

## ARTICLE

# Recent Work on Traditional Arguments for Theism I

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**Abstract**

I survey recent and overlooked work on three of the most common and perennial arguments for theism: cosmological, ontological, and design arguments.

## 1 | INTRODUCTION

Theism is the view that there is a personal God like that worshiped by Jews, Muslims, and Christians. Theistic arguments are arguments for (or the rationality of belief in or commitment to) the existence of a concrete being with at least one God-like attribute, such as necessity, God-like power or knowledge, ground of morality, creator or designer of the natural world, and so on. In this article, I survey recent and overlooked work on three of the most common and perennial theistic arguments: cosmological, ontological, and design arguments. A sequel article will be devoted to four other traditional theistic arguments: from morality, miracles, experience, and pragmatic considerations.<sup>1</sup>

## 2 | COSMOLOGICAL ARGUMENTS

Theistic arguments with perhaps the most august pedigree are cosmological arguments, which, broadly construed, seek to demonstrate the existence of a transcendent cause or explanation of the cosmos or some universal constituent thereof (e.g., things which change, are caused, in motion, contingent, composite, dependent). Craig's (1980) trifold classification of cosmological arguments into those which reject ontological regresses (Thomistic), temporal regresses (Kalam), and have no reference to regresses (Leibnizian) is coarse-grained but useful enough for our purposes.

The first three of Aquinas' Five Ways, the *loci classici* of cosmological arguments, will always have their defenders (see Arp, 2016; Feser, 2009; Wippel, 2000), but, as far as I can tell, await significant refreshment (but see Bonevac & Koons, MS).<sup>2</sup> But it must be said that excerpting them as they appear in the *Summa Theologiae*, with little or no discussion of the all-important distinction between a series ordered *per se* and a series ordered *per accidens*, is an unfortunate fixture in many introductory courses and texts. In a series ordered *per accidens*, it is up to each member in the series to continue the series by actively passing on something it received to another. Aquinas gives the example of humans begetting humans. Or think of how things are shared and re-shared on social media. By contrast, in a series ordered *per se*, it is not up to each member in the series to continue the series, but rather each member passively passes on something it receives from an earlier member. A classic example would be falling dominos. Anyway, concerning the first three Ways, Aquinas is dubious only of an infinite series ordered *per se*, arguing that

an initiator is required (for recent work on this distinction and its relevance to the Ways, see Kerr, 2012; Cahoe, 2013; Schmid, 2021b).

The Kalam argument—whatever begins to exist has a cause; the universe began to exist; so, it has a cause (see Miller, 2014 for Bayesian formulation)—has received much more attention. The scientific case for a beginning of the universe is stronger than ever (Copan & Craig, 2018; Craig & Sinclair, 2012), and Craig's well-known philosophical arguments to that effect are being joined by new ones. Nowacki (2007) contends that events are properly conceived of as real changes in substances, and since there cannot be an infinite number of substances, there cannot be an infinite number of past events. Nowacki supports the intermediate premise with a new thought experiment against the possibility of a "hyperlump", a lump of clay composed of "a denumerably infinite quantity of different colored handfuls of clay that have been firmly pressed together" (243). The hyperlump, being as substance in its own right, must have a surface and determinate shape. But it cannot have a surface and determinate shape if we can perform inverse operations on it, say, by adding and subtracting handfuls of clay, because it would be ever changing. So, a hyperlump—and, by implication, an actual infinite number of substances—is impossible. If events are real changes in substances, an infinite number of past events is likewise impossible.

Another thought experiment, the Grim Reaper paradox, has won wider acclaim (see Koons, 2014, 2017). Imagine Fred, though alive at 10 p.m., has a grim reaper assigned to kill him at 12 p.m. just in case the reaper assigned to kill him at 11:30 p.m. fails, and that one just in case the one at 11:15 p.m. fails, ad infinitum. It seems impossible that Fred survive, yet also impossible that any reaper cuts him down: the deed always falls to a reaper assigned to an earlier time. This (and similar paradoxes) is taken to support causal finitism (on which see Pruss, 2018b; Schmid, 2021a), the view that nothing, including time itself, can have an infinite causal history. Adding that there cannot be causal loops yields a straightforward argument for the existence of an uncaused cause: If all causes that are causally related must be distinct, as required by the impossibility of causal loops, and nothing can have an infinite causal history, then not every cause that's causally related to other causes has a cause. In other words, there is an uncaused cause. Other recent monographs defending the Kalam are Loke (2017) and Erasmus (2018).

