Emanuel Rutten

A CRITICAL ASSESSMENT OF CONTEMPORARY COSMOLOGICAL ARGUMENTS

Towards a Renewed Case for Theism

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VRIJE UNIVERSITEIT

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1 Introduction

A resurgence of metaphysics

This thesis falls within the research area of theoretical (systematic) philosophy. Its subject matter is metaphysics or ontology, or more specifically, cosmological arguments for the existence of a first cause.[1] As such this thesis belongs to the domain of natural theology, and is part of a broader program that deals with various issues having to do with the intellectual respectability of theism. Cosmological arguments are based upon the notion of causation. Now, theorizing about causation is perhaps as old as philosophy itself. More specifically, arguments for the existence of a first cause have a long and rich history.[2] Ever since Plato philosophers developed first cause arguments. Some well-known examples from the philosophical tradition include Aristotle's argument in *Physics* and *Metaphysics* for the existence of a first unmoved mover, the second of the 'Five Ways' of Thomas Aquinas in his *Summa Theologiæ* and Leibniz's argument for the existence of a necessary being that accounts for the existence of the universe as a whole.[3]

With the rise of positivism in the second part of the nineteenth century and the decline of metaphysics that went with it, the interest in first cause arguments faded away. However, the last decennia of the twentieth century witnessed a 'resurgence of metaphysics' (Craig and Moreland 2009).[4] The recent huge revival of interest in cosmological arguments for the existence of a first cause (Alexander 2008) can particularly be understood against this background. Several new cosmological arguments have been developed recently, notably those by R. Koons (1997), R. Gale and A. Pruss (1999) and J. Rasmussen (2010).

Structure of this thesis

My thesis starts in chapter II with a detailed assessment of two paradigmatic forms of traditional first cause arguments. I derive both forms from respectively the Thomistic and Leibnizian cosmological arguments. As I shall argue, there are cogent objections against both paradigmatic forms that cannot be resolved, and that render these forms untenable as arguments for the existence of a first cause. In the next three chapters, i.e. chapter III, IV and V, I provide a detailed assessment of the contemporary cosmological arguments of R. Koons, R. Gale and A. Pruss, and J. Rasmussen. As part of this assessment I identify and analyze a large range of objections to each of these arguments, both

1 A first cause is an uncaused entity that is the direct or indirect cause of everything else besides itself. It follows that *if* there is a first cause, *then* that first cause is unique. So, there can be at most *one* first cause.

2 In this thesis a first cause argument is understood as an argument for the existence of a first cause that reasons from there being (caused or contingent) objects. The Kalam argument and the fine-tuning argument are not first cause arguments. First, they reason respectively from the claim that the universe began a finite time ago or that the cosmological constants are fine-tuned. Moreover, they only establish that the physical universe is caused and not that there is an origin of everything (including possibly 'non-physical' objects).

3 Leibniz presents his argument in *The Monadology*, in *On the Ultimate Origin of Things*, in *The Theodicy* and in *The Principles of Nature and of Grace, Based on Reason*. See Craig (1980) for an overview.

4 In the introduction to *The Blackwell Companion to Natural Theology* W.L. Craig and J.P. Moreland write: 'The collapse of positivism and its attendant verification principle of meaning was undoubtedly the most important philosophical event of the twentieth century. Their demise heralded a resurgence of metaphysics, along with other traditional problems of philosophy that verification had suppressed' (Craig and Moreland 2009).

from the literature and proposed by myself. In chapter VI I propose my own new first cause argument by showing that atomism, i.e. the assertion that each composite object is composed of simple objects, together with causalism, understood as the assertion that every object is a cause or has a cause,[5] logically entail the existence of a first cause *if* some additional general premises regarding the interrelationship between parthood, composition and causation are accepted as well. Thus I show that a commitment to atomism, causalism and the aforementioned additional premises result in a commitment to the existence of a first cause. After that, in chapter VII, I turn to a critical assessment of my new first cause argument by considering whether the raised objections against the traditional cosmological arguments of Aquinas and Leibniz, and the raised objections against the contemporary cosmological arguments of Koons, Gale and Pruss, and Rasmussen, as evaluated in chapter II, III, IV and V, have any force against my new first cause argument. Moreover, I identify and assess a large number of additional objections that specifically address the new argument. As I shall argue for, all discussed objections in the chapter II, III, IV and V, including the additional specific objections, do not pose insuperable problems for my new first cause argument. In other words, the new argument is not vulnerable to any of the earlier and newly identified objections, which implies that the new argument for the existence of a first case is indeed cogent. Thus we are warranted in accepting it. Finally, in chapter VIII, I bring together the main threads of all previous chapters and point at some fruitful directions for further research. Most notably, I expound my view on how the main results of the previous chapters count as meaningful contributions to the intellectual discussion of the rationality of theism. In the final chapter I also sketch three supplementary deductive arguments for a *personal* first cause, which all rely dialectically either directly or indirectly on my new first cause argument. These three arguments are, as I shall argue, promising enough to be worked out in full detail by further philosophical research. In this way they can become a key part, together with my new first cause argument, of a renewed case for bare theism.

5 Surely, the thesis of causalism does not rule out there being objects that are caused *and* that are the cause of one or more other objects.

6 This principle is already mentioned and accepted by Aristotle: 'Everything has an origin or is an origin' (Physics 203b6). It is the negation of an earlier principle of existence as introduced by Parmenides of Elea according to which something exists if and only if it is uncaused and not itself a cause. The intuition behind Parmenides' principle is that something can only exist if it is completely changeless and that being caused (or being a cause) implies change. The principle of Parmenides is highly problematic, since it would imply that none of the regular objects in our world, such as tables and chairs, actually exist.

Ontological framework

In the rest of this introduction I shall say a little bit more about the relevant background and context of my new argument for the existence of a first cause. The new first cause argument is based on an explicit ontological framework within which the argument is set. In order to arrive at a cogent ontological framework underlying my new argument, I shall introduce a specific notion of causation with respect to coming into existence. The earlier mentioned principle of causalism, that is, everything that exists is caused by another object *or* is the cause of at least one other object,[6] is, as will become clear in chapter VI, an important part of the new argument's underlying ontological framework as well. The posited disjunction is inclusive. So, it is possible that an

object is itself caused and is also the originating cause of one or more other objects. I shall provide reasons for accepting causalism. Note that this principle implies that mereological universalism[7] is untenable since according to causalism the sum of all existing objects is not itself an object.[8] Yet, I shall also mention independent reasons for not accepting mereological universalism, such as the 'queerness argument'. In short, some mereological sums are simply 'too queer' to count as genuine objects. The new argument's ontological framework is also based on a defense of mereological atomicity, that is to say, the assertion that each object is either a simple object or ultimately composed of two or more simple objects. Hence, according to mereological atomism every object consists ultimately of one or more basic indivisible building blocks. I shall develop a new a priori argument for atomism that, as will become clear later on, is not to be confused with the rational argument of Thomas Aquinas for the impossibility of an infinite downwards regress of simultaneous sustaining causes.

One may ask why I present my new argument for the existence of a first cause within the context of an explicit ontological framework. The reason for this is that I take it that an adequate first cause argument can only be obtained once all hidden implicit ontological assumptions are properly explicated and combined into a single formal framework that is both cogent and consistent. Indeed, as I shall show, the inadequacy of many versions of the cosmological argument is a direct result of the absence of a clear explicit ontological framework within which the argument is developed. For example, a lot of versions of the cosmological argument assume implicitly that all contingent objects are caused. But this is problematic since there are at least prima facie admissible assumptions on the nature of causation, parthood and composition which are entirely compatible with these arguments but which in fact entail that there are *uncaused contingent objects* after all, thus rendering these versions of the cosmological argument untenable. Take for example these initially prima facie quite reasonable premises: (1) the cause of the coming into existence of each object is mereological disjoint with that object, and (2) the cause of a caused part of a mereological whole is a part of the cause of that whole. Imagine a situation in which there exists an object A that is the cause of the coming into existence of object B. Let us imagine that wholly contingently object A and object B come together in order to form a composite 'fusion'-object C that has A and B as its parts. Now, premises (1) and (2) actually imply that the contingent 'fusion'-object C does not have a cause, which violates the implicit assumption that all contingent objects are caused. I show that C has no cause by contraposition. Assume that C is caused and let object D be the cause of C. According to (2) the cause of object B is a part of object D. Thus object A is part of object D. This result contradicts premise (1) since object A is also a part of object C. The present example therefore indeed shows that an explicit formalization of all relevant assumptions on causation, parthood and

7 Mereological universalism is understood in this thesis as the claim that the mereological sum of any given collection of objects, however arbitrary, is an object. Hence the sum of *all* objects would also be an object.

8 It is not difficult to show that this is indeed the case. The mereological sum of all objects cannot be caused and can neither be the cause of another object since no object is outside the mereological sum of all objects.

composition into a single coherent and complete ontological framework is required in order to avoid inadequate untenable cosmological arguments.[9]

Let me provide a second example to further illustrate this important point. Many versions of the cosmological argument are based upon an implicit conception of metaphysical modality that doesn't exclude the metaphysical possibility of necessarily caused objects, that is, objects existing in every possible world and having an originating cause in every possible world.[10] Now, under such an implicit conception of modality a valid derivation of the existence of a metaphysically necessary object is not sufficient to conclude that this object is also the *first* cause. The reason is that this derived object might be a necessarily *caused* object. It might exist and have been caused in every possible world. Cosmological arguments for the existence of a first cause that are based on the aforementioned implicit conception of metaphysical modality are therefore problematic as well. To be cogent they must rule out the possibility of there being necessarily caused objects. And this requires a framework within which all relevant metaphysical assumptions are explicitly formalized.

These two examples reveal that a critical examination and clarification of the nature of causality within the context of coming into existence and its relationship to mereological parthood and metaphysical modality is indeed required in order to obtain a cogent version of the cosmological argument. In other words, a convincing cosmological argument for the existence of a first cause can only be attained if the implicit background assumptions on the nature of causality, parthood and composition are properly clarified and combined into a coherent ontological framework. To acquire a cogent new first cause argument I therefore start first with uncovering the implicit assumptions on causation, parthood and composition as presumed by the earlier mentioned traditional and contemporary versions of the cosmological argument. This will help to ultimately arrive at a cogent ontological framework within which I can then present and defend my new first cause argument. By doing so the present thesis counts as a relevant contribution to the intellectual discussion of the intellectual reasonableness of bare or mere theism. Yet, as mentioned, a renewed case for bare or mere theism itself is not obtained until the end of chapter VIII, where I shall finally present and defend three further arguments for the inferred first cause to be personal, that is to say, to be a self-conscious subject instead of just some lifeless object.

Methodology

Let me also say something about methodology. In this thesis I shall use the methods of analytical philosophy. The emphasis is on the clarity of the used concepts and the logical validity of the provided

9 Now, the example provided could also be invoked to argue that the principle that the cause of a part is part of the cause of the whole is problematic. Instead one may want to accept a weaker principle, namely that the cause of a part of a *causally flat* whole is a part of the cause of the whole, where a causally flat whole is a whole none of whose parts are partial causes of other parts. I thank Robert C. Koons for this remark. Yet, this alternative way of handling the example still supports my main point above, namely that an adequate cosmological argument has to be developed within the context of a clear explicit ontological framework.

10 For example a constitutionalist, i.e. someone who upholds that ontological constitution and mereological composition are two different relations, may claim that the universe, understood as the entity constituted by (but not identical with) the sum of all simples, is metaphysically necessarily caused. It is caused in the sense that in each possible world the unconstituted simples are collectively the sustaining or constitutive cause of the universe. To maintain her claim the constitutionalist must uphold that 'total nothingness' or 'there not being anything at all' is metaphysically impossible and that every composite object is ultimately composed of simple objects. The latter assertion is called mereological atomicity or mereological atomism.

rational arguments. Methods utilized include, but are not limited to, (a) non-modal and modal first order predicate logic, (b) possible world semantics, (c) formal mereology, (d) axiomatic set theory, and (e) the philosophy of common sense or the appeal to certain supposedly insurmountable self-evident truths, such as 'I exist' and 'There is an external world'. Where needed I shall also utilize modern axiomatic proof theory in order to investigate the logical consistency of specific frameworks combining causation, parthood and composition. Further, in a lot of cases I shall argue that a certain premise is cogent or sufficiently justified. By that I mean that the epistemic credibility of the premise in question is positioned in the middle between, on the one hand, 'being merely plausible or likely true' and, on the other hand, 'being true beyond any doubt because of some conclusive proof'. So, cogent or sufficiently justified propositions are propositions of which the epistemic credibility sits right in between that of 'being just reasonable' and 'having absolute indisputable warrant'. They all fall exactly in between 'the merely plausible' and 'the absolute certain'. So it is *more than reasonable* to accept them.

An initial objection

Now, before I start in the next chapter my assessment of traditional and contemporary cosmological arguments, I should notice that there is actually a quite interesting objection to *all* traditional and contemporary cosmological arguments that entail the existence of a metaphysically necessary being. According to the objection such cosmological arguments fail because on the one hand they imply the existence of a metaphysical necessary object, while at the same time these arguments are based upon (or do not exclude) conceptions of metaphysical modality according to which total nothingness, i.e. there not being anything at all, is a genuine metaphysical possibility,[11] so that no object could exist necessarily. In this case, a balance of equally strong opposing arguments is arrived at[12] and consequently judgment must be suspended.[13] Thus, a cosmological argument that implies the existence of a necessarily existing object is only tenable if it is properly grounded in a clear notion of metaphysical modality that implies the metaphysical impossibility of total nothingness. In a stronger form, the objection goes beyond equipollence by concluding that in fact a necessary being cannot exist since such a being would have to exist in all metaphysically possible worlds, which, as the objection goes, is impossible, since the empty world, or total nothingness, is a genuine metaphysical possibility. If the present objection, either the initial or the stronger variant, is valid, then the project of trying to infer a necessary being is in trouble before coming of the ground. I take it that this objection has some force, but should not withhold us from studying cosmological arguments that entail the existence of a necessary being.[14] The reason is that I believe there is an interesting argument for the impossibility of total nothingness, and I shall conclude this introduction by presenting it.

11 One of those not excluded possibilities could be the metaphysical possibility according to which there is an 'empty world', i.e. a possible world without any object but one within which it would still be true that certain states of affairs are metaphysically possible, such as me writing this thesis. This notion of an empty world is not in and by itself contradictory. In this case the accessibility relation between our world and the empty world would be symmetric, i.e. the empty world is reachable from our world and our world is reachable from the empty world. Another example would be the more extreme metaphysical possibility according to which there are no objects and no possible states of affairs. If that possibility would be actual then there would not even exist metaphysical possibilities other than the actual nothingness. The accessibility relation between our world and this second possibility would be asymmetric, i.e. this more extreme possibility is reachable from our world but our world is not reachable from the extreme possibility.

12 Namely, on the one hand the alleged possibility of total nothingness (which entails the impossibility of a necessary being) and on the other hand the cosmological argument for the existence of a necessary being.

13 The suspension of judgment as a result of there being equally strong arguments at both sides is a case of ancient Pyrrhonian equipollence (isostheneia). Such a skeptical epoche surely needs to be avoided.

14 As will become clear in chapter VI the new first cause argument that I propose does not require any appeal to metaphysical modal notions such as necessary or contingent existence. Hence, this objection has no force against my new first cause argument. And, for the same reason, it does not apply to the Thomistic first cause argument either, which I shall discuss in the next chapter. Yet, I believe it is important to address it, since all other cosmological arguments do in fact infer the existence of a metaphysically necessary being.

I propose a new a priori deductive argument for the metaphysical impossibility of total nothingness. The proposed argument does not depend on an appeal to the existence of a metaphysically necessary being. The conclusion that total nothingness is impossible follows logically from the following three premises:

(a) The Aristotelian-causal account of metaphysical modal facts is correct,
(b) There is at least one possible state of affairs,
(c) If a state of affairs is possible, then it is necessarily possible.

In his essay *The Leibnizian Cosmological Argument* Alexander R. Pruss (Pruss 2009) raises the question of the truth ground of metaphysical modal facts such as 'It is necessary that P', 'It is impossible that Q' or 'It is possible that R'. Pruss presents five non-revisionist theories about what features of reality make metaphysical modal facts hold: narrowly logical, Lewisian, Platonic, Aristotelian-essentialist, and Aristotelian-causal. Pruss argues in detail that the first four theories are unsatisfactory, and concludes that we must accept the Aristotelian-causal account until a better account is found. Pruss states that according to the Aristotelian-causal account of metaphysical modal facts 'a non-actual state of affairs S is merely possible provided that something – an event or substance or collection of events or substances, say – exists (in the tenseless sense: existed, exists presently, exists eternally or will exist) with a causal power of bringing about S, or with a causal power of bringing about something with a causal power of bringing about S, or with a causal power of bringing about something with a causal power of bringing about something with a causal power of bringing about S, or more generally provided that something exists capable of originating a chain of exercises of causal power capable of leading to S' (Pruss 2009, p. 43). Pruss explains further that, according to the Aristotelian-causal account, 'a state of affairs is possible if it is either actual or merely possible'.

