

Cartesian Circles and the Analytic Method

Thomas Feeney

Abstract: The apparently circular arguments in Descartes's *Meditations* should be read as analytic arguments, as Descartes himself suggested. This both explains and excuses the appearance of circularity. Analysis "digs out" what is already present in the meditator's mind but not yet "expressly known" (*Letter to Voetius*). Once this is achieved, the meditator may take the result of analysis as an epistemic starting point independent of the original argument. That is, analytic arguments may be reversed to yield demonstrative proofs that follow an already worked-out order of ideas. The "Cartesian Circle," for example, is circular only when Descartes's original analytic argument is mistaken for the demonstration it enables. This approach to Cartesian Circles is unlike the standard approach, which attempts to show that Descartes's original arguments do work as demonstrations after all.

Keywords: Descartes, Cartesian Circle, Analysis, Synthesis

Jaakko Hintikka and Unto Remes claim that

[...] the famous problem of the alleged 'Cartesian Circle' is little more than a special case of the general problem of turning an analytical argument around so as to make it into a strictly deductive one. Yet it has not recently been as much as connected with the problem of analysis and synthesis.¹

They did not pursue this suggestion in *The Method of Analysis*.² In this paper, I take up Hintikka's suggestion. Descartes's arguments in the *Meditations* appear circular because they are analytic, and recognizing this fact renders the circles unproblematic.

¹ Jaakko Hintikka and Unto Remes, *The Method of Analysis: Its Geometrical Origin and Its General Significance* (Dordrecht-Holland: D. Reidel Publishing Company, 1974), p. 114.

² In fact, Hintikka went on to suggest that "uncertainty concerning the direction of analysis as compared with the direction of logical inference" gives rise to Descartes's circularity problems.

There are several apparent circles in Descartes's *Meditations*. Harry Frankfurt noted a circle at the beginning of the Second Meditation, in which Descartes uses reasons after doubting reason.³ On some interpretations, the *cogito* involves circular reasoning, because the argument for "I exist" presumes a major premise connecting existence with thought, and Descartes cannot claim knowledge of this premise before arriving at his first certainty.⁴ The "Cartesian Circle" in the Third Meditation is the most famous, and Michael Della Rocca points to yet another circle in the Fourth Meditation.⁵ These apparent circles are surprising given Descartes's commitment not

See "A Discourse on Descartes's Method" in *Descartes: Critical and Interpretive Essays*, ed. Michael Hooker (Baltimore and London: Johns Hopkins University Press, 1978), p. 78.

³ Harry Frankfurt, *Demons, Dreamers, and Madmen* (Princeton: Princeton University Press, 2008), Chapters 2 & 3.

⁴ *Sixth Set of Objections* (CSM 2: 278, 284 / AT 7: 413, 422). References to Descartes's work employ the following abbreviations. "CSM 1" and "CSM 2" are *The Philosophical Writings of Descartes*, Volumes 1 and 2, ed. John Cottingham, Robert Stoothoff, and Dugald Murdoch (Cambridge: Cambridge University Press, 1985 and 1984). "CSMK" is *The Philosophical Writings of Descartes*, Vol. 3, ed. John Cottingham, Robert Stoothoff, Dugald Murdoch, and Anthony Kenny (Cambridge: Cambridge University Press, 1991). "AT" is *Oeuvres de Descartes*, ed. Charles Adam and Paul Tannery (Paris: Librairie Philosophique J. Vrin, 1983). References to AT include volume and page numbers. All translations are from the Cottingham *et al.* editions unless noted.

⁵ Michael Della Rocca, "Judgement and Will" in *The Blackwell Guide to Descartes' Meditations*, ed. Stephen Gaukroger (Oxford: Blackwell, 2006), pp. 156-159.

to believe anything doubtful,⁶ but perhaps inevitable given his grand ambition and sweeping doubt.

The standard approach is to search for subtlety in Descartes's reasoning, easily missed distinctions that narrowly save Descartes from relying on premises supported only by the arguments in which they appear. For example, Alan Gewirth and Della Rocca develop interpretations in which clear and distinct perception produces psychological (Gewirth) or temporary (Della Rocca) certainty before the proof of God's reliability, and metaphysical or permanent certainty only afterward. Broughton argues that Descartes's premises in the early meditations are immune to systemic doubt because they are preconditions needed to deploy that doubt in the first place.⁷

⁶ "The first [rule] was never to accept anything as true if I did not have evident knowledge of its truth [...]" *Discourse on Method* (CSM 1: 120 / AT 6: 18).

⁷ Janet Broughton provides a helpful taxonomy of approaches to the Cartesian Circle. What I am calling the standard approach encompasses her own interpretation as well as its rivals, which she labels as "complicated interpretations." Broughton exempts the early premises from doubt, while the complicated interpretations hold that doubt only prevents high grade certainty or knowledge, leaving a lower grade available before the deceiving God worry is defeated. See Broughton, *Descartes's Method of Doubt* (Princeton: Princeton University Press, 2002), pp. 180-181; Alan Gewirth, "The Cartesian Circle," *The Philosophical Review* 50 (1941): 368-395; and Della Rocca, "Descartes, the Cartesian Circle, and Epistemology without God," *Philosophy and Phenomenological Research* 70 (2005): 1-33.

The great bounty of competing interpretations suggests that we may be missing something fundamental about Descartes's approach. I propose we attend first to Descartes's analytic method, which he claims is the only method at work in the *Meditations*: "Now it is analysis which is the best and truest method of instruction, and it was this method alone which I employed in my *Meditations*."⁸ Some previous interpreters have made the same suggestion, including Hintikka and Remes, as referenced above. Gewirth presents the analytic method as Descartes's means of extracting metaphysical certainty from mere psychological certainty. Daniel Flage and Clarence Bonnen find a distinction between material and formal truth in Cartesian analysis, then use this distinction to save Descartes from the Cartesian Circle.⁹ That is, Gewirth, Flage, and Bonnen put their discussion of analysis at the service of the standard approach, which reads the apparently circular arguments as synthetic deductions that avoid circularity in the standard way: a subtle distinction that renders the premises independent of the conclusion—they do not follow Hintikka, who located the problem and solution in the nature of analysis itself.

