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Edited by

Gyula Klima and Alexander W. Hall

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### INTRODUCTION

## ALEX HALL

The Proceedings of the Society for Medieval Logic and Metaphysics (PSMLM) collects original materials presented at sessions sponsored by the Society for Medieval Logic and Metaphysics (SMLM). SMLM was founded in 2000 by Gyula Klima (Director), Joshua Hochschild, Jack Zupko and Jeffrey Brower, in order to recover the profound metaphysical insights of medieval thinkers for our own philosophical thought. The Society currently has over two hundred members on five continents. Alex Hall took up the position of Assistant Director and Secretary in 2011, with secretarial duties passing to Timothy Kearns in 2014. The Society's maiden publication appeared online in 2001 and the decade that followed saw the release of eight more online volumes. In 2011, PSMLM transitioned to print and republished volumes 1-8 as separately titled editions. Sharp-eved readers of these volumes will note the replacement of our lions (lamentably copyrighted for commercial use), who guarded the integrity of the body of an intellectual tradition thought to be dead, with the phoenixes that mark this print rebirth. Volumes 9 and 10 appeared in a dual print/online format, with Volume 11 PSMLM switched to print only. Friends of the lions will be happy to note that they remain at their post, protecting the first ten volumes of the PSMLM at http://faculty. fordham.edu/klima/SMLM/, where interested readers can also keep up with SMLM activities and projects.

The 2014 PSMLM (the twelfth in the series) comes in two parts. Part 1, *Maimonides on God*, presents SMLM papers read at a satellite session of the American Catholic Philosophical Association, hosted by The Catholic University of America in Washington D.C. SMLM has sponsored such sessions at the ACPA since 2001. Beginning in 2011, SMLM has likewise gathered annually at the International Congress on Medieval Studies at Western Michigan University. Part 2, *The Logic and Semantics of John Duns Scotus*, draws from our ICMS panel, featuring in addition several papers collected through an open call. Volumes 13 and 14 (forthcoming in

2017) will feature papers on medieval hylomorphism and mereology and medieval theories of philosophy of mind, respectively.

### Part 1 – Maimonides on God

Moses Maimonides and Thomas Aguinas agree that we lack any valid argument for creation *de novo* and yet they refuse to cede its possibility to Aristotelian thinkers who draw on familiar laws of nature to deny the notion's coherence. In response, Maimonides and Aquinas charge the Aristotelians with an illicit extrapolation. Who is to say what laws might or might not obtain during such a singularity event? Hence it seems that the question of creation de novo must necessarily remain open and the faithful may then rest content. Or not. As Kenneth Seeskin notes in Creation and the Argument from Particularity, Maimonides and Aquinas may part company on this point, for, whereas Aquinas will allow that creation de novo must be accepted "on faith alone" (Summa Theologica (ST) 1.46.2), Seeskin suspects that Maimonides recommends authority only for those who "cannot follow the technical arguments for creation" that Maimonides will present. Accordingly, Seeskin asks why Maimonides invokes rational argument in this matter whereas Aquinas does not consistently adopt this approach. As Seeskin gathers the materials that will constitute his answer, he traces alongside his discussion of Maimonides and Aquinas reflections concerning contemporary science, philosophy and theology that comprise in themselves an argument for the persistent (or rather, invariably systemic) persuasive force of intelligent design theory in its various forms.

To make the case for creation *de novo*, Maimonides adapts the Islamic Kalām tradition of rationalist theology. Dating to eighth-century Iraq, Kalām comprises roughly a millennium of theological and philosophical literature in Arabic, inspired in its late, post eleventh-century period by neoplatonized Aristotelian philosophy. According to Maimonides, Mutakallimūn (practitioners of Kalām) uniformly rely on what has come to be called the Argument from Particularity, which holds that the fact that things could have been otherwise than they in deed are betrays the hand of an intelligent designer (*Guide of the Perplexed* (GP 1.71)). Maimonides is critical of Mutakallimūn reliance on imagination to establish the principle that things might always be other than they are (that we can imagine this certainly does not make it the case) and the occasionalist threat to methodological naturalism to which this attitude gives rise. Nevertheless, twelfth-century Ptolemaic and Aristotelian systems were admittedly

subject to "grave incongruities and perversities" (GP 2.22), such that Maimonides despairs of astronomy attaining the rank of a science (GP 2.24). For this reason, Maimonides discerns in the motions of the heavenly bodies the work of an intelligent designer, allowing that, should science provide a principled explanation for these motions, the doctrine of eternity would carry the day, necessitating a reinterpretation of the Torah.

Seeskin suggests that Maimonides' optimism relative to Aquinas as regards this extension of Mutakallimūn proof strategy develops out of Maimonides' comparative willingness to subject dogma to trends in scientific opinion and an epistemic privilege that Aquinas (but not Maimonides) wants to assign to faith over reason. Stephen Ogden's response to Seeskin, *Maimonides, Aquinas, and Particularity*, commends Seeskin's development of the Argument from Particularity, which allows Seeskin to make the case that, as long as science recognizes arbitrary constants, such as the precise value of the force of gravity, the strategy remains effective, while taking issue with the aforementioned contrasts that Seeskin draws between the two thinkers.

At GP 1.74, Maimonides sketches seven of the Mutakallimūn's arguments for creation *de novo* (and, hence, for the existence of God), several of which deploy the particularization strategy. He offers a mix of criticism and praise for these arguments, contrasting them with those of the neoplatonized Aristotelian philosophers who contend that the world is eternal (GP 1.71) and adduce this conclusion in their attempt to demonstrate the existence of God (GP 2.1). As noted, however, Maimonides holds that reason cannot decide in this matter (GP 1.71) and hence neither the Mutakallimūn nor the Aristotelian proofs, at least taken in isolation from one another, are demonstrative.

