Modeling mystery

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Abstract. The practice of model-building is very common in analytic philosophical theology. Yet many other theologians worry that any attempt to model God must be hubristic and idolatrous. A better understanding of scientific modeling can set the stage for a more fruitful engagement between analytic theologians and their critics. I first present an account of scientific modeling that draws on recent work in the philosophy of science. I then apply that account to a prominent analytic model of the trinity, Michael Rea and Jeffrey Brower's "material constitution model." I argue that modeling – whether scientific or theological – need not be understood as a hubristic enterprise. A model does not always try to grasp its target at all, let alone grasp it fully and completely. Even theologians who are committed to a strong doctrine of divine mystery can therefore find value in analytic modeling.

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In what might be regarded as the foundational document of the analytic theology movement, Michael Rea says that Christian theologians should understand their "theoretical task" as "one that involves clarifying, systematizing, and model-building" (Crisp and Rea 2009, 19). Two of these three suggestions are relatively uncontroversial: no one opposes clarity as such; and few oppose systematicity as such. Yet many theologians do remain uneasy about "model-building," and especially about analytic model-build-

ing. They worry that any attempt to model God can only be idolatrous – an example of theoretical hubris run amuck.

The rhetoric of "modeling" is very common in analytic philosophical theology. Analytic theologians have offered social models and Latin models of the trinity; they have modeled God's three-in-oneness on time traveling Rockettes as well as on multiple-personality disorder. They have similarly offered kenotic models and "two minds" models of the incarnation (Leftow 2004, Hasker 2013, Forrest 2000, Morris 1996).[1] Like the term "theory," the term "model" is often used loosely in academic writing to mean just "an account" or "a way of understanding." On a slightly more precise understanding, however, a model is a structure that is meant to represent some object or target.[2] Scientists build models in order to infer conclusions about the (relatively inaccessible) phenomena those models represent.

> Model-building is a common strategy scientists employ to understand complex phenomena and systems, especially when other strategies such as direct experimentation and observation are made impractical or impossible due to, for example, the target's being too big or too small, or difficult to locate, handle, and measure with precision. Under circumstances like these, it can be less cumbersome and more illuminating to deal with graphs, diagrams, mathematical equations, physical representations, computer simulations, etc., than with the "real world" (Sanches de Oliveira 2013).

Analytic theologians do not claim to be scientists, but they often do construct models in this more precise sense. The conceptual move, as with

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[1] A recent survey of philosophical theology on the incarnation also identifies "physicalist transformational models," "dualist transformational models," "relational models," "prophetic models, compositionalist models, two-mind models, and kenotic models" (Marmodoro and Hill 2011, 1–19).

[2] "A model is an imagined or hypothetical structure that we describe and investigate in the hope of using it to understand some more complex, real-world 'target' system or domain. Understanding is achieved via a resemblance relation, that is, some relevant similarity, between the model and the real-world target system" (Godfrey-Smith 2006, 7). Given the close links – both conceptual and sociological – between analytic metaphysics and analytic theology, Godfrey-Smith's work on modeling in metaphysics is very useful for understanding modeling in analytic theology. See also Godfrey-Smith 2012, 97–113.

scientific modeling, is from the comparatively available model to the comparatively unavailable target. For example, according to Rea, an analytic theologian writing about the Trinity will often present "a model or analogy that helps us to see how it might be coherent to say that there is one god but three divine persons... The models are heuristic devices aimed at making the doctrine intelligible" (Rea 2009, 4). Like other scientific (or, indeed, metaphysical) models, these analytic theological models "are constructed in a way that involves deliberate simplification, or other imaginative modification of reality, in order to make some relationships visible or problems tractable" (Godfrey-Smith 2012, 98). Thus, although the target of their respective models may differ, analytic theological modeling and scientific modeling initially seem similar with respect to their goals and methods.

