

Aquinas's Third Way as a Reply to Stephen Hawking's Cosmological Hypothesis

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Introduction: What Do Aquinas's Five Ways Have to Do With Physics?

With the publication in 2010 of books like Stephen Hawking's *The Grand Design* and Robert J. Spitzer's *New Proofs for the Existence of God*,¹ the question of whether natural science is required to demonstrate (or can in fact contribute anything to demonstrating) the existence of God is highlighted once again and in a very vivid manner. Spitzer's five "new proofs" may be seen as reformulations of the Five Ways of Thomas Aquinas.² While he does

¹ Stephen Hawking and Leonard Mlodinow, *The Grand Design* (New York: Bantam, 2010) – hereafter referred to as *Grans Design*; Robert J. Spitzer, *New Proofs for the Existence of God: Contributions of Contemporary Physics and Philosophy* (Grand Rapids, Michigan: Eerdmans, 2010) – hereafter referred to as *New Proofs*.

² In teaching my PHIL 304 seminar at Redeemer Pacific College in Spring 2011, I have analyzed Spitzer with my students in this fashion: The First Way is the primary focus of his third chapter (with its talk of condition and conditioned, because act *asymmetrically* conditions potency); the Second Way is the primary focus of his first chapter (considering the Big Bang as an efficient cause event in any possible universe); the Third Way is the primary focus of his fifth chapter (with its analysis of time as functioning as a kind of material causality correlative to the configurations of a changing universe); the Fourth Way is the primary focus of his fourth chapter (considering how intelligence marks the highest degree of actuality of form in an ordered universe of forms); the Fifth Way is the primary focus of his second chapter

not present them as such,³ they nevertheless may be seen to amount to ways that strengthen various premises and arguments of St. Thomas' *causal analyses* of being. This becomes clear when Spitzer's project is seen in light of Thomas Joseph White's exegesis of St. Thomas's natural theology in his recent book *Wisdom in the Face of Modernity*,⁴ which emphasizes (unlike Gilson, Maritain, or Rahner) the prime importance of the causal analysis of substance and accidents, and of potency and act, for rightly understanding natural theology. In passing, White notes that one possible interpretation of the Five Ways, which would view them in the appropriate light of causal analysis, is to see the First Way as proceeding from material causality, the Second from efficient causality, the Third from the contingency of formal causality, the Fourth from exemplary formal causality, and the Fifth from teleology (i.e., final causality).⁵

Yet White disagrees with the "River Forest" approach from natural science to metaphysics favored by Benedict Ashley in *The Way toward Wisdom*,⁶ and for which Spitzer's book seems to indirectly furnish fresh

(with its analysis of how universal constants condition a low entropy universe in which interesting teleology is possible, i.e., our actual universe). Cf. C.S. Morrissey, "Fr. Spitzer is antidote to faulty logic," *The B.C. Catholic* (Oct 4, 2010): 6; Web version online at:

<<http://bccatholic.org/opinion-and-editorial/221-new-proofs-for-gods-existence-priest-takes-on-stephen-hawkings-faulty-logic>>.

³ He merely notes the precedent and the affinities; cf. Spitzer, *New Proofs*, p. 7, p. 9, p. 47 n. 2, p. 110, p. 116 n. 5, p. 121 n. 6, p. 124 n. 10, p. 130 n. 14, p. 135 n. 15, p. 138 n. 18, p. 141 n. 20, p. 143 n. 21, p. 177-179, p. 227, p. 243 n. 3, p. 250.

⁴ Thomas Joseph White, *Wisdom in the Face of Modernity: A Study in Thomistic Natural Theology* (Ave Maria, Florida: Sapientia Press, 2009) – hereafter referred to as *Wisdom*.

⁵ See *Ibid.*, 168. For an excellent overview of these traditional distinctions (which extend causality beyond merely four causes, see John Deely, *New Beginnings: Early Modern Philosophy and Postmodern Thought* (Toronto: University of Toronto Press, 1994), pp. 157-178.

⁶ Cf. Benedict Ashley, *The Way toward Wisdom: An Interdisciplinary and Intercultural Introduction to Metaphysics* (Notre Dame, Indiana: University of Notre Dame Press, 2006), pp. 92-101 – hereafter referred to as *Way*. White objects that this is the approach of Averroes and not Aquinas; cf. White, *Wisdom*, pp. 76-80, 204-216. White seems to favor the approach articulated by Lawrence Dewan in "St. Thomas, Physics, and the Principle of Metaphysics," *The Thomist* 61 (1997): 549-566. Ashley has a concise reply to Dewan not just in his book but also in the "Addendum" at the end of his paper, "The Validity of Metaphysics: The Need for a Solidly Grounded Metaphysics," given at the Summer 1999 Thomistic Institute held at the University of Notre Dame and archived online at: <<http://www2.nd.edu/Departments/Maritain/ti99/ashley.htm#addendum>>. For

arguments (because Spitzer's first two chapters begin with what Spitzer identifies as two physical proofs, and then the next three chapters proceed with what he identifies as metaphysical proofs). But allow me to suggest a response to White's reservations that is inspired by Scott MacDonald's analysis of the full integrity of the First Way as ultimately "parasitic" upon a missing part of the proof.⁷

In short, I propose that the last four ways are all parasitic on the First Way. In effect, MacDonald's formulation has it backwards: the First Way is not parasitic, but rather *all of metaphysics* must be parasitic upon the First Way and its discovery of immaterial being. Thus, the first steps into natural theology are by way of a causal analysis of potency and act; and since there are four causes, then there are four more ways. The First Way argues *physically*, i.e., from our universe, but the other four ways use causal analysis to argue *metaphysically*, i.e., about any possible universe that has its prime matter ruled by a First Immobile Mover.⁸

What the First Way may lack (not physically, but metaphysically) is perhaps best seen by considering the controversy over whether the *Summa Theologiae's* Third Way (a temporal argument apparently "predicated on the impossibility of eternal matter") is a different and weaker argument than "the argument from the contingent existence of material things" in the *Compendium of Theology* (I, 6) and the *Summa contra Gentiles* (I, 15).⁹ I would say the argument in those three texts is essentially the same, but I will refrain for the moment from establishing that point with the requisite detailed

a summary of the "River Forest" approach, see Benedict Ashley, "The River Forest School and the Philosophy of Nature Today," in *Philosophy and the God of Abraham: Essays in Memory of James A. Weisheipl, OP*, ed. James Long (Toronto: Pontifical Institute of Mediaeval Studies, 1991), pp. 1-15.

⁷ Scott MacDonald, "Aquinas's Parasitic Cosmological Argument," *Medieval Philosophy and Theology* 1 (1991): 119-155.

