

Two Theories of Analogical Predication*

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December 24, 2010

Though our lips can only stammer, we yet chant the high things of God.—Gregory the Great, *Moralia on Job* v, 36, in *Opera*, PL 75, 715; quoted by Thomas Aquinas, *Summa Theologica* Ia, 4, 2.

How can we, poor, finite beings that we are, speak of an infinite God? Thomas Aquinas formulates a well-known answer: we predicate things of God analogically. But the doctrine of analogical predication, long influential in both Catholic and Protestant thought, has fallen on hard times. Its advocates have been accused of circularity, begging the question, and simply being uninformative. (“God’s faithfulness is not the same as the dog’s faithfulness, but it’s similar.” “How is it similar? How is it different?” “I don’t know.”) They have even been accused of agnosticism for being incapable of explaining how true statements about God and knowledge of God are possible.¹

I am arguing that those complaints rest on interpreting ‘analogy’ in a familiar but ultimately inadequate way. In this paper I shall elaborate two versions of the doctrine of analogical predication. One rests on the idea of structural similarity.² We can legitimately draw an analogy between a representation and what it represents. Properties of the representation provide grounds for inferring corresponding properties of what it represents. This is an aspect of a more general phenomenon: Two things may have similar structures, or be elements in similar structures, in a way that supports analogical inferences and, correspondingly, analogical predication.

The second rests on the closely related idea of approximation or idealization. We can construct models that approximate or idealize a more complex domain, and use properties of items in the models to infer corresponding properties of items in that domain. Both understandings of analogy show that analogical predications can be

*I have given earlier versions of this paper at Baylor University and at a joint Baylor/UT conference on the Philosophy of Religion at the University of Texas at Austin. I am grateful to my audiences, especially to Alexander Pruss, Jon Kvanvig, Trent Dougherty, Eleanore Stump, Keith DeRose, Katherine Dunlop, Yuval Avnur, Shieva Kleinschmidt, Howard Wettstein, Ivan Hu, and Jewelle Bickel, for their helpful criticisms and suggestions.

¹For these assorted objections, see, for example, Hook 1954, Hayner 1958, Harris 1970, Burrell 1973 and 1979, Kvanvig 1984, and Gamwell 2001.

²Construing analogy as resting on structural similarity, while absent from the literature on analogical predication, is common in cognitive science. See, for example, Tversky 1977, Rumelhart and Norman 1981, Gentner 1983, Kedar-Cabelli 1988, and Gentner and Markman 1997.

informative; that there is an independent argument for the doctrine; and that it provides grounds for true statements about God and knowledge of God. The versions differ in some ways, but I shall argue that each meshes with the doctrine of divine simplicity and provides a model for how we can reason about transcendent concepts as well as about God. Indeed, I shall argue that the doctrine of analogical predication has importance far beyond the philosophy of religion.

1 The Shared Property Argument

Aquinas presents his doctrine of analogical predication in the *Summa Theologica* (ST), the *Summa Contra Gentiles* (SCG), and the *Commentary* on Peter Lombard's *Sentences* (CS):

...the names said of God and creatures are predicated neither univocally nor equivocally but analogically.... (SCG I, 34)

And in this way some things are said of God and creatures analogically, and not in a purely equivocal nor in a purely univocal sense. For we can name God only from creatures. Thus whatever is said of God and creatures is said according to the relation of a creature to God as its principle and cause, wherein all perfections of things pre-exist excellently. (ST Ia, 13, 5)

...the Apostle says: "The invisible things of God are clearly seen being understood by the things that are made" (Romans 1:20). Therefore it must be said that these names are said of God and creatures in an analogous sense, i.e. according to proportion. (ST Ia, 13, 5)

Thus far, it seems that Aquinas's doctrine comprises these contentions:

- There are predicates F that apply to both God and creatures—that is, such that both 'God is F ' and 'This creature is F ' can be true.
- The senses of F in these sentences are not the same, but they are systematically related to each other.
- The relation between the senses of F is analogical, proportional, causal, or according to principle.
- We understand God by way of our predications of creatures. That is, the sense of F in 'This creature is F ' is epistemically prior to its sense in 'God is F .'

As so often happens in Aristotelian theories, priority in the order of knowledge is the reverse of priority in the order of being. It thus emerges that the sense of F in 'God is F ' is metaphysically prior to its sense in 'This creature is F .'

This is merely a sketch; as we shall see, Aquinas's doctrine is much more elaborate. Even this simple sketch, however, suggests an argument against a doctrine of analogical predication, however we might fill it out. The argument, which I shall call the *shared*

property argument, takes the following form. An analogy presupposes that we can predicate something of both terms in the same sense. That is, we can draw an analogy between *a* and *b* only if *a* and *b* are similar; and *a* and *b* are similar only if they have some properties in common.³ Those properties, however, can serve as the basis for univocal predications. An argument from analogy has the structure:

Argument from Analogy

a is *F*
a is similar to *b*
Therefore, *b* is *F*⁴

But what does it mean for *a* and *b* to be similar? Surely they have to have at least one property in common: There must be some *G* such that *Ga* and *Gb*— or, to put it in a form that is equivalent, but will be helpful later, there must be *G* and *H* such that *Ga*, *Hb*, and *G = H*. Two things with no properties at all in common, the argument goes, cannot possibly be counted as similar.

Even if property sharing is not required for similarity, the argument yields property sharing, for *a* and *b* both have property *F*. So, even if an argument from analogy does not presuppose a common property, it appears to generate one.

Applied to God and creatures, that means that an argument from analogy can succeed only if God and creatures share some property. Moreover, that property must be expressible to be included in the argument, either as part of what it is for *a* and *b* to be similar or as *F*, the property the argument assigns to *b* in its conclusion. There must therefore be a predicate that applies in the same sense both to God and to creatures. It follows that not all predicates can be used analogously when applied to God. The argument does not rule out the possibility that *some* predicates might be applied on the basis of analogy. Any such analogy, however, must rest on a similarity established on the foundation of shared properties expressible in the form of univocal predications.