Nevertheless, this provides a disjunctive strategy as the universe is either created or not. Provided that we have good proof that God exists on both accounts, then, whether the universe is or is not created, we have evidence for the existence of the creator (GP 1.71). It is in this spirit that Maimonides offers a philosophical proof for the existence of God, which he attributes to Aristotle, based on premises that allow for (and may even suppose) the eternity of the universe, in the opening chapter of Book Two of the *Guide*. And yet this philosophical proof (Maimonides' third way in GP 2.1 – not to be confused with Aquinas' own, rather similar, Third Way in ST 1.2.3c) very much resembles a Mutakallimūn argument (the sixth method) that Maimonides criticizes (though perhaps not decisively) at GP

#### Introduction

1.74, as both draw on the inference that the way things in fact are is not the way that they must be, betraying the hand of an intelligent designer.

Jamie Spiering's *The Sixth Method Doesn't Work, But the Third Way Does?* seeks to account for Maimonides' rejection of the former given his endorsement of the latter (or rather, what appears to be Maimonides' estimation in each case, given the question of his esotericism). Spiering argues that, despite surface similarities, the proofs are crucially different, particularly inasmuch as the sixth method appears question begging, relies on the principle that what is imaginable is thereby possible and culminates in a rather vague notion of some (possibly corporeal) place-holder type of deity. Exposing these and other differences allows Spiering to shed light on the fundamental nature of the project of proving God's existence, affording her the opportunity to evaluate certain contemporary proof strategies.

Between one extreme that contends that Maimonides' Kalām and philosophical proofs are sound and its opposite, Daniel Davies notes that Spiering's admittedly naïve endorsement of Maimonides' apparent literal meaning profitably strikes out on a new path (Conceiving Creation: Response to Spiering and Seeskin). Davies speaks to the strengths of Spiering's treatment relative to so-called sophisticated interpretations that advance esoteric readings to discern Maimonides' true intent. Davies' discussion takes up what he sees as the root of Maimonides' criticism of the Kalām proof strategy, namely, that it relies too much on imagination and hence issues in an extreme occasionalist teaching that denies any natural causality. But if this is the case, why, as we have seen, does Maimonides employ a modified version of this strategy drawn from the motions of the planets at GP 2.19-24? Here Davies' discussion shifts to Seeskin's and Ogden's accountings on this point and urges that Maimonides advances a particularization argument that is consistent with empirical evidence and only looks beyond explanation through natural causality when the phenomena seem to require it. This attitude is in keeping with Maimonides' own theological positions that God creates through will and that violations of natural law occur in the form of miracles, positions which should lead one to expect phenomena that cannot be accounted for within a nomic, Aristotelian framework.

### Part 2 – Duns Scotus on Logic and Metaphysics

John Duns Scotus began to lecture on the Sentences of Peter of Lombard at Oxford in 1298 and in the decade that preceded his death around the age of 42 in 1308. Scotus's rich metaphysics, with its blend of neoplatonic and Aristotelian elements, produced a variety of conceptual instruments that were influential in carving out the fourteenth-century philosophical agenda. Scotus's philosophical innovations are likewise apparent in thinkers such as Francisco Suárez, David Hume, Immanuel Kant, Charles Sanders Peirce and Martin Heidegger and contemporary philosophers and philosophical movements remain fruitfully engaged with his work.<sup>1</sup> The array of Scotus's developments includes a modal semantics of compossibility: the notion of an extra-sensory, intellectual, intuitive cognition of existence: the formal distinction between realities separable only in thought (as the generic and specific aspects of a concrete, extramental particular); 'thisness' or 'haecceity', the individuating principle by which one instance of a common nature such as *humanity* is distinct from another; a distinction, as regards the Aristotelian paradigm, between experiential and unqualified scientific knowledge; as well as the notion of the univocity of transcendentals and consequent belief that metaphysics is the science of natural theology.

More than is evident in his later works, Scotus's earliest writings (logical works, which likely date from 1290-1295)<sup>2</sup> are influenced by the *modistae* (modists) or speculative grammarians, active in the thirteenth and early fourteenth centuries, who posited an ontological parallelism between modes of signification, understanding and being. Again, the early Scotus

<sup>&</sup>lt;sup>1</sup> For Kant and various contemporary projects inspired by a Scotist metaphysics, see Ludger Honnefelder, "Metaphysics as a Discipline: From the 'Transcendental Philosophy of the Ancients' to Kant's Notion of Transcendental Philosophy," In Russell Friedman and Lauge Nielsen, eds., *The Medieval Heritage in Early Modern Metaphysics and Modal Theory*, 1400-1700 (Kluwer, 2003); and Nathan Strunk, "Is the Doctrine of Transcendentals Viable Today?"

<sup>&</sup>lt;http://www.metaphysicalsociety.org/2011/Session%20VII.Strunk.pdf>. On David Hume, see Eileen Serene, "Demonstrative Science," In Norman Kretzmann, Anthony Kenny and Jan Pinborg, eds., *The Cambridge History of Later Medieval Philosophy: From the Rediscovery of Aristotle to the Disintegration of Scholasticism, 1100-1600.* Cambridge: Cambridge University Press, 1982), 496-518.

<sup>&</sup>lt;sup>2</sup> See Edward Buckner and Jack Zupko, trans., *Duns Scotus on Time and Existence: The Questions on Aristotle's "De Interpretatione,"* (The Catholic University of America Press, 2014).