⁸ As Benedict Ashley has put it to me, in *Physics* VIII Aristotle proves that the First Mover must be the first efficient cause of motion in our universe, but *Metaphysics* XII proves from final causality that the First Mover must be the cause of motion in any universe; in other words, the former is a physical proof *from creatures*, the latter a metaphysical one *from the nature of the Creator*. (I verified this verbal formulation with Fr. Ashley at the 2007 American Maritain Association conference; the italics in this footnote indicate his qualifications as he emphasized them to me.)

⁹ The contrast is made in remarks by Richard Regan in the introduction to his translation of Aquinas's *Compendium of Theology* (Oxford: Oxford University Press, 2009), pp. 9-10 – hereafter referred to as *Compendium*.

philological analysis.¹⁰ Such a treatment first requires a preparatory outline that discerns the four causes at the basis of the final four Ways, and it is this outline which I will now set forth.¹¹

In response to the approaches of Spitzer, White, and Ashley, I propose an integrated model of how they each may be seen as helping us appreciate the Five Ways in relation to a causal analysis of substance and accidents, act and potency. Spitzer shows how physics itself prepares for metaphysical analysis by pushing physics to its limits; White shows how metaphysical analysis is above all concerned with this project of causal analysis which we first learn about in physics; and Ashley affirms how metaphysics can do cogent causal analysis only if it first gets its principles from physics.¹² My thesis is that not only is the extension of the First Way into the Third Way made possible by the First Way's discovery of separated being by metaphysics, but also that any similar metaphysical extension is likewise parasitic upon physics. In other words, because the First Way discovers separated being with a physical proof, as Ashley has described,¹³ then the next four ways are each metaphysical proofs that *presuppose and are parasitic upon the First Way*. That is, they cannot be understood as being demonstrative unless they are each understood properly, i.e., in light of the distinctions of the First Way about potency and act—the distinctions which (founded on the basis of physical observation) prove that immaterial being must exist. The other four

¹⁰ See instead my textual study of the three arguments as given below, in those sections following later after my brief discussion (immediately following this Introduction) of the Five Ways.

¹¹ In what follows below, my summary will include what I think an authentic understanding of the argument of the Third Way must be. The reader may then verify for himself that this argument is essentially what is argued in each of the three texts which I shall treat later on below.

¹² See Ashley, *Way*, pp. 120-124; *cf.* White, *Wisdom*, p. 79 n. 29. Where I myself would disagree with Ashley is that I do not think that the most important observation about the first three ways is that each are using efficient causality but with varying emphases (Ashley, *Way*, pp. 100-101). In a way, they do, but only in this sense: the First Way, inspired by observations of causality in our universe, but most especially efficient causality (which is the most obvious and most easily illustrated of the four types), distinguishes potency and act and then thinks through that distinction right to its logical conclusion, viz., the First Immobile Mover; the Second Way considers this analysis from the point of view of efficient causality proper, as it might function in any possible universe; and the Third Way (*pace* Ashley, *Way*, pp. 421-422) uses the *absence* of material causality in the First Immobile Mover to draw conclusions about the function of contingency in any universe.

¹³ See Ashley, *Way*, p. 97.

ways each deepen our knowledge about the First Way's First Immobile Mover by looking at him from the perspective of each of the four causes: the Second Way from efficient causality, the Third Way from material causality, the Fourth Way from formal causality, and the Fifth Way from final causality. So I think MacDonald is right to sense that a physical proof is not the last word metaphysically. But with Ashley, I would want to say that only metaphysics can scientifically complete what only physics can scientifically begin.

Let me now summarize, then, how the First Way physically establishes what the other four ways consider metaphysically, when they extend its insights (via causal analysis) into any possible universe that is likewise divided by potency and act. Seen in light of the First Way, it becomes possible to understand the other ways rightly, as demonstrative and thoroughly convincing.¹⁴

The First Way: An Argument from Physical Premises

Pace MacDonald, the First Way is not “parasitic” on another proof,¹⁵ because its physical proof, on the basis of observed potency and act, is able to first establish the existence of immaterial being on the basis of the evidence of this manifest universe.¹⁶ Only then can the nature of this immaterial being be approached from the different angles or aspects to which the four causes give us access. The last four ways are thus metaphysical proofs that extend the principles of potency and act, discovered in the physical world, into the metaphysical realm, by using the explanatory aspects of the four causes to think causally about Pure Act in relation not only to this universe but also to all other possible universes.

The Second Way: Efficient Causality from the Standpoint of a Real Distinction

Against the commentatorial tradition, Feser agrees with Gilson that the Second Way is the argument about essence and existence from *De ente et essentia* Chapter 4, and not an efficient cause proof made from a different angle.¹⁷ But I argue instead that it extends the argument from potency and act

¹⁴ In what follows below I will conveniently refer to Edward Feser's highly accessible and largely successful attempts to clear up misunderstandings about what the Five Ways are really arguing.

¹⁵ Edward Feser, *Aquinas: A Beginner's Guide* (One world Publications, 2009), pp. 74-76 – hereafter referred to as *Aquinas*.

¹⁶ Cf. Ashley, *Way*, p. 97, for a detailed outline of this physical proof.

¹⁷ Feser, *Aquinas*, pp. 83-85.

(from principles which actually run through *all* the causes; e.g., the First Way can be brought to bear upon both efficient and formal causality)¹⁸ in this world into all possible worlds, by following the “ways” (*viae*) or “approaches” that are opened up by the four causes for such analogical metaphysical speculation about the divine attributes of a nature that is Pure Act. Thus, the *De ente* argument is not left out of the Five Ways,¹⁹ because the essence and existence distinction is the same as the potency and act argument of the First Way, albeit extended from a physical to a metaphysical key. That is, the last four ways are all “essence and existence arguments” because they extend the potency and act distinction into metaphysical consideration by way of the four causes.

The Third Way: A Game of ‘Hot Potato’ that Shows the Genie is Out of the Bottle

Aquinas is not guilty of a “quantifier shift” fallacy, because the Third Way proceeds from the angle of material causality: that is, it does not consider that there is “nothing” at some point in the sempiternal universe;²⁰ it is highlighting, first, that *ex hypothesi*, in a sempiternal universe, there is indeed always potency (which is not nothing), and second, that without any absolute necessity, to then admit relative degrees of necessity and contingency is irrational, because any search for higher degrees of necessity (e.g., the law of gravity in this universe, as a necessity implied by any contingent activity in this universe that circulates some actuality, like a game of ‘hot potato’) cannot in principle be limited to stopping at some higher mixture of necessity and contingency (e.g., the laws of M-theory, which condition all possible universes, including this one, in which the law of gravity permits a local stability for activities, like a local game of ‘hot potato’).²¹ In this sense, then, any admixture of potency in the universe points to the need for a higher, absolutely unconditioned principle that explains why that admixture of potency is *not the sole fundamental structural principle* that runs throughout the entire sempiternal history of the universe.