According to the second premise there is at least one possible state of affairs. This second premise cannot be substantiated by referring to the empirical observation that our world contains many actual and therefore possible states of affairs. For such an appeal to sense perception would turn the whole argument into an a posteriori argument instead of an a priori argument. Now, the second premise is a priori substantiated by the fact that we can a priori conceive a possible world that contains at least one actual and thus possible state of affairs. Take as an example a world consisting of a single atom. This world is surely possible and it indeed contains at least one actual and thus possible state of affairs.

The third premise is also a priori sufficiently plausible. Pruss states in his aforementioned essay: 'However else things might have gone than they did, it would still be true that they could have gone as they actually

did' (Pruss 2009, p. 44). The premise is a formulation of the axiom of Brouwer[15] which states that if p holds, then p is possible in every possible world, i.e. the proposition 'p is possible' is true in every possible world. More generally, if X is metaphysically possible in some possible world *w*, that is, if the proposition 'X is possible' is true in world *w*, then X is metaphysically possible in all possible worlds, i.e. the proposition 'X is possible' is true in all possible worlds.[16]

To derive the metaphysical impossibility of total nothingness I show that the assumption that total nothingness is metaphysically possible results in a contradiction. Suppose that total nothingness is possible. In that case total nothingness could be actual. Let us assess the case that total nothingness is actual. In that case there is not any *actual* state of affairs. There are no *merely possible* states of affairs either, since there is nothing with the causal power of bringing about an actual state of affairs. Now, a state of affairs is possible if it is either actual or merely possible. From this it follows that there are no possible states of affairs in case total nothingness is actual. However, according to premise (b) there is at least one possible state of affairs S. Premise (c) implies that S is necessarily possible. S is necessarily a possible state of affairs. Therefore S must also be a possible state of affairs in the case that total nothingness is actual. This contradicts our earlier conclusion that there are no possible states of affairs in case total nothingness is actual. From this contradiction it follows that total nothingness cannot be actual. But this contradicts the original assumption that total nothingness is metaphysically possible. Therefore total nothingness is not metaphysically possible.

The argument shows that total nothingness is metaphysically impossible without having to argue for the existence of a metaphysical necessary being. Further, since the argument is a priori and not a posteriori, it does not only show *that* total nothingness is impossible, but also *why* it is impossible. The argument gives an *explanatory reason* for the fact that total nothingness is impossible without having to show that there is a necessary being.[17]

15 A reference to this axiom is found in the online *Stanford Encyclopedia of Philosophy* under 'modal logic'.

16 Note that here the S5 axiom system of modal logic is assumed. In the case of S5 all possible worlds are *connected*, that is, every possible world can be *reached* from out every other possible world. In this case it follows indeed that if state X is possible in some possible world, then X is possible in all possible worlds. For, if there is a possible world, say *w,* in which X is possible, i.e. 'X is possible' is true in *w*, then there is a possible world w_2 in which X is true, so that, since w_2 is reachable from out all other possible worlds, X is in fact possible in all possible worlds. And this is plausible in the specific case of *metaphysical* possibility under consideration. After all, in this case we are interested in the generic question of whether some state of affairs is possible *simpliciter*, that is, whether it can be actualized *at all*, which is a question whose answer does not appear to depend on which of the many possible worlds is actual. For, it is either possible or not.

17 An a priori argument *explains* a fact if it entails it and if its premises are sufficiently intuitive or evident.

II Traditional cosmological arguments: two paradigmatic forms

Introduction

As mentioned the theorizing about causation is perhaps as old as philosophy itself. Ever since Plato many philosophers have developed cosmological arguments for the existence of a first cause. This chapter does not aim to provide an historical overview of all the first cause arguments offered by Plato, Aristotle, Aquinas, Leibniz, Clarke and many others. For that would be a project in itself. Instead it describes two paradigmatic forms[18] of the traditional first cause argument and analyses the problems associated with each of them.

The first paradigmatic form

In his *Summa Theologiæ* Thomas Aquinas presents five arguments for the existence of a first cause. These arguments are widely known as the 'Five Ways'. In the second way Aquinas reasons from the observation that the observable world contains caused things:

> 'The second way is based on the nature of causation. In the observable world causes are found to be ordered in series; we never observe, nor ever could, something causing itself, for this would mean it preceded itself, and this is not possible. Such a series of causes must however stop somewhere; for in it an earlier member causes an intermediate and the intermediate a last (whether the intermediate be one or many). Now if you eliminate a cause you also eliminate its effects, so that you cannot have a last cause, nor an intermediate one, unless you have a first. Given therefore no stop in the series of causes, and hence no first cause, there would be no intermediate causes either, and no last effect, and this would be an open mistake. One is therefore forced to suppose some first cause, to which everyone gives the name "God"'.[19]

The second way is historically important because in it Aquinas is concerned with the cause of a thing's existence and not with the cause of the motion or change of an already existing thing as Plato, Aristotle and others before Aquinas had done. The context of the second way is thus causation with respect to bringing about existence instead of bringing about motion or change. Aquinas' second way can be schematized as follows:

18 Paradigmatic in the sense that both forms are derived from what the received view considers to be exemplary principal versions of an argument for a first cause, i.e. the second of the 'Five Ways' of Thomas Aquinas and Leibniz's argument in his *The Monadology*. Surely, there are other exemplary versions.

19 *Summa Theologiæ*, First part, Question 2, Article 3.

1 There are caused objects (premise),
2 There are no cyclic series of causes (premise),
3 There are no downward infinite series of causes (premise),
4 The series of causes of each caused object is finite and acyclic (from 2, 3),
5 The series of causes of each caused object starts with an uncaused cause (from 4),
6 There is a first cause (from 1, 5).[20]

20 As mentioned earlier, a first cause is an uncaused entity that is the direct or indirect cause of everything else besides itself. Hence, it follows that if there is a first cause, then that first cause is unique. So, there can be at most one first cause. An argument that entails the existence of a first cause also entails its uniqueness.

Aquinas' second way is at its face-value not a logically valid argument. Premise (1) and intermediate conclusion (5) imply that the total number of uncaused causes is greater than or equal to one and less than or equal to the number of caused objects. Now, how does the conclusion (6) that there is a first cause logically follow from this? The argument does not make this clear. Moreover, the argument would still not be logically valid if it could be assumed that the number of uncaused causes is equal to one. The reason is that this sole uncaused cause might still not be a first cause. After all, a first cause is the cause or an indirect cause of *everything* besides itself. Therefore, a single uncaused cause only qualifies as a first cause if there are no isolated objects (i.e. objects that are uncaused and that are neither the cause of another object).

From the above it follows that a logically valid argument for the existence of a first cause is obtained by adding the following two additional premises: (1) if there is an uncaused cause, then the number of uncaused causes is one, and (2) every uncaused object is itself a cause:

1 There are caused objects (premise),
2 There are no cyclic series of causes (premise),
3 There are no downward infinite series of causes (premise),
4 The series of causes of each caused object is finite and acyclic (from 2, 3),
5 The series of causes of each caused object starts with an uncaused cause (from 4),
6 There is an uncaused cause (from 1, 5),
7 If there is an uncaused cause, then the number of uncaused causes is one (premise),
8 There is one uncaused cause (from 6, 7),
9 Every uncaused object is itself a cause (premise),
10 There is one uncaused cause of everything besides itself (from 5, 8, 9),
11 There is a first cause (from 10 and the definition of 'first cause').

In what follows this argument is referred to as the first paradigmatic form of a first cause argument. It consists of five premises (1, 2, 3, 7 and 9), five intermediate conclusions (4, 5, 6, 8 and 10) and a final conclusion (11). Aquinas' second way is adequately thought of as being an instance

of this form in case it is assumed that premises (7) and (9) are both implicitly part of Aquinas' reasoning.

The first paradigmatic form is logically valid, that is, the conclusion that there is a first cause follows logically from the five premises. Therefore, if the premises are true, the conclusion is true as well. Now, are there good reasons to think that each of these five premises is true? In what follows each of these premises is considered in more detail.

PREMISE (1)

The first premise is entirely acceptable on empirical grounds. Surely, we perceive a world that appears to be full of all kinds of caused objects, such as tables, chairs, plants, trees, animals and humans. So, the first premise is an unproblematic observational datum. It is certainly plausible enough to be used as a premise. Note that this premise is a posteriori and not a priori justified. Hence the first paradigmatic form is an a posteriori argument.

PREMISE (2)

The second premise introduces the concept of a cyclic series of causes. A cyclic series of causes is a series of causes that starts and terminates with the same object. Such a series is properly described as either 'A causes A', 'A causes B , B causes A' or 'A causes B, B causes something, ... , anything causes A'. The second premise holds that there are no cyclic series of causes. The justification for this premise is that no object can be directly or indirectly ontologically prior[21] to itself. In Aquinas' second way this point is made when he writes: 'we never observe, nor ever could, something causing itself, for this would mean it preceded itself, and this is not possible'. The second premise seems to be unproblematic. Surely, nothing can be the cause or an indirect cause of its own existence. So the second premise is intuitively plausible. It is certainly reasonable enough to accept as a premise.

PREMISE (3)

The concept of a downward infinite series of causes figures in the third premise. Such a series of causes is bounded from above but unbounded from below, i.e. it contains a last but not a first member. A downward infinite series of causes can be adequately denoted as '... , something causes B, B causes A'. According to the third premise there are no downward infinite series of causes. The second way does not provide a clear explicit justification for this premise.[22] Still, the justification might be that an infinite downward regress of causes of an object is not possible since in that case the object would not be able to actually come into existence. This might seem to be a sufficient justification. An infinite regression of causes appears implausible since it is for us inconceivable how the existence of something could actually originate from an interminable sequence of causes without a lower bound, i.e. without an initial originating cause. The claim that an infinite downward

21 It could be that Aquinas refers to temporal priority, i.e. being earlier than something else, instead of the broader conception of ontological priority. Still, his remark applies plausibly to the context of ontological priority as well. The remark 'nothing precedes itself' can adequately be understood as the a-temporal claim that it is incoherent to presuppose the existence of a thing in order to establish the very fact of its existence.

22 Rowe (1998) provides an interesting analysis of the second way argument of Aquinas. According to Rowe Aquinas' reasoning in the second way against an infinite regress of causes appears to be question-begging. Aquinas seems simply to assume that every series of causes has a first member. Rowe does not try to avoid the conclusion that Aquinas reasoning is question-begging. Instead Rowe searches 'for something more substantial beneath the surface that may have been poorly expressed [by Aquinas] but, nevertheless, may represent his real view on the subject'. Rowe's approach is based upon the thought that Aquinas might be concerned in his second way with the *present existence* of a thing and not with the *coming into existence* of a thing. Therefore, as Rowe argues, Aquinas is limiting himself to a specific kind of series of causes (i.e. so-called 'essentially ordered' series of causes) for which it can according to Rowe be argued that they do have a first member. The scope of this chapter however is causation with respect to the bringing about of existence. The bringing about of existence is not limited to causing the present existence of a thing. Hence Rowe's approach does not help to obtain a justification for the more general claim that no series of causes of objects proceeds to infinity.

regression of causes is impossible is thus certainly not groundless since it is at least acceptable as an assertion about how we perceive reality. The third premise appears to be justified as a common sense proposition about how the world is intuited by us. So, it seems to be a sufficiently warranted premise to utilize within metaphysical inquiries. On the other hand it has to be admitted that apart from these considerations there seems to be no good argument for the third premise that proceeds to its conclusion through discursive reasoning rather than direct intuition. An infinite regress of causes might be possible even though it is hard for us to conceive. A first cause argument that does not rely upon this premise should therefore, everything else being equal, be preferred above a first cause argument that does. As becomes clear in the rest of this thesis the second paradigmatic form and the proposed renewed version of a first cause argument do not rely upon the questionable premise that an infinite downward regress of causes is impossible.

PREMISE (7)

According to this premise, if there is an uncaused cause, then the number of uncaused causes is one. This premise surely seems implausible. Why could there not be two or more uncaused causes? Nevertheless, if mereological universalism, i.e. the claim that every sum[23] of objects is itself an object, is true, one could argue that there is a sense in which there is only one uncaused cause. Let UC be the sum of all uncaused causes. UC is an object if mereological universalism is true. Further, UC is uncaused since it is the sum of only uncaused objects. Thus UC is itself an uncaused cause and each uncaused cause is a part[24] of it. Given this, one could argue that UC is the single uncaused cause that contains every other uncaused cause as one of its proper parts.[25] The problem of this argumentation is that mereological universalism itself is a controversial thesis. In the contemporary literature objections to mereological universalism are raised and alternative mereological accounts have been proposed, such as those of Van Inwagen (1990), Fine (1999), Johnson (2002) and Koslicki (2008). Without mereological universalism, there appears to be no cogent way of holding that there could be at most one uncaused cause. Premise (7) is therefore too problematic. There seems to be no plausible reason for it that could convince those who do not accept the claim that every sum of objects is an object. Now, one might respond that we in fact do not require universalism to argue that UC is an object. For, perhaps we can point at certain specific features of the collection of all uncaused causes which justify us to infer that the sum of this collection, UC, is an object regardless of whether universalism is true or false. But what features should we refer to in this specific case? I take it that whatever features we suggest, the claim that the collection in question has these features will be controversial, and, moreover, the claim that the sum of each collection having these features constitutes an object will be controversial as well.

23 The sum of two or more objects is a mereological term to denote the totality of those objects, i.e. those objects taken together.

24 In this chapter the mereological notion of parthood is taken to be a relationship between two objects. One object can be a part of another object. Parthood is taken to be a basic concept and thus not definable in terms of other more basic concepts. Object A is called a proper part of object B if and only if A is a part of B and A is not equal to B. Object A is called an improper part of object B in case A is equal to B. Further, object A is said to contain object B if and only if B is a part of A. Another mereological conception used in this chapter is the concept of disjointness. Disjointness is defined here in terms of parthood. Two objects are disjoint in case they do not share a (proper or improper) part.

25 UC is *maximal* in the sense that it is the unique uncaused cause that contains each other uncaused cause.

26 This principle is mentioned and accepted already by Aristotle: 'Everything has an origin or is an origin' (*Physics* 203b6). A variant of it can be found in Plato's *The Sofist*. In this dialogue the stranger says: 'My notion would be, that anything which possesses any sort of power to affect another, or to be affected by another, if only for a single moment, however trifling the cause and however slight the effect, has real existence' (Project Gutenberg, Benjamin Jowett translation). The principle that everything that exists is a cause or has a cause is related to a contemporary position within the philosophy of science known as causalism. Causalists such as N. Cartwright argue 'that we are entitled to speak of the reality of [objects] because we know that they have quite specific causal powers' (Hacking 1983). The exact opposite of the principle that everything that exists is caused or a cause is the principle of existence from Parmenides of Elea. Parmenides maintains that

PREMISE (9)

This premise holds that every uncaused object is itself the cause of another object. It is a direct logical consequence of the metaphysical principle that everything that exists is caused by another object or is the cause of at least one other object.[26] The posited disjunction is inclusive. It is possible that an object is itself caused and is also the cause of one or more other objects. Note that this metaphysical principle immediately implies that mereological universalism is untenable since it follows that the sum of all objects is not an object.[27] Premise (9) seems plausible enough to accept as a premise. The intuition behind it is that something can only exist if it is part of 'the causal fabric' of the world. Something that is not caused and that is neither the cause of anything else can not exist simply because it does not take part in the *all-embracing* process of causation. Premise (9) is thus grounded in the viewpoint that the world as a whole is a causally intertwined whole or that the world does not contain fully isolated inert objects.[28] Reality is a causally interweaved coherent unity in which every object participates. Everything that exists is causally connected because reality is in its broadest sense a linked unity. In fact, premise (9) is a premise of the new first cause argument presented later on in this thesis.[29]

EVALUATION

From the above it can be concluded that the first two premises are sufficiently justified. Premise (9) seems to be sufficiently justified as well. However, premise (3) and premise (7) are quite problematic. It is questionable whether we are warranted to think that these premises are true. From this it follows that the first paradigmatic form is not a good argument. It is not a good argument because two of its premises are not sufficiently warranted. Now, as a next step, the second paradigmatic form is presented and evaluated.

The second paradigmatic form

In his *The Monadology* Leibniz argues that there exists a metaphysically necessary being which is the sufficient reason for the existence of the universe. In other words, this being is the reason or rational ground for there being a totality of contingent beings.[30] This totality is to be understood as all contingent beings taken together. The existence of a metaphysically necessary being is Leibniz' answer to his famous question as to why there are contingent beings at all or, more generally, why there is anything at all rather than just nothing. Leibniz provides the following argument:

> '[...] there must [...] be a sufficient reason for contingent truths [...]. [Now,] there is an infinity of figures and of movements, present and past, which enter into the efficient cause of my present writing, and there is an infinity of slight inclinations and dispositions, past and

something exists if and only if it is uncaused and not itself a cause. The intuition behind Parmenides' principle is that something can only exist if it is completely changeless and that being caused or being a cause implies change. The principle of existence from Parmenides is surely problematic since it implies that none of the regular objects in our world, such as tables and chairs, exist.