This plainly contradicts Aquinas:

Univocal predication is impossible between God and creatures. (ST Ia, 13, 5)

It also entails that analogical predication cannot be the full story about our knowledge of God. It is important to recognize that this argument does not undercut an analogical theory entirely; *most* of our knowledge of God might still be analogical. But it does imply that some predicates apply univocally to both God and creatures. Once this is admitted, moreover, adopting an analogical theory for other predicates might seem unmotivated. To preserve the viability of an analogical theory, even in a limited role, one would have to be able to distinguish independently between the predicates that are to be understood univocally and those to be understood analogically, explaining, in terms of their features, why those predicates are in the category they are. That might

³Thus, Hayner 1958, 860: “in order to employ analogical predication in religious discourse, we must hold that any two entities standing in an analogical relation to each other, including the Deity, must have a minimum of one property in common.”

⁴This argument, and all variants of it to follow, can be reversed, flipping the first premise and the conclusion. For ease of exposition I will not write out those inversions.

be possible—one might see existence as univocal, but other predications as analogical, invoking special features of existence (the very features that led Kant, for example, to hold that it is not a determining predicate at all). But the burden would be on the advocate of analogical predication to explain not only what those special features are but why they are decisive for univocality or its impossibility.

One might object that analogical predication is not an argument, but a kind of predication. Aquinas, however, does want to infer something about God from truths about creatures. So, analogical predication needs to provide some basis for such inferences. If the shared property argument is correct, it can do so only if there are common properties and thus possibilities for univocal predication.

2 Structural Similarity

To undercut the shared property argument, we need other ways of understanding arguments from analogy, ways that neither presuppose nor generate common properties. Can we understand one thing being a likeness of another, or of two things being similar, without assuming common properties? Can we argue from analogy without generating a common property? I shall argue that we can, and, in fact, routinely do. I shall develop two ways of understanding analogical reasoning, neither of which rests on or generates common properties.

The first is a model of analogy as *structural similarity*. We can think of a representation, for example, as analogous to what it represents. This is the core insight of the picture theory of language. Whatever its other failings may be, it rests on the thought that, at some atomic level, a sentence represents a state of affairs by having a structure that is in some way an analogue of the structure of the state of affairs. This model is not foreign to Aquinas; he holds a version of the picture theory, and in fact begins his discussion with a point about the philosophy of mind and language:

Since according to the Philosopher, words (*voces*) are signs (*signa*) of ideas (*intellectuum*), and ideas the likenesses (*similitudines*) of things (*rerum*), evidently words refer to things signified through the medium of an intellectual conception (*conceptione intellectus*). (ST Ia, 13, 1)⁵

This brief summary is ambiguous: *voces* may mean words or sentences; *intellectuum*, ideas or thoughts; *rerum*, things or states of affairs. So, Aquinas may mean that words are signs of ideas, which are likenesses of things, as the above translation assumes, or that sentences are signs of thoughts, which are likenesses of states of affairs. I think he holds both versions, at least for atomic sentences. But let's focus just on the words-ideas-things version.

His theory is actually considerably more complicated than his summary suggests. A spoken or written predicate (setting aside the distinction between types and tokens) signifies an “inner word,” a unit in something like a language of thought, which makes

⁵In the Latin: ‘Respondeo dicendum quod, secundum philosophum, voces sunt signa intellectuum, et intellectus sunt rerum similitudines. Et sic patet quod voces referuntur ad res significandas, mediante conceptione intellectus.’

it possible to think symbolically as well as representationally.⁶ That inner word stands for an idea or concept. (Throughout, I shall assume that the word in question is not ambiguous or equivocal.) The predicate thus stands for an idea mediately, by way of an inner word. The inner word and the idea have a form as well as a content; they have whatever content they have by virtue of their forms. The word, inner or outer, gains its content by virtue of its standing for the idea the form of which gives it a certain content. The idea relates to things to which it applies both by being their likeness and by having as content a property instantiated in them. Say that the idea *represents* a property instantiated in things, and *applies to* things. We may then think of a predicate as *referring to* a property and itself *applying to* the things in its extension.

This representational account of thought and language—an account that runs from Aristotle through Aquinas, Locke, and modern representationalists—exhibits a certain kind of flexibility, which is crucial to Aquinas’s doctrine of analogical predication. There are two theoretical paths from the predicate to things to which it might apply. One runs through the idea or concept alone. The predicate is a sign of an idea that applies to things. We can think of the predicate and its associated idea as having rules of applicability that permit us to apply them in certain cases and forbid us from applying them in others. The other path runs not only through the idea but also through the property it represents. The predicate refers to a property by virtue of being a sign of an idea that represents that property. The property is instantiated in things.

This gives us two ways of characterizing the predicate or idea’s extension:

1. The *I-extension* of *F* is the class of things to which the idea for which *F* is a sign applies.
2. The *P-extension* of *F* is the class of things having the property to which *F* refers.

Normally, these classes are the same; the idea applies to all and only the things that have the property it represents. In such cases, we can say that the idea represents its property completely and adequately. We can speak simply of a predicate’s extension, for its I-extension just is its P-extension. But an idea might be an incomplete or confused representation of its property, in which case the class of things to which the idea applies and the class of things having the property to which it refers may differ.⁷

Now, let’s return to the role that being a likeness plays in Aquinas’s theory. Ideas are likenesses of things. What does that mean? We might try to answer in terms of shared properties. When we think of linguistic or mental representation, however, that does not seem particularly promising. What property does the word ‘cat,’ or the idea or concept of a cat, share with an actual cat? What property does an architect’s concept or a blueprint of a house have in common with an actual house? What matters here, on an Aristotelian view, is not a common property but a *similarity of structure*. Wilfrid Sellars (1968), for example, writing about Kant’s distinction between sensibility

⁶See Aertsen 1993 and Kretzmann 1993, *contra* Sellars 1949.

⁷This idea survives in John Locke’s concept of adequate ideas: “Adequate ideas are such as perfectly represent their archetypes. Of our real ideas, some are adequate, and some are inadequate. Those I call adequate, which perfectly represent those archetypes which the mind supposes them taken from: which it intends them to stand for, and to which it refers them. Inadequate ideas are such, which are but a partial or incomplete representation of those archetypes to which they are referred” (Locke 1689, II, xxxi, 1).

and understanding, argues that percepts and concepts are analogous in that they have similar structures. We can interpret the similarity required for analogical inference or predication in structural terms.