¹⁸ Cf. Norman Kretzmann, *The Metaphysics of Theism: Aquinas’s Natural Theology in Summa Contra Gentiles I* (Oxford: Clarendon Press, 1997), p. 61 n. 19 – hereafter referred to as *Theism*.

¹⁹ Pace Feser, *Aquinas*, p. 86.

²⁰ Kretzmann, *Theism*, pp. 79-80, points out that “sempiternal” is a useful technical term meaning “beginningless.” Cf. *ibid.*, pp. 64-83, for a rigorous, detailed analysis.

²¹ Aquinas’s Third Way is thus supremely relevant to showing how unfinished the argument is that is propounded in Hawking, *Grand Design*, pp. 134-181.

In other words, any so-called “god particle” (like the Higgs boson sought after by physicists)²² involves some relatively constant contingency, but only God can be the absolute necessity to which that particle is inevitably relative. This is the sense of Aquinas' *ex hypothesi* argument in the Third Way that “there is some time at which only potency exists” (*aliquando nihil fuit in rebus*): namely, that it is potency alone that is *fundamentally structural and sempiternal* in a universe of relatively contingent things (i.e., relative to some higher laws, at least for a time);²³ but if this hypothesis is denied, then that denial is what achieves the demonstration, because once it is affirmed that at least there is always *some* act circulating in the history of the universe (in its various games of ‘hot potato’), then the principle of potency is relatively conditioned by the relative necessity imposed on it by that act.²⁴

And once this genie of relative degrees of necessity and contingency is let out of the bottle, then there is no avoiding the conclusion that there is an absolute necessity to which all these degrees are relative. Because, seen in the light of the First Way, the constant source of actuality for any act at any time of the universe's history must be Pure Act, and this is the other half of the dichotomy that follows once we have ruled out the possibility that at one time there is only potency and that potency alone is the only constant principle of a sempiternal universe. That half of the dichotomy must be ruled out, because otherwise there can be no causal explanation of the activation of motion from potencies *in terms of relative degrees of necessity and contingency*, which is a manifest fact in this universe and therefore the analogical causal thread by which we may reason about necessity and contingency as it must flow from the nature of Pure Act in all possible universes.

²² Cf. Leon Lederman, *The God Particle: If the Universe Is the Answer, What Is the Question?* (New York: Bantam Doubleday Dell, 1993).

²³ Thus it is not the possibility of “eternal matter” that is being entertained *ex hypothesi* (cf. Regan, in *Compendium*, pp. 9-10) so much as it is *the correlativity to act* that such sempiternal matter would entail.

²⁴ Thus Mackie's suggestion about a “permanent stock of matter” points in the right direction to achieve an authentic understanding of the Third Way (Feser, *Aquinas*, p. 95). Hence Feser is right to emphasize that the Third Way is proceeding from the hypothesis of a sempiternal universe (*Ibid.*, pp. 96-99). The fact that Aquinas believes this hypothesis not to be true is beside the point; the point is that such a *metaphysical* application of the essence and existence distinction *to the material causality in all possible universes* is an analogical extension of the First Way into potency conceived metaphysically, i.e., in terms of what any metaphysical hypothesis of a “permanent stock of matter” must require in light of the requisite analogical extension of the physical principles of potency and act to such a consideration.

The Fourth Way: Structural Asymmetry in the Correlativity of Potency and Act

The key to understanding the fourth way is to see it in light of Thomistic Thesis IX,²⁵ which highlights the fact that every creature is, at the most fundamental level, a composite of correlative principles of being (and these principles have to be transcendental because a univocal classification is not fundamental enough, unless reductively, i.e., to a substantial principle).²⁶ As Feser notes, the Fourth Way reasons from the fundamental intrinsic structure of form in created composites: “to the extent that these *transcendental* features of the world come in degrees, they must be traceable to a maximum”;²⁷ and this is because the transcendental features of creatures are *marked by a structural asymmetry* on the most fundamental level. This asymmetry, in which act can activate potency, but not vice versa, points to Pure Act at the top of the hierarchy. Anything less at the top would be irrational, i.e., there would be *no causal explanation* of the asymmetrical act in that correlative composite. Because it cannot arise from below, it can only flow from above, from Pure Act.

The Fifth Way: The Dynamism of Act in the Structural Asymmetry

The Fifth Way proceeds not from extrinsic Intelligent Design but from the intrinsic teleology that governs causality from all angles: namely, the final cause to which all dynamism of form tends, which is limited only by the potency *intrinsically* correlative to that form, or by an *extrinsic* efficient cause that interacts with it (destroying or modifying it). Because this “cause of causes” determines other causes,²⁸ “the vast system of causes that constitutes

²⁵ See Sacred Congregation of Studies, July 27, 1914 (*cf.* Pope Pius X, *Motu Proprio Doctoris Angelici*, June 29, 1914): *Acta Apostolicae Sedis*, VI (1914), 383-386; *cf.* *Acta Apostolicae Sedis*, VII (1916), 157-158.

²⁶ Thesis IX states: *Earum partium neutra per se esse habet, nec per se producitur vel corrumpitur, nec ponitur in praedicamento nisi reductive ut principium substantiale*. My expansive translation is: “Neither one of the correlative parts in creatures (existence and essence, substance and accidents, or form and matter) contains be-ification (*esse*, i.e., the act of existence) essentially (i.e., on its own). Neither part is produced or corrupted essentially (i.e., on its own). Neither part may be classified univocally in a category, unless we realize that it is only done so reductively, i.e., under the substantial principle (*viz.*, the actual form giving unity to the parts).” Note that “be-ification” is my neologism for achieving a truly adequate translation of *esse*. It appears here in print for the first time.

²⁷ Feser, *Aquinas*, 105.

²⁸ See *Ibid.*, 118.

the physical universe”²⁹ bears witness, by the order that organizes their hierarchy of ends, to a Supreme Intelligence,³⁰ because relative order points to absolute order, due to the fundamental asymmetry between potency and act discovered in the First Way. In other words, intellect and will are high degrees of act. The highest degree of act, Pure Act, must then possess their perfection, and then even more so, to an infinite degree. In other words, intelligent order has higher actuality than unintelligent actuality. The final causes that are higher up in the hierarchy of final causes, then, are more and more intelligent. It is this hierarchy of intelligibility built in to creatures (by way of actuality, which imposes an order of intelligibility or purpose on things, propelling them towards the full activation that “final causality” names) that is relative to an absolute, insofar as all act is conditioned by Pure Act. Thus the “intelligible design” immanent in the relative order visible in this universe (not “intelligent design,” which clumsily tries to reason *directly* to an outside source) allows us to extend the path of final causality into all possible universes when we realize that the Pure Act discovered in the First Way is (considered from the standpoint of final causality) absolutely intelligible, and therefore the transcendent prime cause of the immanent actuality driving the network of final causes within *any* universe.