#### Introduction

belongs to the English tradition of the latter half of the thirteenth century that sets logic apart from metaphysics and physics, limiting the considerations of the former to various relations that hold between concepts of things (concepts of first intention), concepts of concepts (concepts of second intention) and terms, as opposed to the study of real links between real things, taken up in the latter. A feature of this tradition. evident in Scotus's early works, is the belief that for the logician the notion 'being' is equivocal, whereas for the metaphysician it is analogous, a position at odds with Scotus's aforementioned, mature consideration of our concepts of being and the other transcendentals.<sup>3</sup> Yet despite such dissimilarities. Scotus's early writings nevertheless foreshadow some of the positions that grow out of them (such as the notion of *haecceity* and the formal distinction) and are consequently of interest to those who would better understand the development and nature of Scotus's thought. However, this effort has been hampered by the disarray in which Scotus's writings were left owing to his untimely death. As regards Scotus's logical works in particular (the *parva logicalia* or little logical works), recent scholarship has whittled the number that might actually have been written by Scotus down from seven to four, Scotus's commentaries on the Isagoge (Opor), Categories (OCat), De interpretatione (OPer I, OPer II) and De sophisticis elenchis (OSE). Owing to doctrinal inconsistencies pertaining to the aforementioned theory of univocity, the authenticity of OCat has been the subject of debate and, as the author of this commentary is unquestionably the author of QPor and QPer I and II, and, moreover, as the authenticity of OSE is dubitable, we may well ask whether Scotus wrote anything on logic at all. Edward Buckner's "On the Authenticity of Scotus's Logical Works" takes up this question. Drawing on Buckner and

<sup>&</sup>lt;sup>3</sup> See Giorgio Pini, "Univocity in Scouts' *Quaestiones super Metaphysicam: The Solution to a Riddle*, in *Medioevo* 30, 2005, 69-110. Pini notes that it is because of his immersion in the English tradition that the early Scotus rejects "any inference concerning how things are from the mode of signifying of a term. Specifically, we cannot make any inference from the way in which the term 'being' signifies to the way things are in the world. In this respect, Scotus is an enemy of a logicosemantic investigation of reality. His belonging to the English tradition of distinguishing between a logical and a metaphysical approach to analogy clearly separates him from the Paris modist tradition, according to which there is some parallelism between modes of signifying, modes of understanding and modes of being" (86). How to resolve this tension between a rejection of modism on the part of Scotus, on the one hand, and the extent to which modist doctrine influences his thought (see below in "On the Authenticity of Scotus's Logical Works"), on the other, seems to be unclear.

Zupko's recently published translation of QPer I and II,<sup>4</sup> Buckner contends that "there is overwhelming evidence that three works – the Questions on Porphyry, on the Categories, and on the Perihermenias (both versions) are authentic. About the Questions on the Sophistical Refutations there is still doubt."

In "Scotus on the Species of Qualities" we turn to a discussion of QCat in particular, wherein Lloyd Newton presents Scotus's attempt to render a principled account as to why Aristotle divides the category of quality into four species in *Categories* 8. The immediate division of a genus is into two species by means of a specific difference, as the genus animal divides into rational and irrational. Why then does Aristotle divide quality into habits and dispositions; abilities and inabilities; affections and affective qualities and, lastly, form and figure? Commentators appear split over whether an explanation is in order, with Simplicius, Aquinas and Scotus in agreement that such is the case. Yet, contends Newton, Scotus's attempt "avoids the problems" that confront the accounts of Aquinas and Simplicius, thereby providing "a more coherent account of quality than had previously been offered."

With "Logic, Ontology, and the Psychology of Universals in Duns Scotus," Cruz Gonzalez-Avesta and David Gonzalez-Ginocchio shift the focus of this volume from logic proper to the intersection of logic and metaphysics with respect to Scotus's doctrine of universals. Scotus is in the moderate realist tradition as regards universals, meaning that he accepts the Aristotelian assertion that there exist immanent principles or universals whereby an entity is fixed with respect to some natural kind. e.g., the principle of humanity. By contrast, Ockhamist nominalism would characterize these universals as affections of the intellect that are not universal except in their signification, i.e., in signifying many things that do not themselves share in any general nature (Summa logicae I.14). In what sense the universals of the moderate realist might be said to exist, how accurate are our notions of these principles and in what manner said notions are formed was a subject of heated debate in the medieval universities. By Scotus's time it was generally accepted that universals are present to the human intellect by means of concepts of second intention (generic and specific concepts of concepts) that are derived from reflection on concepts of first intention (i.e., concepts of individual entities) and it is in this context that he develops his mature understanding of the univocity

<sup>&</sup>lt;sup>4</sup> Buckner and Zupko (2014).

of the concept of being and other, transcendental notions used to describe any entity inasmuch as it exists.<sup>5</sup> Yet modern commentators are (as Scotus's immediate disciples were) divided over the correct interpretation of Scotus on the matter of univocal concepts and tend to bifurcate between moderate realist and near-nominalist accountings that lend more or less ontological heft to the univocal concept of a transcendental attribute, respectively.6 Accordingly. Scotus's understanding of the nature of universals is of interest on several fronts; historically, as the immediate predecessor of Ockham's nominalism; theologically, as a vehicle better to understand Scotus's assertion that certain concepts are univocal to God and creatures; and, on its own account, as a sophisticated, moderate realist semantics. Gonzalez-Ayesta and Gonzalez-Ginocchio therefore attempt to shed light on Scotus's understanding of universals and the process of abstraction through a study of: (1) the various senses of the term 'universal' deployed across Scotus's writings that seeks to clarify the difference between Scotus's logical and metaphysical universal, (2) the mode of being of the extramental universal and (3) the complete universal, viz., the concept of first intention that is predicable of many.