27 It is not difficult to show that this is indeed the case if we assume that the cause of the existence of an object is mereologically disjoint with that caused object. Later on in this chapter, when the second form is discussed, it is argued that this assumption is sufficiently reasonable. Now, the sum of all objects cannot be caused and can neither be the cause of another object because such a cause or effect would have to be disjoint with all objects taken together. This is impossible since there is nothing outside the sum of all objects.

28 The idea that reality as such is a causally interweaved whole is surely plausible as assertion about reality as we perceive it. Indeed, premise (9) is about the *actual world*. It is not argued for that premise (9) holds in all metaphysically possible worlds. In fact, such a modal claim would be highly implausible, for we can of course imagine possible worlds in which premise (9) is false, such as a world consisting of just one object.

29 Both René van Woudenberg and Jeroen de Ridder indicated a specific objection to this premise. Abstract objects, as this objection goes, are causally inert, that is, they are uncaused and they do not cause anything. As such they falsify premise (9). Now, this objection does not have sufficient force. First, there might not be abstract objects, that is, nominalism with respect to abstract objects could be true. Nominalism regarding abstract objects, i.e. the position that all objects are concrete objects, is surely a defensible position. Due to space limitations this point is

> present, of my soul, which enter into the final cause. And as all this detail only involves other contingents, anterior and more detailed, each one of which needs a like analysis for its explanation, we make no advance: the sufficient or final reason must be outside of the sequence or series of this detail of contingencies, however infinite it may be. And thus it is that the final reason of things must be found in a necessary substance [...]; and this is what we call God'.[31]

Leibniz considers the universe as a whole, i.e. as the totality of all contingent objects. He holds that there must be a sufficient reason for the fact that there are contingent objects at all rather than nothing. In other words, the existence of the universe must have a rational basis or ground. It is important to notice that Leibniz does not exclude the possibility of an infinite downward regress of causes, as Aquinas did. There might be series of causes that proceed to infinity. However, according to Leibniz, such series, if they exist, do not constitute a sufficient reason for the existence of the universe itself, i.e. the totality of all finite and infinite causal series. In other words, some series of causes might go to infinity, but this cannot account for the fact that there exists a totality of contingent objects. A sufficient reason for the universe considered as a whole can only be found in an object that exists outside the realm of contingent objects, i.e. a non-contingent and therefore necessary existing object. This metaphysically necessary object is referred to by Leibniz as 'the final reason of things'. As 'the final reason of things' it is not only the sufficient reason for the existence of a totality of contingent objects, but also for its own existence. Hence, by virtue of its own nature, it is not possible for this necessary being not to exist.[32]

Leibniz characterizes this necessarily existing object as being the ultimate *reason* for the existence of the universe, not as being the first *cause* of the universe. However, it seems obvious that the only way in which an object can be the reason for the existence of a totality of other objects is by being the originating cause of the existence of that totality. In other words, if the reason of the universe is a specific object, as Leibniz holds, then that object is properly described as being the originating cause of the universe. Therefore, Leibniz' argument can be schematically represented as a first cause argument as follows:

1 There must be a sufficient reason for each contingent truth (premise),
2 The universe is the sum of all contingent objects (definition),
3 It is a contingent truth that there is a universe (premise),
4 There must be a sufficient reason for the existence of the universe (from 1, 3),
5 The reason for the existence of the universe is found outside the universe (premise),

not further discussed. Second, even if there are abstract objects, one could argue that they are all caused and therefore do not falsify premise (9). After all, concepts and propositions are examples of abstract objects. Abstract objects such as 'bicycle', 'elevator' and 'The bicycle is in the elevator' are certainly plausibly understood as being the product of human thought and therefore as being caused. The same can be maintained for other classes of abstract objects, such as the objects of mathematics. One could plausibly argue that mathematical objects are caused by a specific activity of human thought, namely *abstraction from* or *idealization of* the concrete objects in nature. This line of thought can be further extended, that is, it can be defended that all abstract objects are man-made artifacts and thus caused. Note that this line of thought collapses into a defense of nominalism with respect to abstract objects if one contend that humans can only cause concrete objects, i.e. mental contents or material states of affairs. Third, even if some abstract objects, such as sets, are uncaused, it might be the case that they are the (logical or sustaining) cause of other abstract objects. One could for example argue that sets are the (logical or sustaining) cause of numbers since numbers are mathematically produced from sets. So, uncaused abstract objects are causes and therefore they do not falsify premise (9). Fourth, suppose that there are causally inert abstract objects after all. In that specific case one could recast the first paradigmatic form of the first cause argument by replacing all occurrences of 'object' by 'concrete object', i.e. by limiting the ontological domain to concrete objects. The conclusion of the argument would then be that there is a unique concrete object that is the first cause within the realm of concrete objects, which is surely a quite interesting non-trivial metaphysical conclusion. The fourth option was proposed by Jeroen de Ridder.

6 There is a necessary being that is the reason for the universe's existence (from 2, 5),
7 If a being is the reason for the universe's existence, than it is its cause (premise),
8 There is a necessarily existing being that is the cause of the universe (from 6, 7),
9 If the cause of the universe exists necessarily, then it is a first cause (premise),
10 There is a first cause (from 8, 9).

The first premise of the above argument is widely known as the principle of sufficient reason (PSR). In addition to the formulation of PSR in the above quoted fragment, i.e. 'there must be a sufficient reason for contingent truths', Leibniz provides many other formulations of this famous principle in his work.[33] According to the PSR there is a sufficient explanation for every contingently true proposition. The PSR is nowadays rather controversial. A forceful objection against it has been raised by Van Inwagen (1983). He argues against PSR by showing that the conjunction of all contingently true propositions is itself a contingently true proposition that cannot have an explanation. His line of reasoning is in essence as follows.[34] Since no necessarily true proposition explains a contingently true proposition,[35] it follows that the explanation of the conjunction of all contingently true propositions is a contingently true proposition E. The contingently true proposition E explains itself since E is part of the conjunction of all contingently true propositions and E explains this conjunction and therefore each part of it. But it is surely impossible that proposition E explains itself since no contingently true proposition can explain itself. The assumption that the PSR is true leads therefore to a contradiction. Consequently, the PSR is to be rejected. Now, this powerful line of reasoning of Van Inwagen cannot be applied to the following weaker version of the PSR:

(1*) Every contingent object is caused by another object.

This more restricted version of the PSR only claims that each contingent object is caused, not that for every contingently true proposition there is a sufficient explanation. It is based on the intuition that a contingent object exists but could not have existed, and must therefore have a reason for its existence, being the fact that its existence is caused by another contingent or necessary object. In order to argue against (1*) in a way comparable to Van Inwagen's forceful objection to (1) one would have to argue that the totality of all contingent objects, i.e. all contingent objects taken together, is itself a contingent object that cannot have been caused by another object. This is however not possible, precisely because of the fact that one could counter such an objection by maintaining that the contingent aggregation of all contingent objects is a contingent object that has a metaphysical

30 An object is contingent if it exists but could not have existed, i.e. if it exists in the actual world and there is a possible world in which the object does not exist. Take for example the chair on which one is sitting. This chair is a contingent object since it exists and there are possible worlds without it. The chair, although it happens to exist, could, if things would have gone differently, not have existed. Further, a metaphysically necessary object is an object that could impossibly not exist, i.e. it exists in every possible world.

31 This fragment is a slightly abridged version of Leibniz' argumentation as quoted in Craig (1980). Leibniz provides similar arguments in his *On the Ultimate Origin of Things*, *The Theodicy* and *The Principles of Nature and of Grace, Based on Reason* (Craig 1980).

32 Later on in this thesis it is argued that there might be necessary beings that do not exist by virtue of their own nature. If there indeed are such objects, then, from the fact that a given object exists necessarily, one cannot conclude that this particular object exists by virtue of its own nature, as Leibniz appears to be doing.

33 See Craig (1980) for a comprehensive overview of Leibniz' various formulations of the PSR.

34 This summary follows Pruss (2009) in which Van Inwagen's objection to the PSR is discussed in detail. J. Ross, W. Rowe and P. Francken and H. Geirsson defend similar objections to the PSR (Pruss 2009).

35 Hereby it is assumed that the notion of explanation includes logical entailment, that is, if a proposition P explains a proposition Q then Q is logically implied by P. Hence, no necessarily true proposition explains a contingent proposition since all logical consequences of a necessarily true proposition are necessarily true.

necessary object as its cause. In fact, this claim is exactly what the first cause argument as derived from the quoted fragment of Leibniz's *The Monadology* amounts to. Therefore, by replacing (1) by (1*), and adjusting some of the other propositions accordingly, a first cause argument is obtained that is not directly vulnerable to Van Inwagen's forceful objection to the PSR:

1* Every contingent object is caused by another object (premise),
2 The universe is the sum of all contingent objects (definition),
3 There are contingent objects (premise),
4 The sum of all contingent objects is a contingent object (premise),
5 The universe is a contingent object (from 2, 3, 4),
6 The universe is caused (from 1, 5),
7 The cause of an object is disjoint with that object (premise),
8 The cause of the universe is not a contingent, i.e. a necessary, object (from 2, 6, 7),
9 If the cause of the universe exists necessarily, then it is a first cause (premise),
10 There is a first cause (from 8, 9).

In what follows this argument is referred to as the second paradigmatic form of a first cause argument. It consists of five premises (1*, 3, 4, 7 and 9), an explicit definition (2), three intermediate conclusions (5, 6 and 8) and a final conclusion (10). Leibniz' argumentation for the existence of a metaphysically necessary being that constitutes a sufficient reason for the existence of the universe, as presented in the quoted fragment from *The Monadology*, can be adequately thought of as being an instance of the second paradigmatic form if we may assume that premises (1*), (4) and (9) are part of Leibniz' reasoning.

The second paradigmatic form is logically valid, that is, the conclusion that there is a first cause follows logically from the five premises. Thus, if the premises are true, the conclusion is true as well. Now, are there good reasons to think that each of these five premises is true? In what follows each of these premises is assessed in more detail.

PREMISE (1*)

As mentioned the premise that every contingent object is caused is a weaker version of Leibniz' principle of sufficient reason (PSR). As being more restricted than PSR, it is not vulnerable to Van Inwagen's objection. Nevertheless, the first premise is problematic. To understand why consider the following two propositions:

(a) The cause of a caused part of a caused object is a part of the cause of that object,

(b) There is at least one object A for which it holds that A is the cause of an object B, and the sum of A and B is a contingent object C.[36]

36 In reality objects sometimes fuse, i.e. come together to constitute a third object. There is thus no reason to hold that a cause could not fuse with the object that its causes. Some of these fusions between a cause and its effect are indeed plausibly thought of as being contingent. For example in case the cause or effect is itself an contingent object that belongs to the fusion essentially, i.e. without one of these parts the fusion object ceases to exist. Therefore, it is justified to claim that there is at least one contingent object that is the sum of two objects, one cause and the effect of that cause. This is precisely what is claimed by (b).

Both propositions seem to be prima facie sufficiently plausible if taken into account that, as mentioned in the introduction, the context of causation is causation with respect to bringing about the existence of an object, i.e. an object X is the cause of an object Y if and only if X is the cause of *the existence of* Y. It is now shown that (a), (b) and premise (7), i.e. the premise that an object and its cause are mutually disjoint, together contradict premise (1*). According to (b) object C is contingent. Now assume that C is caused and let object D be the cause of C. According to proposition (a) the cause of B is a part of D. Thus A is a part of D. Now, A is a part of C, and therefore D and C are not disjoint, which clearly contradicts premise (7). It therefore follows that the assumption that the contingent object C is caused is untenable. So, C is an uncaused contingent object, which counters premise (1*). Now, as is argued below, premise (7) is in fact properly justified on independent grounds. Thus, there are two prima facie plausible propositions, (a) and (b), that, as shown above, together with the independently justified premise (7) refute premise (1*). Therefore, the first premise, i.e. the premise that states that every contingent object is caused by another object, is not sufficiently plausible and thus problematic.

PREMISE (3)

This premise is empirically sufficiently warranted. The world surely contains objects that, if things would have gone differently, would have not existed, such as for example the chair one is sitting on. Note that because of this premise the second paradigmatic form is an a posteriori and not an a priori argument. In this respect it is similar to the first form.

PREMISE (4)

This premise maintains two things. First, that the sum of all contingent objects is itself an object, and, second, that this object is a contingent object. Now, the second claim is highly plausible. Surely, it would be extremely counter-intuitive to hold that the sum of all contingent objects is a necessarily existing object. Some philosophers contend that each sum has its parts essentially. In that case it follows immediately that the sum of all contingent objects is contingent, since the sum fails to exist in those possible worlds in which at least one of its parts does not exist. The first claim, i.e. the claim that the sum of all contingent objects is an object, is implied by mereological universalism, i.e. the thesis that each arbitrary sum of objects is also an object. However, as mentioned mereological universalism is a controversial thesis, due to the various objections and alternatives by Van Inwagen (1990), Fine (1999), Johnson (2002), Koslicki (2008) and others. Hence, the first claim,

and thus premise (4) itself, is quite problematic. Without universalism, there is no good reason for accepting the claim that the sum of all contingent objects is an object. Again, one might respond that we do not need universalism to conclude that the sum of all contingent objects is an object. For, couldn't there be specific features of the collection of all contingent objects which justify us to infer that its sum is an object? Yet, I take it that whatever features we suggest, the claim that this collection has these features, or the claim that the sum of a collection with these features is an object, will be controversial.

PREMISE (7)

This premise is sufficiently warranted. Plausibly, the cause of the existence of an object is ontologically prior to that object and each of its parts. So, if an object's cause would not be disjoint with the caused object, it would follow that the cause of the object is prior to a part of itself, which seems surely impossible. This point can be put in a different way. Suppose object A is the cause of B and assume that A and B are not disjoint. In that case A and B share a part C. Now, A is the cause of the existence of B. Since C is a part of B it follows that A is also the cause of the existence of C.[37] But C is a part of A as well. Thus A is the cause of a part of itself. This is definitely counter-intuitive. Nothing is prior to a part of itself. Therefore the cause of an object is always disjoint with that object. The cause and the caused object have a separate existence: they do not share a common part.

PREMISE (9)

According to this premise a necessarily existing cause of the universe must be a first cause. This premise is problematic for two reasons. First, the necessarily existing cause of the universe, let's call it object A, might not be the cause or an indirect cause of *everything* besides itself. After all, the argument does not rule out the existence of *other* metaphysically necessary objects that are not caused or indirectly caused by A. If such other objects exist, A is obviously not the cause or an indirect cause of *everything* besides itself, and thus not a first cause. Second, object A might not be uncaused and therefore not be a first cause. In order to understand why it is important to notice first that the argument does not exclude the existence of objects that exist in every possible world and that are caused in every possible world. In fact, there seems to be no good reason for denying the existence of such objects. Surely, such objects could not exist if every metaphysically necessary object exists because of its own nature.[38] But why should all necessarily existing objects exist by virtue of their own nature? Earlier in this chapter a necessarily existing object is defined as an object that could impossibly not exist, i.e. that exists in every possible world. Now, this definition does not exclude the existence of objects that exist necessarily and that are caused in all possible worlds.[39] So, the fact that an object is metaphysically necessary does not imply that it is uncaused. There is thus no good reason why object A should be uncaused. Consequently,

37 Note that a maximally inclusive conception of causality is implicitly assumed here. In other words, the cause of the existence of an object includes everything that is responsible for the existence of that object and all of its parts. The cause of a painting contains for example not just the painter but also the object that produced the paint used by the painter, the object that produced the frame of the painting, etc.

38 An object that exists in every possible world and that is caused in every possible world would be a necessary object that does not exist by virtue of its own nature. It would not exist because of its intrinsic features but because of the external fact that it is caused in each and every possible world.

39 One could for example conceive an object A that (1) exists by virtue of its own nature, and (2) that, again by virtue of its own nature, causes another object B. Since A exists by virtue of its own nature it follows that A exists in every possible world. Further, since A causes B by virtue of A's own nature, it follows that B is caused, and hence exists, in every possible world. Object B is thus an example of a necessarily existing object that is caused in every possible world.

since every first cause is uncaused, there is no good reason why A must be a first cause. Because of this, and the former problematic aspect, premise (9) is not cogent and should therefore be rejected.

EVALUATION

From the five premises of the second paradigmatic form of a first cause argument only premise (3) and premise (7) are sufficiently justified. Premise (1*), (4) and (9) are too problematic. From this it follows that the second form is not a good argument either.

Closing remarks

As we have seen in this chapter both paradigmatic forms of the traditional cosmological argument are not tenable. In the next chapter I shall turn to a detailed assessment of the first of three contemporary versions of the cosmological argument, that is to say, the new cosmological argument of Robert C. Koons.