A Game of Scrabble: How to Appreciate the Contributions of Stephen Hawking

In Hawking’s cosmological model, there is no sharply defined beginning to our universe. Even so, we must admit that there is a difference between beginning and origin. You can start a process of change off: you can light a firecracker; and something happens next. In Aristotelian terms, this is called efficient causality: you kick off the process.³¹ But we can consider origin as something quite different from such a beginning, and I want to pursue this distinction with the help of Hawking’s contributions to the theoretical modeling of our universe, because those contributions are not negligible.

To understand Hawking’s interesting thoughts, I want to propose an analogy. A lot of people play a game called Scrabble. What language do you play Scrabble in? You may put the word down on the board; but how do you settle a dispute in the game? You go to the Scrabble dictionary. Well, what is

²⁹ See *Ibid.*, 117.

³⁰ See *Ibid.*, 120.

³¹ I use the firecracker image as my example because it is the very image used by Hawking in the widely-reported comments of his *Grand Design* using British idiom: “It is not necessary to invoke God to light the blue touch paper and set the universe going.” (p. 180)

the Scrabble dictionary? It is in English. Webster's is the official Scrabble dictionary.³² Well, this resembles how modern science works. Modern science is like playing English language Scrabble according to the official Scrabble dictionary. You do it with constrained parameters; that's how it is done. If this is all that you say you can do ("This is the only way to play Scrabble! You can't play Scrabble in any other language! English only! Webster's only!"), then that is analogous to logical positivism. It may work very well. It keeps the fighting to a minimum over the Scrabble board about the words that are allowed. The game gets played. Things move along. But in principle there is no reason why we have to restrict ourselves to playing English language Scrabble. And similarly there is no reason why we have to constrict ourselves to doing things only by the method of modern science (which is: Can it be measured? Can it be quantified? Can it be reproduced? Can you write an equation to make predictions that turn out to be reliable? Accurate?)

In this light, consider Hawking's new book. A common criticism has been that he does physics very well but not theology. The gist of the criticism is: He is not that well read in the theological tradition. And his claims that science does not need God are dodgy. He is not working in his field, so he should just leave the business of the God talk to the theologians, to the people who know theology and philosophy, and he should stick to his mathematical equations and the modern scientific method.³³ Well, I can understand this point, but I find it very unsatisfying and very inadequate, maybe because I started off as a physicist. I think Stephen Hawking is doing something important, so I want to try and give a charitable interpretation of what he is proposing; that is, he is saying something very interesting that I think can be understood as compatible with more traditional theological or philosophical analyses. To bring this back to the Scrabble game analogy: Stephen Hawking is just playing English language Scrabble, and he is a very good player. So it does no good to say to him, "Look, dummy, you don't know how to play

³² See *The Official Scrabble Players Dictionary*, Fourth Edition (Merriam-Webster, 2005).

³³ Cf. Edward Feser's review of *Grand Design*, "Mad Scientists," *National Review* (November 29, 2010), 54-55. Even physicists have objected that many of Hawking's recent claims are inappropriately philosophical; cf. the review by Roger Penrose in the *Financial Times* (September 4, 2010). Physicists and philosophers alike seem to agree that Hawking is out of his depth with many of his claims: cf. also William Carroll, "Stephen Hawking's Creation Confusion," *The Public Discourse* (September 8, 2010), and Stephen M. Barr, "Much Ado About 'Nothing': Stephen Hawking and the Self-Creating Universe," *First Things: On the Square* (September 9, 2010).

Latin Scrabble. That's my domain, so just shut up. You're not competent to do that." It's much better to point out, rather, that English is made up of one-third Latin. The roots of a lot of words that are there in the English language come from the Latin language. They are connected.

So I am glad that Hawking does what he does, because there *is* a connection between what he does and what theology and philosophy do. It is not an entirely separate field. So let us look for the connections. In particular, I think there is a connection with Hawking's cosmology and the theory that was considered by Aquinas about a sempiternal universe. When I speak of "sempiternal," I am following Norman Kretzmann in using this as a more precise way of talking about what is usually called an "eternal" universe.³⁴ "Eternal" is more properly spoken of as belonging to God alone. What people mean when they talk of an "eternal" universe is that it has always been there: there is no beginning. And this is Stephen Hawking's theory: we do not need God to kick off a beginning of the universe. Well, I would say that this hypothesis has been considered before, and Aquinas is our best resource to understand how it need not contradict the achievements of Latin language Scrabble, which appreciate that there is a path to understanding how God is active in the world as origin even if there is no beginning to this universe.

One of the key points that Thomas makes is "*creatio non est mutatio*": "creation is not a change." This is creation in a technical sense, as opposed to loose ways of speaking: "I'm going to create breakfast"; "I'm going to create a clogged sink, with my hair." Well, strictly speaking, that is not creation. The technical sense of creation is of "something that comes out of nothing." Now, it is a rarefied point. It is what theologians mean when they say it is proper to God alone to create out of nothing. Well, to scientists playing English language Scrabble, that sort of fine Latin distinction does not make much sense. When they use the word "creation," they simply mean, "change." But before we can get to the theological distinction, of what is knowable by theology on the basis of philosophical analysis, let us just talk about change. So we will go along provisionally with Hawking's loose use of the word "creation" and just make a mental note: what he is talking about is change.

How Aquinas Already Addresses Hawking's Argument in the Third Way

But consider now three excerpts below from Aquinas, to see how he has already engaged with the essential hypothesis of Hawking's model of the

³⁴ See Kretzmann, *Theism*, pp. 79-80.

universe. These are three arguments Thomas makes demonstrating God's existence. You can see, wherever the text is in boldface, what is common to all three arguments. Note that the three Latin texts are, on my reading, making exactly the same argument, a point which I try to establish here formally and philologically by highlighting in boldface the common words in each of the arguments. "W3" below is the famous Third Way from the *Summa Theologiae*.³⁵ "G6" below (which is Norman Kretzmann's numbering in *The Metaphysics of Theism*) comes from the *Summa contra Gentiles*.³⁶ And "CT6" below is chapter six from Thomas' *Compendium of Theology* (written at the end of his life).³⁷ I break each argument into three phases, to show how in each place Aquinas argues (1) from *possibilia*, (2) to *necessaria*, (3) to the *per se necessarium*:

Phase 1: Possibilia

W3: Phase 1

The third way is taken from possibility and necessity, and runs thus. We find in nature things that are possible **to be and not to be**, since they are found to be generated, and to corrupt, and consequently, they are possible **to be and not to be**.