Returning to the consideration of univocal and analogous concepts, Domenic D'Ettore examines the response provoked amongst Thomists by Scotus's thesis that God and creatures are conceived univocally in our apprehension of the transcendentals in "The Semantic Unity of the Analogous Concept According to John Capreolus." Scotus's notion of univocity developed in reaction to Henry of Ghent's theory of analogy, wherein concepts of God and creatures are analogous because, though they resemble one another, they are in fact distinct. For Scotus, this similarity demands an overlap of semantic content, such as the notion of being that mediates between (and thus for Scotus is univocal to) finite and uncreated being. Early Thomists saw here a threat to Aquinas's belief that concepts of God and creatures are analogous in a manner that explicitly does *not* 

<sup>&</sup>lt;sup>5</sup> The notion of transcendental concepts emerges from the philosophical tradition in the thought of Philip the Chancellor (d. 1236), who pondered in what sense the term 'good' can meaningfully be applied to both God and creatures (N. Wicki, ed., Philippi Cancellarii Summa de bono (Berne: Francke, 1985)), but the heart of the idea derives from Plato's middle period theory of forms, which posits the extramental existence of eternal, immutable forms or ideas by means of participation in which an entity is a particular type of thing (as a triangle is triangular inasmuch as it approximates triangularity).

<sup>&</sup>lt;sup>6</sup> See Dumont, Stephen (1992). 'Transcendental Being: Scotus and Scotists'. *Topoi* 11/2: 135-48.

hang on univocal semantic content and hence denied any common *ratio* or signification between the concept of a creaturely analog of a divine attribute and the corresponding concept whereby we grasp that attribute as an attribute of the divine essence. Capreolus, by contrast, admits an overlap of semantic content between the different notions whereby we conceive God on the one hand and creatures on the other, whereas he denies that the overlap is univocal, because he believes that the conjunction of concepts requisite to forming a complex notion of God (e.g., *infinite* and *goodness*) alters the semantic content of its elements such that they can thereafter no longer pick out the creatures from reflection on which they were drawn.

Our final chapter, "Can We Speak about That Which Is Not?" by Lukáš Novák, places Scotus squarely into a dialog with twentieth-century analytic philosophers over the ontological status of what is merely possible. Metaphysical possibilists hold that in some irreducible sense merely possible entities must factor into our inventory of things that are, whereas metaphysical actualists deny this. Both parties subscribe to what Novák terms the Principle of Reference:

(PR) It is impossible to refer to that which is not.

For the metaphysical actualists in the Frege-Russellian tradition, PR entails a *semantic* actualism wherein we can't really talk about merely possible entities; hence when fans of Tolkien and Martin discuss Smaug and his counterparts out of Essos, semantic actualists are forced to construe their discourse in some manner that does not involve reference to non-existents. By contrast, Alexius Meinong and others (such as Henry of Ghent and Scotus's immediate disciple Francis of Meyronnes) are driven by *semantic* possibilism, which accommodates our pre-theoretical intuition that we do speak of merely possible entities, to adopt metaphysical possibilism in order to supply the subject of this discourse. Scotus sidesteps the dilemma by embracing *both* semantic possibilism *and* metaphysical actualism, leaving him free to discuss utterly non-existent entities, grounding this account on his understanding that intelligibility is granted to non-existents "in virtue of their being conceived, prior to creation, by the absolute divine intellect."

# **PART 1:**

# MAIMONIDES ON GOD

# CREATION AND THE ARGUMENT FROM PARTICULARITY

## KENNETH SEESKIN

Outwardly Maimonides and Aquinas take similar positions with respect to the creation of the world *de novo*.<sup>1</sup> Aristotle and his medieval followers denied that such a creation is possible. Both Maimonides and Aquinas respond by saying that the arguments against creation are not persuasive because they rest on an unsupportable assumption: that the causes and principles that explain the world as it is at present can also explain its genesis or creation. At present, change from one condition, say rest, to another, motion, requires an agent that is already in motion and can actualize the potential of the subject to move. As applied to creation, this assumption would require us to say that the first motion must receive a push from something prior to it; in effect that there must be something in motion before the first motion. Because this is absurd, the idea of a first motion or creation *de novo* is incoherent.

Both thinkers respond by saying that there is no reason to suppose that creation is analogous to change. As noted above, change involves the transition from one state of existence to another; by contrast, creation involves the coming into existence of something that did not exist before. At *Guide of the Perplexed* 2.17, Maimonides argues that even in nature as we now observe it, the birth of a creature often follows a different pattern from that which obtains in maturity. This amounts to saying that extrapolation backwards from what we know about something now to what happened at the moment it came to be is fraught with peril. We can

<sup>&</sup>lt;sup>1</sup> I distinguish creation *de novo*, which holds that there is a first moment in time (i.e. that the age of the universe is finite) from creation *ex nihilo*, which holds that no material cause or underlying substratum was involved in creation. For an excellent discussion of this distinction, see William Dunphy, "Maimonides and Aquinas on Creation: A Critique of their Historians," in *Graceful Reason*, edited by Lloyd Gerson. Toronto: Pontifical Institute of Medieval Studies, 1983, 361-79.

see this in modern terms by recognizing that according to the prevailing view of cosmologists, extrapolation backwards leads to a singularity, which is to say a point of infinite temperature and pressure from which the universe that we observe originated. By definition, a singularity is unique. Why should we believe that the laws of physics which apply under finite conditions and assume already existing structures of space and time also apply at the moment of the Big Bang?<sup>2</sup> To return to the medievals, once the analogy between creation and change is questioned, the traditional argument against a creation *de novo* loses its force, giving us reason to think that such a creation is at least possible.

