

Introduction

Some believe that there is an eternal, aspatial, necessary, and concrete personal being worthy of worship who created all things apart from himself, i.e. that there is a God. Some believe that there are eternal, aspatial, necessary, and abstract objects, that there are, e.g., mathematical objects, properties, or propositions (the contents of our thoughts). Roughly, the question of this book is: Can we coherently believe both that there is such a God and that there are such abstract objects at the same time? That is what I will call the problem of God and abstract objects.

In section 1, I explain the concepts involved, especially that of God and abstract objects, as well as the main problem that arises, if the concepts are instantiated. In section 2, I sketch and discuss the various kinds of solutions, in the order of plausibility, ending with the most plausible solution. In section 3, I nonetheless explore the option of rejecting one of the basic presuppositions for the problem to arise in the first place, namely that the fundamental ontology consists of objects and properties. I suggest that it consists of pure information that can be coded in different ways. Such a position carries great promise to solve the problem of God and abstract objects.

Before we get started, I should warn the reader of several things. First, I will argue neither for nor against the existence of neither God nor abstract objects. This Element is mostly about the problem that arises from their supposed joint existence and possible solutions to that problem. I do consider the option of rejecting either God or abstract objects but mostly for taxonomic purposes.

Second, I pay no attention to the history of philosophy. For example, I do not discuss Augustine, Aquinas, or Descartes, even though some of their works are highly relevant to the problem at hand. This is mostly owing to limited space but also, of course, my personal interests and expertise (or bias).

Third, what follows is not so much a traditional introduction as a highly opinionated, somewhat argued overview of the problem of God and abstract objects. I introduce and discuss the problem in the way I find to be the most clearheaded and interesting. I also spend the third section discussing a new kind of solution to the problem. Yet, given the space allotted, I must leave many issues underdeveloped and unresolved, so I take many stands as I go along and I leave this section highly speculative, more a suggestion for future research than a clear position possible to accept at this point.

Fourth, I pay no attention to religious texts. In general, I distinguish between systematic theology, which deals with particular religious texts, and the philosophy of religion, which deals with much more general religious problems. The way I treat the problem of God and abstract objects in what follows is as

a general problem in the philosophy of religion, not in systematic theology. (I therefore also use the gender-neutral pronoun “hir” for God rather than the more theologically traditional “his.” Get used to it!)

1 The Problem

So what is the problem of God and abstract objects more exactly? It turns out that there are many problems but, at the most general level, the problem is simply how to reconcile a certain notion of God with a certain notion of abstract objects. There seems to be a problem with how both kinds of objects can coexist in the sense we normally tend to think of them. There are reasons to use both notions but they are mutually inconsistent, so they cannot both have an extension; or at least so it seems.

In this first section, I will specify the notion of God involved (section 1.1), the notion of abstract objects involved (section 1.2), and, finally, the inconsistencies and problems that arise from their supposed coexistence (section 1.3).

1.1 God

In general, I will understand God as a personal being worthy of worship, which might in turn require a maximal level of collective greatness with respect to all hir features (see Nagasawa, 2008, 2017; see also Bohn, 2012). Yet, in order for the present inconsistencies and problems of God and abstract objects to arise, we must assume some more specific theses about God.

First, we must assume that God is the first cause and fundamental ground of all things distinct from God himself. This is what I have elsewhere called the thesis of *Divine Foundationalism* (DF; see Bohn, 2018b). By “distinct,” I here simply mean nonidentical. By “first cause and ultimate ground,” I here mean that God is the *source* – both diachronically and synchronically – of all things distinct from God. That is, everything distinct from God originates in or from God.

Second, we must also assume the thesis of *Divine Aseity* (DA), according to which God is uncreated, self-sufficient, and existentially independent of all things distinct from himself. Note that while DF entails DA, and hence, by assuming DF, we thereby also assume DA, DA does not entail DF. Something can be uncreated, self-sufficient, and existentially independent without being the first cause or fundamental ground of anything. Abstract objects, in particular mathematical objects like the pure set-theoretical hierarchy, might be a case in point. They might be uncreated, exist in their own right, independently of all other things, but be the source of nothing else.

Third, we will assume the thesis of *Divine Sovereignty* (DS), according to which everything distinct from God is under God’s creative control. DS is thus

related to God's supposed omnipotence. It is up to God to create, change, or eliminate all things distinct from God himself. Rejecting DS is restricting God's powers.