This might suggest a common property: *having the same structure*. We might say that a and b are similar if there are properties G and H such that Ga, Hb , and $G \sim H$: G is isomorphic to H . This does not generate a shared property in any sense that would threaten the doctrine of analogical predication, for we might have no way to express what this structure is. Two structures can be isomorphic even if they are of different similarity types—that is, even if they model two completely different languages, which refer to completely disjoint classes of properties.

To make sense of Aquinas’s position, as this indicates, we must be careful about what we mean by common properties. Aquinas has in mind items from Aristotle’s categories. We might update this by thinking about intrinsic properties, as construing Thomas’s thesis as the claim that God and creatures have no intrinsic properties in common.⁸ We could also generalize to any philosophically interesting set of substantive properties—substantive, to set aside the question of whether God and creatures share logical properties such as self-identity. The claim could then be that no predicate in that set applies univocally to God and creatures. It would then be possible to construct a property applying to God and creatures univocally—e.g., “being or being analogous to God”—without threatening the analogical predication doctrine.

Further reflection on the idea of structural similarity suggests that isomorphism is not necessary for an analogy of this sort to work. There is far more structure in percepts than in concepts, for example. So, we might take a concept to apply to a percept only if there is a mapping from the former to the latter—more precisely, a homomorphism from components of the concept to components of the percept. That is, we need only a structure-preserving map from concept to percept (and not necessarily the other way around). The concept of homomorphism I have in mind is model-theoretic: a *homomorphism* h from $M = \langle D, \phi \rangle$ into $M' = \langle D', \phi' \rangle$ is a function from D into D' and basic terms and predicates of L_M into expressions of $L_{M'}$ such that

1. $h(f(a_1, \dots, a_n)) = f^h(h(a_1), \dots, h(a_n))$ for each n -ary function symbol f in L_M ,
2. If $A \models R(a_1, \dots, a_n)$, then $B \models R^h(h(a_1), \dots, h(a_n))$ for each n -ary relation symbol R in L_M .⁹

So, we might analyze arguments from analogy in terms of homomorphisms:

⁸I owe this point to Eleanore Stump. Wolterstorff (1991, 547-548) mentions the possibility of using intrinsic properties to explain the doctrine of divine simplicity, but does not develop it.

⁹Alexander Pruss has suggested that monomorphisms—homomorphisms in which h is one-one—are better representations of similarity of structure. The question is whether a representation might distinguish two or more items all of which represent the same thing. (Think ‘Hesperus’ and ‘Phosphorus,’ ‘Cicero’ and ‘Tully,’ etc.) For reasons that will emerge more fully in connection with God’s simplicity, I will assume that we should allow such representations, and so continue to speak of homomorphisms rather than monomorphisms. Anyone who disagrees is welcome to substitute ‘monomorphism’ for ‘homomorphism’ in what follows. In specific kinds of structures, moreover, it might be reasonable to demand a homeomorphism (a continuous mapping) or even a diffeomorphism (a differentiable mapping). I will not assume those structures here, since the properties with which we will be concerned are not quantifiable in any obvious way.

Argument from Analogy: Similarity of Structure

a is *F*

There is a homomorphism *h* from *a* into *b*

Therefore, *b* is *F**

This definition neither presupposes nor attributes any common property to *a* and *b*. The property attributed to *b* by way of the argument, *F**, must be related to *F*, the property attributed to *a*, but it need not be the same property. It might be the same, of course; the homomorphism from concept to percept, and the concept's being the concept of a cow, might lead us to conclude that the percept is a percept of a cow. But it might not be: the concept's being a concept that applies to cows might lead us to conclude that the percept contains a cow-shaped image. Other examples make the point more clearly. Freud, at a relatively early stage of his thinking, draws an analogy between the mind and a hydraulic system. Repressing a desire is like depressing a piston, which forces liquid to another part of the mechanism, pushing, say, another piston up. He concludes that repressing one desire leads to the formation of another, perhaps seemingly unrelated, desire. It is not obvious that desires and pistons have any properties in common. But that does nothing to defeat Freud's analogy. (The mapping from desires to pistons and vice versa is almost surely not structure-preserving, of course, but that is a different matter, a matter of the inadequacy of Freudian theory.) We have more faith in the theory that draws an analogy between electrons and waves in explaining the results of the double-slit experiment. That theory does not depend on electrons and waves having any properties in common.

Notice that, for this analysis of an argument from analogy to make sense, however, we must think of *a* and *b* as structured. That might be the case—concepts and percepts may be structured, for example, in a way that makes this an appropriate characterization—but *a* and *b* might also be elements in larger structures. So, an alternative formulation would be

Argument from Analogy: Similarity within Similar Structures

a is *F*

There is a homomorphism *h* from a structure containing *a* into a structure containing *b* such that $h(a) = b$.

Therefore, *b* is $h(F)$

The homomorphism from a picture of a cow to an actual cow might lead us to conclude that the cow is brown, for example. We might conclude this from the fact that the image of the cow in the picture is brown—a case in which $F = h(F)$ —or from the fact that the image of the cow in the picture is gray (if the picture is black-and-white, say). Similarly, we can diagram football plays on a blackboard with 'x's, 'o's, and arrows without those letters having any relevant properties in common with football players. Structural similarity is enough.

In some cases, the relation that permits one thing to represent another is one-many. Think of a map, for instance, in which a dot represents an entire town. The homomorphism may take one object into a set of objects. That is already included in the above

analyses, if we think of b as a set. But we might alternatively think of b as an element of a set (a location, say, in a town which we construe as a set of locations, or a neuron in a set of neural firings we identify with a certain mental event). That leads to yet another formulation:

Argument from Analogy: Similarity to a Set

a is F

There is a homomorphism h from a structure containing $a \in D$ into a structure containing a set $c \subseteq D$ such that $b \in c$ and $h(a) = c$.

Therefore, b is $h(F)$

It might seem strange to use homomorphisms to explicate Aquinas, since the first use of the term dates from 1935, roughly seven hundred years after the *Summa*. But the key idea is structural similarity, which, in Aquinas, most often takes the form of representation. *A representation represents what it does by virtue of being an analogue of it.* Representation thus provides the basis for arguments from analogy. The details of this particular account of structural similarity or representation are not important. Anyone preferring another account can substitute it for talk of homomorphisms.

