

COMMENTARY: “On the Mathematical Beauty of Avicenna’s Model of the God-World Relation,” by Matthew Williams

In his paper “Contrasting Models of the God-World Relationship: Avicenna, Maimonides and Al-Shahrasānī,” Harrington Critchley makes a very cogent argument for the superior adaptability of Avicenna’s model for the necessary existence of God, as compared to Maimonides’ and Al-Shahrasānī’s own. Though there are certainly problems to be found in Avicenna’s model, I would prefer to take this opportunity to admire rather than critique it.

Certainly, since the time of Avicenna at least, there have been more scientifically-minded and evidentially-structured models seeking to show God’s necessary existence—I am here thinking chiefly of William Paley’s “Evidence of Design,” and Robin Le Poidevin’s “Are We the Outcome of Chance or Design?”—that argue the same thing he does; however, few if any express the same sort of *mathematical beauty* in their formulation. Though it would be nearly another 850 years before Georg Cantor developed the ‘Theory of Sets’ in mathematics, Avicenna we see a very basic, yet elegant operation of these same principles.

In set theoretical mathematics, the basic premise is that the *entirety of the world* can be broken down into these abstract representations that we call sets. While this relates primarily to mathematical objects such as numbers, it can be applied to real objects as well. In a way, Avicenna accomplishes this with his representation of God as the “Necessary Existent.” Wish that I could go into greater detail on this for the sake of formal proof than space allows me, but as I cannot I ask that my audience grant me some

liberties in making certain claims and assumptions. I assure you, all of them are valid; they merely want of a fuller explanation than I may give here.

The most basic premise of Avicenna's is that 'the Necessary Existent "has no cause," so as to be necessary "in *all* [His] aspects"' (emphasis my own). This tells us that the most prominent attribute of God is His necessity. Even his relationship with all his other attributes is secondary to this one, out of which they obtain. Right out of the gate here, we are presented with the primary relation of both God and the universe itself: The nature of necessity. Now, if God cannot be defined in terms of his other attributes without them in turn being defined by necessity, it follows that his other traits are an *output* of necessity.

In this way, we are granted the authority to claim that God is *defined by his relation to necessity*; or that xRx , where x can be *either* God or necessity, for they mean in this case one and the same thing: That without which none else may exist. Recall that God's other attributes are outputs of *their* relation to necessity. So, for example, God's transcendence *must* exist because it is necessary that God is transcends the material universe he created in order to *have* created it. This we can define as $y = \text{transcendence}$ and belongs to the ordered pair of $\langle x, y \rangle$, where any $\langle x, y \rangle = \{ \{ x \}, \{ x, y \} \}$. Essentially, this tells us that all of God's other attributes—such as his transcendence—are outflows from his necessity and these attributes cannot exist separately from it.

"Now," one might be tempted to say, "that is all very well and good, but what about the *contingent order*?" i.e. the World and its tiers. "Surely the kind of necessity we speak of when we talk of God is not the same we speak of when we talk of contingent existence." At first blush it seems this is true. After all, how can he who is outside of

space-time be a product of the same sort of necessity that we are? But it is just this formulation of the question that is mistaken; instead we should ask how *we* could be a product of *his* type of necessity. As God is the Necessary Existent, his very existence defines the scope of understanding for necessity. And there is nothing within this scope that it would be remiss in its use to describe his relation to us. If necessity is not the problem here, then it must be our understanding of *contingent*.

By contingent, we can take Avicenna to mean as ‘having a dependence upon some absolute transcendent necessary being to create it.’ If we take this as our definition, then it follows logically that the world itself (*a*) is a further output of God’s necessity (a set *A*), such that it is both an element and a subset of it ($a \subset A$). However, the modes of being for the Necessary Existent and the contingent world are too different for this alone to be enough; we must disjoint them somehow. In order to make them disjoint we must conceive of world’s relation to God as somehow being *functional*. Thankfully, Avicenna provides one such possibility in the contingent world possessing the same *form* of necessity, but not the same degree, because God encompasses even the negation of those features which are ascribed to him. This negation is an outflow of his true being.

Existence in the contingent world then is a function of God. It stems in the first place from the fact that the domain of necessity acts upon all attributes of God, including those which are negated of him. So, those negated attributes, while necessary, cannot exist *within* God; as a result, they find themselves the function of an external expression of God’s necessity, such that $\forall a \in \text{dom}(F) \exists! b \in \text{ran}(F), aRb$. In short, every negated element of God (the domain) which by definition cannot be contained within himself are represented in the world as expressions of the range, via a relation of necessity.

Thus, we have a functional relationship between the Necessary Existent and the contingent world that has but a single element at its base: The concept of necessity. Though I have rather messily gone about constructing this set theoretical representation of Avicenna's argument for the existence of God—indeed, I have skipped whole proofs in the process—it has much merit and a sense of mathematical elegance to it that one does not see in other models. Given more time, I believe it would be possible to create a properly rigorous version of this. However, in as loose a form as time has allowed, I hope to have shown at least a small fraction of the mathematical beauty inherent in Avicenna's model of the God-World.