Herein lies the worry. In scientific inquiry, it is useful to construct deliberate simplifications aimed at making problems more tractable; but in properly theological inquiry, these constructions smack of hubris and idolatry – at least, according to many theologians.[3] The Christian God is "the God who made the world and everything in it, the Lord of heaven and earth, who does not dwell in temples built by human hands" (Acts 17:24). This God is utterly beyond comprehension and so presumably cannot be explained or modeled at all. To think otherwise is to misunderstand God, and to misunderstand theology: "Because God, who can never be fully comprehended, lies at the heart of all theological enquiry, theology by its nature is not a problem solving enterprise, but rather a mystery discerning enterprise" (Weinandy 2000, 32). On this view, then, an analytic model of the trinity, for example, must idolatrously treat the trinity as a problem to be solved, rather

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[3] Such theologians would say that when we think about God, and especially when we think about God philosophically, we are highly likely to fall into the error of "conceptual idolatry" – constructing a mental concept of God (a simulacrum) which then replaces the real God as our object of inquiry and worship. Conceptual idolatry is closely linked to the related error of "ontotheology" – roughly, regarding God as the biggest, most powerful *creature* rather than as the transcendent, unknowable Creator. For a powerful version of this line of argument see Marion 1991. See also Burrell 2008 177–189, 205–212; for pushback, see Cross 2008; 190–96, Hasker 2008; 197–204; Crisp and Rea 2009, 22–25.

than as a mystery to be discerned.[4] The same would hold, mutatis mutandis, for other analytic theological models. In other words, analytic theological modeling errs *because* it tries to approximate scientific modeling.

It is easy for critics to associate analytic theological modeling with modeling in the natural sciences, and so it is easy for them to assume that analytic models of God seek to comprehend their target "scientifically" – that is, fully and completely.[5] Because a full and complete comprehension of the triune God or the incarnate Word seems not only impossible but idolatrous, many theologians reject the whole task of analytic modeling. Yet this rejection, however theologically astute, is also driven by false assumptions about scientific modeling. It is not the case that all scientific models aim at a full and complete comprehension of their targets. It is not even the case that they must have 'real-world' targets at all. A better account of scientific modeling can therefore help us to see what analytic theological models are (and are not) trying to accomplish.

The suggestion that we should compare theological modeling with scientific modeling is not a new one. A sprawling literature, stretching across decades, makes this very point (e.g., Ramsey 1964, Barbour 1974, Soskice 1985). That literature remains valuable, but it is now somewhat out of date. I say this for three reasons. First, there has recently been a resurgence of interest in modeling among philosophers of science (Weisberg 2013,

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[4] "By abstracting from the economy of salvation, apologetic reason risks creating the impression that the doctrine has an independent standing as a problem to be solved or that the logic of trinitarian discourse is at risk unless and until Christians can show that it is not subject to philosophical objections. But this is to mistake the role of a doctrine for that of an explanatory theory which should only be accepted on condition that it can be shown to be coherent, not only with the scriptural witness, but with neutral reason" (Moore 2011, 399–400). According to Catherine Mowry LaCugna (1986, 177), "As long as the doctrine of the trinity is reduced to a puzzle of the sort, 'how can three be one?' no real advance in understanding it can take place." For similar, though more general, criticism, see Williams 2000, 13, 134, 137; Williams 2014, 180–81; Marion 2002, 53–70; Milbank 2009, 320.

[5] Few if any scientists would think that scientific modeling aims at full and complete comprehension, of course. Presumably, this is the theological worry nevertheless: because analytic philosophers of religion and theologians treat theology as a problem-solving enterprise, they assume that their own theological models are complete unqualified solutions that close off further inquiry by rendering it otiose.

Giere 1988, Godfrey-Smith 2006, Wimsatt 2007, Odenbaugh 2005, Strevens 2007). As our account of scientific modeling evolves, so too must our account of the proper relationship between scientific and theological modeling. Second, in recent decades, contemporary academic theologians have reasserted the absolute transcendence and unknowability of God, which goes hand-in-hand with a newfound respect for apophatic theology. The more we insist that God is unknowable, the more problematic the practice of modeling God becomes. The existing literature on theological modeling has not really come to terms with this renewal of apophatic thought. Finally, the literature on theological modeling predates the rise of analytic philosophical theology. Previous accounts of theological modeling tended to treat "models" of God as little more than well-developed metaphors. By contrast, analytic models of God seem to be much more akin to properly scientific models. [6] It is therefore even more imperative to compare analytic theological modeling with scientific modeling.