III The cosmological argument of Koons

Introduction

In this chapter Robert C. Koons' version of the cosmological argument (Koons 1997) is discussed. His argument aims at establishing the existence of a first cause of the cosmos.[40] The concept 'cosmos', as employed by Koons, is to be interpreted in the following way: 'There may be an infinity of parallel universes, representing every possible permutation of possible physical laws and initial Big Bang conditions. [...] Let us call each of the spatiotemporally complete, causally isolated histories "a universe". The totality of all such universes I shall call "the cosmos". The cosmos is thus a vast aggregate, composed of infinitely many parallel universes' (1997, p. 207). From this it is clear that Koons takes the cosmos to be all of space-time, including all of its contents, such as matter and energy, structured either as a single universe (being in that case the universe we inhabit) or as a multi-verse of (infinitely) many parallel universes, one of which we inhabit. In short, he takes the cosmos to be the entire natural realm or the whole of physical reality.

Koons draws on contemporary developments in philosophy to construe his version of the cosmological argument. Examples of these developments include, but are not limited to, modern modal logic and the formal calculus of parts and wholes (modern mereology). According to Koons these developments made it possible to cast the cosmological argument in a form that is not vulnerable to the classical objections from Hume, Kant, Russell and others. As any traditional cosmological argument Koons' argument relies on the notion of causation. Now, as Koons points out: 'The notion of causation has taken root once again within philosophy, proving to be indispensable to recent advances in semantics, epistemology and cognitive science' (1997, p. 193). The same holds, as Koons explains, for the philosophical concepts of necessary and contingent facts (1997, p. 198). Later on in this chapter I shall provide a brief elucidation of his accurate observation that metaphysical modalities have come to play an important role again in contemporary philosophical discourse. Because of the indispensability of the notion of causation and the resurgence of the conceptions of metaphysical possibility and necessity it is not really convincing anymore to reject a cosmological argument by merely pointing to the alleged unreality of causation and necessary facts. In other words, the objection that the notions of 'causation' and 'necessary fact' are problematic does not have sufficient force against Koons' new argument. Or, if such an objection

40 Koons also infers seven corollaries from his argument (1997, pp. 199–200). The first corollary establishes the existence of a necessary being included in the first cause. The other six establish certain properties of this necessary being (such as 'being simple', 'having all its basic attributes by necessity' and 'being outside space-time'). In this way Koons aims to show that his cosmological argument is 'quite useful to the project of natural theology, providing very helpful support to a number of important arguments for theism' (1997, p.199). These corollaries are not part of Koons' cosmological argument, i.e. his argument for the existence of a first cause, and therefore will not be further discussed in this chapter.

does have force, then we should reject a host of other philosophical and scientific arguments that are nowadays widely accepted. Yet, I take it that an argument for a first cause that does not rely on the notions of metaphysical necessity and possibility, such as the new first cause argument I propose in chapter VI of this thesis, is, everything else being equal, preferable to arguments that do. The reason is that a first cause argument relying on metaphysical modalities may still be vulnerable to any thus far unforeseen future criticisms of these modalities. Moreover, the aim of Koons' first cause argument is, as mentioned above, to establish the existence of an uncaused cause of the natural realm. Now, the concept of 'being uncaused' does not in and by itself refer to metaphysical modal notions. Hence, everything else being equal, a first cause argument that does not employ the apparatus of metaphysical possibility and metaphysical necessity, such as the argument that I shall propose later on, is in general simpler than one that does rely on these metaphysical modalities.

First I start with a description of the relevant background and context of Koons' renewed argument. After that I present the argument itself and discuss Koons' responses to a large number of objections to his argument. I will argue that all but three of Koons' responses are cogent. I next show that two of the three inadequate responses can be repaired. This leaves us with one remaining objection which is, as I argue, beyond repair. As will become clear in this chapter this objection springs from the question where the cause of the cosmos came from. At the end of this chapter I raise another objection against Koons' argument that is not addressed by Koons. This additional objection amounts to the observation that the effect for which Koons derives a necessarily existing cause is not shown to be identical with (or include) the entire natural realm. Thus, as this objection goes, the necessarily existing cause as inferred by Koons is not shown to be the cause of the whole cosmos and as such is not plausibly understood as being a first cause. Now, this additional objection is quite serious since it touches on the heart of Koons' argument. Together with the aforementioned remaining objection it leads to the conclusion that Koons' cosmological argument does not convincingly establish that there is a first cause.

Background

Koons (1997) provides a logically deductive argument for the claim that the cosmos has a cause that is a necessary fact.[41] That is to say, the conclusion of his argument is logically implied by the argument's premises. Koons develops his argument within the context of a formal framework. The framework is a modal logic[42] supplemented by the Lesniewski-Goodman-Leonard calculus of individuals. Koons assumes a fixed domain of possible facts.[43] The notion of possibility used is that of broadly logical or metaphysical possibility. He adopts the following definitions. A possible world is some grouping of possible facts, but

41 One of the premises of Koons' argument is the causal principle that every wholly contingent fact has a cause. Koons' notion of a wholly contingent fact is explained later on in this chapter. Koons insists that this causal principle needs to be read defeasibly, that is, as a default or exception permitting rule. As he points out: 'In the absence of evidence to the contrary, we may infer, about any particular wholly contingent fact, that it has a cause.' (1997, p. 196). So, according to Koons, the causal principle is actually a defeasible rule that should be formulated as: 'Normally, a wholly contingent fact has a cause' (1997, p. 197). The defeasible nature of the causal principle 'allow us to infer that any given wholly contingent fact has a cause unless some positive reason can be given for thinking that the fact in question is an exception to the rule' (1997, p. 197). Koons' insistence on a defeasible reading of his causal principle does however nothing to change the logically deductive character of his argument. Koons logically derives the conclusion that there is a first cause from the argument's premises, i.e., Koons proves that if the premises (including the general principle that every wholly contingent fact has a cause) are true, then the conclusion of his argument is true as well. I shall have a bit more to say about Koons' appeal to defeasible reasoning later on in this chapter.

42 Koons does not explain which modal system he assumes. However, from his paper it is clear that Koons assumes M logic. M logic is a rather weak system. For example, it is weaker than S5, and it is even weaker than S4. Therefore, M logic is not (or hardly) a controversial system. It is obtained from propositional logic by adding three axioms. First, the necessitation rule, which holds that, if A is a theorem of M, then so is $\Box A$. Second, the distribution axiom, i.e. $\Box(A \rightarrow B) \rightarrow (\Box A \rightarrow \Box B)$, which is referred to by Koons as 'the K axiom of modal logic'. Third, the axiom that whatever is necessary is the case, i.e. $\Box A \rightarrow A$. The third axiom

not every grouping of possible facts is a possible world. The actual world is the totality of all actual facts, i.e. all facts that obtain. A fact is contingent in case it holds in the actual world and there is a possible world within which that fact does not hold. A fact is necessary in case it holds in all possible worlds. From these additional definitions it follows immediately that a necessary fact obtains, since the actual world is a possible world. In Koons' framework facts are concrete situations or states of affairs that make certain propositions true and others false. Thus, facts are not propositions or quasi-linguistic representations. Further, events, such as the death of Caesar, or the Civil War, are understood as 'thick' or 'complex' facts. Koons holds that each fact includes at least one being (or thing) and at least one property of that being. Therefore, within the context of his formal framework, facts are not to be identified with beings either. Koons also needs the notion of a wholly contingent fact. A wholly contingent fact is a contingent fact none of whose parts are necessary. Note that from this definition it follows directly that every wholly contingent fact is an actual fact. Indeed, wholly contingent facts are contingent facts, and contingent facts are actual. In addition, Koons identifies the cosmos or the natural realm with the aggregate or sum of all wholly contingent facts. Moreover, his framework is based on two sets of ontological principles: mereological and causal principles. More specifically, he adopts the following five mereological principles ('mereological axioms'):[44]

(1) Fact X is *part of* fact Y iff every fact Z that overlaps with X also overlaps with Y,
(2) If there are any facts of type Ω, then there is an aggregate or sum of all the Ω-facts,
(3) Fact X is *identical* to fact Y iff X is part of Y and Y is part of X,
(4) If fact X and fact Y overlap, then X and Y have a common part,[45]
(5) If fact X is a part of fact Y, then, necessarily, fact X obtains if fact Y obtains.

Premise (5) of Koons' argument, i.e. if fact X is a part of fact Y, then, necessarily, fact X obtains if fact Y obtains, is in the literature also referred to as mereological essentialism or the position that wholes have their parts essentially. In other words, 'one and the same whole cannot survive losing any of its parts', as Koslicki puts it (Koslicki 2008, p. 113). Mereological essentialism seems to be a thesis that one could reasonably argue for. It is 'associated in contemporary metaphysics most prominently with the work of Roderick Chisholm' (Koslicki, p. 113). In addition, as mentioned, Koons' formal framework also contains causal principles. Koons adopts three causal principles ('causal axioms'):

(6) If fact X is the cause of fact Y, then both X and Y obtain,
(7) If fact X is the cause of fact Y, then fact X and fact Y do not overlap,
(8) Every wholly contingent fact has a cause.

is quite important for Koons because, surely, he wants his derived necessary cause of the cosmos to obtain.

43 From this it follows immediately, as Koons mentions, that the modal logic he adopts as part of his formal framework includes the so-called Barcan and converse Barcan axioms (Koons 1997, p. 195).

44 In a more recent account of his argument Koons adds another mereological axiom: 'the existence of all the members of a sum necessitates the existence of the sum itself' (Koons 2001, p. 193). As he explains: 'In "A New Look", I inadvertently omitted [this axiom], which is needed in proving Lemma 2 [...] but which clearly fits the intended interpretation of aggregation' (2001, p. 193). Now, I do not see how this additional axiom adds anything to mereological axiom (2) with respect to proving Lemma 2. In fact it seems to me that the additional axiom does not add anything to (2) at all. But maybe some subtlety of the mereological formal calculus as adopted by Koons escapes me. In any case the additional axiom is surely reasonable.

45 Actually Koons himself does not include this principle in his list of mereological axioms. He considers it as a 'theorem of mereology' (1997, p. 198). Koons appeals to this theorem twice in the sketch of his proof.

The argument

The core of Koons' argument can be clarified by the following argumentation scheme:

(a) There are contingent facts (premise),
(b) Every contingent fact has a wholly contingent part (premise),
(c) The cosmos is the sum of all wholly contingent facts (premise),[46]
(d) The sum of all wholly contingent facts is a wholly contingent fact (premise),
(e) Each wholly contingent fact has a cause (premise),
(f) The cosmos has a cause (from c, d and e),
(g) Causes and effects do not overlap (premise),
(h) The cosmos has a necessary cause (from b, c, f and g).[47]

Now, although the outline above clarifies the core of Koons' argument, the structure of the proof that he gives for the conclusion that the cosmos has a necessary cause does not concur with the outline's structure. Koons begins with a proof of five different lemmata from his eight mereological and causal principles. After that he shows that the lemmata, together with some of the aforementioned principles, imply that the cosmos is caused by a necessary fact. The first lemma states that all parts of a necessary fact are themselves necessary, which indeed, as Koons explains, follows from principle (5) and the 'K axiom of modal logic'. The second lemma states that every contingent fact has a wholly contingent part. To prove this lemma Koons appeals to his mereological principles (1), (2) and (4).[48] The derivation of this lemma is perfectly sound and is not reiterated here. According to the third lemma, if there are any contingent facts, then the aggregate of all wholly contingent facts is itself a wholly contingent fact. To prove the third lemma Koons employs the first four of his mereological principles and the first and second lemma. Again, the derivation of the third lemma is valid and is not repeated here. Now, surely the third lemma together with principle (8) imply the fourth lemma, that is, if there are contingent facts, then the aggregate of all wholly contingent facts has a cause. The fifth lemma holds that every contingent fact overlaps with the aggregate of all wholly contingent facts. This follows, as Koons points out, from the second lemma and the fact that the aggregate of all wholly contingent facts overlaps with each and every wholly contingent fact.

From the above five lemmata Koons proves his overall conclusion that, if there are any contingent facts, then the aggregate of all wholly contingent facts, i.e. the cosmos, has a cause that is a necessary fact. This last step of the proof is quite straightforward. Koons accepts as a further premise that there are contingent facts: 'We know that there is at least one contingent fact' (1997, p. 199). From the fourth lemma it thus

46 The first two premises imply that there is at least one wholly contingent fact. Therefore, the sum of all wholly contingent facts is not empty, which is important since Koons identifies this sum with the cosmos. Note that this identification is *not* a definition. Indeed, as discussed earlier, the cosmos is *defined* by Koons as the whole of space-time, including all of its contents, structured as a single universe or as a multi-verse.
47 Indeed, (g) implies that the cause of the cosmos (see (f)) is disjoint from the cosmos. Hence, (c) implies that this cause does not contain wholly contingent parts. So, from (b) it follows that this cause is not contingent. It must therefore, since the cause of the cosmos is an actual fact, be a necessarily existing fact.
48 The appeal to (4) is not made explicit by Koons here. Still, he needs (4) in order to prove this lemma.

follows that the aggregate of all wholly contingent facts has a cause. Due to principle (7) this cause does not overlap with the aggregate of all wholly contingent facts. Also, principle (6) implies that this cause is an actual fact. Now, since according to the fifth lemma every contingent fact overlaps with the aggregate of all wholly contingent facts, it follows directly that the cause of the aggregate of all wholly contingent facts is a necessary fact. Therefore, since Koons accepts as a further premise the co-extensionality of this aggregate and the cosmos, it follows that the cosmos has a cause that is a necessary fact. From the list of principles appealed to by Koons and from the preceding description of his proof we can schematize Koons' argumentation as follows:

1 Fact X is *part of* fact Y iff every fact Z that overlaps with X also overlaps with Y (premise),
2 If there are any facts of type Ω, then there is an aggregate or sum of all the Ω-facts (premise),
3 Fact X is *identical* to fact Y iff X is part of Y and Y is part of X (premise),
4 If fact X and fact Y overlap, then X and Y have a common part (premise),
5 If fact X is a part of fact Y, then, necessarily, fact X obtains if fact Y obtains (premise),
6 If fact X is the cause of fact Y, then both X and Y obtain (premise),
7 If fact X is the cause of fact Y, then fact X and fact Y do not overlap (premise),
8 Every wholly contingent fact has a cause (premise),
9 All the parts of a necessary fact are themselves necessary (from 5, K axiom of modal logic),
10 Every contingent fact has a wholly contingent part (from 1, 2, 4),
11 If there are any contingent facts, then the aggregate of all wholly contingent facts is itself a wholly contingent fact (from 1, 2, 3, 4, 9, 10),
12 If there are any contingent facts, then the aggregate of all wholly contingent facts has a cause (from 8, 11),
13 Every contingent fact overlaps with the aggregate of all wholly contingent facts (from 10, definition of aggregate),
14 At least one contingent fact obtains (premise),
15 The aggregate of all wholly contingent facts has a cause (from 12, 14),
16 The cause of the aggregate of all wholly contingent facts obtains (from 6, 15),
17 The cause of the aggregate of all wholly contingent facts is a necessary fact (from 7, 13, 16),
18 The cosmos is coincidental to the aggregate of all wholly contingent facts (premise),
19 The cosmos has a cause that is a necessary fact (from 17, 18).

Objections

As mentioned in the introduction I shall evaluate all the objections discussed and criticized by Koons. One of these objections, as I shall argue, is entirely cogent. After that I provide an additional objection not mentioned by Koons. I shall argue that this new objection is cogent as well. It makes, together with the former one, Koons' argument unconvincing.

Objections discussed and criticized by Koons

THE CLASSICAL HUMEAN, KANTIAN AND RUSSELLIAN OBJECTIONS

Koons (1997) describes the classical objections of Hume (the lack of other universes as reference cases; only logical truths can be necessary), Kant (the universality of causation is an a priori transcendental concept that does not pertain to mind-independent reality; the presupposition of the unsound ontological argument) and Russell (committing the fallacy of composition; universality of causation is merely heuristic). He provides convincing responses to these classical objections. It is not required to 'collect a large sample of worlds and observe that nearly all of them have causes', as Hume argued (1997, p. 202). As Koons points out it is known that (nearly) all wholly contingent facts have causes and thus it may be concluded that the world, being a wholly contingent fact, is caused as well, unless one provides a good reason for thinking otherwise.[49] To the Humean objection that only logical truths can be necessary Koons responds that the existence of a necessary fact was the *conclusion* of his argument. So, as he explains, it is not assumed upfront that there are necessary facts. If one wants to deny the existence of necessary facts, then one must refute one or more of the premises of Koons' argument, or show that the conclusion does not follow logically from the premises. In short, one must propose other objections against the argument. Besides, 'the sweeping denial of modality is simply obscurantist, undermining fruitful philosophical research into the nature of natural law, epistemology, decision, action and responsibility, and a host of other applications' (1997, p. 204). Indeed, as Koons points out, the notions of metaphysical necessity and possibility play a central role 'in a growing body of philosophical work', and moreover, 'attempts since the day of logical positivism to reduce [these notions] to logical consistency [...] with all definitional or "analytic" truths [...] have failed'. In addition, as he explains, 'the attempt to avoid the supposed "mysteries" of metaphysical possibility [...] leads to the much more serious difficulties of set theoretic Platonism [...]'. And, as Koons argues, 'recent efforts at making sense of mathematical reality make use of the notion of metaphysical modality [...] indicating that the proper order of explanation starts with modality, not with mathematical entities' (1997, p. 198). The Kantian objection that causation is an a priori category of our mind and not a feature of mind-independent reality is refuted by

49 Note the appeal to defeasible reasoning here. The principle that all wholly contingent facts are caused is considered to be a default or exception permitting rule, i.e. a rule that applies to the case in question unless there is some positive evidence available for thinking that the case at hand is an exception to the rule.