Both thinkers also agree that while creation *de novo* is possible, one cannot demonstrate that it is true. But it is here that Maimonides and Aquinas part company, for while Aquinas goes on to say (ST 1.46.2) that the lack of a demonstration means that creation *de novo* must be accepted "on faith alone," Maimonides takes a somewhat different path. I say *somewhat* because at one point (GP 2.16), he says that because the issue of creation and eternity cannot be solved by demonstration, one should accept creation on prophetic authority. This seems to commit Maimonides that Maimonides' remark is qualified: one should accept creation on prophetic authority *if* one cannot follow the technical arguments for creation that he is about to present.

While Maimonides' arguments do not constitute a demonstration in the strict sense of the term, he tells us that they prevail over the opposition *(ibid.)*, and at another point, that they comes as close to being a

<sup>&</sup>lt;sup>2</sup> Cf. Alan Guth, *The Inflationary Universe*, Reading, Mass.: Addison-Wesley, 1997, 86-7: "If one continues the extrapolation backwards in time, one comes to a point of infinite density, infinite pressure, and infinite temperature -- the instant of the big bang explosion itself, the time that in the laconic language of cosmologists is usually called "t = 0." It is also frequently called a singularity, a mathematical word that refers to the infinite values of the density, pressure, and temperature. It is often said – in both popular-level books and in textbooks – that this singularity marks the beginning of the universe, the beginning of time itself. Perhaps this is so, but any honest cosmologist would admit that our knowledge here is very shaky. The extrapolation to arbitrarily high temperatures takes us far beyond the physics that we understand, so there is no good reason to trust it. The true history of the universe, going back to "t = 0," remains a mystery that we are probably still far from unraveling."

#### Kenneth Seeskin

demonstration as anything could (*GP* 2.19). I take this to mean that while we cannot be certain of creation *de novo*, based on the available evidence, Maimonides thought it is very likely that it is true. Though Aquinas cites Maimonides' argument for creation *de novo* in the *De Potentia Dei* (3.17) and in connection with providence in his commentary on *Job*, it is noteworthy that he does not employ it in the *Summa Theologica*, where, to repeat, creation *de novo* is to be accepted on faith alone. This paper raises the question of why Maimonides invoked it while Aquinas did not.

### 1.

Maimonides' argument for creation *de novo* is derived from the Mutakallimūn and has come to be known as the Argument from Particularity.<sup>3</sup> Briefly stated, the argument asks: "Why this rather than that?" If the scientific account of the universe is correct, then there ought to be a sufficient reason for everything we observe telling us why it cannot be otherwise. According to Aristotle, we know a thing most fully when we know what it is, why it is what it is, and why it cannot be otherwise than what it is. If this is true, why does Venus move this way and Mercury that way? Why is the orbit of the sun tilted 23 ½ degrees to the plane of the earth rather than, say, 24 ½ degrees? Why does this quadrant of the night sky contain a large number of stars while that quadrant contains comparatively few?

The demand for a sufficient reason could be met in either of two ways: (1) by giving the efficient cause of the phenomenon in question or (2) by showing what purpose it serves. Suppose we ask what purpose is served by having Venus and Mercury move in opposite directions? Unless one can give a convincing explanation, proponents of the argument conclude that the only way we can understand their movement is to say that God willed it so. According to the argument's most famous proponent Alghazali, the will just is a faculty of deciding between similar or

<sup>&</sup>lt;sup>3</sup> For historical background to the argument, see Harry Wolfson, *The Philosophy of the Kalām* (Cambridge: Harvard University Press, 1976), 434-52, who traces it to the Asharite theologian al-Juwayni. Its best-known version is that of Alghazali, *The Incoherence of the Philosophers*, translated by Michael E. Marmura (Provo, Utah: Brigham Young University Press, 1997), 12-27. For a modern discussion of the consequences of the argument, see Seymour Feldman, "In the Beginning God Created': A Philosophical Midrash," in *God and Creation*, edited by David Burrell and Bernard McGinn (Notre Dame: University of Notre Dame Press, 1990), 3-26.

apparently indistinguishable alternatives.<sup>4</sup> As the argument goes on to say, God made any number of decisions in creating the universe that could have gone the other way. If God exercises freedom of choice, then there is every reason to think that God could decide to create the world at a certain point, which is exactly what creation *de novo* asserts.

At *Guide* 1.73, Maimonides criticizes the argument for two reasons. His first objection is the degree to which it relies on the imagination. According to the Mutakallimūn, anything that can be imagined is possible. This assumption led them to ask why the sun is circular rather than triangular, why the earth is not completely under water, or why a flea cannot be as large as an elephant. Maimonides objects that the imagination is a poor guide to possibility so that instead of asking what we can imagine, we should be asking what we can think. That the earth should be completely under water is a manifest absurdity given the principles of Aristotelian physics, so that while it might be possible to imagine such a situation, to ask why it is not so establishes nothing.

His second objection involves the extremes to which the argument was often taken, the most obvious being its association with metaphysical atomism. According to that view, every atom is qualitatively indistinguishable from every other. Why, then, does this atom occupy one region of space and another atom occupy another? Because no scientific reason could be given, the answer was again referred to the will of God. The effect of this argument was to say that God's will is responsible for the placement of every atom and is therefore the sole cause behind every natural phenomenon. In Maimonides' words (*GP* 1.73): "They [the Mutakallimūn] assert that when a man moves a pen, it is not the man who moves it; for the motion occurring in the pen is an accident created by God in the pen."<sup>5</sup> Putting both of these objections together, we can say that unless severe limits are placed on its application, the Argument from Particularity runs the risk of undermining all scientific reasoning about the universe.