Recent work on Leibnizian-style arguments owe much to Koons (1997).<sup>3</sup> Koons derives from several axioms of mereology the conclusion that the cosmos, defined as the sum of all wholly contingent things, is itself a wholly contingent thing. If every wholly contingent thing has a cause—the central premise of Koons' argument—it follows that the cosmos has a cause that is not a contingent thing. Other arguments from contingency to a necessary being rely more explicitly on a Principle of Sufficient Reason (PSR), such as: every thing that exists has an explanation, either in an external cause or in the necessity of its own nature (Craig, 2007; Davis, 1999); every contingent fact has an explanation (Pruss, 2006, 2012b); for any concrete things that are contingent, there is an explanation of the fact that those things exist (Pruss & Rasmussen, 2018).

It has become trendy to give a modal twist to cosmological arguments by arguing that the existence of God-like being follows, not from some phenomenon C's having a cause or explanation, but from C's *possibly* having a cause or explanation. Here are some representative examples of key premises in modal cosmological arguments:<sup>4</sup>

- The fact that there exist just the changeable things that do exist possibly has an explanation (Leftow, 1988).
- The conjunction of all contingent truths possibly has an explanation (Gale & Pruss, 1999).
- The first contingent thing to exist is possibly caused to exist (Rasmussen, 2011; Turri, 2011).
- An event that includes all and only contingent substances possibly has a cause (Rasmussen, 2010; Rasmussen & Weaver, 2018; Weaver, 2016).
- Its beginning to be the case that there are contingent things possibly has a cause (Pruss & Rasmussen, 2018; Rasmussen, 2010).

An informal exposition of one of these arguments will help give an idea of how they generally proceed. It seems that Gale and Pruss started this trend, so I'll focus on theirs.<sup>5</sup> They begin with their "weak" PSR (WPSR): for any proposition  $p$ , if  $p$  is contingently true, then *possibly*, there is a proposition  $q$  that explains  $p$ . Now suppose all

contingently true propositions form a big conjunctive proposition, BCCP.<sup>6</sup> By WPSR, possibly, there is some  $q$  that explains BCCP. Whatever possibly explains BCCP cannot be contingent, since everything about contingent reality is in BCCP. Likewise, the possible explanation cannot be scientific, since scientific explanations, as generalizations over contingent reality, are likewise in BCCP. What's possibly necessary is necessary. So, whatever explains BCCP is necessary and personal.

Rasmussen (2014) offers a clever way of defending a key move in these arguments. Rasmussen points out that, as a rule of thumb, a difference in size or quantity doesn't make a difference with respect to possibility. For example, if two objects could be co-located, it seems just as possible that three or four objects could be. This principle of modal continuity, as he calls it, licenses the inference from "Possibly, one contingent object has a cause" to "Possibly, all contingent objects have a cause" (see also Pruss & Rasmussen, 2018). Katz and Kremer (1997) appeal to a different principle, "an epistemic principle of possible explanations": given that (i) there is a possible explanation of the fact that  $F$ , and (ii) any possible explanation of the fact that  $F$  entails  $P$ , it is reasonable to believe  $P$ . For example, it's reasonable to believe there's oxygen in the atmosphere given any possible explanation of a match's being on fire. Likewise, they argue, it's reasonable to believe there's a necessary being given any possible explanation of all contingent beings.