A better understanding of scientific modeling can set the stage for a more fruitful engagement between analytic theologians and their critics. In what follows, I first present a more sophisticated account of scientific modeling, one that draws on recent work in the philosophy of science. I then apply that account to a prominent analytic model of the trinity, Michael Rea and Jeffrey Brower's "material constitution model." I argue that modeling – whether scientific or theological – need not be understood as a hubristic enterprise. A model does not always try to grasp its target at all, let alone grasp it fully and completely. To develop this point further, I return to the worry outlined above, and argue that even theologians who are committed to a strong doctrine of divine mystery can still find value in analytic modeling.

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[6] For example, John Polkinghorne (1998, 23) writes: "Theology often has recourse to models. It may speak of God as stern Judge or merciful Father... tension between the two models is resolved by considering the differing experiences to which they apply (human repentance/divine acceptance in the case of Judge/Father." Polkinghorne's "models" of God as father or judge seem more like metaphors that simply re-occur extensively in scripture and tradition. I trust it is clear that the analytic philosophical models under discussion differ considerably, and are much closer to scientific models.

1. Contemporary Philosophy of Science
on Models and Model-Building

Consider some typical scientific models. Models can be concrete, three-dimensional physical objects. For example, a chemist might construct a model of a molecule using balls and sticks to stand in for atoms and the bonds that join them. The model need not be three-dimensional, however: the chemist might construct the same model merely by drawing circles and lines. Other scientific models are entirely abstract. The Lotka-Volterra model of predation is composed of differential equations that describe the way populations of predators and prey interact in an ecosystem. Sometimes, a scientific model does not even attempt to depict its target system accurately or comprehensively. A model can deliberately introduce false assumptions, as when models of bodies in motion assume that the bodies are perfect spheres that move through frictionless planes (McMullin 1985, 247–273; Weisberg 2013, 98–113). Alternatively, models can focus only on the relevant features of the target system and ignore real features that are deemed unimportant to the current investigation. For example, a simple model of voting behavior might focus only on voters' disposable income and political party identification, while ignoring, say, their level of education, or whether they have children. As with modeling in general, in both of the latter cases, the point is to simplify the target system in order to make studying it more tractable.

Among contemporary philosophers of science, no single account – no model – of modeling has commanded widespread agreement. It is not easy to say exactly what all scientific models have in common or to give a general theory of the practice of modeling. A model is some kind of representation – that much is clear. It is also clear that a model represents its target system by resembling it, however remotely.[7] A group of billiard balls is like

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[7]   "An object or state-of-affairs is a model when it is viewed in terms of its resemblance, real or hypothetical, to some other object or state of affairs; a miniature train is a model of the full-scale one, a jam jar full of cigarette ends is seen as a model for the lungs of a smoker, the behavior of water is seen as the model for the action of electricity" (Soskice 1985, 101).

a group of gas molecules in some ways (given certain assumptions, they behave in similar ways) but not in all ways (gas molecules are not colored, and are not made of the same material). The same formal feature of similarity-in-difference characterizes other models as well. The resemblance relationship that a model establishes with its target system can be very remote. For example, in the case of mathematical models, relationships between points in mathematical space represent the relationships that obtain between real-world objects. In other words, a model is not just a representation of its target system, but an analogous representation. As Mary Hesse succinctly puts it: "Models are *relata* of analogy relations; that is, a model is an analogue" (2000, 299).

Model-building is therefore a form of analogical reasoning. To say that a model represents its target is just to say that the salient features of the model are analogous to the salient features of the target. In a sense, all models are analogies – or, more precisely, all models represent their targets in virtue of analogical relations. But even though all models are analogies, it is not the case that all analogies are models. Consider this simple, four-part, analogy: Paris is to France as Madrid is to Spain. This analogy asserts that Paris bears the same relation to France ("is the capital of") that Madrid bears to Spain. But "Paris is to France as Madrid is to Spain" is not a model, in part because it is not intended to represent any comparatively unknown target.