Although it is clear why Maimonides would not accept this argument as a demonstration of creation, he felt free to invoke it given the lesser

<sup>&</sup>lt;sup>4</sup> Incoherence, 22-23.

<sup>&</sup>lt;sup>5</sup> All quotations from the *Guide of the* Perplexed are taken from the Pines translation, Chicago: University of Chicago Press, 1963.

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standards of rigor he introduces in his discussion of creation in Book Two of the *Guide*. If the argument leads to silly results when the imagination was allowed to run wild, it raises serious questions when applied to the motion of the planets. It is well known that by the twelfth century, medieval astronomy had reached an impasse. According to the standard view, the universe consisted of nine primary spheres accounting for the motion of the fixed stars, the planets observable by the naked eye, the sun, and the moon. Each sphere was set in motion by a heavenly intelligence focused on the eternal perfection of God. In such a scheme, common sense dictated that the outer spheres should transfer motion to the inner spheres so all the spheres would rotate in the same direction with the outer spheres moving faster. But experience proves that this is not the case. As Maimonides observes (GP 2.19):

We see that in case of some spheres, the swifter of motion is above the slower; that in the case of others, the slower of motion is above the swifter; and that, again in another case, the motions of the spheres are of equal velocity though one be above the other. There are also other very grave matters if regarded from the point of view that these things are as they are in virtue of necessity.

In addition to the different velocities of spheres, there is also the question of their different directions. Why does it often appear that one sphere moves in the opposite direction of the one directly above or below it? To account for this phenomenon, Aristotle introduced the notion of a secondary sphere. The need for such spheres can be explained if we recognize that the motion of every planet is unique to it and that from our perspective on earth, the planets often seem to reverse their direction. So a host of secondary spheres would be needed to explain why Saturn's motion is very different from that of the fixed stars. But the spheres introduced to explain Saturn's motion would all have to be reversed when we get to Jupiter, at which point we would have to introduce new spheres to explain its motion and reverse them when we get to Mars.<sup>6</sup>

In all 55 spheres were needed to make even a rough approximation to what we observe with the naked eye. Reverse motion is all the more difficult to

<sup>&</sup>lt;sup>6</sup> *Metaphysics* 1073b38-1074a5. For further comment, see Edward Grant, *Planets, Stars, and Orbs: The Medieval Cosmos, 1200-1687* (Cambridge: Cambridge University Press, 1994), 275-77 as well as D. R. Dicks, *Early Greek Astronomy to Aristotle* (Ithaca: Cornell University Press, 1970), 199-201.

explain given the belief that there is no space or vacuum between one sphere and another. In effect, they are like the layers of an onion. Why, then, do the various layers seem to move at different speeds and in opposite directions for no good reason? Finally, there is the question of why the fixed stars do not exhibit retrograde motion, the planets do, but the sun and moon, which according to Aristotle are closest to the earth, also do not.

From the standpoint of empirical accuracy, Ptolemy's theory was more accurate than Aristotle's. But Ptolemy's accuracy could only be maintained at the cost of introducing epicycles and eccentric orbits, both of which contradicted Aristotle's account of natural motion by introducing an orbit whose center of rotation is outside the center of the earth. To this Maimonides objected. "How," he asks (*GP* II.24, 326), "can one imagine a rolling motion in the heavens or a motion around a center that is not immobile?" The answer is that one cannot, from which it follows that epicycles and eccentrics are (*GP* 2.24, 322): "outside the bounds of reasoning and opposed to all that has been made clear in natural science."<sup>7</sup>

What do you do when a theory with great predictive power flies in the face of a basic scientific principle? Maimonides calls this "true perplexity" and maintains (GP 2.24) that astronomy will never resolve it and attain the status of a true science. Citing Psalm 115.16 ("The heavens are the heavens of the Lord, but the earth hath He given to the sons of man"), he argues that only God knows the nature, substance, motions, and causes of the heavenly bodies and that they are too far away and too high in place or rank for us to agree on assumptions from which conclusions can be drawn. In the same chapter, he goes so far as to say that the purpose of astronomy is not to uncover the truth of the phenomena it investigates but merely to provide a mathematical model from which accurate predictions can be made. In his words:

For his [the astronomer's] purpose is not to tell us in which way the spheres truly are, but to posit an astronomical system in which it would be possible for the motions to be circular and uniform and to correspond to

<sup>&</sup>lt;sup>7</sup> For the historical background to Maimonides' rejection of Ptolemy, see A. I. Sabra, "The Andalusian Revolt against Ptolemaic Astronomy," in Everett Mendelson, ed., *Transformation and Tradition in the Sciences* (Cambridge: Cambridge University Press, 1984), 133-53. Note that Aquinas rejects epicycles for the same reason. See *Commentary on the Metaphysics*, Vol. 2, 12.10, 904.

what is apprehended through sight, regardless of whether or not things are thus in fact.

This is another way of saying that all we can expect from astronomy is a mathematical model that saves the phenomena and preserves the theory of natural motion.

With his usual respect for Aristotle, Maimonides argues (GP 2.22) that he himself realized that his account of the heavens was weak and makes reference to "grave incongruities and perversities that manifestly and clearly appear as such to all the nations." As Maimonides recognizes, there is always the possibility that someone will come up with a deep level explanation of phenomena that seemed puzzling to him (2.24). We should keep in mind however that he says this in a context that assumes that at least part of the Aristotelian theory is true. In Maimonides' defense, it is worth pointing out that no one ever succeeded in doing this.