Students of history will recall that Scotus' cosmological argument also had a distinctively modal twist (for more recent formulation and defense, see O'Connor, 1993). It is therefore tempting to dub this burgeoning class of cosmological arguments Scotistic, as distinct from Kalam, Thomistic, and Leibnizian. But A. D. Smith's (2014) contention that there is a modal cosmological argument in Anselm foils that nomenclature.<sup>7</sup> Cosmological arguments are so numerous and varied that a more fine-grained classification than Craig's is needed. Almeida (2018) thinks that cosmological arguments are best classified based on what they try to explain. So we would have familiar cosmological arguments from motion, causation, and contingency, but also less familiar ones from composition (Rutten, 2012), metaphysical grounding (Deng, 2019; Hamri, 2018), and so on. Almeida himself argues that the most powerful cosmological argument will be one that successfully explains literally *everything*. This was in fact the aim of most cosmological arguments historically, premised as they were on an unrestricted PSR. This approach, however, requires that God himself have an explanation, and theists have been short on the details of how that works (McIntosh, 2022).

### 3 | ONTOLOGICAL ARGUMENTS

Ontological arguments, traditionally characterized, seek to demonstrate the existence of God based on the very idea or concept of God. The recent history of the ontological argument begins in (1960), when Norman Malcolm launched discussion of what has come to be known as Anselm's "other" argument in *Proslogion* III. There Anselm argues for God, Malcolm says, not by assuming that existence is a predicate as in the more familiar argument of *Proslogion* II, but by assuming that *necessary* existence is—the same thing Charles Hartshorne (1944) had contended to deaf ears decades before.<sup>8</sup> Setting aside the exegetical defensibility of this contention, there is no doubt that Hartshorne and Malcolm's formalizations of Anselm's "other" argument planted the seeds of key modal concepts just in time to be nourished by the renewed interest in the logic and metaphysics of modality, the fruit of which was Plantinga's "victorious" modal ontological argument in *The Nature of Necessity* (1974). Since what is possibly necessary is necessary, and hence, actual, Plantinga argued that if it's possible that an essentially omniscient, omnipotent, and perfectly good being exist necessarily, it does exist necessarily, and hence, actually. In short, granted that if God exists God exists necessarily, "victory" hangs on whether God's existence is possible.

Accordingly, assuming part of what it means to be God is to exist necessarily, a simplified version of the modal ontological argument, with its single possibility premise, is:

- (1) Either it's necessary that God exists or it's impossible that God exists (Def.).
- (2) It's possible that God exists (Premise).
- (3) Therefore, God exists.

It is important to note that the above argument is valid in all non-trivial modal systems (T, B, S4, S5).<sup>9</sup> To think that the modal ontological argument requires S5, as some seem to, is therefore quite misconceived. At any rate, focus has shifted from the validity of various formulations of the ontological argument to reasons to believe that key premise, the possibility of God's existence.<sup>10</sup>

Most ambitious are attempted *proofs* of the compossibility of the divine attributes, the preeminent example of which is Gödel's argument that the "God-like" property of having all "positive properties" essentially is possibly co-instantiated. Anderson's (1990) canonical formulation is simplified and defended by Pruss (2012a, 2018a). From the two axioms

- (A1) If  $A$  is positive, then  $\sim A$  is not positive.  
 (A2) If  $A$  is positive and  $A$  entails  $B$ , then  $B$  is positive.

It follows that any pair of positive properties is compossible:

- (T) If  $A$  and  $B$  are positive, then  $A \& B$  is possible.

Proof of (T): Suppose for *reductio*  $A \& B$  is impossible—i.e., whatever has  $A$  must lack  $B$  and vice versa. So,  $A$  entails  $\sim B$ . By (A2),  $\sim B$  must therefore be positive. But by (A1),  $B$  cannot be positive. Contradiction. So,  $A \& B$  is not impossible. The rub of Gödellian-style proofs is not their validity, but what exactly a "positive property" amounts to.<sup>11</sup> At the very least, if necessary existence is positive, then a necessary being is possible, and hence, actual. It might be objected that mere necessary existence is not sufficiently God-like to be of much interest. After all, numbers, if they exist, are necessary beings. To get closer to a conclusion of more theistic significance, Pruss and Rasmussen (2018) pair necessary existence with the positive property of *possibly causing something*, which only concrete objects can have. Others, such as Maydole (2012), construe a positive property as a perfection, or a property necessarily better to have than not. Granted that perfections entail only perfections, and that the property of *being supreme*—not possibly being equaled or surpassed in greatness—is a positive property, it follows that it's possible that a supreme being exists.<sup>12</sup> Bernstein (2014, 2018) also construes positive properties as perfections, but says a perfection is any property that in no way detracts from a being's greatness, but its complement does. Because Bernstein's argument relies on fewer technical details, it can be readily outlined in an accessible manner. Bernstein begins with a supposition for *reductio*:

- (1) [Suppose] It is impossible that something has all perfections.
- (2) If it is impossible that something has all perfections, then there is a perfection that is sufficient for not having some other perfection (namely, the one with which it is inconsistent).
- (3) If a property is sufficient for not having some perfection, then that property is sufficient for being imperfect.
- (4) If a property is sufficient for being imperfect, then it is not a perfection.
- (5) There is some perfection that is sufficient for not having some perfection (1, 2).
- (6) There is some perfection that is sufficient for being imperfect (3, 5).
- (7) There is some perfection that is not a perfection (4, 6, contradiction).
- (8) Possibly, something has all perfections. QED.

Having established the possibility of something with all perfections, and assuming necessity is a perfection, it follows that something *does* have all perfections.

There is a battery of less formal arguments for the possibility of God's existence. Kordig (1981) and Valli-cella (2018) appeal to the axiarchic principle that if  $x$  ought to exist then  $x$  possibly exists: God ought to exist, so God possibly exists. Rasmussen (2018) puts his principle of modal continuity to work here, too, arguing that all instances of degreed properties are possible or impossible—differences in degree are irrelevant to their exemplifiability. Since

some things are valuable and value is a degreed property, all instances of value are possibly exemplified, including the highest degree of value of all, namely, maximal greatness. Pruss (2001) argues that we can justifiably presume God possibly exists because mystics seem to have experiences of God, and more recently because God is the “motivational center” of many peoples' lives (Pruss, 2010). Buras and Cantrell (2018) argue that natural desires imply there *can be* something that satisfies them. Many have a natural desire for God. So, there can be a God. Arbour (2019) points out that because arguments for God's existence are a fortiori arguments for God's possible existence, having so many theistic arguments should significantly raise one's credence in the proposition that God possibly exists. McIntosh (2021) argues that since if God's existence were impossible it would probably appear to be so upon further reflection, that it doesn't justify belief that God possibly exists. Finally, Schmid (MS) thinks the fact that “there are imperfect beings” possibly has an explanation outside itself gives reason to think a perfect being possibly exists.

Nagasawa (2017) recommends a shortcut around the whole debate about God's possible existence by simply *defining* God as the being with the maximal degree of knowledge, power, and goodness that is mutually consistent. Whatever conception of those attributes meets that extremity, their co-instantiation is now possible by definition, and hence “there is no need to provide an additional argument for the possibility premise [of the ontological argument]” (205).

## 4 | DESIGN ARGUMENTS

We can distinguish design arguments based on the phenomena alleged to imply a God-like designer: irreducible teleology in nature, the origin of biological life, biological life itself, and large-scale features of the cosmos.

There is, all agree, regularity in the natural world. Acorns grow into oak trees. Smaller celestial bodies orbit larger ones. The heart pumps blood. Some argue that we can infer from regularities in nature that this is how things *ought* or *should* operate, not just that they happen to statistically. It's not that the human heart just happens to beat 40–60 times per minute on average; that is the average *because* the human heart has that as its goal, or *telos*. This is remarkable because we usually associate teleology with intentionality and agency, not mindless things. Thus, teleology in nature is often dismissed as epiphenomenal, a kind of conceptual layer that we, as minded beings, impose on the natural world to help understand it at a vulgar level but needs to be peeled away to reveal nature as it really is. But the attempt to peel teleology away has proven very difficult (Koons, MS; Plantinga, 1993), leading many to think it is no mere heuristic after all, but an irreducible feature of the natural world. If the natural world really is shot through with irreducible teleology, so be it: either there is mind inherent to the natural world, or the goals of a directing mind are reflected in the natural world. An increasing number of naturalists are taking the first route, leading to panpsychism (Nagel, 2012). The second, more well-trodden route is of course Aquinas' Fifth Way to theism (Feser, 2015; Hays, 2016; Kronen & Menssen, 2012).