I argue that analytic arguments are easily mistaken for circular arguments, especially when we fail to distinguish analysis from synthesis. This mistake then generates the need to find the subtle distinctions that save Descartes from circularity. Descartes may in fact make these distinctions and they may play some role in avoiding circular reasoning, but we are not in a

⁸ *Second Set of Replies* (CSM 2: 111 / AT 7: 156).

⁹ Daniel Flage and Clarence Bonnen, *Descartes and Method: A Search for a Method in Meditations* (London: Routledge, 1999), pp. 252-257.

position to recognize their importance until we appreciate the apparent circularity that is a feature—and not a bug—of analytic reasoning.

I will begin by drawing the connection between Cartesian analysis and Cartesian circles (Section 1), then provide a more detailed interpretation of Descartes’s analytic method (Section 2), and finally show how this interpretation of analysis supports my reading of the *Meditations* (Section 3).

Section 1: Why Analytic Arguments Appear Circle but Aren’t

Analysis proceeds in some sense backwards, *e.g.*, from complex to atomic, from particular to general, or from the desired solution to the premises needed to reach that solution. It contrasts with synthesis, which moves in the opposite direction, deducing conclusions from definitions and first principles. Analysis comes first and sets up synthesis by uncovering the order of dependence and interconnection between ideas. We may compare analysis to plotting a route on a map: we begin at the destination and work backwards to our doorstep. The drive itself compares to synthesis.¹⁰ I leave it as an open question, for now at least, whether analytic and

¹⁰ This example is adapted from Aristotle, who compares practical reason to geometrical analysis. In *Nicomachean Ethics* 3 (1112b12-24) he writes: “We deliberate not about ends but about what contributes to ends. [...] Having set the end [doctors, statesmen and the like] consider how and by what means it is to be attained, [...] till they come to the first cause, which in the order of discovery is last. For the person who deliberates seems to inquire and analyse in the way described as though he were analysing a geometrical construction [...], and what is last

synthetic arguments may be distinguished by their formal or logical properties alone, without consulting the metaphysical priority relations between the ideas or propositions involved.

What comes last in analysis comes first in synthesis. This guarantees that analytic arguments appear circular when misinterpreted as synthetic arguments. In a synthetic argument, we expect the premises to be the reason why the conclusion is true, but in an analytic argument, the premises turn out to depend on the conclusion.¹¹ So, when we read an analytic argument as a

in the order of analysis seems to be first in the order of becoming.” All Aristotle translations are from *The Complete Works of Aristotle*, The Revised Oxford Translation, ed. Jonathan Barnes (Princeton: Princeton University Press, 1984).

¹¹ This way of understanding analysis also comes from Aristotle, who contrasted syllogisms that merely prove a fact with demonstrative syllogisms that explain why the fact is true. For example, we might prove that the planets are near from the fact that they do not twinkle, and then reverse the argument to explain why they do not twinkle (*Posterior Analytics* 1, 78a23-b2). On this distinction, Michael Beaney writes: “The first was understood as *analysis*, providing a method of discovery, and the second as *synthesis*, providing a method of proof. Such a conception presupposes that the steps are reversible (*i.e.*, in this case, the convertibility of ‘What does not twinkle is near’ and ‘What is near does not twinkle’), but with this assumption, there is a nice symmetry between analysis and synthesis. This conception of analysis and synthesis was to take center stage in the Renaissance and early modern period.” See “Ancient Conceptions of Analysis,” a supplement to Michael Beaney, “Analysis” in *The Stanford Encyclopedia of Philosophy* (Summer 2018 Edition), ed. Edward N. Zalta, URL = <https://plato.stanford.edu/archives/sum2018/entries/analysis/>.

synthetic argument, the premises seem to support and be supported by the conclusion—and this appears circular. Reading an analytic argument correctly, by contrast, involves turning it around to test whether the conclusion serves as an epistemically secure starting point in a synthetic proof of the premises.

For example, Anat Schechtman shows that Descartes offers a quick argument for the claim that he has the idea of an infinite being.¹² The argument has two premises: that Descartes understands that he is a finite being, and that this understanding depends on already having the idea of an infinite being. This argument raises the suspicion of circularity, because, if the second premise is true, then Descartes is in a position to assert the first premise only if he is already in a position to assert the conclusion. The argument would indeed be circular if it was intended to *give* Descartes the idea of an infinite being. It is not circular, however, because it is merely intended to *uncover* that idea, to make it more clear and distinct by displaying its connection to another idea that Descartes already perceives clearly and distinctly. It is not a synthetic argument that follows the order of dependence between ideas, but an analytic argument that clarifies ideas by displaying that order, or by rendering it explicit.¹³

¹² Anat Schechtman, “Descartes’s Argument for the Existence of the Idea of an Infinite Being” *Journal of the History of Philosophy* 52 (2014): 487-517.

¹³ For confirmation, see *Conversation with Burman*, 16 April 1648 (CSMK 338 / AT 5: 153): “Explicitly, we are able to recognize our own imperfection before we recognize the perfection of God. [...] Thus we can infer our finiteness before we arrive at his infiniteness. Despite this, however, the knowledge of God and his perfection must implicitly always come before the knowledge of ourselves and our imperfections.”

Like the argument that Schechtman explains, many of Descartes's arguments are designed not to supply the meditator with new ideas, but to display the logical and epistemic connections between ideas. For example, the arguments of the First Meditation are not supposed to be conclusive; instead, they lead the meditator back to the first certainty to be discovered in the *Meditations*. They clarify the *cogito* and isolate it from all of the meditator's other ideas, allowing the meditator's perception of her own existence to become both clear and distinct.

Descartes connects this strategy with his analytic method:

The analytic style of writing that I adopted [in the *Meditations*] allows us from time to time to make certain assumptions that have not yet been thoroughly examined; and this comes out in the First Meditation where I made many assumptions which I proceeded to refute in the subsequent Meditations.¹⁴

This comment about Descartes's method does not contradict his promise not to "accept anything as true if [he] did not have evident knowledge of its truth" because he does not accept the premises or the conclusions of the First Meditation arguments as true. In the last paragraph of the First Meditation, Descartes "supposes" that he is deceived by a demon, and he resolves to think of himself "as not having hands or eyes," etc. Supposing that *p* and resolving to think that *p* are not the same as accepting *p* as true.¹⁵ Nevertheless, the arguments do accomplish

¹⁴ *Fourth Set of Replies* (CSM 2: 173 / AT 7: 249).