In my view, Michael Weisberg offers the best contemporary philosophical account of scientific modeling in his 2013 book *Simulation and Similarity: Using Models to Explain the World*. According to Weisberg, a model is "an *interpreted structure* that can be used to represent a real or imagined phenomenon" (15). He divides scientific models into three general types according to their structure: concrete models are physical structures, mathematical models are mathematical structures, and computational models are algorithmic structures (24–31).[8] Models are *interpreted* structures be-

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[8] Concrete models need not actually exist as physical objects. They can also exist as conceptual representations, or what Weisberg calls "idealized exemplars." For example, the ball-and-stick model of a molecule would still count as a concrete model, even if it were never physically built or even pictorially depicted.

cause model-builders must specify exactly how their models should be construed so that they represent the target system as intended. According to Weisberg, a model's *construal* first specifies how the features of the target system should be mapped onto parts of the model. In the model of a molecule, for example, one must specify that the different colors of the balls and the way they are arranged represent different kinds of atoms. A construal also specifies the model's scope, since the model is intended to represent some, but not all, features of the target system. (The uniform spherical shape of the balls is not meant to represent the complex internal structure of real atoms, for example). Finally, the model-builder must explicitly specify the model's "fidelity criteria," namely "how similar the model must be to the world in order to be considered an adequate representation" (41). In the case of a molecule, an adequate ball-and-stick model must successfully depict the different kinds of atoms and bonds found in the molecule, and show how they are geometrically arranged in relation to one another.

Weisberg's account of scientific modeling emphasizes "the role of theorists' intentions in all aspects of modeling" including "the evaluation of the goodness of fit between models and the world" (4). Without discerning the intentions of the model-builder (at least implicitly), we cannot assess whether a model successfully represents its target, because the intentions of the model builder are what constitute the resemblance relationship between model and target. In general, according to Weisberg, a model appropriately resembles its target when it "shares certain highly-valued features, doesn't have many highly-valued features missing, and when the target doesn't have many significant features that the model lacks" (144–145).[9] But model-builders and their research communities must judge for themselves exactly which features of a model and its target are highly-valued and significant. These judgments are complex, interpretive, and context-dependent: "The model–world relationship depends on theorists' intentions, the background knowledge and practice of their research communities, and their research

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[9]   This appeal to resemblance obviously raises legitimate worries in a theological context. On many accounts, God and creatures share no features at all, for instance. I address these concerns below.

goals" (135). Modeling is a deeply communal and hermeneutical practice: we can only construe a model properly when we accurately interpret the intentions of its builders in the context of their own research community.

Theorists can intentionally construct models without any real-world targets at all, or even models with physically impossible targets. For example, a biologist might model the behavior of a hypothetical organism that has no real-world analogue (121–122), or a physicist might model a perpetual-motion machine, even though such a machine could not possibly exist, given the actual laws of nature (126–129). Even so, the model could help the physicist better understand the consequences of those laws, or see which laws would have to change in order for such a machine to be possible. Model-builders "ultimately aim to partition the space of possibilities. They want to understand what is possible, what is impossible, and why" (128). Alternatively, a model might not have any target because the object of study is simply the model itself (129–134). Models like this can "sensitize our imagination, so that we learn how to notice things that we might have missed otherwise" (130).

2. Modeling the Triune God: Brower and Rea on the Logical Problem of the Trinity

Weisberg's account of scientific models can also help us to understand theological and philosophical models. Of course, we should not expect an account of scientific modeling to correspond exactly to the practice of modeling in theology or philosophy. It is far from obvious that a theological "model" of the atonement or the trinity would fall into any of Weisberg's own categories, for example. Even so, having looked more carefully at the practice of scientific modeling, some aspects of analytic theological modeling do come into sharper focus.

Like scientific models, theological models posit some kind of resemblance relationship between model and target. When the "target" is God, however, that relationship must be very remote. Indeed, some would argue that there can be no such relationship at all: a robust respect for divine

transcendence seems to commit us to the view that no created thing can resemble God in any respect. For the most part, however, the orthodox Christian tradition has not held this view. Instead, the dominant tradition has argued that things in the world do resemble God, albeit remotely, just because they are created. There is therefore no reason to reject the very idea of models of God. As we have seen, the resemblance relationship established between a scientific model and its target is often very remote as well. The practice of modeling *as such* does not presuppose a high degree of similarity between model and target. And so with respect to analytic models of God, we should not assume that just because they are *models* that they are inherently overreaching and idolatrous.

Furthermore, as Weisberg shows, we cannot interpret a model without understanding the intentions of its builder, set in the context of his or her research community. What problems is the model intended to address? How does the modeler construe the relationship between model and target, and by what criteria of fidelity does he intend for the model to be assessed? Whether in physics, philosophy, or theology, we must ask and answer such questions before we are in a position to judge the value of a given model.