Fourth, we will also assume the thesis of *Divine Necessity* (DN; see Bohn, 2017), according to which God must exist in the sense that, metaphysically speaking, God cannot possibly fail to exist (if God exists at all). DN is here not only claiming that for any possible way the world could have been some god or other exists in that possibility but rather that the one and only God could not have failed to exist no matter what. The theses of DF and DN are logically independent of each other.

Fifth, we will assume the thesis of *Divine Eternity* (DE), according to which God is eternal in the sense of being either of (the highest) infinite duration or atemporal ("outside of" time). DE is logically independent of all of DF, DA, DS, and DN.

Sixth, we will assume the thesis of *divine aspatiality* (DA_s), according to which God is aspatial in the sense that God is not bounded by space in the sense of being located somewhere, anywhere, or everywhere in our physical space. God transcends physical space. DA_s is logically independent of all the other above-mentioned theses.

Note that the first thesis, DF, is the most essential for the problem of God and abstract objects to arise. Yet, as we will see, the others will play important roles as well.

Finally, we will assume that God is a *concrete* being.¹ There is no agreed on definition of what it is to be concrete but two more plausible criteria are that it *obeys the law of excluded middle with respect to properties* and that it has *causal powers*. First, consider the criterion of the law of excluded middle with respect to properties (LEM_p). Something is said to obey LEM_p just in case, for any property F, it either has F or not-F; and it is neither the case that it has both F and not-F nor the case that it has neither F nor not-F. Anything concrete is thus *determinate* in all real respects. This notion of being determinate should be kept separate from any notion of vagueness, i.e. being determinate should here be kept separate from being nonvague. I take it vagueness is a matter of semantic indeterminacy or perhaps epistemic ignorance, never a worldly matter, but the notion of determinateness involved in LEM_p is a worldly matter. I thus take it that failing to obey LEM_p does not make something vague, only indeterminate in the specified sense of LEM_p.

¹ If God is abstract, we might get a similar but still different problem from the one we are interested in here. For a discussion of God being an abstract object, see Leftow (1990).

Intuitively, a *mathematical set* is an object that has members. Sets are individuated by their extensionality, which means that sets S and S^* are the same just in case they share all their members. There are very, very many such sets out there. For example, there is the set having all the natural numbers as its members and there is the so-called singleton set having me as its sole member. There is also the empty set, which is the one and only set that has no members. Now, consider the set having me as its sole member. Is it located in exactly the same place I am? If there is no yes-or-no answer to that question, then, by LEM_p , that set is not concrete, like I am. Or consider the same set in relation to the set having you as its sole member. Which set is darker? One of us might be darker than the other but which one of our sets is darker than the other? Darkness does not seem to apply to sets. If there is no yes-or-no answer as to which of the two sets is darker than the other (including whether they are equally dark), then those sets are not concrete, like you and I are. In order to be concrete, you need to obey LEM_p .

A problem with this way of trying to understand concreteness is that there might not be a yes-or-no answer as to whether God is darker than me. Darkness might not apply to God at all; but still God is supposed to be concrete. Maybe concreteness is a matter of degree? More on that in section 1.2 and in section 3.4.

Second, consider the criterion of causal powers. Something is said to have causal powers only if it has the potential to bring about an effect in a causal chain. Consider again the singleton set having me as its sole member. Can it bring about an effect in a causal chain? I can bring about an effect in a causal chain but can my singleton set bring about an effect in a causal chain? If the answer is no, then, according to this criterion, it cannot be something concrete. Without any such potential to bring about some effect, it cannot be something concrete, like I am. In order to be concrete, you need to have causal powers.

It is worth noting that concrete things are also often said to be spatiotemporally located. I have a location in space and time, or space-time, but my mathematical set does not. But this criterion seems more problematic than the others. First of all, one might think that the set of me is just as spatiotemporally located as I am (it is where I am) but presumably one should still think it is not concrete. Second, for present purposes, God is aspatial (and perhaps atemporal), with no particular location in space (or time), but presumably God is still something concrete.

It is important to note that being concrete is not here assumed to be the same thing as being physical. Though it is notoriously hard to define “physical,” it is usually assumed that all physical things are concrete but not thereby assumed that all concrete things are physical. In other words, there might be concrete things that are not physical. God is an example at hand: God is often supposed to

be concrete but not physical. Other controversial examples might be some theoretical postulates in fundamental physics.² The idea is that, in order to be something concrete, you must be determinate and/or have causal powers to bring about causal chains but this should not be confused with the idea that all determinate things with causal powers are physical.