Moreover, something akin to the idea appears in Aquinas. There are, effectively, homomorphisms from concepts to percepts, from percepts and thoughts to states of affairs in the world, and from the world itself to the mind of God. Correspondingly, we can draw inferences by analogy from concept to percept, from percept or thought to the world, and from the world to the mind of God. Perhaps the clearest appearance of the idea in Aquinas is his theory of truth. That theory is complex and controversial; I cannot get into the details of it here. But we could explicate his thesis that truth is the conformity of thoughts to things by saying that a thought (at least, a thought of a certain kind, e.g., an atomic thought) is true if and only if there is a homomorphism from that thought into the world.

So far, I have been speaking of arguments from analogy. The structural model of analogical argument, however, quickly converts into a theory of analogical predication. We might use F in place of F^* or $h(F)$, speaking analogically of the more complex structure being represented. We might, in other words, use the language that strictly speaking applies to a representation for the structure being represented. Or, we might do the reverse, speaking of a representation with words that strictly speaking apply not to the representation but to what it represents. In doing so, we are using F , F^* , or $h(F)$ analogically.

3 Approximation or Idealization

I have been arguing that structural similarity provides a model of analogical reasoning and, correlatively, analogical predication, that permits us to reason, among other things, from representations to what is represented and allows us to use terms that strictly speaking apply to representations for what they represent (or the reverse). There is a second model of analogical reasoning and predication that extends this idea to additional classes of cases—including, I shall argue, Aquinas's account of the relation

between our ideas of God and what they represent. It centers on the ideas of approximation and idealization. We might see it as an alternative to the structural model of analogy, but it might be better to see it as an alternative elaboration of that model. Sometimes, our representations capture aspects of what they represent precisely. Sometimes, they do so only approximately, by ignoring or abstracting away from complicating factors.

Consider, for example, a physicist's reasoning about a real-world situation. The physicist represents the situation in a model that simplifies—really, oversimplifies—the situation in various respects. It may, for example, ignore friction. It may treat masses as if they were concentrated in the center of the objects rather than spread throughout them. It may treat them as if they were spread evenly throughout the object rather than distributed unevenly. It may assume that no forces other than gravity are acting on the system from outside when in fact the system is subject to very small forces from a number of sources. The physicist reasons about the model and uses it to draw conclusions about the situation it represents. In this case, however, there is no homomorphism from the model into the actual situation, for a map from the domain of the model to the actual domain is not structure-preserving. It is *almost* structure-preserving; the relations among the elements of the model approximate those holding between the objects in the situation. But they do not capture them exactly.

This kind of approximation or idealization is common in social as well as natural sciences. Economists construct models of economic relationships. Sociologists construct models of family, organizational, and other social relationships. Biologists construct models of ecological relationships among species. In all of these cases, the correspondence between the elements of the models and the realities they represent is approximate rather than precise. The vast complication of reality is oversimplified in the model so that certain features of reality stand out more clearly.

Aquinas, I think, thinks of us as doing something like this in constructing concepts of God. Finite beings that we are, we cannot comprehend God's infinite qualities precisely. We are capable of thinking about God and even knowing something about God. But our concepts only approximate the properties of God. We devise idealizations of what God is that assimilate God to something we can understand, just as the physicist, economist, or sociologist uses idealizations that assimilate natural or social phenomena to things we can understand. There is nevertheless an important difference. The underlying complexity of a physical situation, a set of economic relationships, or a society is immense, but finite. God's complexity is infinite. Our inability to understand the physical and social worlds fully is contingent; our inability to understand God fully is necessary.

Our inability to understand God fully forces us to use imperfect and incomplete concepts in thinking about God:

...what our mind conceives the names of the attributes to mean are true likenesses of the reality which God is, although imperfect and incomplete, as is the case with anything else that is like to God. (CS I, 2, 1.3)

Our concepts of God and God's properties are incomplete in the sense that they cannot capture all aspects of God. They are imperfect in that they capture only inadequately

even those aspects of God that they can in some fashion represent. Our conceptual abilities allow us to represent God, but only approximately.

Thus far, Aquinas's account sounds metaphorical. But it can, I think, be made precise in a number of different ways. Some ways available in the literature depend on the relevant properties being numerical, which the properties of God do not appear to be, and use limit constructions in a way that would have to be construed as metaphorical when applied to thoughts of God.¹⁰ So, I shall pursue a more abstract analysis. Natural and social scientists use idealizations as ways of reasoning about complex situations. Their function is not ontological but epistemological. Their function, that is, is instrumental. They seek not so much to represent entities as to derive answers. We might think of them as reducing, from an epistemic point of view, a highly complex and indeed practically unmanageable problem to a more manageable problem, one we can solve by means available to us.

This idea of reducing one unmanageably difficult problem to another more accessible problem corresponds to a familiar notion in the theory of computability. Say that G is *Turing reducible* to H if and only if there would be an algorithm for solving G if a subroutine were available to solve H .¹¹ A *Turing reduction* of G to H is a function computable by an oracle machine with an oracle for H . The Church-Turing thesis states that Turing reducibility is the most general form of an effectively calculable reduction. So, Turing reducibility can serve as an abstract analysis of idealization or approximation. A scientist using an idealization Turing-reduces an unmanageable problem to a manageable one.

Indeed, Turing reducibility is an especially good analysis of what Aquinas has in mind, for the sort of complexity for which it is suited is not merely of the vast, finite, practically unmanageable variety the scientist faces, but the infinitely unmanageable sort of complexity God poses for a finite mind. G is Turing reducible to H if and only if G is H -recursive: If we could complete the infinite task of determining whether H holds, G would be decidable. We wonder, say, whether b is F^* , and, finding that problem too complex to address directly, ask whether a is F . That problem is computable, and, if we could complete the infinite task of relating the problems precisely, we could conclude with certainty, from a 's being F , that b is F^* . We cannot, of course, complete that infinite task. Our conclusion is thus defeasible rather than deductive. But Turing reducibility supports an argument from analogy of the form:

Argument from Analogy: Turing Reducibility

a is F

There is a Turing reduction of F^* to F relating a to b

Therefore, b is F^*

This differs from our earlier analyses in that the conclusion is defeasible; it is not guaranteed by the truth of the premises. A homomorphism may relate a and b in such a way that F^*b follows deductively from Fa ; a Turing reduction does not, for an infinite task intervenes.