Consider, for example, Jeffrey Brower and Michael Rea's well-known model of the Trinity, based on the Aristotelian account of "numerical sameness without identity" (Brower and Rea 2005). On their model, we can understand the relationship between the three divine persons and the one divine nature as analogous to the relationship between a bronze statue and the bronze that constitutes it. Plausibly – so they argue – the statue and the bronze count as exactly one object (they are numerically the same). Yet the statue is not strictly identical to the bronze, since they do not share exactly the same properties or persistence conditions: we can destroy the statue (by melting it down, say) without destroying the bronze.[10] Similarly, we can think of the divine essence as playing the role of matter in a form–matter compound, and the persons as numerically distinct beings constituted by three numerically-distinct forms.

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[10] I here introduce Brower and Rea's model only as an illustration of analytic modeling. For criticism of the model, see Hasker 2013, 129–38.

Brower and Rea offer an excellent example of a theological model, whether or not it succeeds as a model of the trinity. In laying out their model, they begin with a clear statement about the problem it is meant to solve: the logical problem of the trinity, the worry that the doctrine of the trinity seems to imply that there is exactly one divine being, since there is only one God, but also that there are three divine beings, since the Father, the Son, and the Spirit, are each identical to God but not to each other (Brower and Rea 2005, 58–60). By successfully modeling the doctrine of the trinity, we would acquire some evidence that we do not need to violate our ordinary standards of logical reasoning to affirm that God is triune. There are communities in which such evidence might be of little interest, but there are also some communities that would regard it as very valuable indeed. Thus, the context of their model, and their intentions in offering it are important. They aim to address a fairly narrow, but very important, challenge to the fundamental coherence of Trinitarian doctrine. Their relevant research community – their intended audience – comprises philosophers, theologians, and others who remain troubled by this specific challenge. It would therefore be a mistake to criticize their model on the grounds that it does not adequately address other challenges that are more salient to other communities. For instance, they do not propose that their model is adequate for doxology or liturgy; they do not seek to show that the doctrine of trinity is grounded in scripture or tradition; nor do they relate their model of the trinity to other contemporary projects in constructive trinitarian theology like political emancipation.

Brower and Rea also specify the exact fidelity criteria by which they wish their model to be judged. For instance, it must be "clearly consistent with the view that Father, Son, and Holy Spirit are divine individuals, and that there is exactly one divine individual," and it must not "conflict with a natural reading of either the Bible or the ecumenical creeds."[11] To the

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[11] They enumerate five criteria in total (Brower and Rea 2005, 59): "(D1) It is clearly consistent with the view that Father, Son, and Holy Spirit are divine individuals, and that there is exactly one divine individual; (D2) It does not conflict with a natural reading of either the Bible or the ecumenical creeds; (D3) It is consistent with the view that God is an individual rather than a society, and that the Persons are not

extent that their model fails to satisfy these criteria, it fails on its own terms. At the same time, for their model to succeed in a broader sense, their research community must agree that these fidelity criteria are appropriate. This fact reflects a general point about modeling: theorists are entitled to specify the criteria by which they wish their models to be judged, but they cannot simply stipulate any criteria whatsoever in order to ensure that their models succeed – at least not if they also hope to persuade others that their models are valuable.

Across different research communities, and even within a single research community, and scholars might well disagree about whether a set of fidelity criteria are appropriate. When we recognize the social and interpretive aspects of scientific modeling, we can see one reason why analytic theological models are often welcomed by philosophers of religion but rejected by theologians. Philosophers of religion and theologians constitute two very different research communities. These communities will often differ about what counts as a salient problem, and so will be skeptical of models aimed at solving problems that they themselves do not recognize. Moreover, each community will assess a model with its own fidelity criteria, and these are likely to be very different. For example, contemporary (non-analytic) theologians might insist on criteria related to love and political justice, for instance, which would seem utterly out of place to their analytic counterparts. For their part, philosophers of religion and analytic theologians often boggle at the fact that other theologians (for the most part) do not seem especially worried about the logical problem of the trinity.[12] In principle, however, this is not any more unusual than the fact that chemists do not seem especially worried about the fact that two fundamental theories of physics (general relativity and quantum field theory) are

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parts of God; (D4) It is consistent with the view that classical identity exists and is not to be analyzed in terms of more fundamental sortal- relativized sameness relations like being the same person as; (D5) It carries no anti-realist commitments in metaphysics."