¹⁵ The issue is somewhat more complex than this, because Descartes states in the *Second Set of Replies* (CSM 2: 110 / AT 7: 155) that even when using analysis, "[t]he items which are put forward [*proponuntur*] first must be known entirely without the aid of what comes later."

Plausibly, supposing and resolving to think fall short of putting forward. However, Descartes

something; they lead the way to the *cogito*. Whether starting from certain premises (as may be the case in the argument Schechtman explains) or from mere supposition (as in the First Meditation), the purpose of analysis is to lead the meditator back to truths that can be grasped in their own right as clear and distinct.

Perhaps the Third Meditation proof of God's existence is also an analytic argument meant to clarify our intuition of God and distinguish it from our intuition of our own existence and nature. The causal principles Descartes invokes, whatever their epistemic status, help the meditator to more clearly grasp how the idea of God relates to the distinct idea of self captured by the *cogito*. Once it has been made fully clear and distinct, the idea of God rests on its own epistemic merits and can function as a first principle in synthetic arguments. Descartes supports this interpretation when he reflects on the idea of God in the synthetic *Appendix to the Second Set of Replies*:

This [idea] alone, without a formal argument, will make [my readers] realize that God exists; and this will eventually be just as self-evident to them as the fact that the number two is even or that three is odd, and so on. For there are certain truths which some people find self-evident, while others come to understand them only by means of a formal argument.¹⁶

Certain knowledge that God exists depends ultimately on the clear and distinct idea of God, not on the premises of an argument used to help the reader clarify and isolate that idea. If the

does put forward an idea of himself as a finite being before he puts forward his idea of infinite being, despite the former's dependence on the latter.

¹⁶ *Second Set of Replies* (CSM 2: 115 / AT 7: 163-4).

argument is analytic, then its conclusion (that a non-deceiving God exists) may be taken as a starting point independent of the premises that brought us to the conclusion initially.¹⁷

This reading of Descartes's Third Meditation is compatible with many of the already available interpretations of the Cartesian Circle. For example, on Della Rocca's interpretation, the premises are indeed known with certainty, at least while the perception lasts, but that certainty is based directly on the clear and distinct ideas themselves, not on the prior certainty that all clear and distinct ideas are true.¹⁸ The perceptions themselves sweep us into knowledge, but the meditator is not in a position to have the second order knowledge that clear and distinct perception is reliable until after the proof has been completed. This does not contradict what I have suggested, because my interpretation does not turn on the premises having any particular

¹⁷ In conversation, Elliot Paul pointed out that an idea may be clear and distinct either *per se* or *per alia*, if it is the conclusion of a clear and distinct argument from clear and distinct premises (see *Rules for the Direction of the Mind* 3, CSM 1: 14-15 / AT 10: 369-370). Is the idea of God merely clear and distinct *per alia* at the end of the Third Meditation, but clear and distinct *per se* by the time we reach the Fifth Meditation? My interpretation requires that the idea is clear and distinct *per se* already at the end of the Third Meditation, or at least by the beginning of the Fourth, after the meditator spends "some time in the contemplation of God" (Third Meditation, CSM 2: 36 / AT 7: 52) and God's existence attains such clarity that "the human intellect cannot know anything that is more evident or more certain" (Fourth Meditation, CSM 2: 37 / AT 7: 53). The idea of God becomes clear and distinct *per se* even though it gains this status with the help of the Third Meditation argument.

¹⁸ Della Rocca, "Descartes, the Cartesian Circle, and Epistemology without God," pp. 1-33.

epistemic status prior to the completion of the argument. I only require that the meditator use these premises to gain a knowledge of the conclusion that, once secured, no longer requires the support of the premises.

However, my interpretation does imply that Della Rocca (and others who adopt the standard approach) miss the full import of the subtle distinctions they find in Descartes's arguments. If clear and distinct ideas are all true and compel assent, then the meditator might just as well have skipped the cumbersome argument of the Third Meditation and jumped directly to the Fifth Meditation, in which God's existence is proved directly from the idea of God. Why labor through clear and distinct premises to a clear and distinct conclusion, if clarity and distinctness are themselves sufficient conditions for knowledge? After all, Descartes does emphasize already in the Third Meditation that his idea of God is "utterly clear and distinct," the "most clear and distinct of all [his] ideas," and therefore cannot be "materially false."¹⁹ I argue that Descartes does not do this because he must first "bring forth the idea of God from the treasure house of [his] mind"²⁰ by making it distinct from his idea of himself: "[b]ut if no such [great] idea is to be found in me, I shall have no argument to convince me of the existence of

¹⁹ Third Meditation (CSM 2: 31-32 / AT 7: 46). An idea is materially false if it does not correspond to any nature. The idea of a triangle is not materially false, whether there are actual triangles or not (see Fifth Meditation, CSM 2: 44-45 / AT 7: 64). The clarity and distinctness of the idea of God guarantees a divine nature, *i.e.*, that nothing about the idea itself precludes God's existence. Why then must we wait until the Fifth Meditation for the direct argument from the idea of God to God's existence?

²⁰ Fifth Meditation (CSM 2: 46 / AT 7: 67).

anything apart from myself.”²¹ Even if Della Rocca is right that clear and distinct ideas have the power to sweep us into knowledge, at least so long as we are perceiving them, there is still the labor of bringing forth the idea of God in all its glory.

Cartesian analysis is this effort to gain clear and distinct perception of an idea already latent in us by tracing its logical and ontological relations to other ideas. It is easily mistaken for circular argumentation if we confuse the order in which ideas are clarified in analysis for the clarified order of ideas presented in a synthetic argument. In the rest of this paper, I will engage with the secondary literature on Cartesian analysis, and then show more carefully how treating the argument for God’s existence and reliability as an analytic argument both explains and excuses the appearance of circularity.

Section 2: Cartesian Analysis and its Interpretation

Subsection 2.1: What is Cartesian Analysis?