I should point out that while Copernicus' theory caused a great stir when it was published, it did not provoke an official condemnation from the Church because an introduction not written by Copernicus himself was added that said that the theory was only a mathematical model. Part of what caused the Church to condemn Galileo was his belief that Copernicanism was more than a mathematical model but a statement of truth.

We are now in a position to understand why Maimonides thought that the world we inhabit does not present itself as a system governed by strict causal necessity but as a system in which, for all we know, some things could have been different from what they are. If things could have been different, then God must have exercised free choice in creating them the way he did. If God exercised free choice, then while creation *de novo* has not been demonstrated, it appears to be the most reasonable option available to us.

Critics of the argument objected that just because astronomy cannot come up with a satisfactory explanation of planetary motion at present, it does not follow that it will never be able to do so. In fact, some went so far as to say that Maimonides' argument is so weak it is hard to believe he actually held it.<sup>8</sup> To the degree that the critics' objection relies on what science

<sup>&</sup>lt;sup>8</sup> See for example Moses of Narbonne, *Commentary on the Guide of the Perplexed*, ed. J. Goldenthal (Vienna, n.p., 1852), 2.19. It is worth noting that many Jewish

might be able to do in the future, it is impossible to refute. We saw however that while Maimonides himself recognized this possibility, he was skeptical that it would ever be realized. When push comes to shove, all we can do is formulate our conclusions on the basis of the evidence currently available to us. In Maimonides' opinion, that evidence suggests that astronomy will never be able to give a proper explanation of planetary orbits.

### 2.

While it is true that a proper explanation was eventually found, it went well beyond anything Maimonides or his contemporaries could have imagined. Even so, we may ask whether our predicament is all that different from theirs. Suppose – what may well be false – that one could subsume all observable phenomenon under a single set of scientific laws. Even on this scenario, questions similar to those raised by the Mutakallimūn would continue to arise because one can always ask why one set of laws obtains rather than another. To take an obvious example, I can understand the ebb and flow of the tides by subsuming the relevant facts about the earth and the moon under Newton's law of gravitation. The problem is that as we attain higher levels of generality, we will eventually reach something so general that it will be difficult, if not impossible, to subsume it under anything else. If there is nothing more general to which

thinkers became enamored of Averroes after Maimonides' death; Moses Narboni is just one example. For a modern version of Narboni's criticism, see Isaac Husik, A History of Medieval Jewish Philosophy (1916; rpt. New York: Antheneum), 275. There is a centuries old debate on whether Maimonides' defense of creation and contingency is to be taken at face value or whether it is written to disguise his real position, which is an eternal world governed by necessity. For a modern defense of the latter view, see Warren Zev Harvey, "A Third Approach to Maimonides' Cosmology Prophetology Puzzle." Harvard Theological Review 74 (1981): 287-301. Needless to say, if Harvey is right, Maimonides' position would be much closer to Spinoza's. For an extended defense of my reading of Maimonides, see Seeskin, Maimonides on the Origin of the World, New York: Cambridge University Press, 2005. For approaches similar to my own, see Harry Wolfson, Studies in the History and Philosophy of Religion, I. Twersky and G. H. Williams eds. (Cambridge: Harvard University Press, 1973), 207-21, Arthur Hyman, "Maimonides on Creation and Emanation," Studies in Medieval Philosophy, J. F. Whipple, ed. (Washington, D.C.: Catholic University of America Press, 1988), 45-61, and Seymour Feldman, "Abravanel on Maimonides' Critique of the Kalām," Maimonidean Studies 1 (1990): 5-25.

we can appeal, we will be left with a simple statement of fact. When that happens, the question "Why does the force of gravity take this value rather than that?" will make sense but will have no readily available answer.

Let us therefore extend our example and ask why the force of gravity – or the dark energy that repels it – takes the precise value it does. The question is apt because there is no apparent contradiction in imagining that it might be greater or lesser than it is. The problem is that as the idea of an expanding universe began to take hold, it became clear that the conditions needed to produce a universe like ours had to be highly specific to allow for the formation of stars and thus be compatible with the formation of life. In 2002 Stephen Hawking wrote:<sup>9</sup>

If the rate of expansion one second after the big bang had been smaller by even one part in a hundred thousand million million, the universe would have recollapsed before it ever reached its present size. On the other hand, if the expansion rate at one second had been larger by the same amount, the universe would have expanded so much that it would be effectively empty now.

Even if the rate of expansion were set to exactly the right point, other conditions would have to be met for human life to be possible. In 2010 Hawking spoke more generally when he wrote:<sup>10</sup>

Most of the fundamental constants in our theories appear fine-tuned in the sense that if they were altered by only modest amounts, the universe would be qualitatively different, and in many cases unsuitable for the development of life . . . The emergence of the complex structures capable of supporting intelligent observers seems to be very fragile . . . Were it not for a series of startling coincidences in the precise details of physical law, it seems, humans and similar life-forms would never have come into being.

It is clear that "finely tuned" is just another name for particularity and that the "startling coincidences" that Hawking mentions are of an order of magnitude most people can scarcely imagine.

<sup>&</sup>lt;sup>9</sup> Stephen Hawking, *The Theory of Everything*. Beverly Hill, Ca.: The New Millennium Press, 2004, 104.

<sup>&</sup>lt;sup>10</sup> Stephen Hawking, *The Grand Design* (New York: Bantam Books, 2010), pp. 160-61.