Some argue, based on the current origin of life science, that it's more reasonable to believe life originated supernaturally than naturalistically (Meyer, 2009; Thaxton et al., 1992). Hugh Chandler (1993) argues for the same conclusion on philosophical grounds. If God intervenes to produce life of Earth, the probability that there will be no life on Earth is zero, and if God does not intervene to produce life on Earth, the probability that life will originate is very low. It is just as reasonable to think God will intervene to produce life on Earth as that he won't. We know, of course, that there will be life of Earth. Therefore, it was very likely then that God will intervene to produce life on Earth. But if it was very likely *then* that God *will* intervene to produce life on Earth, it is very likely *now* that God *has* intervened to produce life on Earth.

When it comes to design arguments, it is impossible to overstate the influence of William Paley's *Natural Theology* (1802), in which he argued that we can infer biological organs and organisms are designed in the same way we infer artifacts are.<sup>13</sup> Behe (1996, 2021) updates the argument to meet Darwinian challenges, suggesting we can infer some biological organisms are designed if they have several well-matched, interacting parts all of which are essential to some one function, citing *inter alia* the bacterial flagellum as such an “irreducibly complex” organism. Meyer (2009,

2021) focuses on information, understood as a complex arrangement (pattern) that has function or meaning, as the indicator of design, citing genes/gene expression, proteins, and DNA as examples where information is encoded in the natural world. If “encoded” is not taken literally, Pruss (2009) thinks there’s a strong analogy here: DNA is very much like an intentionally designed computer program in that it contains bugs (genetic defects), unlike non-intentionally designed programs.

In 1930 F. R. Tennant argued that the strongest case for design is not to be found in any one particular instance, since “it is conceivable that every such instance may individually admit of explanation in terms of proximate causes” (79). The best case for design “consists rather in the conspiracy of innumerable causes to produce, by their united and reciprocal action, and to maintain” a universe that as a whole is conspicuously suitable for rational beings with moral and esthetic sensibilities. Tennant’s own examples of “wider teleology,” as he called it—such as the universe’s being not just habitable, but intelligible, and not just intelligible, but beautiful—remain philosophically defensible. But Tennant could not have foreseen the extent to which modern science would seem to vindicate his approach; one thinks immediately of the mid-twentieth century discoveries of how “fine-tuned” for intelligent life the universe’s fundamental constants and parameters seem to be.<sup>14</sup>

Of all the possible values the universe’s fundamental constants and parameters could have had, they all fall within a tiny range—the anthropic range, call it—that happens to permit the existence of embodied, conscious agents (ECAs) like ourselves. Such fine-tuning, it is argued, significantly increases the probability of theism (Rota, 2021; Swinburne, 2004), or at least is much more probable on theism than on naturalism (Barnes, 2020; Collins, 2012; Roberts, 2012), especially if there is no multiverse. And the multiverse, if it isn’t itself more expected on theism (Almeida, 2018; Beck & Andrews, 2014; Kraay, 2015), is not without its own significant theoretical costs, such as commitment to Lewisian modal realism (Waller, 2020). Recently Collins (2018) has argued that within the anthropic range there is an even tinier range of values that the physical constants could assume that would make the universe optimal for scientific discovery and investigation by ECAs: the discoverability-optimality range. For example, the universe has relatively low entropy throughout. But ECAs like ourselves need only a regional pocket of low entropy. Yet the general low entropy throughout makes the universe optimal for observational discoveries in astrophysics and cosmology. The fact that the values of certain constants actually do fall within the discoverability-optimality range is less improbable by many orders of magnitude on theism than on naturalism.