1.2 Abstract Objects

Abstract objects are often seen as a complement to or in opposition to concrete objects. That is, something is said to be *abstract* if and only if it is not concrete. For example, the two singleton sets considered in section 1.1 are, as opposed to you and me, not determinate with respect to which one is darker than the other, i.e. they do not obey LEM_p , so they are abstract rather than concrete. Likewise, they, by themselves, do not have the potential to enter into an ordinary causal chain, i.e. they are *causally inapt*, so they are, as opposed to you and me, abstract rather than concrete.

Some such distinction between abstract and concrete objects is often taken to be a fundamental distinction between two exhaustive and mutually exclusive fundamental kinds of thing. For example, Peter van Inwagen (2004) explicitly draws such a distinction (see also Cowling, 2017, s. 2.1). In order to draw the line between the two kinds, van Inwagen suggests that we can list a few paradigm cases of concrete and abstract objects (e.g. the Eiffel Tower and the ratio of one to zero, respectively) and then ask philosophers to group the rest of our terms in ordinary, philosophical, and scientific usage in either one of the two groups. He believes that there will then be substantial agreement among philosophers as to which term belongs in which group.

Now, even if van Inwagen is right about there being a substantial agreement as to which term belongs in which group, I am not sure what that is supposed to tell us, not to mention justify. History teaches us again and again that there is often much agreement about false things, even among experts, so a mere agreement is not in itself very impressive. And, after all, when you think about it some more, as Lewis (1986, pp. 81–86) did, the distinction *is* genuinely unclear and it is highly unclear what it is really doing for us (see also Burgess & Rosen, 1997). So, though philosophers might intuitively agree to some extent, that

² Being *physical* is often contrasted with being *mental*. All mental things are usually assumed to be concrete, though not all concrete things are assumed to be mental (though this is somewhat in tension with LEM_p being a necessary requirement for concreteness, since it might not be the case that, e.g., for any two thoughts, one is darker than the other [though they seem to have causal powers]). To make things even worse, being *actual* is often contrasted with being *possible* but without thereby assuming that being actual coincides with being concrete or physical or that being possible coincides with being abstract or mental. Reality is complicated.

agreement is a shallow and shaky matter, not something we should rest our metaphysics on.

Of course, the fact that the line is hard to draw should already raise suspicions in connection with the very problem of this book, namely that of the relationship between God and abstract objects. But, nonetheless, as we know from very many other cases, an unclear distinction is not the same as no distinction. As van Inwagen correctly points out, we have some paradigm examples of abstract versus concrete things, e.g. a number versus a rock, and we have some illuminating but imperfect ways of trying to draw the distinction, which together give us an imperfect grasp of a rough distinction. The fact that there are some cases that blur this distinction is not by itself a good reason to conclude that there is no useful distinction there. It seems undoubtedly true that there is a distinction in kind between my body on the one hand and the set that has no members on the other. The former is what we call a concrete kind of thing and the latter is what we call an abstract kind of thing. Seemingly, the former obeys LEM_p and has causal powers, the latter does not. The fact that the singleton set that has my body as a member falls somewhere in between these two kinds of things does not make any of the two initial cases of the same kind but only the line between those two kinds not a fundamentally sharp line.

In fact, rather than concluding that there is no abstract/concrete distinction, perhaps we should conclude that the distinction is a rough matter of degree? I believe such a position deserves more attention than it has received. Presumably, I am not abstract but many of my essential properties are fairly abstract, e.g. my humanity. One might also think that my thoughts are more abstract than the various activities in my brain. So perhaps I am not fully concrete after all; at least I have some abstract elements, or even parts. But still the singleton set of me seems more abstract than I am. For example, while I, or at least my body, obey LEM_p and can enter into causal chains, making me as concrete as ordinary things get, my singleton set neither obeys LEM_p nor enters into causal chains, making it more abstract than concrete. But, even still, my singleton set does not seem as abstract as things get. For example, it might be just as spatially and temporally bounded as I am, as well as modally contingent as I am. That is, it seems located where I am, not only in actual space and time but in all possible worlds too. My singleton set thus seems to go where- and whenever I go, no matter what. But consider pure sets, in particular the empty set that has no members, found at the very bottom of the standard mathematical set-theoretical hierarchy. Sets, being individuated by their members, seem dependent on their members but the empty set has no members. As such, it seems spatially, temporally, and modally independent of anything but itself. Certainly, it does not depend on any concrete thing, neither spatially, temporally,