G6: Phase 1

We find in the world, furthermore, certain beings, those namely that are subject to generation and corruption, which can **be and not-be**. But what can be has a cause because, since it is equally related to two contraries, namely, **being and non-being**, it must be owing to some cause that being accrues to it.

CT6: Phase 1

Everything that has a possibility of **being and of not being**, needs something else to make it be, for, as far as it itself is concerned, it is indifferent with regard to either alternative.

Phase 1: Latin text

W3: Phase 1

³⁵ Thomas Aquinas, *Summa Theologica, Volume I*, trans. Fathers of the Dominican Province (Westminster, Maryland: Christian Classics, 1981 [1920]), p. 13. (W3 = ST I, 2, 3)

³⁶ Thomas Aquinas, *Summa contra Gentiles, Book One: God*, trans. Anton C. Pegis (Notre Dame: University of Notre Dame Press, 1975 [1955]), pp. 98-99. (G6 = ScG I, 15.5=15.124)

³⁷ Aquinas, *Compendium*, trans. Regan, pp. 20-21. (CT6 = CT I, 6)

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Tertia via est sumpta ex possibili et necessario, quae talis est. Invenimus enim in rebus quaedam quae sunt **possibilia esse et non esse**, cum quaedam inveniantur generari et corrumpi, et per consequens **possibilia esse et non esse**.

G6: Phase 1

Videmus in mundo quaedam quae sunt **possibilia esse et non esse**, scilicet generabilia et corruptibilia. Omne autem quod est **possibile esse**, causam habet: quia, cum de se aequaliter se habeat ad duo, scilicet **esse et non esse**, oportet, si ei approprietur esse, quod hoc sit ex aliqua causa.

CT6: Phase 1

Omne quod est **possibile esse et non esse**, indiget aliquo alio quod faciat ipsum esse: quia quantum est in se, se habet ad utrumque.

Phase 2: Necessaria

W3: Phase 2

But it is impossible for these always to exist, for that which is possible not to be at some time is not. Therefore, if everything is possible not to be, then at one time there could have been nothing in existence. Now if this were true, even now there would be nothing in existence, because that which does not exist only begins to exist by something already existing. Therefore, if at one time nothing was in existence, it would have been impossible for anything to have begun to exist; and thus even now nothing would be in existence—which is absurd. Therefore, not all beings are merely possible, but **there must exist something the existence of which is necessary**.

G6: Phase 2

Now, as we have proved by the reasoning of Aristotle, one cannot proceed to infinity among causes. **We must** therefore posit **something** that is **a necessary being**.

CT6: Phase 2

But that which causes another thing to be, is prior to that thing. Hence something exists prior to that which has the possibility of being and of not being. However, nothing is prior to God. Therefore it is impossible for Him to be and not to be; of **necessity**, He **must be**.

Phase 2: Latin text

W3: Phase 2

Impossibile est autem omnia quae sunt, talia esse, quia quod possibile est non esse, quandoque non est. Si igitur omnia sunt possibilea non esse, aliquando nihil fuit in rebus. Sed si hoc est verum, etiam nunc nihil esset, quia quod non est, non incipit esse nisi per aliquid quod est; si igitur nihil fuit ens, impossibile fuit quod aliquid inciperet esse, et sic modo nihil esset, quod patet esse falsum.

Non ergo omnia entia sunt possibilis, sed **oportet aliquid esse necessarium** in rebus.

G6: Phase 2

Sed in causis non est procedere in infinitum, ut supra probatum est per rationem Aristotelis. Ergo **oportet** ponere **aliquid** quod sit **nesse esse**.

CT6: Phase 2

Quod autem facit aliquid esse, est prius eo. Ergo omni quod est possibile esse et non esse, est aliquid prius. Deo autem non est **aliquid** prius. Ergo non est possibile ipsum esse et non esse, sed **nesse** est eum **esse**.

Phase 3: Per Se Necessarium

W3: Phase 3

But every necessary thing either has its necessity caused by another, or not. Now it is impossible to go on to infinity in necessary things which have their necessity caused by another, as has been already proved in regard to efficient causes. **Therefore** we cannot but **postulate** the existence of some being **having of itself its own necessity**, and not receiving it from another, but rather causing in others their necessity. This all men speak of as God.

G6: Phase 3

Every necessary being, however, either has the cause of its necessity in an outside source or, if it does not, it is necessary through itself. But one cannot proceed to infinity among necessary beings the cause of whose necessity lies in an outside source. We must therefore posit a first necessary being, which is necessary through itself. This is God, since, as we have shown, He is the first cause. God, therefore, is eternal, since whatever is necessary through itself is eternal.

CT6: Phase 3

And since there are some necessary things **that have a cause of their necessity**, a cause that must be prior to them, God, who is the first of all, has no cause of His own necessity. Therefore it is **necessary** for God to be **through Himself**.

Phase 3: Latin text

W3: Phase 3

Omne autem necessarium vel habet causam suae necessitatis aliunde, vel non habet. Non est autem possibile quod procedatur in infinitum in necessariis quae habent causam suae necessitatis, sicut nec in causis efficientibus, ut probatum est. **Ergo** nesce est **ponere** aliquid **quod** sit **per se necessarium**, non habens causam necessitatis aliunde, sed quod est causa necessitatis aliis, quod omnes dicunt Deum.

G6: Phase 3

Omne autem necessarium vel habet causam suae necessitatis aliunde; vel non, sed est per seipsum necessarium. **Non est autem procedere in infinitum in necessariis quae habent causam suae necessitatis** aliunde. Ergo oportet **ponere** aliquod primum necessarium, **quod** est **per seipsum necessarium**. Et hoc Deus est: cum sit causa prima, ut ostensum est. Est igitur Deus aeternus: cum omne necessarium per se sit aeternum.

CT6: Phase 3

Et quia aliqua necessaria sunt **quae suae necessitatis causam habent**, quam oportet eis esse priorem; Deus, qui est omnium primum, non habet causam suae necessitatis: unde Deum esse **per seipsum** est **necesse**.