¹⁰See, for example, Batterman 2002.

¹¹For systematic expositions of Turing reducibility and related concepts, see Davis 1985 and Rogers 1987.

This analysis of arguments from analogy gives rise to a theory of analogical predication. We might use the predicate F , applicable directly to our idealized model, in speaking about what we are modeling. Alternatively, we might use F^* , applicable directly to the reality being modeled, to speak of elements of our idealization. Either way, we are speaking analogically. F might be said to apply directly to elements of the model and analogically and indirectly to elements of what we are modeling.

Applying this to talk and thoughts of God, we might think of the predicates we use as applying directly to created things and only analogically and indirectly to God. Or, we could think of them as applying directly to God and only indirectly and analogically to creatures.

As I see it, Aquinas chooses the former alternative, at least when we speak of what is direct or indirect from an epistemological point of view, in the order of knowledge, to use the Aristotelian phrase. Our ideas of God really are likenesses of God. But they are imperfect likenesses. They would be perfect if we could complete an infinite process—which, of course, as finite beings we cannot do.

In this life we cannot see the essence of God; but we know God from creatures as their principle, and also by way of excellence and remotion. In this way therefore He can be named by us from creatures, yet not so that the name which signifies Him expresses the divine essence in itself. (ST Ia, 13, 1)

Call ideas, sets, or properties one of which can be Turing-reduced to the other *analogues*. Then we can say that the ideas we apply to God are analogues of God.

4 Divine Simplicity

Aquinas's doctrine of divine simplicity might seem to pose a serious threat to this construal of the doctrine of analogical predication. God, Aquinas maintains, is absolutely simple. There is a huge literature debating what this means.¹² But some central components of the thesis appear to be:

1. God has no parts.¹³
2. God has no intrinsic accidental properties.
3. God is His own essence.

¹²Since this is not a paper about simplicity, I cannot discuss this literature in any detail here. For central contributions, see Bennett 1969; Mann 1975, 1982, and 1986; Morris 1985 and 1988; Stump and Kretzmann 1985 and 1987; Burns 1989; Wolterstorff 1991; Vallicella 1992; Rogers 1996; Lamont 1997; Oppy 2003; Leftow 2006 and 2009; Saeedimehr 2007; Pruss 2008; Brower 2008 and 2009; and Stump 2003a, 2003b, and in press.

¹³Bennett (1969) denies this, holding instead that “a simple thing is an organization of parts, parts which includes states and activities and episodes of the thing, but a simple thing is identical with its parts” (629). If his understanding is correct, then simplicity obviously poses no threat to the models of analogical predication that I have developed here.

4. All perfections are identical in God.¹⁴

If God has no parts, then how could we see God as structured? We could still, of course, see what we say of God as structured, and see God as playing a role within a structure including his creations. A more serious problem stems from the last of these theses. If all perfections are identical in God, how can the predicates we apply to God—‘omniscient,’ ‘omnipotent,’ ‘omnipresent,’ ‘*a se*,’ ‘good,’ to name just a few—be true likenesses of God?¹⁵

In principle, this is no more puzzling than the thought that a scientist might use different idealizations to illuminate different aspects of a single, difficult problem. The complexity of a situation might be such that no single model can succeed in bringing out all the aspects of it that we want to study. The same is true of God. We use different idealizations in the attempt to describe the same transcendent reality.

Note that the multiplicity of meaning arises from the fact that the reality which is God is above our minds. For our minds cannot take in in one conception different modes of perfection.... (CS I, 2, 1.3)

The multiplicity in our models of God is an artifact of our inability to understand God completely. But the multiplicity is in our models, not in God.

The perfect unity of God requires that what are manifold and divided in others should exist in Him simply and unitedly. Thus it comes about that He is one in reality, and yet multiple in idea (*secundum rationem*), because our intellect apprehends Him in a manifold manner, as things represent Him. (ST Ia, 13, 4)

Let’s return to the distinction between ideas and properties, and, correlatively, between I-extensions and P-extensions. When our idea corresponds to the property completely and perfectly, these extensions are identical, for the things to which the idea applies are precisely the things having the property. When they differ, however, the idea may be inadequate to the property, and the sets can diverge. The idea may apply to something that fails to have the property it represents. Or it may fail to apply to something having that property.

This is what happens with our ideas of God. We have an idea of goodness, for example, derived from our interactions with the things of this world. It approximates, but does not represent completely and perfectly, the property of goodness. We use the features of things of this world as models for the features of God. We find the problem of understanding God unmanageable, in other words, and Turing-reduce it to the problem of understanding things of this world. We draw conclusions about God from observations about the world and the creatures within it. We draw conclusions about this world and the things in it from premises about God. Those conclusions are

¹⁴I intend this to be ambiguous between strong and weak interpretations—between what Morris (1985) calls the property and property-instance views. Stump (in press) leaves this thesis out altogether. It raises a number of puzzles. It does bring certain advantages, however, linking God’s power (of creation, for example) to God’s knowledge and goodness, thus allowing the cosmological or teleological argument to derive God’s full perfection from one specific perfection.

¹⁵See, e.g., Wolterstorff (1991, 533-34).

legitimate, but defeasible. Our ideas apply directly to the things of this world, but only indirectly and analogically to God. The properties of God, then, are represented only incompletely and imperfectly by our ideas.

Thus also this term 'wise' applied to man in some degree circumscribes and comprehends the thing signified; whereas this is not the case when it is applied to God; but it leaves the thing signified as uncomprehended, and as exceeding the signification of the name. Hence it is evident that this term 'wise' is not applied in the same way to God and to man. The same rule applies to other terms. Hence no name is predicated univocally of God and of creatures. (ST Ia, 13, 5)

In fact, Aquinas holds, those properties are all identical to one another, and to God. It is important to keep those two claims distinct. God might be simple in the sense that all God's properties are identical—in the sense, that is, that God has only one property—without God *being* that property.