Daniel Garber and Lesley Cohen list the passages that mention analysis and synthesis in Descartes’s works.²² The term “analysis” occurs twice as the method of the *Meditations*, in the

²¹ Third Meditation (CSM 2: 29 / AT 7: 42).

²² Daniel Garber and Lesley Cohen, “A Point of Order: Analysis, Synthesis and Descartes’ *Principles*” in *Descartes Embodied: Reading Cartesian Philosophy through Cartesian Science*, ed. Daniel Garber (Cambridge: Cambridge University Press: 2001), pp. 52-53.

*Second Set of Replies*²³ and in the *Fourth Set of Replies*,²⁴ both cited earlier in this paper. In the first of these passages the method is opposed to synthesis. Two further passing references, both in the *Sixth Set of Replies*,²⁵ also connect analysis with the *Meditations*. The remaining occurrences all concern method in mathematics. These references are also important for understanding the *Meditations*, because the term has the same or nearly the same meaning in metaphysics as in mathematics.

The breadth of analysis comes out most clearly in the *Rules*, in which Descartes associates the analysis of the ancient Greeks with a universal method suited for problems in any field: “[W]e are well aware that the geometers of antiquity employed a sort of analysis which they went on to apply to the solution of every problem, though they begrudged revealing it to posterity.” After comparing ancient geometrical analysis with modern algebra, and claiming that both are manifestations of a single innate “discipline,” he continues:

But if one attends closely to my meaning, one will readily see that ordinary mathematics is far from my mind here, that it is quite another discipline which 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 truth in any field whatsoever.²⁶

²³ CSM 2: 110-111 / AT 7: 155-156.

²⁴ CSM 2: 173 / AT 7: 249.

²⁵ CSM 2: 299-301 / AT 7: 444, 446.

²⁶ *Rules* 4 (CSM 1: 17 / AT 10: 373-4).

This fundamental and universal method is not metaphysics itself, which Descartes might identify more by its subject matter than by its method. Nevertheless, there is no apparent reason to exclude metaphysics from the method's scope.

Descartes recognizes a problem in his appeal to ancient geometry as a paradigm of analysis: "It was synthesis alone that the ancient geometers usually employed in their writings. But in my view this was not because they were utterly ignorant of analysis, but because they had such a high regard for it that they kept it to themselves like a sacred mystery."²⁷ Descartes may be right that ancient geometers guarded analysis as a sacred secret, but more likely the scratch work that would most likely display analysis in action was not considered valuable enough to copy out and preserve in libraries. Given the obscurity of ancient analysis, we must turn to Descartes's few remarks on Plato, not Euclid or Pappus,²⁸ for clarification.

Plato held that true knowledge begins with first principles, or a direct intuitive cognition of the Good, and not from a messy set of assumptions about "the odd and the even, and various figures, the three kinds of angles, and other things akin to these."²⁹ Like Descartes, he recognizes that direct intuitive cognition of God or the Good is not immediately available, but requires a kind of ascent that begins with less certain assumptions or less ontologically basic ideas. As the passage continues, Plato distinguishes two motions of thought, the first involving

²⁷ *Second Set of Replies* (CSM 2: 111 / AT 7: 156).

²⁸ *Rules 4* (CSM 1: 18 / AT 10: 376).

²⁹ Plato, *Republic* 6 (510c). The translation is by G. M. A. Grube, revised by C. D. C. Reeve in *Plato: Complete Works*, ed. John M. Cooper (Indianapolis: Hackett Publishing Company, 1997), p. 1131.

hypotheses and proceeding backward to the unhypothetical first principle, and the second proceeding deductively from this first principle back to the hypotheses, now rendered epistemically secure. Taken together, the two motions of thought constitute a sort of epistemically virtuous circle (or in Plato's image, a divided line).

Although Plato does not mention analysis and synthesis, influential Greek sources associate Plato's regressive method with analysis. For example, Proclus writes: "[T]here are certain methods that have been handed down, the best being the method of analysis, which traces the desired result back to an acknowledged principle. Plato, it is said, taught this method to Leodamas [...]."³⁰ Sir Thomas Heath explains: "Proclus's language suggests that what he had in mind was the philosophical method described in the passage of the *Republic* [510-511]."³¹ Since Descartes associates his analytic method with Greek analysis, it is reasonable to think that his "ascent" to certainty of God's existence and goodness also involves a regress from less certain or less basic ideas that depend ultimately on the idea of God.

Plato's *Meno* contains the only example of ancient Greek geometry that openly employs such a regressive method of discovery, or analysis, which Plato characterizes as recollection, rather than the synthetic method, as in Euclid.³² Here, the slave boy is supposed to already know what Socrates is teaching him, as the meditator already possess the idea of God. Socrates's

³⁰ Proclus, *A Commentary on the First Book of Euclid's Elements*, trans. G. R. Morrow (Princeton: Princeton University Press, 1970), p. 211.

³¹ Sir Thomas Heath, *A History of Greek Mathematics*, Volume I (Oxford: Clarendon Press, 1921), p. 291.

³² Plato, *Meno* (81-86c).

instruction is an attempt to lead the boy back to certain knowledge by means of intermediary reflections and illustrations, as Descartes's argument uses intermediary principles to clarify and distinguish the perception of God from the perception of one's self.

Descartes affirms just this comparison in reply to Voetius's charge of circularity. The passage is worth quoting at length because it confirms the argument of this paper in several other ways as well:

You claim that the arguments I use to prove the existence of God have force only for those who already know he exists, since they depend simply on notions innate within us. But notice that all those things whose knowledge is said to be naturally implanted in us are not for that reason expressly known [*expresse cognosci*] by us; they are merely such that we come to know them by the power of our own native intelligence, without any sensory experience. All geometrical truths are of this sort—not just the most obvious ones, but all the others, however abstruse they may appear. Hence, according to Plato, Socrates asks a slave boy about the dimensions of geometry and thereby makes the boy able to dig out certain truths from his own mind which he had not previously recognized were there, thus attempting to establish the doctrine of reminiscence. Our knowledge of God is of this sort...³³

We have already seen Descartes associate his universal method with the “secret” method of discovery employed by ancient Greek geometers, a method Plato had already broadened and applied to knowledge of God or the Good. Here, Descartes associates Plato's example of geometrical analysis with the analytic procedure employed in the Third Meditation. This is

³³ *Letter to Voetius*, May 1643 (CSMK 222-223 / AT 8B: 166-7).

evidence that the analysis Descartes associates with mathematics in the *Rules* is also the method at work in his *Meditations*.