Koons by explaining that his argument does not take the axioms of causality as a priori transcendental truths. Instead, they are empirical a posteriori generalizations justified by the success in finding scientific causal explanations of empirical phenomena. Moreover, Koons points out that the Kantian objection that the cosmological argument depends on the unsound ontological argument does not apply to his new argument since it 'in no way presupposes any version of the ontological argument' (1997, pp. 204–205). His argument only assumes that the notion of necessary fact is not inconsistent, which is, as mentioned before, reasonable. The Russellian objection of committing the fallacy of composition is that it is faulty to conclude that the world as a whole is caused because each of the parts is caused. Koons replies correctly that he does not commit such a fallacy. His argument demonstrates that the cosmos, defined by him as the aggregate of all wholly contingent facts, is itself wholly contingent and therefore, due to the premise that all wholly contingent facts have causes, caused. Another objection ascribed to Russell is that 'the universality of causation is a canon or prescriptive rule for reason, and not [...] a description of mind-independent reality'.[50] As Russell insisted: 'There is a difference between claiming that scientists should always look for a cause and claiming that there is always a cause there to be found' (1997, p. 197). Koons responds adequately that the enormous success of the empirical sciences in finding explanatory causes warrants the universality of causation as a cogent descriptive generalization of mind-independent reality. Moreover, not accepting this universality as a justified inductive inference, results in a radical form of skepticism. As Koons explains: 'All of our knowledge about the past [...] depends on our inferring causes of present facts. [...] Moreover, our knowledge of [...] the probable consequences of our actions depends on the assumption that the relevant future states will not occur uncaused. The price of denying [the universality of causation as a cogent descriptive generalization] is very steep: embracing a comprehensive Pyrrhonian skepticism' (1997, p.197).

50 Koons states that Russell followed here a suggestion from Kant (1997, p. 197). However, it is important to clearly distinguish the Kantian objection that the universality of causation is an a priori transcendental mental category (and thus not a property of the real – in Kant's terminology: 'noumenal' – world) from the Russellian objection that the universality of causation is just a heuristic principle for obtaining knowledge about the real world (instead of being a justified descriptive generalization of the nature of the real world).

THE OBJECTIONS FROM QUANTUM MECHANICS AND LIBERTARIAN FREEDOM

Koons also discusses the objection that quantum mechanics provides counter-evidence to the universality of causation. His response to this objection amounts to the observation that principle (8) does not assume that causes necessitate their effects, or that all reliable statistical correlations can be explained. As such there is no conflict between (8) and the Copenhagen version of quantum mechanics. Further, Koons argues adequately that the notion of causation employed within his framework does not exclude the possibility of libertarian freedom. So, the objection that his argument excludes libertarian freedom does not go through. It is worthwhile to understand how precisely Koons shows that his argument is compatible with there being libertarian free acts. Koons argues that there is no one-to-one correspondence between propositional truths and facts. For example, if A and B are both true

propositions whose truth-makers are the facts *a* and *b*, then the truth-maker of the proposition A&B is the sum of *a* and *b*, not a third special conjunctive type of fact. Also, if moral truths supervene on non-moral facts, then there is no need to posit moral facts. Or, as another example, if 'a fact makes it true that I have three coins in my pocket, then the same fact also makes true the proposition that the number of coins in my pocket is the square root of nine' (1997, p. 195). What follows from this? Well, the objection that his argument is not compatible with libertarian free acts is based upon the observation that the relata of the causal relation are facts. Thus, as the objection goes, if *a* causes *b*, then *a* and *b* are facts and so no room is allowed for 'libertarian freedom', i.e. *a* being a libertarian free agent who freely chooses to cause *b*. The response of Koons can be understood in the following way. Since there is no strict one-to-one correspondence between propositional truths and facts, it might be the case that no fact corresponds to the propositional truth that, let's say, state of affairs S is freely caused by libertarian free person p. So, in that case, the propositional truth that S is freely caused by P supervenes on the truth of some proposition 'A causes S', where A is typically a sum of facts including facts such as 'Person P exists', 'Person P possesses the relevant powers to bring about S', etc. Surely, this response requires a slight modification of Koons' framework not mentioned by Koons. This modification would be to allow the relata of causal relations to be not just facts but also sums of facts. Such an extension to his framework seems both minor and natural, and therefore unproblematic. Another point to mention is that this response clearly shows that indeed nothing within Koons' formal framework requires that effects are necessitated by their causes. Koons does not assume that causes are sufficient conditions for their effects. After all, fact A might have obtained without P actually freely choosing to bring about S. Thus A might have obtained while 'A causes S' is false. So, even when 'A causes S' is true, there might be a possible world in which A, but not S, obtains. Indeed, as mentioned above, fact A does not correspond to the propositional truth that P freely chooses to bring about S.

THE OBJECTIONS FROM INFINITE REGRESS

The objection that the impossibility of an infinite regress is assumed without any warrant is refuted by Koons as well. Koons clearly states that his argument only assumes there being a totality of all wholly contingent facts, and that 'there is little, if any, reason to think that there is anything improper about [this totality]. We are talking only about ontologically basic facts, not about mathematical or semantical truths that supervene upon them. We are simply aggregating concrete particulars [...]' (1997, p. 204). Further, Koons adapts an objection of James Ross into an objection to his own argument in the following way: 'Consider the fact that the First Cause causes the cosmos. Call this fact C*. C* is clearly a contingent fact, since if it were necessary, the cosmos itself would be necessary [...]. If C* is also wholly contingent, then it must be a part of the cosmos, and the First Cause must cause C*, i.e.,

the First Cause must cause the fact that it causes the cosmos. The same argument can be repeated, showing that the First Cause must cause that it causes that it causes the cosmos, ad infinitum. This appears to be a vicious infinite regress' (1997, p. 206). Now, Koons' response to this objection seems quite cumbersome and not compelling. It involves the claim that the truth that some fact causes another fact does actually not correspond to a third fact, but instead, supervenes 'upon the cause, the effect, and certain non-factual truths about the modal relationships between the cause and the effect'. From this it follows that C* is not a fact and thus a vicious infinite regress is prevented. I propose a simple direct refutation of the 'adjusted Ross objection'. The truth that the First Cause causes the cosmos might correspond to a third fact, e.g. C*. However, there is no reason to suppose that C* is wholly contingent. What's more, one could argue that C* is not wholly contingent since it contains the First Cause, being a necessary fact, as one of its parts. A vicious regress is thus avoided since there is no reason to apply the principle that all wholly contingent facts are caused to C*.

Koons also refutes a variant of the adjusted Ross objection. This variant is provided by William Rowe. Rowe's objection starts with the claim that, from the point of view of the defenders of the cosmological argument, there is some fact that corresponds with the true proposition that there are contingent facts. Further, as Rowe's objection goes, this fact is itself contingent and therefore caused by the alleged First Cause. This again results in a vicious infinite regress and therefore the cosmological argument would be invalid. Now, Koons responds to this objection in the same way as he responds to the adjusted Ross objection. He argues that there is no fact that corresponds to the truth of there being continent facts. According to Koons 'Facts are not closed under existential generalization, as propositions are' (1997, p. 207). As Koons points out the cosmos itself is the truth-maker of the truth of there being contingent facts, thus there is no need at all to posit a separate fact in order to make this truth true. Koons' response is adequate. However, also here a simpler response seems to be possible. After all, one could respond to Rowe's objection by asking why the fact that there are contingent facts should be *wholly* contingent. Indeed, in absence of a convincing reason for it being *wholly* contingent Koons' premises do not allow us to infer that it is caused. And without this inference an infinite regress is prevented, which renders Rowe's objection invalid.

THE OBJECTION THAT, TYPICALLY, EFFECTS HAVE CONTINGENT CAUSES

Another objection discussed by Koons is the objection that there being a *necessary* cause is in conflict with the empirically well-established generalization that all effects have *contingent* causes, and therefore Koons' cosmological argument is not cogent. As Koons writes: 'This is probably the most promising [objection] to the cosmological argument. It is an instance of a wider strategy: focus on some unique feature of the

First Cause, and point out the cause of the world's having that feature is an exception to some well-established generalization' (1997, p. 205). In what follows I argue that Koons' response to the objection that typically, effects have contingent causes, is not adequate. Central to his response is his thesis that ordinary cases of causation indicate that 'a cause is always more necessary or less contingent than its effect' (1997, p. 205). The notion of 'being more necessary' is defined by Koons as follows:

> 'Fact *a* is more necessary than fact *b* just in case *a* holds in every world in which any part of *b* holds but *a* could hold in the absence of any part of *b*.' (1997, p. 205)

Thus, Koons' thesis that a cause is more necessary than the effect amounts to the claim that the cause holds in every possible world in which at least one of the parts of the effect holds. And, in addition, for each part of the effect there is some possible world in which the cause holds but that part of the effect does not hold. Let us assume for now that this thesis is rationally compelling. So, we assume that causes are indeed more necessary than their effects in the sense defined by Koons. As a next step of his response Koons wants to show that from this it follows that, contra the 'well-established generalization that all effects have contingent causes', it is perfectly natural and reasonable to hold that the cause of the cosmos is a necessary fact. In order to do this he wants to prove that the cosmos is a fact of 'absolutely minimal contingency', that is to say, no contingent fact can be more necessary than the cosmos. I cite his proof of this claim below.

'Suppose, for contradiction, that *a* were a contingent fact that is more necessary than the cosmos. This would mean that *a* is more necessary than every part of the cosmos, including the wholly contingent parts in common to both the cosmos and *a*. But this is impossible, since no fact can be strictly more necessary than itself.' (1997, p. 206)

As is clear from the citation above, Koons' proof invokes the following lemma: If fact *x* is more necessary than fact *y*, then fact *x* is more necessary than every part of *y*. Koons does not provide a formal deduction of this lemma. Perhaps he believes it to be obvious. For completeness I shall provide such a deduction. Let fact *x* be more necessary than fact *y*. Further, let fact *z* be a part of *y*. We have to prove that *x* is more necessary than *z*. First, consider a possible world W in which some part *u* of *z* holds. Now, *u* is a part of *y* as well. Since *x* is more necessary than *y* it follows that *x* holds in W. Thus, indeed, *x* holds in every possible world in which any part of *z* holds. Second, consider some part *u* of *z*. Fact *u* is a part of *y* as well. Since *x* is more necessary than *y* it follows that there is a possible world in which *x* holds while *u* does not hold. Hence, also, for each part *u* of *z* there is some possible world in which *x* holds but *u* does not hold. From these two results it follows that fact *x* is more necessary than fact *z*. This completes the

deduction of the lemma. In the above cited proof Koons infers as a next step correctly that fact *a* is more necessary than some wholly contingent part of itself.[51] But this is, as he concludes, impossible since 'no fact can be strictly more necessary than itself'.[52] Now, surely, no fact can be more necessary than itself. For, suppose that fact *x* would be more necessary than itself, and let *y* be a part of *x*. From the definition of 'being more necessary than' it follows that there is a possible world in which *x* holds while *y* does not hold. But this conflicts with principle (5), that is, the principle of mereological essentialism that says that wholes have their parts essentially. So, indeed, nothing is more necessary than itself. From this truth it does however not follow, as Koons appears to maintain, that it is impossible for *a* to be more necessary than some wholly contingent part of itself. Still, it is quite straightforward to derive this impossibility. If *a* is more necessary than some wholly contingent part of itself, then, similar as before, it follows immediately from the definition of 'being more necessary than' that there is a possible world in which fact *a* holds while that wholly contingent part of *a* does not hold. But this conflicts with principle (5) in the same way as before. So, indeed, it is impossible for fact *a* to be more necessary than some wholly contingent part of itself, and we therefore have to conclude that the assumption that *a* is a contingent fact more necessary than the cosmos must be rejected. So, indeed, the cosmos is a fact of absolutely minimal contingency. Now, the proof provided by Koons is quite cumbersome and actually from a logical point of view not entirely correct. After all, as mentioned, from the true proposition that no fact can be more necessary than itself the aforementioned impossibility does not follow. Although it is, as I showed, quite easy to repair this small incorrectness, I propose to replace the whole proof by a much simpler proof of the claim that the cosmos is a fact of absolutely minimal contingency. Suppose, for contradiction, that *f* were a contingent fact that is more necessary than the cosmos. Now, as shown by Koons, every contingent fact has a wholly contingent part. Therefore *f* has a wholly contingent part *g*. The cosmos is by definition the sum of all wholly contingent parts and therefore *g* is a part of the cosmos. Since *f* is assumed to be more necessary than the cosmos it follows that there is a possible world in which part *g* of the cosmos does not hold while *f* holds. But this results in a contradiction since *g* is a part of *f* and, because of principle (5), fact *f* has its part *g* essentially. Thus, also according to this simpler proof, it follows that there is no contingent fact more necessary than the cosmos.

Now, as Koons' response continues, since no contingent fact is more necessary than the cosmos, the cosmos is a fact of absolutely minimal contingency, and hence its cause, as being more necessary than the cosmos itself, must be a necessary fact. As Koons writes: 'Since the cosmos is a fact of minimal contingency, it is not surprising that it should have no contingent cause, but it would still be very surprising if it had no cause at all' (1997, p. 206). It is therefore, according to Koons, indeed natural and reasonable to hold that the cause of the cosmos is a

51 Koons of course appeals here implicitly to his earlier derived lemma that each contingent fact has a wholly contingent part.

52 Note that the adverb 'strictly' as used by Koons does not add anything meaningful. It would have been sufficient to claim that no fact can be more necessary than itself. In what follows I shall not make use of it.

necessary fact, which is the core of his response to the objection that, typically, effects have contingent causes. Is this response convincing? Well, if causes are more necessary than their effects, it would indeed be very natural and reasonable, given that the cosmos is a fact of absolutely minimal contingency, to hold that the cause of the cosmos must be a necessary fact, which was the core point of Koons' response. So, could we conclude that Koons' response to the objection is convincing? This is not the case. As mentioned his response appeals to the thesis that causes are more necessary than their effects. I shall now argue that this thesis is not properly justified by Koons. Therefore his response has to be rejected after all. So, how does Koons intend to justify the thesis that causes are more necessary than their effects? Koons (1997) provides four reasons for it.

First, he maintains that causes are always necessitated by their effects, that is, an effect's holding necessitates the holding of its cause, or, in other words, the cause of an effect is essential to the identity of that effect. As Koons points out: 'The cause [...] of a fact [is] essential to its identity: had the very same truth been verified by a fact caused in a different way, we would not have had the same fact as verifier. [...] [So] a fact's holding necessitates the holding of its cause [...]' (1997, p. 205). The view that an effect necessitates its cause is commonly referred to as Kripkean origin essentialism. Origin essentialism indeed implies that the cause of an effect holds in every possible world in which the effect itself holds.[53] But, origin essentialism does not imply at all that the cause of an effect holds in every possible world in which *any part of* the effect holds. Neither does it imply that for *each part of* the effect there must be a possible world in which *this part of* the effect does not hold while the cause holds. So, Koons' appeal to Kripkean origin essentialism does nothing to infer that a cause is more necessary than the effect.[54] Another problem is that Koons does not provide a sufficiently convincing reason for accepting Kripkean origin essentialism itself. There seems to be enough room to remain totally unconvinced that origin essentialism is a cogent position. After all, let us conceive a possible world W that contains a painting referred to as the Mona Lisa. Suppose that the painting consists of precisely the same molecules as the Mona Lisa in the actual world and, moreover, assume that the physical arrangement of those molecules is exactly the same as the physical arrangement in the actual world. Suppose in addition that the whole spatiotemporal historical chain of events is entirely the same for both paintings, with the exception of only one aspect: the Mona Lisa in possible world W has not been painted by Leonardo da Vinci but by, suppose, one of his students. Now, it seems to me perfectly rational to claim that the painting in possible world W is the same painting as the painting in the actual world, even though their originating causes are not identical. Perhaps this case against origin essentialism is even more convincing if we take an abstract object as an example, for example the Iliad of Homer. Surely, it is quite reasonable to maintain that the Iliad in

53 Or, to be a bit more precise, the proposition that the cause of an effect holds in every possible world in which the effect itself holds is a consequence of Kripkean origin essentialism *combined with* principle (6). That is to say, together they imply that the effect necessitates *the existence* of its cause. For, according to origin essentialism the cause is essential to the effect, and according to principle (6), this cause is to obtain.