There is much that is counterintuitive in Aquinas's account, but it is in one sense a familiar strategy. 'Omnipotent,' 'omnipresent,' 'omniscient,' '*a se*,' 'good,' 'wise,' 'exists,' etc., differ in sense, but have the same referent. Just as it is a necessary truth that Hesperus = Phosphorus, so it is a necessary truth that omnipotence = omniscience = aseity and so on. We could carry out this strategy in a strong form, identifying the properties in this way, or in a weak form, identifying their tropes: God's omnipotence = God's omniscience = God's aseity, and so on. In either case, the doctrine of analogical predication, though it does not entail the doctrine of divine simplicity, is compatible with it, and in fact demonstrates its consistency.¹⁶

That consistency has often been challenged. Hughes (1989) and Wolterstorff (1991), for example, argue that strong simplicity is obviously false: not everything good is wise, not everything wise is omniscient, etc. But this ignores the distinction between ideas and properties. 'Wise' and 'omniscient' plainly differ in I-extension; the idea of wisdom is not materially equivalent to the idea of omniscience. But that does nothing to show that they differ in P-extension. It is consistent to maintain that the terms we apply to God differ in I-extension, having been crafted by us to apply directly to creatures, but nevertheless are identical in P-extension, for the property they all incompletely and imperfectly represent is the same property. Wolterstorff (1991, 535) finds it obvious that they do *not* represent the same property. But that intuition seems to rely on taking the ideas we have of these properties as adequate representations of them, something Aquinas denies. Finally, Hughes argues that the simplicity thesis tells us nothing distinctive about God. But that is not true: the single property that all these ideas incompletely and imperfectly represent *is* God. Even on a weakened version of the view, which does not identify God with that property, it would be *the* property of God.

¹⁶The doctrine would be consistent even if the various predicates we apply to God analogically were mutually inconsistent. As Rogers 1996 notes, John Scotus Eriugena ascribes incompatible properties to God: "Good and Not-Good, Wise and Not-Wise, Being and (yes!) Not-Being" (169). That yields a truth value glut at the analogical level, but the underlying theory of God would remain consistent, for the contradictions would emerge in our ideas—Aquinas would say *secundum rationem*—not in the property or thing itself.

5 Against Negative Theology

So far, I have been offering models of analogical predication to show that the doctrine is consistent, in itself and with the doctrine of divine simplicity. The models also show how analogies between God and the world could make thoughts about God intelligible and in fact give us grounds for drawing conclusions about God from premises about the world. Nothing I have said so far, however, offers any reason to adopt a doctrine of analogical predication. Indeed, Hughes 1989 argues that there can be no such reason:

...we would need an F such that “God is good” is synonymous with “God is F ,” while “This creature is good” is not synonymous with “This creature is F .” What could F be? ...it appears that the kinds of considerations that can be appealed to in favor of the idea that healthiness cannot be predicated univocally of medicines and animals, cannot be appealed to in order to support the idea that goodness is not predicated univocally of God and creatures. Since I don’t know of any other considerations that make plausible the idea that God and creatures cannot be said to be good in exactly the same sense, I think we should conclude that goodness, wisdom, and the like are predicated univocally of God and creatures. (To paraphrase Occam, equivocality should not be posited without necessity.) (Hughes 1989, 70-71)¹⁷

Hughes wants precisely what the advocate of analogical predication cannot provide—a substantive predicate F that applies directly and nonanalogically to God. Consequently, such an advocate should reject his demand. But the challenge remains. Is there any independent argument to be given for thinking that we can predicate things of God analogically? Why not assume, as Hughes does, that univocal predication is possible? Alternatively, why not adopt apophaticism, staying within the strict bounds of the *via negativa*?

I propose to answer that challenge. Here is the key to an argument for the doctrine of analogical predication independent of that doctrine itself or of the doctrine of divine simplicity:

1. Our minds are finite.
2. Our conceptual abilities are finitely characterizable (relative, e.g., to some set of recognitional capacities).
3. Our conceptual abilities are thus limited.
4. But God is unlimited.

This is the argument that Hughes misses. Aquinas cannot argue for analogical predication by specifying a predicate of the kind Hughes wants, for his argument rests on

¹⁷Hughes’s talk of equivocality here should raise alarms, for Aquinas distinguishes analogical predication from both univocal and equivocal predication. A predicate is predicated univocally if applied in the same sense, and equivocally if applied in two or more independent senses. There remains the possibility of it being applied in distinct but not independent senses, which is analogical predication. Admittedly, this requires distinct senses of the predicate, but falls short of ambiguity or equivocation.

the unavailability of any such predicate, and, correspondingly, the absence of any specification analogous to ‘conducive to health.’ The problem that generates the need for analogical predication is our inability to conceptualize God completely and adequately.

...the total perfection of God’s substance cannot be represented in the conception of a created mind. (CS 1, 2, 1.3)

That also generates our need for different predicates to try to understand God’s nature. A single model or idealization can help us to understand only some aspects of God. Multiple models allow us to do better.

...our multiplicity of words for God arises from the fact that God himself is greater than our mind; and this depends partly on his fullness of perfection, and partly on our mind’s inability to comprehend that. (CS 1, 2, 1.3)

We might put the argument in this form. God is not finitely characterizable. In fact, God is not even *partially* finitely characterizable. The problem is not just that we cannot go on long enough to characterize God. Anything we try to say will be inadequate. Our conceptions are not only insufficient but imperfect. In some respects they get things wrong.

I want to suggest an analogy that might be illuminating. Suppose it were possible to represent God as a set—a set of circumstances, perhaps, or a set of expressions (say, the set of true sentences containing ‘God’). A set is finitely characterizable if it is effectively enumerable—if, that is, there is a mechanical and infallible method for generating the members of the set.¹⁸ Some sets are not finitely characterizable, but have infinite, finitely characterizable subsets. They are partially finitely characterizable.¹⁹ Others are not finitely characterizable and have no infinite finitely characterizable subsets. Call those sets *immune*.²⁰ Here is one way to put the argument: If God were to be represented as a set, God would have to be represented as an immune set, one that is not even partially finitely characterizable.

This might seem incompatible with the simplicity of God. A set is a multiplicity, after all, and an immune set is highly complex. But we could still think of God as being simple, and being identical with a single property, for example. That property would however be highly complex from our limited point of view.

Suppose that God is analogous to an immune set. By Dekker’s theorem, every immune set is Turing reducible to an effectively enumerable set.²¹ So, *every immune set has analogues*. We could not say anything literally, univocally, and directly about God, but we could speak about God analogically, by way of predicates understood as applying directly to the analogues. God, though not finitely characterizable, would be Turing-reducible to finitely characterizable analogues. Those analogues are our ideas of perfections: perfect power, knowledge, goodness, wisdom, and so on.