This passage also supplies the first desideratum for any interpretation of analysis. I will supply three desiderata. Each must be part of an adequate interpretation of Cartesian analysis, but I am not sure they are jointly sufficient. Also, this is an interpretation of the method as a whole; we should not expect each example of analysis in action to exhibit all three features. If Cartesian analysis is or overlaps significantly with his overall method as described in the *Rules* and summarized in the *Discourse on Method*, then it is exceedingly general. Leibniz was surely unfair to condense it into one rule: “take what you must, work as you must, and you will have what you want,” but he is not too far off the mark.³⁴

1. The product of analysis is present even before analysis begins, either as a kind of latent knowledge not yet “expressly known” or else as an undetermined quantity already situated relative to other determined quantities. Knowledge of God is “said to be naturally implanted in us,” but we must “dig” in order to recognize this knowledge. We may “come to know” God, but do so a priori, using “native intelligence” without recourse to external sources of information. Similarly, in the *Geometry*, Descartes writes:

If, then, we wish to solve any problem, we first suppose the solution already effected, and give names to all the lines that seem needful for its construction—to those that are unknown as well as to those that are known. Then, making no distinction between known and unknown lines, we must unravel the difficulty in

³⁴ Gottfried Leibniz, *Die philosophischen Schriften von Gottfried Wilhelm Leibniz*, Vol. 4, ed. C. J. Gerhardt (Berlin: Weidmannsche Buchhandlung, 1880), p. 329. This is my own translation.

any way that shows most naturally the relations between these lines, until we find it possible to express a single quantity in two ways. This will constitute an equation, since the terms of one of these two expressions are together equal to the terms of the other.³⁵

Here we must “unravel” (a literal translation of the Greek root for “analyze”) rather than “dig.” Both metaphors suggest that the solution is already present at the beginning, though not as clear and conscious—let alone clear and distinct—knowledge.

2. As these two passages suggest, it is very difficult to avoid metaphors in the description of analysis. Likewise, it is much easier to give examples of analysis than to state exactly what it is.³⁶ This is because the process reserves a large place for intuition; it strongly resists mechanization or reduction to a set of rules.³⁷ In this sense, analysis compares to,

³⁵ *Geometry* 1 (AT 6: 372). The translation is from *The Geometry of René Descartes*, trans. David E. Smith and Marcia L. Latham (New York: Dover, 1954), pp. 6-9.

³⁶ “I do not intend to teach the method [in the *Discourse on Method*] but only to discuss it. As can be seen from what I say, it is concerned more with practice than with theory.” *Letter to Mersenne*, 27 February 1637 (CSMK 53 / AT 1: 349).

³⁷ Descartes himself uses the term “intuition [*intuitum*]” primarily in the *Rules*, but it may have the same reference as Descartes’s “natural light [*lumen naturalis*]” (see Flage and Bonnen, pp. 27-29). Regardless, this sort of intuition, used to apprehend indubitable or necessary truths (*Rules* 3, AT 10: 368), may be narrower than what I have in mind here. As a feature of analysis in general, intuition is recognition of some order or truth prompted but not necessarily required by whatever progress has been made so far. Intuition may even include Descartes’s proposal that

or even is, the method used to find proofs for theorems for which there is no (readily available) algorithm guaranteed to generate a proof. Every student of first order logic proves theorems like this, and the process of finding a proof, completely unlike filling in a truth table for propositional logic, involves intuitive leaps and flashes. The best method typically involves working backward from the desired result in order to divide the task into smaller and smaller steps, until we finally have that intuitive flash. Of course, there is no trouble checking a proof once one has been discovered.³⁸ Synthesis, on the other hand, may begin with intuitively known premises, but each successive step is rule governed. As Descartes complains, the inferences are formal and may be followed without attention to what is actually being claimed.³⁹

3. Following from the previous desideratum, the movement of thought in analysis will tend to yield a formally valid proof when reversed. For example, the analysis might move intuitively from particular to universal, from instances to definitions, or from a theorem back to the axioms. When reversed, these intuitively justified inferences are formally valid. Since the first desideratum shows that the results of analysis tend to be epistemically independent of the steps used to reach those results, the synthetic proof that

we “ingeniously read [some order] into [the matter in question]” (*Rules 10*, CSM 1: 35-36 / AT 10: 404-405).

³⁸ “We must know, furthermore, that to work out an order is no mean feat, as our method makes clear throughout, that being virtually its entire message. But there is no difficulty in recognizing an order once we have come upon one” *Rules 14* (CSM 1: 64 / AT 10: 451).

³⁹ *Rules 10* (CSM 1: 36 / AT 10: 405-406).

we obtain by reversing the analysis will stand on its own as a formal demonstration. The main value of analysis, therefore, will be as a method of discovery for non-circular synthetic proofs. If Descartes is right to think we do not really understand something until we are able to discover it for ourselves,⁴⁰ it follows that analysis is also the best form of instruction.⁴¹

Of the three, the second desideratum seems to be the weakest, because it has many apparent counterexamples. I will argue in the next section that the Third Meditation argument is analytic on the grounds that it meets the first and third desiderata, but to all appearances it does not meet the second, because Descartes at least seems to offer a deductive argument without intuitive leaps. So, it would help my account to offer some reason why intuition is occasionally central and occasionally dispensable.

For this I return to Aristotle's example of analysis, from *Posterior Analytics* 1.⁴² Aristotle noted that we can discover that the planets are near from the fact that they do not twinkle, and then explain why they do not twinkle in terms of their proximity. The first is analysis and the second synthesis, and both may be presented as valid syllogisms. These are,

⁴⁰ "Analysis shows the true way by means of which the thing in question was discovered methodically and as it were a priori [*tanquam a priori*], so that if the reader is willing to follow it and give sufficient attention to all points, he will make the thing his own and understand it just as perfectly as if he had discovered it for himself" *Second Set of Replies* (AT 7: 155-156).