[12] "Systematic theology of recent vintage has done surprisingly little to address this dilemma. Given that many of these theologians criticized the traditional (especially Latin) formulations, it is both surprising and disappointing that they have not set themselves to the task of addressing the problem" (McCall 2010) 11–12).

incompatible. Chemists and physicists comprise different research communities oriented around different problems that arise from different levels of engagement with the natural world. Similarly, even though theologians engage with the doctrine of the trinity at a different level than philosophers of religion, it does not follow that they engage with that doctrine at the wrong level.

Brower and Rea are also clear throughout that their model is just that – a model. The problem of material constitution is *analogous* to the logical problem of the trinity, because the two are structurally similar: they both pose questions about numerical sameness without strict identity (Brower and Rea 2005, 57). Brower and Rea recognize that there are also "obvious disanalogies" between the two problems, and therefore obvious disanalogies between their model and the divine nature itself:

> For example, in contrast to ordinary material objects, the role of matter in the case of the trinity is played by immaterial stuff, and so the structures or compounds constituted from the divine essence (namely, the divine persons) will be 'hylomorphic' only in an extended sense. Also, in the case of material objects, the form of a particular hylomorphic compound will typically only be contingently instantiated by the matter. Not so, however, in the case of the Trinity. For Christian orthodoxy requires us to say that properties like being a Father and being a Son are essentially such as to be instantiated by the divine essence. As we have seen, moreover, the relation of accidental sameness on which our solution is modeled is, in Aristotle anyway, paradigmatically a relation between a substance (e.g., a man) and a hylomorphic structure built out of the substance and an accidental property. The Persons, however, are not like this. Thus, it is at best misleading to say that the relation between them is one of accidental sameness (Brower and Rea 2005, 68–69).

We should take their concession in this paragraph seriously, as a sign that they are trying to keep their own theoretical hubris in check. It is clear that they do not intend for their model to map perfectly onto the Godhead. They do not see their model as a way of capturing or fully comprehending the divine nature. They believe (unsurprisingly) that theirs is currently the best analytic model of the trinity on offer, but they do not go so far as to

say that it is unsurpassable, or the only correct way to understand God's three-in-oneness.

In fact, although they do not say so explicitly, Brower and Rea might even agree that their model does not actually yield knowledge about the divine nature at all. Certainly it does not tell us what the divine essence really is. Nor does it specify how the divine essence necessarily and simultaneously constitutes three distinct persons. Indeed, they insist that the analogy with a bronze statue breaks down at these very points. In a sense, their model is best understood as simply a more extended, and more technical, instance of the venerable genre of useful-but-imperfect trinitarian analogies: the human mind, a river fed by multiple streams, a rainbow, and so forth.

This point deserves emphasis. For a variety of reasons, contemporary theologians are wont to treat analogical speech and analogical reasoning as theologically virtuous, and to equate univocal speech and reasoning with idolatry. For better or worse, they also tend to assume that analytic philosophers of religion, and therefore analytic theologians, are essentially committed to an invidious univocity.[13] As we look more carefully at analytic models of God, however, it becomes clear that they actually belong on the "analogy" side of the analogy / univocity distinction. Analogical reasoning is central to the practice of analytic philosophical theology. That is why the practice of model-building is so common.

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[13] Stephen R. Holmes (2012, 32) writes "More basically, analytic discussions of the Trinity seem generally to proceed with a remarkable confidence about the success of language in referring to the divine. The theological question of analogy is, as far as I can observe, never raised, and the assumed answer would always seem to be that language refers univocally to the divine and the created. (If it does not, the core project of analysis would be impossible.)" (Holmes 2012, 32). For his part, David Bentley Hart (2013, 125) argues that analytic philosophers of religion – gripped as they are by a Fregean notion of existence – find it very had to "make much sense of the ancient and necessary premise, common to all classical theistic philosophies, that the words we use about God…have meanings only remotely analogous to what those same words mean when we use them of created things." See also Burrell 2008.

3. Modeling as Mystery-Discerning

I presented an account of scientific modeling that draws on the best work in contemporary philosophy of science. I then applied that account to a prominent analytic model of the trinity, in order to show that a better grasp of scientific modeling can help us to see the value of theological modeling. Given Brower and Rea's own intentions, and given their research community, their model is best understood as a very well-developed analogy – a contemporary instance of the venerable genre of trinitarian analogies – rather than an idolatrous attempt to grasp God fully or completely.