Where I have the words in boldface in the English, Thomas is using the exact same words in Latin (you may compare that this is so by referring to the boldface words in the Latin), even though these three arguments are from three different places. I have also broken each argument down into three essential phases; this shows the common thrust of what is being reasoned about in terms of possible things (*possibilia*) and necessary things (*necessaria*). The scholarly controversy here is over whether Thomas is in fact making the same argument demonstrating God's existence in these three different places. I maintain that he is, because the boldface text clearly shows the commonality found *lexically* in the argument in all three different places. In each argument, I have also broken down the essential reasoning into its three phases. In each of these three texts, Thomas is making an argument that moves in three phases (from *possibilia*, to *necessaria*, to the *per se necessarium*).³⁸ And I find this particular three-phase argument of particular

³⁸ The three phases may also be thought of as two syllogisms: i.e., phases one and two establish the first two premises; then the conclusion drawn from them is subsequently combined with a third premise, to draw the second and final conclusion. [Phase 1, Minor Premise 1:] "Changeable things have various possibilities with regard to their existence." [Phase 2, Major Premise 1:] "But various possibilities with regard to existence are relatively (i.e., without infinite regress) dependent on whatever necessity proximately and asymmetrically conditions their possibility." [Conclusion 1 from Phases 1 and 2, which becomes Minor Premise 2 in Phase 3:] "Therefore changeable things are relatively (i.e., without infinite regress) dependent on whatever necessity proximately and asymmetrically conditions their possibility." [Phase 3, Major Premise 2:] "Whatever is relatively (i.e., without infinite regress) dependent on whatever necessity proximately and asymmetrically conditions its possibility, can trace the source of change along a *per se* causal series back to a *per se necessarium*." [Phase 3, Conclusion 2:] "Therefore changeable things can trace the source of change along a *per*

interest because it can address any cosmological model that concerns a sempiternal universe, like that of Hawking.

Aquinas would relish the sort of discussion that Hawking proposes, because, as Aquinas says in the *Prima Pars* of the *Summa Theologiae* (q. 46, a. 2), that the world has a beginning is something we can know only because it is revealed to us. It is not something that can be demonstrated, and known by science. We “do well to keep this in mind,” writes Thomas; “otherwise, if we presumptuously undertake to demonstrate what is of faith, we may introduce arguments that are not strictly conclusive,” and this would give unbelievers an opportunity to laugh at us, because they would think that we assent to truths of faith on the grounds of bad arguments.³⁹

Not ‘Nothing’: Various States of Possibility

In contrast with bad arguments stands Aquinas’s solid, three-phase argument. It is the argument that I maintain is the same argument given in the slightly varying versions in W3, G6, and CT6. Aquinas holds that we can know that the universe had a beginning only if God reveals this to us. Otherwise, it is unknowable by reason. We can have a cosmology that has a beginning in time, or not. But that cosmology is very likely never going to be conclusive,⁴⁰ because whoever comes up with a model for a beginning of time can be subject to critiques.⁴¹ Someone else can say, aha, I have a mathematical model that shows there are cycles of time, and what is a beginning here is

se causal series back to a *per se necessarium*.” (I would note in passing how this “Third Way” argument is implicitly dependent on the “First Way”: viz., it assumes that necessity *asymmetrically* conditions the proximate possibilities.)

³⁹ Aquinas, *ST* I, 46, 2: “That the world had a beginning is believable by faith, but it is not known by demonstration in the scientific sense. And we would do well to keep this in mind; otherwise, if we presumptuously undertake to demonstrate what is knowable only by faith, then we may introduce arguments that are not strictly conclusive; and this would furnish unbelievers with an occasion for justly ridiculing us, as they would think that we believe in the truths of faith on the grounds of inconclusive arguments.” (*Unde mundum incoepisse est credibile, non autem demonstrabile vel scibile. Et hoc utile est ut consideretur, ne forte aliquis, quod fidei est demonstrare praesumens, rationes non necessarias inducat, quae praebeant materiam irridendi infidelibus, existimantibus nos propter huiusmodi rationes credere quae fidei sunt.*) My translation, modifying that of the Fathers of the Dominican Province (1920).

⁴⁰ Cf. Spitzer, *New Proofs*, pp. 177-215, on the high probability of finite past time given current cosmological knowledge.

⁴¹ Cf. “The big bounce,” *National Post* (October 4, 2008), pp. A1, A13.

actually a continuation of what came before.⁴² But, either way, whether you have a beginning in time or not, Thomas points out that reason can know *the fact of creation*. That is, reason can know God's contribution, either at the beginning of the universe, or maintaining it, conserving it in existence, even throughout the existence of a sempiternal universe. Either way, he is the ultimate origin. And this, I think, is relevant to the claims of Hawking. Because what Hawking's model is proposing is that, in a way, the universe is sempiternal. That is, the universe as we know it *arises out of a state of possibility*. And this we know from the observations of natural science, which has validated quantum mechanics to a degree of astonishing accuracy.⁴³

As Aquinas puts it, in the first phase of his argument above, "Everything that has a possibility of being and of not being, needs something else to make it be, for, as far as it itself is concerned, it is indifferent with regard to either alternative."⁴⁴ More famously, in the Third Way he says: "The third way is taken from possibility and necessity, and runs thus. We find in nature things that are possible to be and not to be, since they are found to be generated, and to corrupt, and consequently, they are possible to be and not to be."⁴⁵

What does this first phase of the argument establish? I think it is at its clearest in *Summa contra Gentiles* 15: "We find in the world, furthermore, certain beings, those namely that are subject to generation and corruption, which can be and not-be. But what can be has a cause because, since it is equally related to two contraries, namely, being and non-being, it must be owing to some cause that being accrues to it."⁴⁶

So, amongst all the possibilities, there is cause for change. As Hawking puts it, "Spontaneous creation is the reason there is something rather than nothing".⁴⁷ Now, in a way, this is provocative language, baiting the

⁴² Cf. Roger Penrose, *Cycles of Time: An Extraordinary New View of the Universe* (New York: Alfred A. Knopf, 2010).

⁴³ Cf. Hawking, *Grand Design*, pp. 70-82.

⁴⁴ CT6, Phase 1: *Omne quod est possibile esse et non esse, indiget aliquo alio quod faciat ipsum esse: quia quantum est in se, se habet ad utrumque.* (CT I, 6)

⁴⁵ W3, Phase 1: *Tertia via est sumpta ex possibili et necessario, quae talis est. Invenimus enim in rebus quaedam quae sunt possible esse et non esse, cum quaedam inveniuntur generari et corrumpi, et per consequens possible esse et non esse.* (ST I, 2, 3)

⁴⁶ G6, Phase 1: *Videmus in mundo quaedam quae sunt possible esse et non esse, scilicet generabilia et corruptibilia. Omne autem quod est possibile esse, causam habet: quia, cum de se aequaliter se habeat ad duo, scilicet esse et non esse, oportet, si ei approprietur esse, quod hoc sit ex aliqua causa.* (ScG I, 15.5=15.124)

⁴⁷ Hawking, *Grand Design*, p. 180. (Quantum cosmology thus addresses itself to what Aquinas calls *possibilia*.)