54 One might think that origin essentialism could be invoked as a reason if we replace Koons' definition of 'being more necessary than' by the following alternative definition: 'Fact *a* is more necessary than fact *b* if and only if (i) fact *a* holds in every possible world in which fact *b* holds, and (ii) there is a possible world in which fact *a* holds but fact *b* does not'. This is however not a way out. First, although origin essentialism constitutes a reason for maintaining that the cause holds in every possible world in which the effect holds, it does not constitute a reason for maintaining that there is a possible world in which the cause holds but the effect does not. For all we know the cause might hold only in those worlds in which the effect holds. This would still be consistent with Kripkean origin essentialism. Besides, second, if we accept the alternative definition, it follows that the cosmos might not be a fact of absolutely minimal contingency! Take as a counter-example the following model: (i) facts: *a*, *b* and *c*, (ii) possible worlds: $W_1 = \{a, b\}$, $W_2 = \{b\}$ and $W_3 = \{c\}$, and (iii) actual world = W_1. In this model the cosmos is the sum of the facts *a* and *b*. Now, fact *b* is contingent since it is actual and it does not hold in W_3. Further, fact *b* holds in each possible world in which the cosmos, i.e. the sum of *a* and *b*, holds. Also, there is a possible world in which fact *b* holds while the sum of *a* and *b* does not hold, i.e. W_2. Therefore, according to the alternative definition, the contingent fact *b* is more necessary than the cosmos, and thus, the cosmos here is not a fact of minimal contingency.

55 A spatiotemporal event E is understood to be a 'first event' if and only if there are no spatiotemporal events that are temporally prior to event E. (Alexander 2008, Oppy 1999)

the actual world is identical to a poem in another world W if the poem in W is also referred to as the Iliad and consists of precisely the same sentences in precisely the same order as the Iliad in the actual world, even if it would be the case that the poem in that other possible world is not written by Homer. So, there is indeed sufficient reason to remain reasonably unconvinced of origin essentialism. Besides, as I argued, even if we accept this origin essentialism, it does not help us to infer that causes are more necessary than their effects in the sense as described by Koons. Therefore, the first of Koons' four reasons for his thesis that causes are more necessary than their effects has to be rejected.

The second reason for Koons' thesis is an appeal to the authority of Aristotle and the Aristotelian tradition. I understand this appeal as the viewpoint that the core claims of Aristotle and the Aristotelian tradition are likely to be true. If so, then, although I have a huge respect for Aristotle and the Aristotelian tradition, this appeal can hardly be called a reason at all. So I will not further consider it. The third and fourth reasons are not reasons either, but instead appeals to what would be very helpful. Indeed, accepting the thesis that causes are more necessary than their effects would be very helpful since it 'explains the transitivity and asymmetry of [the causal] relation' (1997, p. 205). It would also enable us 'to specify exhaustively the "potential causes" of a given fact: *a* is a potential cause of *b* if, and only if, *a* is less contingent than *b*. Such a specification is necessary if we are to account for the statistical properties of causal connections [...]' (1997, p. 205). This may all be so, but from this it cannot be concluded that causes are indeed more necessary than their effects. For, it would indeed be helpful if it were true, but that of course does not make it true! I conclude that none of the four reasons provided by Koons for his thesis that causes are more necessary than their effects is cogent. And therefore the response of Koons to the objection that, typically, effects have contingent causes, which depends on the acceptance of this thesis, is inadequate. However, Koons has also provided another response. To discuss this I need to take Oppy's criticism of Koons' argument into account.

Graham Oppy has put forward an objection to Koons' cosmological argument that is very similar to the objection that, typically, effects have contingent causes. As discussed the argument of Koons appeals to the principle that every wholly contingent fact has a cause, i.e. principle (8). Oppy's point is that there are restricted versions of principle (8) that are equally well supported by the available observational evidence (Oppy 1999, Alexander 2008). Examples include the restricted principle that each wholly contingent *non-first*[55] event has a cause (8*) and the restricted principle that each wholly contingent fact has a *contingent* cause (8**). Oppy's objection amounts to the observation that these equally well supported principles render Koons' argument untenable. Indeed, because the coming into being of the cosmos is plausibly a first event, principle (8*) is not strong enough, together with Koons' other

premises, to infer that the cosmos has a cause. And principle (8**) is in direct conflict with the conclusion of Koons' argument, i.e. the existence of a *necessary* cause. So, as Oppy's objection goes, as long as Koons provides us with no good reason to prefer (8) above (8*) or (8**), his argument is not rationally compelling.

Nevertheless there seems to me to be a good reason to prefer principle (8) above principle (8*). Principle (8*) requires us to restrict the relata of the causal relation to events. Indeed Oppy insists that we should limit ourselves to spatiotemporal events as causal relata (Alexander 2008, Oppy 1999). But, one should only accept a restriction to spatiotemporal events in case there are strong reasons to abandon the more generic context of facts. Thus far, no compelling reasons for such a limitation have been proposed. Facts appear to be perfectly proper and natural candidates for entering into causal relationships.[56] In order to refute Koons' argument one must therefore propose an objection that respects this generic context, instead of insisting on beforehand to an unwarranted restriction to spatiotemporal events.[57] Moreover, as Alexander (2008) points out, a limitation to spatiotemporal events forces the proponents of Koons' argument to endorse four-dimensionalism,[58] since the position of presentism is clearly in conflict with Koons' adherence to Kripkean origin essentialism, i.e. the claim that the cause of an effect is essential to the identity of the effect or, in other words, that an effect necessitates its cause.[59] A limitation to the context of spatiotemporal events would thus sidetrack the discussion to a separate debate on whether four-dimensionalism or presentism is the most reasonable viewpoint to adopt.

Let us therefore stick to the most generic context of facts as causal relata and focus on the objection that there is no good reason to prefer (8) above (8**) and that (8**) refutes Koons' argument. Now, interestingly, in his reply to Oppy Koons provides a response to it which, if cogent, would be a cogent refutation of the objection that, typically, effects have contingent causes as well (Koons 2001). Koons argues that (8**) is 'less natural' than (8) and therefore, in absence of a good reason to favor (8**) above (8), it is very reasonable to commit to the 'most natural generalization', which is (8) instead of (8**). One must, as he points out, come up with a good reason for restricting the natural principle (8) to the less natural principle (8**). And the whole point of Koons' response is that no such good reason has been provided by Oppy or others. Now, I think that Koons' appeal to the 'naturalness' of principles has some force. Indeed, if two empirical generalizations are equally well supported by the same observational evidence, then, everything else being the same, it is reasonable to favor the more natural, i.e. less ad-hoc or less arbitrary, empirical generalization. For example, as Koons points out, it is unreasonable to restrict some well-established time independent empirical generalization to only instances

56 Indeed, as D.M. Armstrong puts it: 'It is plausible that causation, singular causation, this causing that, is a relation between states of affairs. It is particulars that act. But they act in virtue of their properties and the effect of their action is determined by the properties of the thing that they act upon. This strongly suggests a relation between states of affairs. Putting it in a no doubt oversimplified way, that *a* is F brings it about that *b* is G' (Armstrong 1993, p. 438). Note that Koons' facts can be associated with states of affairs.

57 Oppy notes that 'one of the commonest complaints that one hears about the inclusion of facts and states of affairs in one's ontology is that these are entities which obey some weird, non-mereological kind of composition'. Moreover, he writes: 'It is events not facts, or states of affairs [...] which stand in causal relations' (Oppy 1999, p. 379). Now, Oppy does not provide any reason for these claims, which make them nothing more than mere stipulations. Further, I would say that the causal relation is considered by many philosophers to be a relation between relata properly referred to as being 'states' (and thus akin to 'facts').

58 Actually, it forces the proponents to endorse *eternalism*. Eternalism is the view that present, past and future events are all equally real, i.e., they do all exist. This view is the opposite of presentism, according to which only the events of the present exist. Four-dimensionalism entails eternalism, but is not identical to it.

59 Similarly as before, it would also in this case be more precise to say that the position of presentism is in conflict with an adherence to Kripkean origin essentialism *together with* principle (6). For, together they imply that the effect necessitate *the existence* of its cause. As we have seen Koons appeals to Kripkean origin essentialism in order to defend his thesis that a cause is more necessary than its effect.

before some arbitrary date in the future, although this restriction is supported equally well by all the available empirical evidence (Alexander 2008, Koons 2001). The problem is however that, even so, Koons' appeal to naturalness will not do to favor principle (8) over (8**). A restriction to *contingent* causes in (8**) is not ad hoc in the way that a restriction to instances *before some future date* is. The relevant difference is that 'being contingent' is a non-relational or intrinsic property of the objects in question and as such of importance to their nature and lawful behavior, while 'occurring before some date in the future' is merely a relational or extrinsic property that does not say anything about the nature and lawful behavior of the objects in question. Proper inductive generalizations are therefore limited to the intrinsic inherent properties of the objects they are about. From this it follows that (8**) is not less natural than (8), whereas indeed a restriction to some future date would be ad-hoc or arbitrary. One could even maintain that (8**) is to be rationally preferred above (8) since (8**) fits the available empirical evidence much more closely than (8), that is, all observed causes thus far are plausibly to be understood as being contingent. Hence Koons' response to the objection that there is no reason to favor (8) above (8**) is unconvincing. Now, actually Koons has a bit more to say in response to Oppy's criticism (Koons 2001). He again insists to read (8) as a defeasible rule, that is, as a default or exception permitting rule instead of as a universal inductive generalization. As Koons explains: 'The most effective response, dialectically speaking, is to insist that, at the very least, our experience warrants adopting the causal principle [i.e. principle (8)] as a *default* or *defeasible* rule. This means that, in the absence of evidence to the contrary, we may infer, about any particular wholly contingent situation, that it has a cause. [...] The burden is then shifted to the agnostic, who must garner evidence of a positive sort for the proposition that the cosmos really is an exception to the rule.' (2001, p. 195). In other words, (8) applies to the specific case of the origin of the cosmos unless Oppy is able to provide a good reason for why (8) should not hold in this case. This response is however a non-starter since Oppy can easily reply that the principle (8**) is to be read defeasibly as well,[60] and, as a default rule, it applies to the case of the origin of the cosmos, unless Koons is able to provide a good reason for why (8**) should not hold in this case. Now, since Koons' thesis that causes are more necessary than their effects is shown to be unjustified, Koons is in fact not warranted to consider the origin of the cosmos as an exception to default rule (8**). Therefore, Koons' appeal to the defeasible nature of principle (8) does nothing to reject the objection at stake. It simply brings us to the quite similar objection that there is no reason why (8), understood as a default rule, has to be preferred above (8**), understood as a default rule.

Does this imply that the objection that there is no reason to prefer (8) above (8**) stands unrefuted? I argue that this is not the case.

60 Actually Oppy does interpret principle (8*) as a default or exception permitting rule. For he writes: 'The principle which we want is that, *in the absence of reason to think otherwise* [italics mine], we should think that particular, wholly contingent events which are not first events have causes' (Oppy 1999, pp. 380–381). There is no good reason why Oppy should not understand principle (8**) as a defeasible rule as well.

There is a quite straightforward refutation of this objection. Koons' new cosmological argument can be employed to reject empirical generalization (8**). Assume, for reductio, that (8**) is in fact true. In that case (8) is also true since (8**) logically implies principle (8). Further, all other premises of Koons' argument are no less reasonable than before. The additional assumption that (8**) is true did not make one of these other premises suddenly less reasonable. However, as Koons' argument shows, principle (8) together with the other premises imply that (8**) is false. Hence we arrive at a contradiction. Therefore the assumption that (8**) is true is incorrect and needs to be rejected. Principle (8**) does not hold. Here we have a sound refutation. We have provided a reason why (8) should be favored above (8**). The only way to refute this response is to show that (8) or one of the other premises of Koons' argument is erroneous, but such a move would do nothing more than to bring us back to one of the other objections to Koons' argument as discussed in this chapter. The straightforward response provided here is a response to the objection that, typically, effects have contingent causes as well. Hence, taking everything into account, we can conclude that the objection that, typically, effects have contingent causes, can be adequately rejected.

THE MULTI-VERSE OBJECTION

Koons also discusses the objection that there is no need to argue for a First Cause, since the fine-tuning of our universe[61] can be perfectly explained by positing a multi-verse. The objection suggests that 'there may be an infinity of parallel universes, representing every possible permutation of possible physical laws and initial Big Bang conditions' (1997, p. 207). In that case, as the objection goes, most likely there are intelligent life permitting universes. And therefore 'it is not surprising that we inhabit one of these vanishingly rare universes' (1997, p. 207). While intelligent life develops in some of these intelligent life permitting universes it will inevitably at some point in time ask the pressing question why the universe is fine-tuned. Now, this explanation of the fine-tuning of the universe is not really an objection to Koons' argument. A multi-verse containing many parallel universes is no less 'natural' than a single all-encompassing uni-verse. Thus, as Koons explains, a multi-verse would have to be identified with the cosmos in the same way as a single uni-verse would have to be, and the whole point of Koons' argument is to show that the cosmos has a necessary cause. Hence the question on whether there is a multi-verse or not is irrelevant to Koons' argument. If there is a multi-verse, then the cosmos is properly identified with the multi-verse. And if there is no multi-verse, then the cosmos is simply identical to the single universe. In both cases Koons' argument shows that the cosmos has a necessary cause, and any objection to this argument has to deal with its premises or logical derivation, instead of just pointing to the mere possibility of there being a multi-verse. Koons' response to the multi-verse objection is therefore cogent.

61 The fine-tuning of our universe is the observation that the intelligent life permitting universe we inhabit is extremely unlikely from a statistical point of view. If the value of one of the cosmological constants as discovered by physics would have been only inappreciably different, then our universe would have evolved into a universe that does not permit intelligent life. Thus we live on a razors edge. It is so incomprehensibly improbable that our universe is intelligent-life-permitting that it would be unreasonable to explain this state of affairs by a mere appeal to chance. Hence, some other rational explanation for the fine-tuning is needed.

THE OBJECTION THAT ASKS WHERE THE CAUSE OF THE COSMOS CAME FROM

The conclusion that the aggregate of all wholly contingent facts is caused by a necessary fact follows logically from Koons' premises. That is, if these premises are true, then the conclusion is true as well. However, the more important question is whether the argument of Koons is a good *first cause* argument. Koons believes that this is indeed the case. He writes: 'It is legitimate to call this cause [i.e. the cause of the aggregate of all wholly contingent facts] a "first cause" if we assume (as seems plausible) that all effects are contingent' (Koons 1997, p. 199). I agree that if we assume that all effects are contingent, then the cause of the aggregate of all wholly contingent facts cannot be an effect since it is a necessary fact. Thus, in that case this cause is itself uncaused and therefore indeed, as Koons points out, a first cause. But, is it plausible to hold that all effects are contingent? There appears to be enough room to reasonably withhold this ontological presumption. After all, nothing appears to exclude there being facts that hold in every possible world *and* that are caused in every possible world. So there seems to be no convincing reason for denying the existence of such facts. Surely, such facts could not exist if all necessary facts exist by virtue of their own nature.[62] But why should all necessary facts exist by virtue of their own nature? A necessary fact is defined within Koons' framework as a fact that holds in every possible world, i.e., a fact for which it is impossible to not obtain. Now, this definition does not exclude there being facts that are necessary *and* caused in every possible world.[63] Therefore, the circumstance that a fact is metaphysically necessary does not imply that it is uncaused. There is thus no good reason why the cause of the aggregate of all wholly contingent facts should be uncaused. Consequently, since a first cause is by definition uncaused, there is no good reason why the cause of the aggregate of all wholly contingent facts should be a first cause. Hence it appears that Koons' argument does not establish a first cause, that is, an *uncaused* cause of the cosmos.[64] One might perhaps respond that Hume's account of the nature of causal priority, i.e. causal priority implies temporal priority, shows that the cause as derived by Koons cannot be caused. After all, the cause of the aggregate of all wholly contingent facts is considered to be the cause of the cosmos and therefore the cause of all time and space itself. But this implies, due to principle (7), that the cause of the aggregate of all wholly contingent facts has to be non-temporal. Moreover, as the response could continue, the alleged cause of the cause of the cosmos has to be non-temporal as well, since time itself is ontological posterior to the cause of the cosmos and therefore it is also posterior to the cause of the cause of the cosmos. Thus, both the cause of the cosmos and the alleged cause of the cause of the cosmos must be non-temporal. This surely contradicts, as the response could conclude, Hume's account of the temporal priority of the cause to the effect. This response is however not sufficiently conclusive. For, even Koons himself considers an appeal to Hume's account of the nature

62 A fact that holds in every possible world and that is caused in every possible would be an example of a necessary fact that does not exist by virtue of its own nature. For, it would not exist because of its own intrinsic inherent features but because of the external circumstance that it is caused in every possible world.