The question of what exactly justifies belief that something is designed has vexed proponents of design arguments since Paley. Perhaps Dembski (1998) is right: designed things exhibit a pattern that is not the result of natural law and too improbable to have occurred by chance. Craig (2003) structures the fine-tuning argument along these lines, arriving at design by eliminating natural law and chance as alternative explanations. Or perhaps Ratzsch (2001) is right: designed things exhibit “counterflow,” that is, properties that run contrary to the normal flow of nature. Ratzsch (2003), Evans (2010), and Plantinga (2011) avoid the question by arguing that we don’t *infer* design in nature or artifacts, but perceive it. This may help explain why belief that the natural world is designed is so persistent, despite the prevalence of naturalistic theories, such as Darwinism, that might be thought to play a debunking role; for even if something that appears designed can be explained via natural processes, it might be that God uses or guides those processes in the production of his designs. Further, this non-inferential approach to design can help fill out Tennant’s category of wider teleology with other putative instances of design that are typically ignored by philosophers, such as the myriad of astronomical and biochemical strokes of fortune that conspire to make carbon-based life possible and Earth an ideal habitat for ECAs (Barrow, et al., 2008; Denton, 1998; Gonzalez & Richards, 2004). Again, the combined power of natural law and chance to explain every part of the apparent conspiracy may not be enough to undermine the conviction the whole of it is, indeed, a conspiracy.

## 5 | CONCLUSION

Aside from its value as a contemporary survey and bibliographic resource, I hope this article and its sequel corrects the common misconception that nothing new has been said about traditional arguments for theism. Indeed, the last half-century (or so) has seen a renaissance of work on theistic arguments, old and new. These arguments are taken seriously, whether defended or critiqued, by some of the most brilliant philosophers to have ever lived, past and present. If no theistic argument is good, there probably are no good philosophical arguments for any theory. That either says something good about theistic arguments in particular, or something bad about philosophical arguments in general.

Of course, what counts as a good philosophical argument is itself a philosophically fraught matter, but that only reinforces the point. And then there are broader epistemological questions about theory acceptance to consider. It may still be rational to reject a theory in the face of good arguments for it; perhaps there are better arguments against it, or it is inconsistent with other things you're justified in believing, or the theory is judged to have an insurmountably low intrinsic probability (on the intrinsic probability of theism, see Miller, 2018 and Poston, 2020). On the other hand, it may also be rational to accept a theory in the absence of good arguments for it, and in the face of good arguments against it. Theistic arguments cannot be properly judged apart from a broader metaphilosophical and epistemological framework.

You might think, then, that the rational position with respect to God's existence should be agnosticism. But let me conclude with the observation that the traditional theistic view of God seems to have built into it a meta-theory condition that affects one's epistemic appraisal of the evidence for it. Presumably if God exists, then God would want a genuine, loving relationship with His rational creatures. This means, among other things, that God would not want the evidence for His existence to be rationally coercive. It is better that people freely come to believe in Him. But this implies, somewhat paradoxically, that the rational permissibility of agnosticism is something we would expect if theism were true, and so, all else being equal, evidence for theism.<sup>15</sup>

## ACKNOWLEDGMENTS

Many thanks to Joe Schmid and Mark Shaw for helpful comments on this article.

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## ENDNOTES

- <sup>1</sup> The seven categories of traditional theistic arguments surveyed are based on the taxonomy of theistic arguments I proposed earlier (McIntosh, 2019), where I survey an additional seven categories of nontraditional theistic arguments: metaphysical, nomological, axiological, noological, linguistic, anthropological, and meta-arguments. I choose to speak of "theistic arguments" instead of "natural theology." The latter term is a holdover from a time when theology and philosophy were happily married, and it had a more restricted meaning that would exclude some contemporary theistic arguments, such as arguments from miracles and religious experience. But theology and philosophy have long since divorced, with analytic philosophy having taken custody of theistic arguments while theology pursues its affair with continental exotica. Thus, the former term better reflects the current subject matter. A final note: needless to say, space restrictions prevent covering critical replies to material covered in this article.
- <sup>2</sup> We might mention Meyer (1987), however, who appeals to an instance of the Axiom of Choice to argue for a first cause in the series of efficient causes. Meyer sees his argument as a rigorous articulation of the Second Way.
- <sup>3</sup> Although see Hawthorne and Cortens (1993) for a similar argument.
- <sup>4</sup> I have simplified the premises for ease of exposition.
- <sup>5</sup> This is not to suggest Gale and Pruss were the first to advance a modal cosmological argument, as we'll see below.
- <sup>6</sup> Gale and Pruss speak of a Big Conjunctive Contingent Fact, or BCCF. I replace "Fact" with "Proposition" for ease of exposition.