theologians who will say, “What do you mean when you say ‘spontaneous creation’? How can spontaneous creation be out of nothing?” However, to understand what Hawking means by “creation” is to not take the bait.⁴⁸ We have to see he means “change.” He is not using it in a technical theological sense, because what he is saying is that (from the standpoint of physical science) that theological meaning is inapplicable to the physical considerations he wishes to make. He wants to pin down a more precise scientific meaning in order to describe *change*. In this regard, what can be described with quantum mechanics is “empty space,” which is never truly “empty.”⁴⁹ So, it is not “nothing.” When he talks of “spontaneous creation” coming out of “nothing,” he is speaking poetically as far as scientists are concerned, because what he really means by those words is that, strictly speaking, there is spontaneous change that arises out of *quantum fluctuations*.⁵⁰

So then, if you want to talk about a beginning to the universe that we are in, which is 13.7 billion years old, it arises from “nothing” (in Hawking’s conception, “nothing” being the quantum flux). The key thing to note here is that in a sempiternal universe model, which Hawking’s cosmology is just a variation on, in the beginning there is not “nothing” strictly speaking, because what “nothing” means in a sempiternal universe is: *potency* (possibility). Potentiality is a material cause, from which something actual will arise. And this is the domain mapped out by the first phase of Aquinas’s argument, viz., the domain of *possibilia*.

A Necessary Origin: What the Sempiternal Universe’s Apparent Laws Imply

Well, given that there is that state of potency, what happens next? “Because there is a law like gravity, the universe can and will create itself from nothing,”⁵¹ What he means there (“the universe can and will create itself from

⁴⁸ And who needs to be baited by the taunts of a juvenile atheism? Much better, in charity, to attend to the interesting (not the uninteresting) truth claims offered by our interlocutor. Ignore the taunts; perhaps if you too were physically disabled you would have an understandable emotional complaint with God’s providence. Cf. “Stephen Hawking: ‘There is no heaven; it’s a fairy story,’” *The Guardian* (May 15, 2011).

⁴⁹ Hawking’s carping theological critics are being unfair in insisting that he abide by their technical precisions, because Hawking himself makes clear what he means by his own “spontaneous creation” terminology when he admits that “space is never empty” (Hawking, *Grand Design*, p. 135).

⁵⁰ Cf. *ibid.*, 113.

⁵¹ *Ibid.*, p. 180.

nothing") is that *change* in the universe arises from this quantum fluctuation: *change* is one definite consequence, visible in the universe that we are in.

And what he means by, "Because there is a law like gravity," he explains more clearly in the book: "Because gravity shapes space and time, it allows space-time to be locally stable but globally unstable."⁵² So there are laws of the universe that govern change: this observed inflationary expansion and subsequent evolution of the universe and accelerated expansion. Here Hawking speaks of "the apparent laws of nature," what Aquinas calls *necessaria*.

What we know from general relativity allows us to say this about "the apparent laws of nature" in this universe: because the law of gravity works the way it does, this local stability of our universe can unfold as it does. In his book, Hawking talks about this as just "the apparent laws of nature," because in the quantum flux in the "beginning," there is more than one possibility for what unfolds. His model for what is in the beginning is something that he proposed back in 1983.⁵³ The physics in this book is not so new, but more a reiteration of the model he proposed back in 1983 about the universe being *finite but unbounded*. This is the "no-boundary condition."⁵⁴

The multiverse, writes Hawking, is "a consequence of the no-boundary condition."⁵⁵ All the histories are like closed surfaces without boundaries. If you think of a round sphere, where is the beginning on the sphere? It does not make sense to speak of the "beginning" anywhere. This is how things at the "beginning" of the universe are mathematically modeled by physicists. And this state makes it analogous to the sempiternal universe hypothesis, because you cannot pin down any exact beginning.

So, on this basis, Hawking says that you cannot pin down the exact beginning, and hence there is no need for God, no need for a God to kick off the process, no need for efficient causality. Okay, fair enough. But where God comes into the picture is with the realization that there are different levels of actuality. That is, we realize that with the *apparent* laws of nature in this universe, we must have a "top-down" cosmology,⁵⁶ i.e., something like

⁵² *Ibid.*

⁵³ See J. Hartle and S. Hawking, "Wave function of the universe", *Phys. Rev. D*28, 2960-2975.

⁵⁴ Cf. Spitzer, *New Proofs*, pp. 5, 30-34, 77 n. 6.

⁵⁵ Hawking, *Grand Design*, p. 164.

⁵⁶ The term is Hawking's, and it points to the *higher actualities* that are at the top, so to speak, of the causal order, because they *actually* determine what the *apparent* laws of nature actually will be.

M-theory that considers the possibilities that can unfold in all possible universes.

We are able to treat the universe as being in quantum superposition, observes Hawking.⁵⁷ And what can result from this treatment is that “the apparent laws of nature are different for different histories”;⁵⁸ “the (unobserved) past, like the future, is indefinite,” i.e., the universe has “no single past, or history,”⁵⁹ or independent existence. Because of the solid experimental evidence we already have for quantum mechanics, I actually think this quantum cosmological hypothesis is very promising. And it is not incompatible with the conclusions of traditional theology and philosophy, because there is still room here for an observer later in time, injecting actuality *into the potentiality that was there at the unbounded beginning*. Because that can happen, you still have actuality; it may not have been given “bottom-up” in a “bottom-up” causality, through some kind of efficient causality at a beginning, but it *is* injected by observers “top-down”, as the universe unfolds, as the *origin* of the actuality injected into the potency.

In other words, where there is room for God in Hawking’s “top-down” cosmology, even though he does not realize it, is that *God is still at the top* of that “top-down” injection of actuality. It is not just us as observers that actualize a quantum present, that actualize an actual present from the quantum potentiality, but also God, who is still at the top, giving the very being itself that we bring to bear in our own acts of causality.

God is the First Cause of actuality. What the Third Way adds to the First Way is that it affirms this from the hypothetical standpoint of a *sempiternal* universe (even one finite but unbounded: Hawking’s universe model) and from the hypothetical standpoint of the quantum fluctuations of *any* universe’s potency (but especially that seemingly unthinkable hypothesis of a sempiternal universe’s potency).⁶⁰ Just as the “apparent laws of nature” (the

⁵⁷ Cf. *ibid.*, pp. 58-59, 140-141.

⁵⁸ *Ibid.*, p. 140. It is at this stage of reasoning that Aquinas breaks through to the third phase of his argument and says that some unconditioned *necessarium* is required, i.e., the *per se necessarium*.

⁵⁹ *Ibid.*, 82. Cf. “histories should be closed surfaces without boundary,” *Ibid.*, 135.