nor modally. In fact, the empty set seems acausal, aspatial, atemporal, and amodal, not to mention inapt for many properties such as mass and color, making it as abstract as things get. Since the entire set-theoretical hierarchy can be built on top of the empty set, if all of pure mathematics can be reduced to the set-theoretical hierarchy (which is a live option in the philosophy of mathematics), the same goes for all pure mathematical objects: they are as abstract as things get – as opposed to you and me, or at least our bodies, which are as concrete as things get. So, even though the abstract/concrete distinction is unclear, there seems to be some such distinction there. Perhaps it is a continuous matter of degree from one extreme to another or perhaps it is a discrete matter of degree, with a finite set of steps between the fully abstract and the fully concrete.

A problem with the degree view is how to measure the degree. For example, what is most abstract, the singleton set of me or the proposition that I am me (or God, for that matter)? There seems no simple way to measure abstractness or concreteness. That might be a reason to stick with the sharp distinction between the abstract and the concrete after all. Personally, I am divided on the matter but believe the degree view deserves more attention before we settle on this. Though I will henceforth occasionally talk as if it is a matter of degree and discuss the matter further in section 3.4, no conclusion hinges on this. Our focus will, in any case, be on the relationship between God and the purely abstract objects there might be.

It is instructive to consider some more examples of concrete and abstract objects. While you and I are more concrete, many of our *properties* are more abstract. For example, we both instantiate the property of being human but, in order for us to both (genuinely) share that one and the same property, it must be something more abstract that can be instantiated more than once over at the same time, not something concrete that can only be instantiated once at a time. For an even more purely abstract property, consider the property of being self-identical. Unlike the property of being human, it seems temporally, spatially, and modally independent of not only humans but anything at all apart from itself. In terms of degree of abstractness, the property of being human is more like a set of concrete things (e.g. the set of all humans), while the property of being self-identical is more like the pure sets, uninfected by concreteness.

While you and I are more concrete, *propositions about us* are more abstract. For example, the proposition that we are human is something we can both express through thought or language. But, in order for us to both express that one and the same proposition (and hence for communication to be possible), it must be something more abstract that is publicly available to us, something that we can both grasp through thought or language, not something concrete isolated

inside each our individual heads (see Frege, 1918).³ For an even more purely abstract proposition, consider the proposition that everything is self-identical. Unlike the proposition that we are human, it seems temporally, spatially, and modally independent of not only the two of us and the property of humanity but anything at all apart from itself. In terms of degree of abstractness, the proposition that we are human is more like a set of concrete things (or the property of being human), while the proposition that everything is self-identical is more like the pure sets (or the property of being self-identical), uninfected by concreteness.

In short, the most abstract objects seem to be pure mathematical objects like pure sets, as well as what we might call pure logical properties and propositions. Such objects are not only uninfected by any concreteness (in the sense of, e.g., drastically failing LEM_P as well as being unable to participate in more or less ordinary causal chains)⁴ but they are also aspatial, eternal, and necessary beings. Like God, their existence seems to be self-sufficient and independent of anything else.

It is such most purely abstract objects that should and will be our main focus in what follows, unless noted otherwise.

1.3 God vs. Abstract Objects

So, from what has been said so far, we have, on the one hand, the concept of the concrete God as the aspatial, eternal, necessary, and first cause and fundamental ground of all things distinct from himself and, on the other hand, the concept of aspatial, eternal, and necessarily existing abstract objects. If these two concepts of God and abstract objects (respectively) have a nonempty extension, we face what seems to be at least three different problems (sections 1.3.1–1.3.3). I will suggest that we should focus on a more fundamental fourth problem (section 1.3.4).

1.3.1 *The Causal Problem*

By our concept of God, God is the first cause and creator of all things distinct from himself. So, if there are abstract objects distinct from God, God is the cause of them, by having created them. But, by our concept of abstract objects, abstract objects are causally inapt and hence cannot be caused by anything,

³ It does not help to think of it as a publicly available concrete inscription of some sort, because two distinct such inscriptions can express one and the same proposition, which raises the same problem all over again.