Still, the old worries linger. Even if Brower and Rea should prove innocent of the idolatry charge, perhaps they are only accidentally innocent. The real problem is not with this-or-that specific model, but with the scientific pretensions that drive the very practice of model-building itself. Rowan Williams forcefully presses this point:

> If theology is understood primarily as a "science" in the common understanding of that term, it will assume that its job is to clarify, perhaps to explain; it will seek to establish procedures for arguing and criteria for conclusions; it will be interested in whether or not there are good reasons for saying this or that…But the history of theology does not look very much like what this account might suggest… There is a rigor and discipline appropriate to theology, but it is the rigor of keeping on the watch for our constant tendency to claim the "total perspective": it is almost a rigor directed *against* the naïve scientific model (2000, 13).

In short, to return to a distinction I presented above, theology is not a problem solving enterprise but a mystery discerning enterprise. To say that theology is a mystery discerning enterprise is to say, with Williams, that theology must always discipline itself against its constant tendency to claim the "total perspective" in matters divine.[14] God infinitely transcends all that

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[14] For example, T.F Torrance (1998, 24–25, 28–29) writes: "…everything that is affirmed in the Creed falls within the compass of faith pivoting upon the objective reality of God who infinitely transcends all that we can think or say about him… By its very nature, then, Christian faith is locked into an inexhaustible depth of truth in God which

we can think or say. The more we come to know God in faith, the more we realize that God necessarily surpasses all understanding. The practice of model-building seeks to dispel divine mysteries and so (it seems) remains inappropriate for genuine theology.

Notwithstanding my own analytic inclinations, I have considerable sympathy for this position. Even so, I would resist any sharp distinction between "problem solving" and "mystery discerning." It is precisely because theology is a mystery discerning enterprise that it is also a problem solving enterprise. Thus, even theologians in the "mystery discerning" camp should still welcome at least some forms of analytic modeling. They should especially welcome models that are explicitly intended as hypothetical or targetless models. As we have seen, scientists sometimes construct models that do not even purport to have real-world targets (Weisberg 2013, 114–134). Similarly, analytic theologians can construct theological models that do not even purport to map onto God as God really is. Such models do not impede, but rather aid, the task of discerning the mystery of God. We might even go so far as to call them apophatic models.

For example, suppose we treat Brower and Rea's model as a "targetless" model of the trinity. On this interpretation, we stipulate that their model is targetless because it has no concretely existing, real-world target, since (we may suppose) its target cannot be the unknowable, triune God. The model's target is therefore not God-as-triune, but something more abstract: the *doctrine* of the trinity. God-as-triune cannot be modeled (let us agree) but surely the doctrine of the trinity can be.[15] After all, the *doctrine* of the trinity is not the unknowable creator of all that exists, nor does it infinitely

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always exceeds what we may grasp of its disclosure to us]... It is right there, where the Scriptures bear upon the ineffable mystery of God which remains mystery even in the heart of his self-revelation, that we must be on our guard against irreverent and impious intrusion into what God has kept secret in his own eternal being."

[15] Catherine Mowry LaCugna (1986, 175) makes this point nicely: "while it *is* true that God is (absolute) mystery, it is *not* true that a doctrine is a mystery. Doctrines are simply doctrines, that is, human formulations which are meant to shed light on religious experience." Furthermore, to say that the doctrine of the trinity can be modeled is not to say that it can be deduced by natural reason alone. Once can accept both that the doctrine of the trinity had to be revealed, and that once it has been revealed, it can be modeled.

transcend human thought and speech. Even if the doctrine of the trinity had to have been revealed, because it could never have been discovered by human beings, the sheer fact that it has been revealed means that it is no longer unknowable, since it has been explicitly presented to us for our assent.[16]

Call the "doctrine of the trinity" the set of axioms that are jointly necessary and sufficient to express the orthodox trinitarian faith. (These axioms might be identified with the propositional content of the Nicene Creed, for instance.) A model of the trinity would then be an interpreted structure that satisfies all of the doctrine's axioms (Giere 1988, 79; Potter 2004, 74). In other words, it would be a model of "God" on which all of the doctrine's axioms come out as true. But because the unknowable triune God would not be the target of the model, we would have no license to assume that the "God" of the model corresponds to the unknowable triune God. That assumption – that the "God" of the model corresponds to the unknowable triune God – might be an act of conceptual idolatry, one that a dedicated member of the mystery discerning camp should resist. But we do not need to make that assumption at all. Both the model's builder and the research community for which the model is intended can deny it consistently.

