.

⁵⁴ Recall that in the full title of the *Meditations*, the existence of God and the distinction between the human soul and the body are stated as being demonstrated, while the cogito is not. I suppose mentioning the demonstration of one’s own existence in the title of a book might sound a bit strange though.

⁵⁵ We must emphasize that the cogito is not the conclusion of a syllogistic argument, but a “simple intuition of the mind” (AT VII, 140; CSM II, 100). This does not, however, preclude it from being the result of a rational demonstration. See Beyssade, J.-M., *La philosophie première de Descartes* (Paris: Flammarion, 1979), 237–249.

⁵⁶ AT VII, 422; CSM II, 285; trans. mod. following D. Cress.

⁵⁷ However, Funkenstein, A., “Descartes, the Eternal Truths and Divine Omnipotence,” in *Descartes: Philosophy, Mathematics and Physics*, ed. S. Gaukroger (Sussex: The Harvester Press, 1980), 181–195 and McRae, R., “Cartesian Matter and the Concept of a World”, in *René Descartes: Critical Assessments*, ed. G. Moyal (London: Routledge, 1991), 4 vols., vol. IV, 153–162, argue that the eternal truths of mathematics depend on the existence of matter for Descartes. I can’t say that I agree, but this is not the place for that debate.

⁵⁸ AT VII, 37; CSM II, 26.

⁵⁹ AT VII, 155–159. As Martial Gueroult says, “[Descartes] insists that he follows the order of the geometers, that there are no good demonstrations in philosophy that are not mathematical, and that his work cannot be understood by those who do not have a mathematical mind. It is therefore evident that we ought to force ourselves to understand this philosophy by its demonstrations, and these demonstrations, according to their mathematical spirit” (Gueroult,

M., *Descartes' Philosophy Interpreted According to the Order of Reasons*, trans. R. Ariew (Minneapolis, MN: University of Minnesota Press, [1953] 1984), 2 vols., vol. I, xx). See also Dear, P., "Mersenne's Suggestion: Cartesian Meditation and the Mathematical Model of Knowledge in the Seventeenth Century", in Ariew, R. and Grene, M. (eds.), (1995), 44–62.

⁶⁰ AT III, 266; CSMK, 163; translation following R. Ariew in Gueroult, M. ([1953] 1984), 6.

⁶¹ Gueroult, M. ([1953] 1984), xx.

⁶² Leibniz actually sought to provide demonstrations for what most would consider axioms. He commended his contemporary, Gilles Personne de Roberval, for attempting to carry out this practice in mathematics, and criticized Descartes for not going far enough in his "rule" of hyperbolic doubt: "I am convinced that the demonstrations of the axioms is of great assistance to true analysis or the art of discovery. So if Descartes had wished to carry out what is best in his rule, he should have worked at the demonstration of scientific principles and thus achieved in philosophy what Proclus tried to do in geometry, where it is less necessary" (Leibniz, G.W., *Philosophical Papers and Letters*, ed. and trans. L. Loemker, 2nd ed. (Dordrecht: Kluwer, [1692] 1989), 384; quoted by Sasaki, C., *Descartes's Mathematical Thought* (Dordrecht: Kluwer, 2003), 409). See Sasaki, C. (2003), 405–418 for more on this issue.

⁶³ AT VII, 38; 40; 42; 44; 47; 49; 52.

⁶⁴ Aquinas, T., *Summa Theologica*, trans. Fathers of the English Dominican Province (London: R.& T. Washbourne, 1911), part I, quest. 12, art. 13; Scotus, J., *Opera Omnia* (Paris: Ludovicum Vivès, 1891–1895), 26 vols., vol. I, *De ordinatione*, Prologus, pars 1.

⁶⁵ Suárez, F., *Disputationes metaphysicae*, 2 vols. (Salamantica: Joannem et Andream Renaut fratres, 1597), Prooemium; Ariew, R. et al. (1998), 30.

⁶⁶ Suárez, F., *Disputationes metaphysicae*, disp. 30, 11; Ariew, R. et al. (1998), 32.

⁶⁷ Letter to Mersenne of November 11, 1640(AT III, 232; CSMK, 156): "I have bought the *Philosophy* of Father Eustache of St Paul, which seems to me the best book of its kind ever made."

⁶⁸ Eustachius, *Summa philosophiae quadripartita*, Metaphysics, Third Disputation, question I; Ariew, R. et al. (1998), 96. John Morris mentions several other medieval sources where the natural light allows us to know common notions that are indubitable (Morris, J., "Descartes' Natural Light", *Journal of the History of Philosophy* 11, 2 (1973), 169–172).

⁶⁹ AT VII, 1–2; CSM II, 3.

⁷⁰ AT IX-2, 4.

⁷¹ AT III, 274; AT IV, 63; AT VII, 15; AT VIII-2,353.

⁷² AT VII, 38–39; CSM II, 27.

⁷³ AT VII, 82; CSM II, 57.

⁷⁴ Morris, J. (1973), 175.

⁷⁵ Boyle, D., "Descartes' Natural Light Reconsidered", *Journal of the History of Philosophy* 37, 4 (1999): 601–612.

⁷⁶ Boyle contends that "the natural light is very closely tied to the operation of the will; when the intellect perceives some proposition particularly clearly and distinctly, the will feels itself compelled to assert the truth of that proposition, and in these cases Descartes says that the natural light has shone" (Boyle, D. (1999), 612). I think this is right, but this does not change the fact that the natural light, considered in itself, is a passive faculty.

⁷⁷ AT VII, 162; CSM II, 115.

⁷⁸ AT VII, 162–163; CSM II, 115.

⁷⁹ AT VIII-1, 8; CSM I, 196.

⁸⁰ AT VIII-1, 9; CSM I, 197.

⁸¹ AT VIII-1, 9–10.

⁸² AT IX-2, 13–17.

⁸³ AT VI, 18–19; CSM I, 120.