¹⁸A set is finitely characterizable, therefore, if and only if it is axiomatizable. The terminology may be misleading here, for I do not require finite axiomatizability. The axiomatization of Peano arithmetic using the induction schema, for example, can be characterized finitely, even though the set of axioms is not itself finite.

¹⁹Gödel’s theorem, for example, states that the set of true sentences of arithmetic is partially finitely characterizable in just this sense.

²⁰See Post 1944, Dekker 1953 and 1955, and Rogers 1987.

²¹See Dekker 1953 and 1955.

If the analogy between God and an immune set holds, it explains how true statements about God are possible. Dekker's theorem guarantees the existence and plurality of analogues of God.

True affirmative propositions can be formed about God. To prove this we must know that in every true affirmative proposition the predicate and the subject signify in some way the same thing in reality, and different things in idea (*diversum secundum rationem*). (ST Ia, 13, 12)

Dekker's theorem thus provides an argument against apophaticism. It guarantees the existence of analogues of the property or properties of God, allowing us to speak of and reason about God analogically. It thus shows the way to escape the pull of the *via negativa*. Creatures do not possess true wisdom, goodness, power, etc.; our ideas of those attributes, and thus of God, are incomplete and imperfect approximations. But Dekker's theorem tells us that we can always find such incomplete and imperfect approximations, one that are close enough to permit us to reason defeasibly about God even if we cannot have ideas that are fully adequate to God's nature.

Our thought that Socrates is wise is true by virtue of the fact that our idea of wisdom applies to Socrates. We craft the idea of wisdom by interacting with creatures such as Socrates, and develop rules for applying the idea that Socrates satisfies. But our idea of wisdom is only an incomplete and imperfect representation of wisdom itself. Our thought that God is wise is true analogically, for although our rules for applying the idea of wisdom are designed for creatures and do not apply directly to God, our idea is an analogue of wisdom itself, and God has, or, better, Aquinas asserts, *is* wisdom. This suffices to give us a kind of knowledge of God:

...these names signify the divine substance, and are predicated substantially of God, although they fall short of a full representation of Him. (ST Ia, 13, 2)

An idea represents a property, and may represent it completely and adequately, in which case the I-extension and P-extension of the idea are identical. It may represent it partially, in which case its I-extension is an infinite subset of its P-extension. Call a property *transcendent* if and only if no idea even partially represents it.²² Aquinas seems to adopt what we might call the *Perfections Thesis*: *perfections are transcendent*. No ideas even partially represent perfect goodness, power, and so on.

Therefore the aforesaid names signify the divine substance, but in an imperfect manner, even as creatures represent it imperfectly. (ST Ia, 13, 2)

We design our ideas to apply, or fail to apply, to creatures. Their application to things of this world is primary; we can extend them to God only by analogy. But those ideas also represent properties, and the properties apply or fail to apply, primarily, to God, and only analogously to creatures. Ideas apply primarily to creatures; properties apply primarily to God.

²²This differs considerably from other conceptions of transcendence in the literature. Kvanvig 1984, for example, understands God's transcendence in terms of "His essentially being the Creator of all that is" (386).

As regards what is signified by these names, they belong properly (*proprie*) to God, and more properly than they belong to creatures, and are applied primarily to Him. But as regards their mode of signification, they do not properly and strictly apply to God; for their mode of signification applies to creatures. (ST Ia, 13, 3)

Hence as regards what the name signifies, these names are applied primarily to God rather than to creatures, because these perfections flow from God to creatures; but as regards the imposition of the names, they are primarily applied by us to creatures which we know first. Hence they have a mode of signification which belongs to creatures, as said above. (ST Ia, 13, 6)

Since we craft ideas using creatures as our models, ideas are primary in the order of knowledge. But the properties are primary in the order of being:

Thus, therefore, because we come to a knowledge of God from other things, the reality in the names said of God and other things belongs by priority in God according to His mode of being, but the meaning of the name belongs to God by posteriority. And so He is said to be named from His effects. (SCG I, 34)

Despite this difference in priority, and despite our ideas' inability to represent God even partially, we can reason from the world to God, drawing conclusions about God from our interaction with the world.

...our knowledge of God is derived from the perfections which flow from Him to creatures, which perfections are in God in a more eminent way than in creatures. Now our intellect apprehends them as they are in creatures, and as it apprehends them it signifies them by names. (ST Ia, 13, 3)

This is possible because we craft our ideas as ideas of the properties, and not fully independently of them. We know perfections only through creatures, but there is a causal relation between God's goodness and the goodness of the creatures, and that is enough to relate the idea to the property in a way that permits us to draw inferences by analogy.

For the idea signified by the name is the conception in the intellect of the thing signified by the name. But our intellect, since it knows God from creatures, in order to understand God, forms conceptions proportional to the perfections flowing from God to creatures, which perfections pre-exist in God unitedly and simply, whereas in creatures they are received and divided and multiplied. (ST Ia, 13, 4)

We are finally in a position to understand Aquinas's talk of proportionality. Our ideas are proportional to the properties they represent; Socrates's wisdom somehow relates to the wisdom of God by proportion. The causal connection between our idea of wisdom and the wisdom of God suffices for that proportionality. We can draw an analogy only

if there is some proportional relation between our idealization and what it idealizes. There will be such a proportional relation if our idealization stands in the right kind of causal relation to what it models. Aquinas says little to shed light on the kind of causal relation required, the kind of proportionality in question, or the connection between the two. But that is a problem for any externalist theory of content, and Aquinas's theory of analogical predication, contrary to initial appearances, turns out to be such a theory.

6 Philosophical Applications

The doctrine of analogical predication, to the extent that it has ever been popular, has been thought to have importance primarily within the philosophy of religion as explaining how it is possible for us to think about and have knowledge of God. I want to close by suggesting that it has much broader application. Aquinas meant the doctrine of analogical predication to generalize Aristotle's point that 'being,' 'good,' 'healthy,' and so on are said in many senses—specifically, many related senses clustering around some core, focal meaning. That suggests that the doctrine should have important implications for metaphysics and ethics. The concepts of structural similarity, representation, and idealization, moreover, range over many different areas of philosophy. Anywhere we find them there is a potential application of analogical predication.