- <sup>7</sup> The argument, as articulated by Smith: For any kind of thing, if there is not but *could* be something of that kind, then it is possible for something of that kind to be caused. There could be something divine. But it is not possible for anything divine to be caused. Therefore, there is something divine.
- <sup>8</sup> Plantinga explains just how significant Malcolm's paper was. At a time when the consensus among philosophers was that Kant had refuted the ontological argument, or worse, that it was a joke, "Norman Malcolm dropped his bombshell" that there was *another* ontological argument in Anselm, and "with a perfectly straight face" defended it as sound. "I found this striking," Plantinga recalls, "as did most of the rest of the American philosophical world: the next year more than a hundred philosophers submitted replies to Malcolm's piece". See Tomberlin & van Inwagen (Ed.), *Alvin Plantinga: Profiles*, Vol. 5 (D. Reidel, 1985), p. 65.
- <sup>9</sup> That is to say, "G" is provable from " $\Box G \vee \sim \Diamond G$ " and " $\Diamond G$ " in T, B, S4, and S5. For proofs, go to <https://www.umsu.edu/trees/> and plug in the formula with the appropriate accessibility relations checked.
- <sup>10</sup> The contemporary dialectic on the ontological argument is a technical replay of what was already in Leibniz. See Antognazza (2018).
- <sup>11</sup> Pruss and Rasmussen (2018) offer several ways of understanding "positive" that works with the argument. Where to be negative is to detract from excellence,
- A is positive IFF A is not negative.
  - A is positive IFF  $\sim A$  is negative.
  - A is positive IFF A is not negative and  $\sim A$  is negative.
  - A is positive IFF A is entailed by a property that is atomic (simple).
- Axioms (A1) and (A2) must be modified accordingly.
- <sup>12</sup> Interestingly, Maydole relies on the Barcan Formula (if possibly there is something that is *F*, then there is something that is possibly *F*)—rejected by Plantinga and others—to go complete the proof from "possibly, a supreme being exists" to "a supreme being exists."
- <sup>13</sup> How best to interpret Paley's argument is a matter of some controversy. Contrary to popular belief, it is doubtful that Paley's design argument is strictly analogical. Paley famously draws attention to those properties of a watch which imply design, then argues such properties are also found in nature. The argument structure, in other words, is: if *x* has properties  $p_1-p_n$ , then *x* is designed. Some things in nature have properties  $p_1-p_n$ . So, some things in nature are designed. Oppy (2002) interprets Paley's argument as deductive. Schubach (2005) demurs, arguing that it's best construed as an inference to the best explanation. Either way, I suspect the main reason for interpreting Paley's argument as strictly analogical is pedagogical: lazy professors pigeon hole it as the easy target of Hume's critique of the analogical design argument in the *Dialogs*. But as Ratzsch (2019) points out, "it has been argued that Paley was aware of Hume's earlier attacks on analogical design arguments, and deliberately structured his argument to avoid the relevant pitfalls." Ratzsch cites Neal Gillispie, "Divine Design and the Industrial Revolution: William Paley's Abortive Reform of Natural Theology," *Isis* 81 (1990), pp. 213–229. Frederick Ferre makes the same point in his Introduction to Paley's *Natural Theology: Selections* (Bobbs-Merrill, 1963). For more on Paley's cognizance of Hume, see Brooke (2022).
- <sup>14</sup> Examples of fundamental constants and laws of the universe include the electromagnetic fine-structure constant ( $\alpha$ ), gravitational fine-structure constant ( $\alpha_G$ ), weak nuclear force ( $\alpha_W$ ), strong nuclear force ( $\alpha_S$ ), proton-to-electron mass ratio ( $m_p/m_e$ ), expansion coefficient ( $\Omega_0$ ), and the cosmological constant ( $\Lambda$ ). Now consider some examples of fine-tuning. Changes in  $\alpha$  or  $\alpha_G$  by one part in  $10^{40}$  would have precluded the existence of stars like the sun, and, as a consequence, planets habitable by embodied conscious agents (ECAs) like ourselves. Increasing  $\alpha_S$  by 1% or decreasing  $\alpha_S$  by 5% would prevent carbon-based life like ECAs. Changes in either  $\alpha_G$  or  $\alpha_W$  by only one part in  $10^{100}$  would have prevented the existence of ECAs. If  $m_p$  increased by just 0.2%, hydrogen would be unstable, preventing the existence of ECAs. If  $m_p$  were slightly weaker, nothing but helium would have been synthesized in the universe, preventing the existence of ECAs. At  $10^{-43}$  seconds after the Big Bang (Planck Time),  $\Omega_0$  had to be within about  $10^{60}$  of critical density to "flatten" space, a prerequisite for the existence of ECAs. Roger Penrose famously calculated that the exact entropy condition suitable for the formation of life (including ECAs) by chance alone, to be  $10^{10(123)}$ . The chance of  $\Lambda$  falling within the life-permitting range is approximately 1 in  $10^{120}$ . For some perspective on this last one, Hawthorne and Isaacs (2018) write that "your odds of guessing a person randomly selected from Rhode Island are around 1 in 1,000,000. Your odds of guessing a person randomly selected from India are around 1 in 1,000,000,000. But your odds of guessing an atom randomly selected from the known universe are a mere 1 in  $10^{80}$ —which is not even close to 1 in  $10^{120}$ ." For discussion of these and other examples of fine-tuning, see Manson (2003), Collins (2012), and Lewis and Barnes (2016).
- <sup>15</sup> Here is an attempt at a more technical articulation of the idea that theism has meta-theory condition that forecloses agnosticism, or at least the possibility of an ideal agnostic. Let's say that *S* is an ideal agnostic if and only if (i) *S* is rational, (ii) *S* has assessed all available evidence for *p* and  $\sim p$  in an intellectually responsible manner, (iii) *S* has no cognitive or emotional biases that favor *p* or  $\sim p$ , and (iv) *S* concludes the evidence for either *p* or  $\sim p$  is indeterminate. Now suppose