⁴¹ "Now it is analysis which is the best and truest method of instruction [...]" *Second Set of Replies* (AT 7: 156).

⁴² See the discussion above in note 11.

respectively, *the planets do not twinkle; what does not twinkle is near; therefore, the planets are near* and *the planets are near; what is near does not twinkle; therefore, the planets do not twinkle*. To reverse the analytic argument, the major premise and the conclusion switch places, and the minor premise is replaced by its converse. This generates a synthetic argument, or a demonstration from prior principles, because the minor premise in the analytic argument is convertible. Intuition seems to play no role, except perhaps in supporting our commitment to the respective minor premises.

As Aristotle notes, this is by no means guaranteed, especially outside of constricted contexts, like some parts of mathematics, in which we may have access to a plentiful stock of definitions that ground convertible propositions.⁴³ Analysis will be of very limited use if the only way to satisfy the third desideratum is to produce a formally valid argument with middle premises that reverse of necessity or that are otherwise known to reverse.⁴⁴ There must be some other means of hitting on the right steps to include in the synthetic argument, as we somehow do while trying to prove logical or (in Descartes's preferred example) geometrical theorems. The appeal to intuitive flashes broadens the scope of analysis. This appeal, in turn, adds to the importance of the first desideratum on the prior presence of the product of analysis, because a

⁴³ *Posterior Analytics* I (78a7-12). Intuition may play a significant though auxiliary role even in these contexts, to help us recognize which convertible proposition to use.

⁴⁴ This, according to Benoît Timmermans, "is the true problem of logical analysis in general." See Benoît Timmermans, "The Originality of Descartes's Conception of Analysis as Discovery," *Journal of the History of Ideas* 60 (1999): 439-440.

genuinely helpful and reliable intuition must be grounded in something more than its mere helpfulness to the analyst.

As mentioned previously, these three desiderata are not meant to be jointly sufficient or even individually necessary. This is only a preliminary sketch of Cartesian analysis, a guide for sorting through and improving on previous accounts.

Subsection 2.2: How else has Cartesian analysis been explained?

There are many interpretations of Cartesian analysis in the literature, but I will briefly present three—from Martial Gueroult, Edwin Curley, and Murray Miles—in order of increasing adequacy.⁴⁵

Garber and Cohen's article does not offer a positive account of Cartesian analysis, but it does offer a helpful summary of Gueroult on the subject.⁴⁶ In several works listed by Garber, Gueroult associated analysis with the “order of knowledge [*ratio cognoscendi, la vérité de la science*]” and synthesis with “the order of being [*ratio essendi, la vérité de la chose*].” So, for

⁴⁵ See also Flage and Bonnen, *Descartes and Method*; and Athanassios Raftopoulos, “Cartesian Analysis and Synthesis,” *Studies in History and Philosophy of Science* 34 (2003): 265-308.

Flage and Bonnen understand analysis as a sort of inference to the best explanation (p. 23) and provide a detailed reading of the *Meditations* on this basis. Raftopoulos offers a very helpful contrast between Cartesian analysis and the alternatives available in Descartes's day.

⁴⁶ Garber & Cohen, “A Point of Order,” pp. 54-57.

example, analysis would begin with knowledge of the self and proceed to knowledge of God and synthesis would proceed from God to the self.

This makes excellent sense of the contrast between the analytic *Meditations* and the synthetic appendix to the *Second Set of Replies*, in which the a priori proof for God's existence comes first and the *cogito* does not appear at all. Also, Gueroult's interpretation cannot be faulted for lacking textual support, because Descartes simply does not offer much detail. Garber does fault it for its inability to capture the difference between the *Meditations* and the supposedly synthetic *Principles*, but Gueroult may simply deny that the *Principles* are synthetic.

As I see it, Gueroult's interpretation does not characterize analysis as a method, but it does accurately characterize the order of ideas typically found in analysis. If analysis is a method of discovery, then it must start from a position of relative ignorance and proceed according to the *ratio cognoscendi*. It is also a deeply embedded idea that the *ratio essendi* is just the *ratio cognoscendi* in reverse. Gueroult describes an order, but not the means by which the meditator generates or progresses through that order. Gueroult's interpretation of analysis fits the third desideratum, on reversibility, but does not include the first and second (though it could be supplemented by an account of latent knowledge and intuitive inferences).

Curley offers a richer interpretation of analysis.⁴⁷ He notes three characteristics: analysis (a) tends to introduce terms by example rather than by definition, (b) accommodates the human tendency to "form general propositions from the knowledge of particulars" by failing to be

⁴⁷ Edwin Curley, "Analysis in the *Meditations*: The Quest for Clear and Distinct Ideas" in *Essays on Descartes' Meditations*, ed. Amélie Rorty (Berkeley: University of California Press, 1986), pp. 153-76.

forthright about “the role of axioms, or common notions, or eternal truths,” and (c) employs a quasi-Platonic dialectic to argue for first principles.

The last characteristic is the least straightforward, and Curley explains it as a kind of method of reflective equilibrium, though he does not use this term. Descartes begins with a false start, but arrives at satisfactory first principles by refining that false start. For example, he begins with a loose account of God as the omnipotent object of his childhood faith, but immediately suggests that this God might be a deceiver. By gradual refinement, Descartes arrives at the clear and distinct idea of God featured in the Third Meditation. By the Fifth Meditation, the idea of God has been further improved, so that it can serve as the starting point for the ontological argument. By ruling out some features of his initial idea and modifying others, Descartes arrives at an idea of God’s necessary existence at least as clear and distinct as his perception of basic mathematical truths. Curley does not make this claim, but presumably the synthetic argument would simply begin with a definition and set of axioms that capture this final, hard-won, idea.

Unlike Gueroult, Curley does describe a method, because he relates the product of analysis to the method’s purpose and a means of achieving that purpose. Whereas synthesis presents clear and distinct ideas in chains of logical inference, analysis actually clarifies and distinguishes ideas, even first principles and definitions. Curley also comes much closer than Gueroult to meeting the second desideratum. How else but by intuition could the meditator move from particular cases to the confident assertion of definitions and principles? And fitting with the third desideratum, judgments about the particular cases would follow logically once these definitions and principles are in place.