What makes the concept so useful is its dual role. We may understand something as an analogue or as something that has an analogue. To use the structural model, we can understand something as a representation or as something represented. To use the approximation model, we can see something as an idealization or as something idealized—as a model or as something modeled.

I think the concept of analogical predication can illumine many different kinds of relationships. I cannot argue for them here in detail. But I can mention some to give a taste of the possibilities.

One class of applications pertains to concepts that might be thought to be transcendent. Think, for example, of the good or the right. We might seek an analysis of the good or the right in terms of happiness, virtue, universality, or anything else you like. But we could also see these and other normative concepts as transcendent. That is, we might see them as immune, not even partially finitely characterizable relative to other terms. That would mean that the good and the right (or, more generally, all normative terms) are indefinable, and can be represented only approximately in other terms.²³ That would permit fainthearted, *ceteris paribus* characterizations—e.g., “what maximizes happiness is, other things being equal, right”—while denying the possibility of any more stouthearted analyses.²⁴ It would also imply the possibility of normative principles (e.g., “other things being equal, do not steal”) while denying the possibility

²³G. E. Moore (1903), in arguing that goodness is a nonnatural property, in effect argues for its transcendence in this sense. Transcendence precludes the possibility of defining 'good' in terms of anything that is not itself transcendent. It does not preclude supervenience, however, since supervenience might be seen as an infinitary generalization of interpretability that imposes no constraints on expressibility. See Bonevac (1995).

²⁴I mean 'fainthearted' in the sense of Morreau 1997. I have elaborated an approach to ethics along these lines in Bonevac 1991 and 2004.

of strictly universal rules (“never, under any circumstances, steal”).²⁵ Truth and beauty would also be candidates for this sort of treatment.

Transcendent concepts, in short, could be understood as Aquinas understands God, as simple properties that we can understand only by using multiple incomplete and imperfect ideas to approximate them. We could draw inferences from those ideas to the properties, but only defeasibly; our use of ‘good,’ ‘right,’ ‘beautiful,’ and the like would have to be understood as analogical.

There are many other potential applications in various areas of philosophy:

1. *Concepts, Percepts, and Things.* Starting from Sellars’s interpretation of Kant, we could see concepts of certain kinds as analogues of percepts, which in turn are analogues of things. We might explicate the analogue relation either in terms of representations (e.g., homomorphisms) or in terms of idealizations (e.g., Turing reducibility). We could thus account for inferences from concepts to percepts, and from percepts to the world, justifying them while at the same time accounting for their defeasibility. We could explain how it is possible for us to use much the same language in speaking of concepts, percepts, and things, for, no matter which domain we introduce our terms to describe directly, they apply to the other realms analogically.
2. *Sentences, Thoughts, and States of Affairs.* We could find a similar relation among entities of something like propositional form and content, seeing sentences of certain kinds as analogues of thoughts, which in turn are analogues of states of affairs. Again, we could think of these in terms of representations—deriving something like a picture theory of language for a restricted class of sentences, and a correspondence theory of truth for thoughts and, indirectly, for sentences of that restricted class—or in terms of idealizations.
3. *Experience, the Manifest Image, and the Scientific Image.* We might think of experience as an analogue of certain aspects of the manifest image of the world, the world as it is presented to us and in terms of which we understand ourselves, and of that image as in turn an analogue of the scientific image of the world. We could thus account for the possibility of defeasible inferences from information about experiences to information about the objects of experience and then from that to information about the scientific image, which, from the perspective of scientific realism, would yield information about things in themselves.
4. *Substances and Forms, Essences, or Kinds.* We could think of substances as analogues of forms, essences, or kinds, or of forms, essences, or kinds as analogues to substances. We might, for example, think of a kind as an idealization of a substance or a class of substances. We might think of a substance as an approximation to a form or essence. In this way we might be able to make sense of Plato’s claims that objects of experience are merely imperfect copies or images

²⁵The *locus classicus* for this sort of view is of course Ross (1930), which in turn draws inspiration from Aristotle: “We must be content, then, in speaking of such subjects and with such premisses to indicate the truth roughly and in outline, and in speaking about things which are only for the most part true and with premisses of the same kind to reach conclusions that are no better” (*Nicomachean Ethics* I, 3).

of forms, reading him as putting in figurative terms the representational or idealization relationship that enables us to infer things about substances from things about forms, essences, or kinds, or vice versa.

5. *Scientific Theories and Models.* We might think of scientific theories or models as idealizations of either experience or objects and relationships in the world.²⁶ Conversely, we might think of the world of experience as an idealization of or approximation to the objects in the domain of our scientific theories. We could thus explain how we are able to infer things about experience or the world from our theories and models, and how we are able to infer things about our theories and models from information about experience or the world, while also explaining the approximate nature and defeasibility of those inferences.²⁷ We could understand why we can use language directed toward experience or the ordinary objects we encounter in it in our scientific theories, while also using terms from those theories in everyday discourse, in terms of analogical predication. Note that we could do this even if the theories or models we use are mutually inconsistent, as are wave and particle theories of light, or general relativity and quantum mechanics.²⁸
6. *Mathematics.* We might think of mathematical domains as analogues of applied, e.g., physical, domains. But we might also see the physical world as an analogue of mathematical domains. It seems plausible to think of a mathematical model as an approximation to a physical reality, for example; the point of introducing the model is to bring out certain aspects of the structure of that reality while omitting others. But we might also see mathematics as providing one or more containers into which we can map reality.²⁹ Mathematical models may represent reality while, at the same time, reality can be viewed as a physical representation of abstract relationships. Either way, we could explain why mathematical terms apply to reality in terms of analogical predication.

These are only very brief sketches of the possible uses of analogical predication. If Aquinas's doctrine can be defended in its intended use as an explanation of our knowledge of God, it may be useful in many other ways as well.

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²⁶For accounts of science along these general lines, see Hesse 1966 and Giere 1999, 2006.

²⁷See, for example, Cartwright 1983.

²⁸I owe the light example to Eleanore Stump. See Stump (in press). On her view, Aquinas sees God both as *esse* and as *id quod est*, even though he understands these as incompatible, without attributing any contradiction to God.

²⁹For such an account of mathematics, see Bonevac 2008.

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