⁴ It is perhaps worth noting that in virtue of grasping an abstract proposition I might do something I otherwise would not have done but it is then still not the abstract proposition as such that enters into the causal chain, only (the concrete) me in virtue of having grasped that abstract proposition.

not even by God's creation. So, the abstract objects are both caused and not caused, which is a direct contradiction. Hence, at least one of our concepts must be wrong, i.e. either empty or in need of modification (see Peter van Inwagen, 2009, 2015, who is pushing a version of this problem).

1.3.2 *The Sovereignty Problem*

By our concept of God, everything distinct from God is created by God and is under God's creative control. But, if there are causally inapt, eternal, and necessarily existing abstract objects, their being and existence cannot be under God's creative control, since they never were nor could have been different in any way. But then we have a contradiction in the sense that some abstract objects are both under God's creative control and not under God's creative control. Hence, at least one of our concepts must be wrong, i.e. either empty or in need of modification (see Alvin Plantinga, 1980, who is pushing a version of this problem).

1.3.3 *The Creation Ex Nihilo Problem*

By our concept of God, God is the source in the sense of the creator of *all* things distinct from himself, which means God created it all out of nothing distinct from himself. By our concept of abstract objects, there are causally inapt, aspatial, and eternal objects, which means they have always been around (aspatially), have never been created, which in turn means that God cannot have created everything out of nothing distinct from himself. But then we have a contradiction. Hence, at least one of our concepts must be wrong, i.e. either empty or in need of modification (see William Lane Craig, 2012, 2014, 2017, who is pushing a version of this problem).

1.3.4 *The Grounding Problem*

Arguably, all three problems end up in what I will here call *the grounding problem*. First, consider the causal problem. Why can God not cause abstract objects? There seems to be two main reasons. First, one might think that abstract objects qua abstract precludes participating in a causal chain, i.e. they are by their nature noncaused. Second, one might think that a cause must exist before its effect, so, in order for God to create abstract objects, there must have been a time at which God but not the abstract objects existed; but since abstract objects are eternal, they have always existed, so there has never been such a time at which God but not the abstract objects existed.

You might find both reasons unconvincing. The main problem is that they both rest on a commonsensical but outdated "billiard ball"–notion of physical

causation, where one physical thing causes another physical thing to move due to coming into physical contact with it, where, in addition, the cause must come before the effect in time. But, of course, not only does the world most likely not work like that at a more fundamental level but certainly God of all things need not create things in that way. God, being *God*, can certainly cause something in the sense of create something concrete or abstract at an instant, even before any past point in time. For example, it is logically possible that necessarily, for any point in time, God created all abstract objects before that point in time. One way for this to happen is if the past is indefinitely extensible in the sense that, for any past point in time, there is a point in time before that. From such indefinite extensibility it follows that there has not possibly ever been a point in time at which there were no abstract objects; i.e. abstract objects are necessary and eternal in the sense of always having existed in all possible worlds. One might also take this a step further and postulate a limit-point to the past and say that, necessarily, God simply created everything at that very first instant, which is before any past point in time.

What is more, there is nothing in the concept of an abstract object that entails that such abstract objects qua abstract cannot be created in any sense of the term “create.” As we have seen, there is a concept of being created and hence caused at an instant and abstract objects can be caused in that sense of the term. What the concept of abstract objects does preclude is that such objects are caused in some commonsensical “billiard ball”-notion of causation in terms of physical contact; but there is no reason to think such a naïve notion of causation occurs at the fundamental level anyways, and certainly not something God needs to obey. Our concept of abstract objects also seems to preclude that abstract objects cause something concrete (and certainly something physical) but that is neither here nor there; the causal problem is the problem of how something concrete can cause something abstract, not how something abstract can cause something concrete (and certainly not something physical).

So, one here slightly modifies the notion of abstract objects. Instead of saying they are causally inapt, one only says they are more or less ordinarily, or physically, causally inapt.

In short, it is a perfectly coherent position to hold that God is the cause in the sense of creator (at an instant) of all abstract objects but still that both God and abstract objects are necessary, aspatial, and eternal. But the question then is what more exactly is meant by being the creator of something at an instant? As far as I can tell, it is best to think of it as being the *ground* of it. God causing abstract objects at the very first instant, so to speak, then means that God is the ground of their existence at that instant. While commonsensical causation is usually thought of as a *diachronic* relation (across time), grounding is usually