Curley’s account falls short, though, of the first desideratum on latent knowledge. In describing characteristic (c), he writes “[i]f the initial conjecture was not a totally false start (and

normally it will not have been), something of what it asserted will survive in the final product.”⁴⁸ For example, one could perhaps claim that Descartes as a child had implicit knowledge that God is not a deceiver simply because he had faith in God and the common conception of God involves trustworthiness. Nevertheless, Descartes’s letter to Voetius and even the preface to the *Geometry* suggest a much stronger form of latency.⁴⁹ It is not that pre-conceived opinion contains enough truth to be a starting point for the meditator, but that the full truth is somehow already present, or innate, though not “expressly known.” To put it differently, Descartes is less an Aristotelian taking common opinion as a worthy starting point, and more a Platonist clearing away prejudice in search of hidden knowledge.

Murray Miles offers a still richer account of Cartesian analysis.⁵⁰ He certainly grasps that the product of analysis is present even before analysis begins and that this product, once made clear and distinct, has a high epistemic status independent of the analysis itself. He quotes Descartes to summarize this idea: “My principal aim has always been to draw attention to certain very simple truths which are innate in our minds, so that as soon as they are pointed out to others, they will not consider that they were ever ignorant of them.”⁵¹

These innate ideas are made explicit by means of non-logical inferences, and Miles offers a detailed breakdown of the typical order for such inferences. We begin with implicit, innate,

⁴⁸ Ibid., p. 157.

⁴⁹ See notes 33 and 35 above.

⁵⁰ Murray Miles, “Descartes’s Method” in *A Companion to Descartes*, ed. Janet Broughton and John Carriero (Oxford: Blackwell, 2008), pp. 145-163.

⁵¹ *Seventh Set of Objections and Replies* (CSM 2: 312 / AT 7: 464), quoted at Miles, p. 153.

and abstract ideas, such as the ideas of thought and existence. These allow an explicit, though still innate, knowledge of certain particulars, such as our own existence as thinking things. This explicit knowledge of particulars, in turn, allows us to make our abstract ideas explicit. Finally, we may arrange our ideas into a logical deduction from abstract to particular, from “Whatever thinks, exists” and “I think” to “I exist.”⁵² The first three steps constitute analysis, and the final step, in which the analysis is reversed, constitutes synthesis.

This account clearly includes all three desiderata. Analysis aims to uncover implicit, innate knowledge, it often proceeds by non-logical inference, and it may be reversed to form a deductive argument from secure premises. Miles develops this detailed account in the first part of his essay, employing almost exclusively texts associated with the *cogito* and its defense in the *Replies*. The second part of the essay attempts to show that the same process is at work in Descartes’s mathematics, physics, and metaphysics. The account does work very well for the *cogito*, but it is less clear that the three desiderata work in just this way in other important steps, such as the Third Meditation proof for God’s existence.

Miles quotes the letter to Voetius as evidence that the same complex process occurs in the Third Meditation proof for God’s existence. The letter does show that Descartes thinks of the proof as a way to make our innate knowledge of God’s existence explicit. This is just what we would expect, given the first desideratum. The letter does not, however, support Miles’s more detailed account of analysis, which overemphasizes the second desideratum. In particular, Miles emphasizes that the progress from implicit/abstract to explicit/particular to explicit/abstract takes place entirely “*within* pre-discursive or intuitive knowledge itself.” He repeats: “This

⁵² Miles, p. 150.

entire reflexive process or progress of the mind is intuitive.”⁵³ This fits the *cogito*, which is presented abruptly and with minimal argument, but it does not fit the proof for God’s existence, which involves many logical inferences and complex premises.

Miles does argue that Descartes allows some space for logical deduction as an aid to analysis. For example, we may intuit an abstract principle from one concrete idea, but then logically deduce some other concrete idea from the abstract principle. Also, we might use syllogistic reasoning to tease out the relations between ideas. However, deductive tools are strictly ancillary: the dialectician may “contribute positively to the growth of human knowledge—although not through his knowledge of syllogistic patterns, that is not *qua* dialectician.”⁵⁴

Even if Descartes does have such a picture of logical inference, it is unlikely that he associated it exclusively with synthesis, so that analysis could only enjoy its fruits *per accidens*. Unlike Gueroult and Curley, who do not say enough, Miles makes his account too narrow by saying too much. His account applies well to analysis in the *cogito*, where intuition leads and argument is scarce, but it does not apply as well to the Third Meditation. My account, which does not make intuition indispensable, has more to say about why it is needed in certain cases.

Disagreement about Descartes’s method is inevitable, given what Descartes has left us, but exploring the topic through Gueroult, Curley, and Miles—as well as Flage and Bonnen, and Raftopoulos—reveals that analysis goes in search of something we may recognize as metaphysically fundamental or epistemically secure in its own right, using deduction only as

⁵³ Ibid.

⁵⁴ Ibid., pp. 151-152.

needed, and yielding logically valid demonstrations as a product. It remains to show in greater detail how this method both explains and excuses the appearance of circularity, especially in the Cartesian Circle.

Section 3: Back to the Cartesian Circle

Descartes was aware that his method gives the impression of circularity. In the final section of the *Discourse on Method*, he warns his readers to read the essays that illustrate the fruitfulness of his method patiently and attentively, without stopping to criticize the beginning until they have reached the end, lest he be accused of “the fallacy that the logicians call ‘arguing in a circle’.”⁵⁵ This is because the statements at the beginning are as yet unproved suppositions, used to explain certain well known optical or meteorological effects. He claims that these suppositions may be “proved” by reading the *Optics*, for example, backwards, from effects to causes. As Descartes writes, “just as the last are proved by the first, which are their causes, so the first are proved by the last, which are their effects.” The appearance of circularity arises from the fact that synthesis, used to display the explanatory power of discovered causes in the *Optics* and in most of the *Meteorology*, is the reverse of the analytic method used to discover those causes in the first place.⁵⁶

⁵⁵ *Discourse on Method* (CSM 1: 150 / AT 6: 76).