63 One could for example conceive a fact *a* that (1) exists by virtue of its own nature, and (2) that, again by virtue of its own nature, causes another fact *b*. Since *a* exists by virtue of its own nature it follows that *a* holds in every possible world. In addition, since *a* causes *b* by virtue of *a*'s own nature, it follows that *b* is caused in every possible world. But then fact *b* holds in every possible world, i.e. fact *b* is a necessarily existing fact that is caused in every possible world.

64 Yet, one might for example invoke Benardete's Grim Reaper paradox (Benardete 1964) to argue that an actual infinite number of objects cannot exist. So that, even if the cause of the cosmos is not uncaused, it still follows that the causal series of a-temporal (and thus co-existing) causes starting with the cause of the cosmos, and proceeding with the cause of the cause of the cosmos, the cause of the cause of the cause of the cosmos, etc., cannot be infinite. And from this it follows that there must be a first cause after all.

of causal priority unconvincing. He writes: 'The nature of temporal priority is even more obscure than that of causal priority, and the best accounts of temporal priority seem to be those that presuppose the ontologically prior existence of causal priority (as I argue in Chapter 4 of *Realism Regained*)' (Koons 2001, p. 197).[65] Besides, there does not seem to be anything incoherent with the conception of non-temporal causes and effects. Take as an example a traditional Platonic interpretation of mathematics according to which the objects of mathematics exist outside the spatiotemporal order, that is to say, they exist in a non-temporal and non-spatial manner. Further, as part of this example, let us introduce the concept of a 'logical sustaining cause', that is, something that in a non-temporal and non-spatial manner grounds the existence of something else. In this example it would be plausible to maintain that sets are the logical sustaining cause of numbers since the latter are logically grounded in the former, i.e. numbers are constructed or derived from sets in a non-spatial and non-temporal sense. This example shows that there is indeed nothing contradictory with the notion of non-temporal causation. Moreover, we can analyze the causal relationship in such a way that we do not have to refer to time at all. For example, we may have it that A causes B if and only if *(a)* If A were not to exist, then B would not exist, and *(b)* If B were not to exist, A would still exist. Causation thus understood allows for temporal *and* non-temporal causation. Hence the notion of non-temporal causation is coherent. Indeed, without it the fundamental question of the origin of the cosmos, of all time and space and its contents, could not even be raised, which is absurd, since this is surely a meaningful question that cannot so easily be suppressed. Modern cosmology is doing nothing else than trying to answer this question, and for that they in fact do employ the notion of a-temporal causation in many cosmological models.[66] Therefore, an appeal to Hume's account of the nature of causation, according to which causes and effects must always stand in a relationship of temporal priority, does indeed not have sufficient force to refute the objection under discussion.

However, in order to refute the objection 'Where did the cause of the cosmos come from?' Koons actually provides two other reasons for his claim that necessary facts cannot be effects (which truth indeed implies that the cause of the cosmos, being a necessary fact, is uncaused). The first reason is quite straightforward. As we have seen Koons accepts the thesis that causes must be more necessary than their effects. Well, no fact can be more necessary than a necessary fact, and therefore it follows indeed that necessary facts cannot be caused. This first reason depends entirely on the aforementioned thesis, and, since I argued that this thesis is not warranted, this first reason can be rejected. I now turn to the second reason for Koons' claim that necessary facts cannot be effects. Koons argues: 'We know that the totality of all facts cannot be caused (since there is no fact that does not overlap it), and the best explanation of this fact is that this totality contains necessary facts, and necessary facts cannot be caused.' (Koons 1997, p. 206). This is however

65 Perhaps unsurprisingly Koons rejects Hume's account of the temporal priority of the cause to the effect. Indeed, the cause of the cosmos as derived within Koons' framework is non-temporal and therefore not temporally prior to the cosmos. A rejection of Hume's account of the temporal *priority* of the cause to the effect is however still compatible to the claim that causes and effects have to stand at least in some kind of temporal *relationship*. Now, would such a claim refute Koons' cosmological argument because the cause of the cosmos is non-temporal and hence not temporally related to the temporal cosmos? This is not the case. One could for example argue that the act of causing the cosmos is *temporally simultaneous* to the coming into being of the cosmos, that is, the moment that the First Cause causes the cosmos is exactly the same moment as the moment that the cosmos came into being. So, simultaneous causation, while violating Hume's account, still allows for a temporal relationship between the cause of the cosmos and the cosmos. Moreover, it seems to me that there is nothing incoherent with the viewpoint that the act of causing the cosmos is temporally simultaneous to the coming into being of the cosmos. This view has been defended by amongst others William Lane Craig (Craig 1992). As part of his defense Craig points out that the notion of simultaneous causation makes perfect sense. For example, the downward pressure exerted by the head that causes the indentation in the pillow is a proper example of simultaneous causation. Thus, simultaneous causation can be appealed to if one wants to deny that the cause of the cosmos has to be *temporally prior* to the cosmos, while still holding onto the principle that a cause and its effect have to be in some way always *temporally related*. Such an appeal would indeed be fully compatible with Koons' formal framework and his renewed cosmological argument. Now, if we accept the claim that causes and effects are always temporally related, would

not a convincing reason. The problem is that it is not required at all to appeal to necessary facts in order to explain that some contingent fact is uncaused. As I have argued in the chapter on Leibniz' first cause argument, under some very general and sufficiently plausible conditions regarding the nature of causation and mereological parthood, it logically follows that it is possible that there are uncaused contingents that do not contain necessary parts.[67] Therefore, Koons' second reason is not sufficiently justified, and as such, it has to be rejected as well. We come to the conclusion that Koons' response to the objection that asks where the cause of cosmos comes from is not adequate. Or, in other words, Koons' argument is indeed not a good *first cause* argument. It does not imply a first cause, that is, an *uncaused* cause of the cosmos.

A new objection: the cause of the aggregate of all wholly contingents is not a first cause

There appears to be another problematic aspect of Koons' argument that is not discussed by Koons. This aspect stems from a difficult challenge facing any argument that pertains to infer the existence of a first cause. This challenge is the seemingly easy but in fact enormously tricky question what it is that we are trying to establish a first cause for. The hard question is how we are to define the effect for which we want to infer a first cause. So, everybody who wants to develop a first cause argument needs to start with finding an answer to the question what the effect is for which one wants to infer a first cause. Surely, 'the whole of reality' is too broad, since the first cause, if it exists, is a part of reality itself and therefore, according to principle (7), not the cause of the whole of reality. Also, 'our universe' is too narrow, since, for all we know, space-time might be partitioned in many parallel universes, and if so, the first cause is properly understood as the cause of the whole of space-time instead of just 'our universe'. In fact, even the whole of space-time is too narrow as an candidate for the effect, since, for all we know, there could be realms outside space-time that are nevertheless part of derived reality,[68] and if so, they should be part of the effect of the first cause as well. Now, as we know, the effect for which Koons infers a first cause is, 'the entire natural realm', 'the whole of physical reality' or 'the cosmos'. The cosmos according to Koons is, as we have seen, defined as the whole of space-time, including *all* of its contents, such as (but not necessarily limited to) matter and energy, and structured as a universe or multi-verse. Apparently he believes that derived reality is coextensive with the whole of space-time, or to put it differently, that there is nothing within derived reality that exists outside space-time.

First, let us assume that this is indeed the case. Let us assume that the cosmos exhaust the whole of derived reality. I shall show that Koons' cosmological argument, if we accept this assumption, does not qualify as a cogent first cause argument. After that I shall argue that his argument is not adequate either if we reject the aforementioned

then an appeal to simultaneous causation help to refute the objection under consideration? For example, by arguing that the act of causing the cosmos is temporally simultaneous to the moment at which the cosmos comes into existence, whereas there is no construal conceivable of a temporal relation between the alleged cause of the cause of the cosmos and the cause of the cosmos, resulting in a rejection of such an alleged cause? This would indeed constitute a cogent response to the objection that there is no reason to suppose that the cause of the cosmos is itself uncaused. Nevertheless, as the example on mathematical Platonism in the main text will show, there is no good reason to accept the claim that there should always be some kind of temporal relationship between a cause and its effect. Now, one might think that a cogent response can be construed if we accept the weaker claim that at least one of both, the cause or the effect, is temporal (or, alternatively, contingent). After all, the cosmos is both a temporal and contingent effect, whereas the cause of the cosmos and the cause of the cause of the cosmos are both non-temporal and not contingent. Yet, this does not constitute a cogent response either, because, in the aforementioned example on mathematical Platonism, the cause and effect are *both* non-temporal and not contingent. In the absence of a reason to refute such causal scenarios the weaker claim does not help to obtain a cogent refutation either.

66 There are also good *meta*physical arguments which entail an instance of a-temporal causation without assuming up-front that a-temporal causation is possible. A well-known example is the Kalam argument (Craig and Sinclair 2009). If everything that begins to exist has a cause, and if the cosmos began to exist, then the cosmos must have had a cause. Since the cosmos is *all* of time and space, its cause must be an instance of a-temporal causation. For, the cause *of* all time and space cannot itself be *in* time and space.

assumption. So, what does the cosmos actually include? Does the mental belong to it? Do abstract objects, if they exist, such as numbers, properties and propositions, belong to it? Many questions similar to these could be raised and Koons' definition of the cosmos is not precise enough to answer them. So, in order to develop a proper first cause argument Koons needs a more precise characterization of the cosmos. But, as we have seen, Koons does provide a more precise characterization. He claims that the cosmos is identical to the aggregate of all wholly contingent facts. Or, in other words, the whole of space-time is considered to be coextensive with the mereological sum of all wholly contingent facts. Based upon this identification he infers that the inferred cause of the aggregate of all wholly contingent facts *is* the cause of the cosmos, and thus is indeed properly called the first cause. But is this adequate? It is justified to identity the cosmos with the aggregate of all wholly contingent facts? This seems not to be the case. It is far more natural and plausible to identify the cosmos with the aggregate of all contingent facts instead of with the aggregate of all *wholly* contingent facts. After all, why should some contingent fact that contains one or more necessary parts not belong to the cosmos? Now, if we choose to follow the far more natural and plausible approach, we have to assert that the cosmos is coextensive with the aggregate of all contingent facts. But then, within Koons' framework, it is not correct to conclude that the cause of the aggregate of all *wholly* contingent facts is the cause of the cosmos. For, since Koons does not exclude there being necessary facts (indeed, Koons' inferred cause of the aggregate of all wholly contingent facts is an example of a necessarily existing fact), it follows that the aggregate of all wholly contingent facts is a *proper* part of the aggregate of all contingent facts.[69] So, the cause of the former is not shown to be also the cause of the latter. And, thus, Koons' argument is not a cogent argument for the existence of a first cause, that is, an uncaused cause of *the cosmos*. Koons might have shown that the aggregate of all *wholly* contingent facts has a cause, but he has not shown that this cause is also the cause of the cosmos, i.e. all of space-time including its contents.

Yet, as Koons points out: 'In my 1997 paper, I argued that necessary (non-contingent) situations cannot be located in space or time' (Koons 2001, p. 198). From this it follows that the cosmos, that is, the whole of space-time including all of its contents, does not contain necessary situations. In other words, the cosmos or the whole of physical reality only contains facts that are wholly contingent. Since it was assumed that derived reality contains nothing outside space-time, and hence that all contingent facts are part of the cosmos, we can conclude that the cosmos is coextensive to the aggregate of all wholly contingent facts after all. Now, did Koons argue convincingly that necessary facts can never be located in space-time? I contend that this is not the case.

67 Note that this possibility is a problem for Koons' argument in itself, since it goes against principle (8).

68 'Derived reality' is a term I use to denote the effect for which the first cause is the originating cause.

69 That is, this follows if we, reasonably, assume that there is at least one necessary fact and one wholly contingent fact for which it holds that their mereological sum is itself also a fact. In that case the aggregated fact is contingent but not wholly contingent.

Koons refers to pp. 199–200 of his 1997 paper for an alleged inference of his claim that necessarily existing facts must be always outside space-time (Koons 2001, p. 198). However, on these pages no such inference can be found. The only related claim that is argued for on those pages is that *the necessary being contained in the first cause* is not in space-time. But from this it does of course not follow that *all* necessarily existing facts exist outside space-time. Moreover, his inference of the aforementioned claim on those pages is not convincing. It depends on the controversial viewpoint that the spatial location of a being is part of its 'basic', that is, 'causally and ontologically fundamental' properties (Koons 1997, p. 200). But Koons does not provide a good reason for believing that this is true. Hence, we have to conclude that Koons has not provided us with a convincing reason for his claim that space-time cannot contain necessary facts or, in other words, that all necessary facts are outside space-time. Besides, if atomism is true, which, as I shall argue in a later chapter, seems to be a quite plausible viewpoint, then, perhaps, some (or all) of the atoms might in fact be necessarily existing objects residing within space-time. Therefore, the cosmos or natural realm is not shown to be identical to or coextensive with the aggregate of all wholly contingent facts, that is to say, it is not shown that the cosmos does not contain necessary facts. Hence Koons did not prove that the effect of the first cause includes the whole cosmos, and this surely conflicts with the conception of being a first cause. After all, the *whole* cosmos should originate from something that is cogently called the 'First Cause'.

Second, as mentioned, let us now assume that space-time is a proper part of the whole of derived reality, or to put it differently, that there are facts within derived reality that exist outside space-time. In this second case Koons' argument must be interpreted differently. For we should not choose the cosmos (i.e. the whole of space-time and its contents) as the candidate for the effect of the first cause, but instead, we should focus directly on the sum of all wholly contingent facts (each of which may or may not reside in space-time) as the effect for which a first cause is to be inferred. As we have seen, the argument of Koons establishes an originating cause of the aggregate of all wholly contingent facts. But, again, is this cause cogently understood as being the first cause? Well, surely, in the same way as before we can infer that, within the formal framework of Koons, the aggregate of all wholly contingent facts is a *proper part* of the aggregate of all contingent facts, and therefore, given that the aggregate of all contingent facts is a more suitable candidate for the effect of the 'first cause', we must conclude that Koons' argument also fails in this second case: the cause of all wholly contingent facts is not cogently understood as being the first cause. Therefore, taking both cases into account, i.e. the case that derived reality is coextensive with the whole of space-time and the case that space-time is a proper part

of derived reality, it follows that Koons' argument is not a convincing argument for the existence of a first cause, that is, an originating cause of *the whole of derived reality*.

Closing remarks

As I have argued in this chapter, Koons' cosmological argument has some force. Typical objections against the traditional cosmological arguments have no force against it and some specific other objections addressing Koons' argument directly can be refuted as well. Nevertheless, two objections stick, one is that the necessarily existing cause of the aggregate of all wholly contingent facts is not shown to be *uncaused*, and the other objection is that this necessarily existing cause is not shown to be the cause of the cosmos or something else that would properly qualify as the whole of derived reality. Both objections taken together render the renewed cosmological argument of Koons unconvincing as a *first cause* argument, that is, as an argument for the existence of an *uncaused* originating cause of *the whole of derived reality*. I shall turn in the next chapter to the new cosmological argument of Richard Gale and Alexander Pruss.

IV The cosmological argument of Gale and Pruss

Introduction

Right at the end of the twentieth century Gale and Pruss published a new cosmological argument (Gale and Pruss 1999). Their new argument is based upon a weak version of Leibniz's principle of sufficient reason. This weak version, which they ascribe to Duns Scotus, has it that every fact or every true proposition *possibly* has an explanation. By utilizing this weak version of Leibniz's principle, their new cosmological argument, as they claim, is much less subject to the charge of begging the question than traditional cosmological arguments relying on Leibniz's principle itself, i.e. that every fact or every true proposition *actually* has an explanation. In this chapter the cosmological argument of Gale and Pruss will be analyzed. First, I shall provide a detailed exposition of their new argument. After that I assess various objections to it. I start with the objections discussed by Gale and Pruss (1999) themselves. After that I shall pay attention to the objections as raised by respectively Oppy (2000), Davey and Clifton (2001) and Almeida and Judisch (2002). As part of this I also take the response of Gale and Pruss to Oppy and Davey and Clifton (Gale and Pruss 2002) and the response of Pruss to Almeida and Judisch (Pruss 2003) into account. Finally I propose a number of additional objections. Although, as will become clear in this chapter, most of the raised objections can be rebutted, there remain two objections for which no tenable rebuttal appears to be available. Hence I conclude at the end of the chapter that the new cosmological argument as proposed by Gale and Pruss (1999) still contains flaws. This chapter begins with a detailed description of the concepts and distinctions that Gale and Pruss introduce to set the background and context for their new argument.

Background

Gale and Pruss provide what they take to be a valid deductive argument for the existence of a necessary being that freely[70] and intentionally brought the universe into existence.[71] The act of bringing the universe into existence is also referred to as *causing* the existence of the universe, or, more shortly, causing the universe (Gale and Pruss 1999, p. 473). So, the claim that there exists a necessary being that brings it about that the universe exists is to be understood as the claim that there is a necessary being that is the cause of the universe. Further, a necessary being is defined by Gale and Pruss in the following way: 'A being is a 'necessary

70 They assume the Libertarian notion of free will, i.e. they take this necessary being to be a Libertarian free agent or an agent that could have done otherwise than it actually did (Gale and Pruss 1999, p. 467, 471).