$p$  is the proposition "God exists and wants a genuine, loving relationship with  $S$ ." Let's say a genuine, loving relationship between God and  $S$  is possible only if  $S$  is not rationally coerced to believe  $p$ , and that  $S$  is not rationally coerced to believe  $p$  only if it's possible for  $S$  to be an ideal agnostic. Now for the argument: it's much more likely that it's possible for  $S$  to be an ideal agnostic if  $p$  were true than if  $\sim p$  were true. That's because if  $p$  were true, God would not want the evidence for  $p$  to be rationally coercive so as to make room for the possibility of a genuine, loving relationship between Him and  $S$ . By contrast, if  $\sim p$  were true, there is no reason to think it likely or unlikely that it's possible for  $S$  to be an ideal agnostic.  $S$ , being rational, knows  $p$  and  $\sim p$  has these implications, and so factors it in to the available evidence for  $p$  and  $\sim p$ . In so doing,  $S$  sees he has reason to believe  $p$  over  $\sim p$ . But if  $S$  has reason to believe  $p$  over  $\sim p$ ,  $S$  cannot conclude the evidence for  $p$  and  $\sim p$  is indeterminate. So, it is not possible for  $S$  to be an ideal agnostic.

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**How to cite this article:** McIntosh, C. A. (2022). Recent work on traditional arguments for theism I. *Philosophy Compass*, e12854. <https://doi.org/10.1111/phc3.12854>