What would be the point of such a model? The point is this: the mystery of the trinity is not the "mystery" of how a logical contradiction can be true. It follows that an analytic model that addresses the logical problem of the trinity does not thereby dispel the mystery of the trinity. Quite the contrary. By showing that the doctrine of the trinity does not express a bare logical contradiction, an analytic model actually removes a significant barrier to discerning the real mystery of the trinity. We are better able to appreciate the mystery of the trinity in all its depth when we appreciate that the doctrine of the trinity is not a bare logical contradiction.

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[16] We must be careful about distinguishing between the doctrine of the trinity per se, its various creedal formulations and liturgical expressions, and God-as-trinitarian. We worship God-as-trinitarian by reciting the Nicene Creed, which expresses the doctrine of the trinity.

It is important not to misunderstand this claim. It is not the claim that the rationality of the trinitarian Christian faith depends on the success of this-or-that analytic model of the trinity. Nor is it that one can *only* discern the mystery of the trinity once the logical problem has been "solved." My claim is far more modest: we are better able to discern the mystery of the trinity when we appreciate that the doctrine of the trinity is not a logical contradiction. This worry may not arise for all research communities, but it does arise for some.

I offer a second example. Analytic theologians and philosophers of religion frequently construct models of the divine attributes (Leftow 2009, 167–198; Wierenga 1989). These models can also be construed as "apophatic" models that enhance our appreciation for the divine mystery. Consider, for example, an analytic model of divine omnipotence. Some theologians hold that God's power differs utterly from the kind of power possessed by creatures, such that it transcends even the maximum possible degree of creaturely power (Hart 2013, 125–126). These theologians would insist that analytic models of omnipotence cannot really be about divine power at all. Because they are actually models of maximal creaturely power, they miss their divine target and fall into idolatry.

Suppose, however, that we grant this charge but deny its implications. Suppose, that is, that we treat analytic models of omnipotence as deliberately-constructed examples of targetless modeling, rather than as unintentional misfires that try but fail to hit their divine target. On this understanding, we would explicitly intend to model divine omnipotence on maximal creaturely power. At the same time, we would know from the outset that our model can have no target. The model can have no created target, since no really-existing creature actually possesses maximal power. And it can have no divine target, since (*ex hypothesi*) divine power does not "exist" on the same metaphysical plane as creaturely power and so cannot be modeled.

In my view, we could still learn a great deal from such a model. A model of maximal creaturely power would show the precise limit that God's ultimate power incomprehensibly transcends. The same point would hold for other models of other divine attributes. A model of omniscience that cap-

tured only maximal creaturely knowledge would not thereby fail – rather, it would succeed at showing the limit that God's knowledge transcends. And even if God's goodness is utterly unlike creaturely goodness, as some Thomists insist, we might still learn something valuable about God's goodness by modeling maximal moral perfection in creatures. Once we clearly grasp the relevant creaturely limit, we are even more likely to appreciate just how awesome divine power, knowledge, and goodness really is. When we model the divine attributes we do not dispel the mystery of God. On the contrary, we take tentative steps toward discerning it more fully.[17]

Conclusion

A better understanding of scientific modeling can help allay some common worries about analytic theological modeling. We should not assume that every attempt to model the divine displays idolatrous confidence in the power of reason. Theological models do not have to be treated as efforts to comprehend God fully by means of finite human concepts. A model is an interpreted structure, hermeneutical through and through. In order to interpret any model, we must also interpret the intentions of its builder and the practices of his or her research community. When those intentions and practices are appropriately modest, theological models can escape the charge of idolatry. Indeed, model-building can even be something like an apophatic practice. We can build hypothetical models or targetless models that explicitly aim to describe that which God is not, in order to see that God transcends all creaturely limitations.

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[17]   As Weisberg (2013, 130) writes, targetless models can "sensitize our imagination so that we learn how to notice things we might have missed otherwise."

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