⁵⁶ See also the *Letter to Vatier*, 22 February 1638 (CSMK 87-88 / AT 1: 563-564) and the *Letter to Morin*, 13 July 1638 (CSMK 106-107 / AT 2: 197-198).

Since a circle is a circle no matter where you start, we may observe something similar in the *Meditations*, in which Descartes guides his reader through the use of analysis. Here, the order of presentation is also the order of discovery, and so the opposite of the order of ontological dependence or demonstrative proof. The premises at the beginning of the Third Meditation parallel the observed effects at the end of the illustrative essays, and the conclusion that God exists and is reliable parallels the suppositions at the beginning of the *Optics*. The epistemic starting points are likewise analogous: the senses disciplined by experimentation assure us of optical effects, and the direct experience of clarity and distinctness assures us of the Third Meditation premises. These less than perfect starting points allow us to make more fundamental principles clear and distinct in their own right. The *Meditations* display this process, whereas the *Optics* displays its result. At the beginning of the *Optics*, the reader is left to wonder how the suppositions were discovered, but at the beginning of the Third Meditation, the reader is left to wonder how the initial premises may be grounded in something more fundamental and secure. Later, the meditator may return to these premises and know them more perfectly from their foundations, while the reader of the *Optics* may reconstruct the discovery of the foundations from their effects.

The charge of vicious circularity fits the *Meditations* as little as it fits the *Optics*, as may be seen in how the Third Meditation argument displays the desiderata for analysis.

The argument in the Third Meditation clearly displays the last desideratum, on discovery and reversibility, because it reverses in a straightforward way. If we take God's existence and reliability as a major premise, and the fact that we clearly and distinctly perceive the original premises (*e.g.*, on causality) as a minor premise, then we immediately recover the original premises as conclusions, only now with a higher epistemic status. The reversed argument has

the virtues and disadvantages characteristic of synthetic argument: it supplies an insight into why the original premises are true and why we know them to be true (God makes them true and displays their truth to us), but it would not help us discover the truth of these premises, because we can formulate the reversed argument only if we already clearly and distinctly perceive the premises of the original Third Meditation argument. By contrast, the original argument of the Third Meditation has the virtues and disadvantages characteristic of analysis. It gives us no insight into why its conclusion is true, because God does not owe God's existence or reliability to any of God's effects, but it does enable us to discover that conclusion, as though for the first time. This is why the argument appears circular: the premises are indeed known on the basis of the conclusion.

However, the circularity is not vicious, because the reversed (synthetic) argument is independent of Descartes's original (analytic) argument. That is, our confidence in God's existence and reliability may be uncovered by working through the Third Meditation argument, but it does not depend on that argument. As the first desideratum suggests, this knowledge is latent or implicit, and the argument serves merely to make it explicit. Textual support for this claim is weak in the Third Meditation itself, although there are some hints. For example, Descartes says that he is able to "reach God in [his] thought" and contemplate God directly, not just the idea of God.⁵⁷ He also says that the idea of God may be identical to the idea of himself that he possessed already in the Second Meditation, perhaps as the same surface is concave and

⁵⁷ "I should like to pause here and spend some time in the contemplation of God" Third Meditation (CSM 2: 36 / AT 7: 52).

convex from different perspectives.⁵⁸ The Fifth Meditation offers further support, because its argument proves the existence of God directly from the idea of God, without any reference to the Third Meditation argument, even though the Fifth Meditation argument would probably not have been possible if the Third Meditation had not already clarified the idea of God. The strongest support, however, comes from the passages cited earlier in the *Replies* and in Descartes's letters, especially the letter to Voetius.

The Third Meditation argument displays at least two of the desiderata for an adequate interpretation of Cartesian analysis. It makes implicit knowledge explicit and it enables the meditator to take that explicit knowledge as the starting point for a new argument that shows why the original premises were true and accessible to the meditator. It does not clearly display the second desideratum, on intuition, perhaps because Descartes's key principle is reversible (*I have a clear and distinct idea of God only if God causes me to become if God causes me to have a clear and distinct idea of God, then I do*). Nevertheless, the original version of that premise is much less obvious—intuition may play a role in generating the premises, just as Descartes thought even the most rigorous proofs in Greek geometry could only have been discovered by a less rule-bound method than the one at work in the proof itself.

⁵⁸ “And indeed it is no surprise that God, in creating me, should have placed this idea within me to be, as it were, the mark of the craftsman stamped on his work—not that the mark need be anything distinct from the work itself” Third Meditation (CSM 2: 35 / AT 7: 51). This certainly does not imply that Descartes is identical to God. Perhaps a single idea can refer in very different ways when considered from different perspectives.

As argued at the beginning of this paper, arguments that have these features raise the suspicion of circularity, and that suspicion is heightened if the argument is misread as synthetic. The first step in dispelling the suspicion is to distinguish analysis from synthesis, or to distinguish arguments geared toward making knowledge explicit from arguments that use truths already explicitly known to explain less fundamental truths. The Third Meditation argument would indeed be circular if its premises were supposed to underly or explain its conclusion in the way characteristic of synthetic arguments, for in this case the conclusion provides just such support for the premises. The second step is to treat the argument in a psychological or pragmatic fashion. Whatever the epistemic status of the premises and the inferences involved, if they do in fact make explicit the meditator's implicit knowledge of God's existence and reliability, then the argument functions as intended and it is not viciously circular.

These two steps may suffice to remove the appearance of circularity from the Third Meditation argument and perhaps from other apparently circular arguments in the *Meditations*, but they are not intended to replace the best efforts of the conventional approach to Descartes's circles. If Broughton, Gewirth, Della Rocca, *et al.* are right, then the argument would not be circular even if the conclusion did depend entirely on the argument for its epistemic status. But if that argument is only intended to "bring forth the idea of God from the treasure house of [the] mind,"⁵⁹ then we have double insurance against circularity.⁶⁰

⁵⁹ Fifth Meditation (CSM 2: 46 / AT 7: 67).

⁶⁰ I would like to thank Michael Della Rocca, Elliot Paul, Anat Schechtman, Matthew Lindauer, and the SEMPY Workshop for very helpful comments on this paper.