Like the medievals, we face the question of how far to press the need for a scientific explanation. Are there deep level explanations for the masses of elementary particles and the strength of cosmic forces or is it that a benevolent God fashioned the universe with the intention of allowing life to develop? There are always some who hold out for the possibility of a deep explanation. In an autobiographical statement published in 1949, Einstein expressed the faith that there are no arbitrary constants but only strongly determined laws from which one can derive completely determined constants.<sup>11</sup> As Maimonides said with respect to medieval astronomy, it is possible that some day someone will find these kinds of laws, but to date, no one has. Again from Hawking: "Not only does God definitely play dice, but He sometimes confuses us by throwing them where they can't be seen."

As long as arbitrary constants are with us, the Argument from Particularity has force. To be sure, the existence of such constants does not constitute a demonstration that God exists, that God exercises freedom of choice, or that the universe might have been different from what we now observe. But, to follow in Maimonides' footsteps, such constants give us reason to think that all of these things *might* be true.

### 3.

That brings us to the question of why Aquinas did not avail himself of this argument. It does not contradict anything he said and may even have lent force to what he said. One could hold, for example, that creation *de novo* is *both* an article of faith *and* that it is a reasonable conclusion based on the scientific evidence at our disposal. I suggest there are two ways of answering this question. To understand the first, let us return to Maimonides. Although he did not think science would ever have a satisfactory explanation for planetary orbits, he did more than admit that in principle it might. After concluding his defense of creation *de novo*, he goes on to say (*GP* 2.25), that *if* it could provide such an explanation, and the case for causal necessity carried the day, he would have no choice but to reinterpret the Torah in light of the doctrine of eternity. His reasoning is simple. The Torah is a vehicle of truth. As such, our interpretation of it can never contradict well-established scientific principles. As he says in his

<sup>&</sup>lt;sup>11</sup> Albert Einstein, 1949. *Philosopher-Scientist*, Vol. 1, edited by Paul Arthur Schilpp. New York: Harper & Row: 1949, 63.

Letter on Astrology: "A man should never cast his reason behind him, for the eyes are set in front, not in back."

In short, Maimonides subjected his reading of the Torah to the prevailing trends of scientific opinion. Although medieval science lacked adequate answers to the questions he asked, experience shows, however, that no sooner does science put old questions to rest that new ones begin to arise. At the beginning of the twentieth century, no less a figure than Einstein was committed to the idea of an eternal world. As the Big Bang theory began to take hold, new questions of the sort raised by Hawking came to the fore giving the Argument from Particularity a second life. Yet even now, the question of creation versus eternity remains open. Even if *our* universe has a temporal beginning, it may be the case that other universes preceded it and that the chain of previous universes stretches infinitely into the past.

My first suggestion is that Aquinas did not want to make Christian dogma subject to the prevailing trends of scientific opinion. If something is a dogma, it has to be put out of reach of anything science might or might not come up with. For that reason, he does not employ the Argument from Particularity and is content merely to show that creation *de novo* is logically possible.

The second suggestion has to do with epistemology. If demonstration cannot establish creation *de novo*, Aquinas had the option of saying that one should accept it on faith. Although Maimonides allows one to accept creation *de novo* on prophetic authority if one cannot follow the arguments pro and contra, there is no room in his philosophy for a form of awareness that perfects or supersedes knowledge. On the contrary, in the "Parable of the Palace," which begins the rhetorical climax of the *Guide*, those who have achieved mastery of the sciences and are engaged in speculation are described as closer to God than those who accept religious doctrines on traditional authority (GP 3.51).

Earlier on (GP 1. 32), he characterizes his position this way:

For if you stay your progress because of a dubious point; if you do not deceive yourself into believing that there is a demonstration with regard to matters that have not been demonstrated; if you do not hasten to reject and categorically to pronounce false any assertions whose contradictories have not been demonstrated; if, finally you do not aspire to apprehend that which you are unable to apprehend – you will have achieved human perfection and attained the rank of *Rabbi Akiba*...

Simply put: if you recognize the limits of reason *and stay within them*, you will achieve the same status as one of Israel's greatest sages. So far from a recommendation to turn to faith, this sounds like a recommendation to proportion one's belief to the weight of the evidence – recognizing that for some questions the evidence will never be decisive.

For Aquinas, it is otherwise. As he says (ST 1.12.13): "We have a more perfect knowledge of God by grace than by natural reason." We can understand this better by recognizing that the faith Aquinas is talking about involves assent to something to which the intellect would not assent if left to its own devices. On matters that natural reason can decide on its own such as the existence of God, faith is offered to those who do not have sufficient learning to follow the arguments. But on matters that natural reason cannot decide on its own such as creation *de novo*, it is offered to everyone. Faith, then, is a gift. As we learn from Ephesians 2:8 (cited at ST 2.2.6.1): "For by grace you have been saved through faith, and this is not your own doing; it is the gift of God . . ." It could be said, therefore, that faith perfects or surpasses knowledge in the same way that grace perfects or surpasses nature. Once it has been shown that creation *de novo* is logically possible, appeal to scientific evidence is not needed to generate conviction and if anything may interfere with it.

#### 4.

My purpose in writing this paper is not to argue that one thinker is right and the other wrong. Maimonides leaves us with less than total conviction on creation *de novo*. This puts him in what some would consider an embarrassing position. Because belief in creation is one of the foundations of the Law (*GP* 2.25), it follows that according to Maimonides, one of the foundations of the Law can only be known with presumptive certainty. I remarked earlier that from the time the *Guide* was published, there were scholars who questioned whether he was committed to creation *de novo* at all.<sup>12</sup> Though Aquinas' commitment to creation *de novo* is total, he has to invoke what he himself characterizes as a supernatural form of cognition to explain it.

<sup>&</sup>lt;sup>12</sup> See n. 9 above.