⁶⁰ I say “seemingly unthinkable” because it is “seemingly unthinkable” to a Christian who holds that God has revealed that the universe has a beginning in time. But nonetheless Aquinas shows that even the sempiternal universe hypothesis (which a Christian would say—making the assertion purely on the basis of revelation—is *merely* an *ex hypothesi* hypothesis) is a hypothesis that does not negate the necessity of God’s existence. In other words, Aquinas in the thirteenth century refutes Hawking’s argument well in advance, because all that Hawking offers is a physically up-to-date variation on the sempiternal universe hypothesis.

proximate *necessaria* for the *possibilia* of things like games of “hot potato”) must point to M-theory (the more remote *necessaria*), so does M-theory (the remote *necessaria*) point to God (the *per se necessarium*). To deny the latter (that M-theory points to God), says the Third Way, is to deny the former (that the “apparent laws of nature” point to something like M-theory). To think otherwise is to arbitrarily, willfully, and irrationally restrict the fundamentally asymmetrical structure of the law of causality (which describes the correlativity of potency and act), the fundamental structure upon which all scientific reasoning rests. And that is a consequence overlooked by Hawking, but which has certainly not gone unnoticed by Aquinas.⁶¹

For Hawking, the law of gravity is an *apparent* law. That is, it just arises in *this* universe that we are in. So gravity is not the more fundamental law; M-theory is the more fundamental law. Gravity arises as an apparent law of nature in this universe, but there are other universes where gravity can take different forms, or not be there. So, Hawking's point is that gravity is a local phenomenon, not a global one: local, being confined to this universe; global, being the multiverse.

That is why what Hawking is proposing is just another version of the sempiternal universe hypothesis, which the Third Way already addresses. In the sempiternal universe there is never “nothing”, which Aquinas makes especially clear in the second phase of his argument from contingency, which I think is the most misunderstood passage in his famous Third Way. It is that part where he establishes that even if there is always possibility, then there is still never “nothing.” Because, on the hypothesis of an “eternal” (i.e., sempiternal) universe, like Aristotle considered, and like Hawking considers, *there is always potency*. So Aquinas's point is not that “eternal matter is impossible”; rather, it is that even the hypothesis of eternal matter (*possibilia*) by its very nature (i.e., postulated as a fundamental sempiternal structure within a *changing* universe) entails the correlative existence of *necessaria*.

In other words, what I wish to emphasize, for the benefit of physicists untrained in Aristotelian philosophy, is that, yes, in the physical universe, there is indeed always potency, but it is never *pure* potency. It is always laced with a strand of actuality.⁶² *And that is why there are quantum fluctuations in the void.* Those virtual particles that pop in and out of existence: but they do

⁶¹ Again, the classic expression of Aquinas's vision is the famous “Third Way,” but W3 is the same three-phase argument that we find in G6 and CT6.

⁶² Cf. Wolfgang Smith, *The Quantum Enigma: Finding the Hidden Key* (Peru, Ill.: Sherwood Sugden & Co. 1995), and William A. Wallace, “Thomism and the Quantum Enigma,” Review of Wolfgang Smith, *The Quantum Enigma: Finding the Hidden Key*, in *The Thomist* 61 (1997): 455-468.

not come out of nothing, out of nowhere; that is, they do not come out of *pure* potency. It is because the quantum flux is laced with some actuality that *these* actual events can occur.

This becomes clear when we think about the analogies that Hawking uses in his book. He talks about water, and you bring it to a boil, and bubbles start to form.⁶³ Okay, so think of the water as pure potency, and the bubbles that start to form are all the different possible universes. But the water is not nothing: it is laced with *some* actuality, because *that* is what brings it to a certain temperature so that things will start bubbling.

So far so good. But one of those bubbles is the universe that has the law of gravity. And because the law of gravity creates a *local* stability, the other bubbles will evaporate, but this universe *just selects itself*. Not by the hand of a God, who has to ham-fistedly poke it (i.e., to heavy-handedly select it) in the *beginning*. No, it arises out of the different possibilities. Yet God is still its *origin*.

I think that this, Hawking's current model, is an entirely *intelligible* account of the universe. But my main point is that it should be looked at like English language Scrabble, which in principle could be played in other languages. It is an intelligible—although in many ways still *limited*—model of the universe. But limited how? It has not yet made the connection to the *highest* dimensions of the top in the “top-down” causality of Hawking's “top-down” cosmology. Yes, there is potency and act, but what Aquinas notices is that act is injected in *this* bubble that bubbles off *this* way, not only by actual observers like us, but also anytime God gives existence on loan to us observers and we distribute it throughout the universe. Which is what he necessarily does, not just at a physical *beginning*, but *all the time*, whether we have noticed or not. He is the *origin* of all that is governed, at every moment, by the physics of *any* possible universe.

This is metaphysical point (about origin), yet it nevertheless cannot be *fully* appreciated until we understand the physics of beginnings. Because metaphysics is parasitic on physics, the best metaphysical arguments will proceed to draw their rigorous and logically consistent conclusions from physical premises, in order to make physics itself rigorous and logically consistent in its nascent theoretical grasp of *necessaria*: “‘the apparent laws of nature’ point to M-theory, which points to....” This nascent theoretical grasp must be an understanding of not only our universe but also any possible universe. I say “nascent,” in order to indicate that physics, by raising the questions of possibility, necessarily points to its completion in metaphysics

⁶³ See *Ibid.*, pp. 135-136.

(with the *per se necessarium*). In metaphysics, truth builds on truth; and the physical truths that we may know are what give metaphysics its surest natural foundation, in order that it may *scientifically* think beyond the nature of this actual world.⁶⁴

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⁶⁴ The introduction to this essay, and the brief commentary on each of the Five Ways immediately following it, was written as a presentation for “The Metaphysics of Aquinas and Its Modern Interpreters,” the 31st Annual Conference of the Center for Medieval Studies, at Fordham University, on March 26-27, 2011, under the title, “The Discovery of the Being of Metaphysics: Is Metaphysics Parasitic on Physics?” The remaining sections of this essay, with their analysis of the Third Way and its relation to Hawking’s cosmological hypothesis, derive from the material presented at the Canadian Jacques Maritain Association’s 2010 Conference, “Intercultural Philosophy and the Christian Tradition”, at Saint Paul University, Ottawa, Ontario, on October 22, 2010, presented under the title, “Metaphysics as an Intercultural Philosophy: New Proofs for the Existence of God?” and also at the SAMC (School of the Arts, Media and Culture) 2010 Conference, “Arts and Genesis,” at Trinity Western University, Langley, BC, on October 1, 2010, presented under the title, “Stephen Hawking and Thomas Aquinas on Creation as Origin.” All papers have been rewritten in light of conference feedback and synthesized in order to be incorporated into this essay. I thank the conference participants for their gracious comments and gratifying response to my research.