71 Actually they argue for more than that. After having inferred that there exists a necessary being that freely causes the universe, Gale and Pruss go on and argue that this necessary being is a *very powerful, intelligent and good* supernatural being that freely designs and creates the universe. Now, in order to establish these additional features of being very powerful, intelligent and good, Gale and Pruss refer to 'the whole battery of teleological arguments' (1999, p. 468) and to 'all the extant theodicies' (1999, p. 474). Teleological arguments are arguments for the existence of a powerful intelligent designer-creator of the universe that reason from the 'wondrous complexity [displayed by the universe] due to its law-like unity and simplicity, fine tuning of natural constants, and natural purpose and beauty' (1999, p. 468), whereas theodicies are justificatory arguments to reconcile the goodness, benevolence and justice of the designer-creator with the known evils in the world by showing that this designer-creator plausibly 'has morally exonerating reasons for permitting these evils' (1999, p. 474). Such teleological and justificatory arguments, while forming a crucial part of any global case for theism, are not part of a cosmological argument *proper*. Therefore I shall not discuss the last teleological and justificatory stage of the new

being' (or has necessary existence) if and only if it is necessary that it exists. Such a being is a self-explaining being in that there is a successful ontological argument for its existence, even if we aren't up to giving it' (1999, p. 462). This definition indicates that Gale and Pruss take this necessarily existing being to be an *uncaused* being. It exists by virtue of its own nature, that is, it is impossible for it not to exist. Hence, Gale and Pruss's argument purports to establish the existence of an uncaused cause of the universe, that is, their new argument aims at being an argument for the existence of a *first cause*.

Their argument relies upon a number of concepts and distinctions. First, a fixed domain of *abstract propositions* is introduced. A conjunction of abstract propositions is *maximal* if and only if for each abstract proposition *p*, either *p* or not-*p* is a conjunct of the conjunction. In addition, a conjunction of abstract propositions is *compossible* if and only if it is conceptually or logically possible that all of the conjuncts be true together (1999, p. 461). Second, Gale and Pruss provide the following definition of a possible world: 'A possible world is a maximal, compossible conjunction of abstract propositions' (1999, p. 461). This definition perhaps suggests that Gale and Pruss simply equate possible worlds with conjunctions of abstract propositions, i.e. it seems as if they say that possible worlds *are* in fact conjunctions of propositions. However, this is not the case at all. Some of the abstract propositions are *necessarily true* because they, as Gale and Pruss explain, report the existence of a necessary being or a necessary state of affairs. All the other abstract propositions are *contingently true* because 'these propositions report the existence or nonexistence of a contingent being [or] the occurrence or non-occurrence of a contingent event or state of affairs' (1999, p. 462).[72] Now, according to Gale and Pruss a possible world is a collection of beings and events or states of affairs that verifies or makes true all of the conjuncts of some maximal, compossible conjunction of abstract propositions. This conjunction is called the *Big Conjunctive Fact* of that possible world. Hence 'the Big Conjunctive Fact for a given [possible] world comprises all the propositions that would be true if this world were to be actualized' (1999, p. 462). Every possible world has one and only one Big Conjunctive Fact. After all, two of such facts would differ with respect to at least one conjunct, let us say *p*, and therefore the possible world would have to make both *p* and not-*p* true, which is impossible. Conversely, every maximal, compossible conjunction of abstract propositions is the Big Conjunctive Fact of one and only one possible world. So, each possible world is individuated by its Big Conjunctive Fact. This is because Gale and Pruss *identify* possible worlds with maximal, compossible conjunctions of abstract propositions, which is in fact the real meaning of their definition of a possible world as mentioned above: a possible world is *identified* with (which is not the same as being equal to) a maximal, compossible conjunction of abstract propositions. Further, the *Big Conjunctive Contingent Fact* of some possible world is the conjunction of all contingent propositions

argument as presented by Gale and Pruss. In this chapter 'the argument of Gale and Pruss' thus only refers to the first stage of their argument, i.e. the deduction of the existence of a necessary being that freely intentionally brought the universe into existence.

72 Gale and Pruss define contingency in the following way: 'A "contingent proposition" (or "being") is one that possibly, in the broadly conceptual or logical sense, is true (or existent) and possibly is false (or nonexistent)' (1999, p. 462). Note that, according to this definition, a contingent proposition does not have to be true in the actual world. Neither does a contingent being have to exist in the actual world. So, the definition of contingency of Gale and Pruss is different from the definition of contingency used by Koons.

that would be true if that world would be the actual world. It follows immediately that the Big Conjunctive Contingent Fact of a possible world is maximal with respect to the abstract contingent propositions. Surely, the Big Conjunctive Contingent Fact of a possible world is contained[73] in its Big Conjunctive Fact. Now, let us suppose that two possible worlds have the same Big Conjunctive Contingent Fact, then, since all necessarily true abstract propositions are contained in the Big Conjunctive Fact of every possible world, it would follow that both possible worlds have the same Big Conjunctive Fact as well, which is impossible. Therefore, no two worlds have the same Big Conjunctive Contingent Fact, that is to say, a possible world is also individuated by its Big Conjunctive Contingent Fact (1999, p. 462).

73 According to Gale and Pruss some proposition is contained in another proposition if and only if every conjunct of the former is also a conjunct of the latter. In addition, two propositions are identical if 'every conjunct in one is a conjunct in the other' (1999, p. 462).

As mentioned in the chapter on Koons' cosmological argument, everybody who wants to develop a first cause argument must start with finding an answer to the question what the effect is for which one wants to infer a first cause. Gall and Pruss define this effect as 'the universe'. Their argument intends to establish that there exists a necessary being that freely intentionally brought 'the universe' into existence. But, as we have seen in the chapter on Koons' new argument as well, in order to develop a proper first cause argument, we need a more precise definition of what is meant by the concept 'universe'. Now, according to Gale and Pruss 'a world's universe is what verifies or makes true all of the conjuncts in this world's Big Conjunctive Contingent Fact' (1999, p. 463). Thus, a universe of a possible world is a part of that possible world. It's the part that verifies all contingent propositions in the Big Conjunctive Fact of that world. Note that according to this definition also the contingent acts of a necessary being (if such a being exists) would be part of the universe of the possible worlds in which this being performs these acts.

Further, as mentioned earlier, Gale and Pruss accept as one of the premises of their cosmological argument a weak version of Leibniz' principle of sufficient reason, since, as they say: 'It would be imposing on the atheistic opponents of our argument to ask them baldly to accept [Leibniz' principle of sufficient reason itself], as do all traditional cosmological arguments. For [Leibniz' principle of sufficient reason] occupies almost as high an echelon in one's wish book as does the proposition that God exists' (1999, p. 463). Now, the principle of sufficient reason endorsed by Leibniz can be formulated as the claim that for every proposition *p*, if *p* is true, there is a proposition *q* that explains *p*. So, according to Leibniz' principle of sufficient reason, every proposition necessarily has the property of having an explanation if true (Oppy 2000, p. 353). The weak version of Leibniz' principle, as introduced by Gale and Pruss, is the claim that for each proposition *p*, if *p* is true, it is possible that there exists a proposition *q* such that *q* explains *p*. Thus, according to this weak version, there is no proposition which is both possibly true and necessarily unexplained (Oppy 2000, p. 353). For the

purpose of their argument Gale and Pruss cast their weak version of the principle of sufficient reason in the following way:

> 'For any proposition, *p*, and any world, w, if *p* is in w's Big Conjunctive Fact, then there is some possible world, w_1, and proposition, *q*, such that w_1's Big Conjunctive Fact contains *p* and *q* and the proposition that *q* explains *p*' (1999, p. 463)

Gale and Pruss maintain that it would be unreasonable for atheistic opponents not to grant them the above casted weak version of the principle of sufficient reason (1999, p. 463). As mentioned, within the framework of Gale and Pruss, propositions report the existence or non-existence of beings or states of affairs. The proposition that *q* explains *p* thus reports the existence of some state of affairs, i.e., the state of affairs that proposition *q* explains proposition *p*. This state of affairs is clearly to be understood as being an *abstract* entity. The framework of Gale and Pruss therefore presupposes the existence of abstract entities, that is, there presumably are possible worlds that contain one or more abstract entities. For this reason anti-realists with respect to abstract entities might favor another casting of the weak version of the principle of sufficient reason. Further, Gale and Pruss do not define the relationship 'explains' or 'is explained by' between two propositions. In their framework this relation appears as a primitive term. But this raises already some pressing questions. For example, do Gale and Pruss exclude the possibility of there being two possible worlds, w_1 and w_2, and two propositions, *a* and *b*, such that (i) *a* and *b* are true in w_1 and w_2, (ii) *a* explains *b* in w_1, and (iii) *a* does not explain *b* in w_2? And, as another example, is it presumed that both *a* and *b* are part of the Big Conjunctive Fact of all those possible worlds for which it holds that *a* explains *b*? Further, is logical entailment a necessary condition for explanation, that is, does it have to be the case that *a* logically entails *b* for *a* being an explanation of *b*? Or, the other way around, is logical entailment a sufficient condition for explanation? Moreover, what is the relationship between the explanation of a conjunction and the explanations of its conjuncts? In the rest of this chapter I shall come back to these and similar questions regarding the relationship 'explains' between two propositions, as presupposed by Gale and Pruss (1999).

The argument

On the preceding pages I discussed Gale and Pruss's preliminary stage-setting for their cosmological argument. After this initial stage-setting we are in the position to formulate and evaluate the new argument itself. I shall first present, with some minor modifications, a short concise representation of their argument as provided by Davey and Clifton (2001, pp. 485–486). This helps to understand the essence of Gale and Pruss's new cosmological argument. After that I shall engage upon a detailed and comprehensive discussion of their new argument,

74 Note that, strictly speaking, this conclusion does not follow from the impossibility of an actually false proposition to be true in *w*. It follows from this impossibility together with the second impossibility of an actually true proposition to be false in *w*. The reasoning as provided in (3) only establishes the first impossibility. However, the second impossibility is derived in a similar way. That is most likely the reason why Davey and Clifton (2001) have left the logical derivation of the second impossibility wholly implicit.
75 Indeed, since, the actual world and w have the same Big Conjunctive Contingent Fact, and, as mentioned before, possible worlds are individuated by their Big Conjunctive Contingent Fact.
76 Every explanation consists of an *explanandum* and an *explanans*. The explanandum is that which is to be explained, whereas the explanans is that which provides the explanation.

based on the exposition that Gale and Pruss provide themselves (Gale and Pruss 1999). Let w-PSR denote the weak principle of sufficient reason, and let E(*p*) be a proposition that is true in world w if and only if proposition *p* has an explanation in world w. Davey and Clifton provide the following rendering of the argument of Gale and Pruss:

1 Let A be the Big Conjunctive Contingent Fact of the actual world.
2 From w-PSR it follows that there is a possible world *w* in which E(A) and A are true,
3 If there were a proposition *p* true in *w* that is [false in the actual world], then, since A would entail *not-p* and A is true in *w*, both *p* and *not-p* would have to be true in *w* – which is absurd. Thus, the actual world and *w* must agree on all contingent propositions.[74]
4 It follows immediately that *w* is the actual world and, thus, that A has an explanation in the actual world.[75]
5 All explanations are either personal explanations, that rely on an individual's agency, or scientific explanations.
6 Proposition A cannot be given a scientific explanation, because any relevant scientific laws are themselves contained as conjuncts in the *explanandum*,[76] and laws are not self-explaining.[77]
7 Therefore, the only explanation A can have is that it is made true by the free agency of an individual.[78] This individual must exist necessarily; for a contingent being cannot bring about its own existence.

The above argumentation scheme clarifies the core of Gale and Pruss's new cosmological argument. I shall now proceed to discuss in detail the actual argumentation provided by Gale and Pruss (1999) themselves. Gale and Pruss's argumentation consists of the sixteen stages below (1999, pp. 462–469).[79]

1 If p_1 is the Big Conjunctive Contingent Fact of a world w_1 and p_2 is the Big Conjunctive Contingent Fact of a world w_2, and if p_1 and p_2 are identical, then $w_1 = w_2$ [premise]
2 *p* is the actual world's Big Conjunctive Contingent Fact [definition]
3 For any proposition, *p'*, and any world, w, if *p'* is in w's Big Conjunctive Fact, then there is some possible world, w_1, and proposition, *q*, such that w_1's Big Conjunctive Fact contains *p'* and *q* and the proposition that *q* explains *p'* [premise]
4 If *p* is in the actual world's Big Conjunctive Fact,[80] then there is some possible world, w_1, and proposition, *q*,[81] such that w_1's Big Conjunctive Fact contains *p* and *q* and the proposition that *q* explains *p* [from (3)]
5 There is a possible world w_1 and a proposition *q*, such that w_1's Big Conjunctive Fact contains *p* and *q* and the proposition that *q* explains *p* [from (2), (4)]

77 Here it is assumed that if some proposition *p* explains a conjunction of propositions, then *p* explains each of its conjuncts. Indeed, if all relevant scientific laws are included in A, then the assumption that E(A) is a scientific law, and thus a conjunct of A, would imply, due to the aforementioned principle, that E(A) has to explain itself, which is clearly impossible since it is taken in (6) that scientific laws are not self-explaining.

78 It is assumed here that the proposition 'A is made true by the free agency of an individual' has the same meaning as the proposition 'The universe is brought into existence by the free agency of an individual', which is the conclusion of Gale and Pruss's argument. Indeed, the only way *to make* true A seems to be by bringing into existence those beings and states of affairs that verify A. And, since Gale and Pruss define the universe as that part of the actual world that verifies A, it follows immediately that bringing into existence the aforementioned beings and states of affairs amounts to bringing into existence the universe. Later on I shall come back to this presumed identification of meanings, which is, as I shall argue, highly problematic.

79 Note that, as mentioned earlier, I shall not take into account the final teleological and justificatory stage of their new argument because such a stage does not belong to a cosmological argument *proper*.

80 Gale and Pruss in fact write: 'If *p* is in the actual world's Big Conjunctive *Contingent* Fact [italics mine] [...]' (1999, p. 464). However, from the context it is clear that they intend to refer to the actual world's Big Conjunctive Fact instead of the actual world's Big Conjunctive *Contingent* Fact.

81 The phrase 'and proposition, *q*' is actually omitted by Gale and Pruss (1999, p. 464). But again, from the context it is obvious that Gale and Pruss intend to have this phrase included, which is what I have done.

6 w_1 = the actual world [from (1), (2), (5)],
7 There is in the actual world a proposition *q*, such that the actual world's Big Conjunctive Fact contains *p* and *q* and the proposition that *q* explains *p* [from (5), (6)]
8 *q* is either a personal explanation or *q* is a scientific explanation [premise]
9 *q* is not a scientific explanation [premise]
10 *q* is a personal explanation [from (8), (9)]
11 *q* reports the intentional action of a contingent being or *q* reports the intentional action of a necessary being [from (10)]
12 It is not the case the q reports the intentional action of a contingent being [premise]
13 *q* reports the intentional action of a necessary being [from (11), (12)]
14 *q* is a contingent proposition that reports the intentional action of a necessary being [from (1), (2), (13)]
15 *q* is a contingent proposition that reports the *free* intentional action of a necessary being that explains the existence of the actual world's universe [from (14)]
16 It is contingently true that there exists a necessary being that intentionally freely creates the actual world's universe [from (15)] (QED).[82]

82 In their paper Gale and Pruss deploy the symbol *p* both as a constant and as a variable. In order to prevent confusion I have used *p'* instead of *p* in (3).

Stage (1) follows directly from the already discussed observation that possible worlds are individuated by their Big Conjunctive Contingent Fact, that is, no two possible worlds have the same Big Conjunctive Contingent Fact. Stage (2) is merely a definition. Gale and Pruss introduce the constant *p* to denote the Big Conjunctive Contingent Fact of the actual world. Stage (3) introduces Gale and Pruss's weak version of the principle of sufficient reason as a premise. Stage (4) is obtained from (3) by substituting the constant *p*, i.e. the Big Conjunctive Contingent Fact of the actual world, for the variable *p'* and the actual world for the variable *w*. Stage (5) follows directly from (2) and (4) by implication. Now, to establish the result of stage (6) Gale and Pruss need more work. They show that *p*, the Big Conjunctive Contingent Fact of the actual world, is identical to the Big Conjunctive Contingent Fact of w_1, which they denote by p_1. From this it follows indeed from (1) that the actual world and w_1 are identical. So, how do Gale and Pruss in fact establish that $p = p_1$? They provide the comprehensive derivation cited below.

'Since every conjunct of *p* is a contingent proposition true in w_1 (by (2) and (5)), every conjunct of *p* is a conjunct of p_1 by definition of p_1. Conversely, suppose *r* is a conjunct of p_1. Then either *r* or not-*r* will be true in the actual world by bivalence. If not-*r* is true in the actual world, then not-*r* is a conjunct in *p* (since not-*r* is contingent as *r* is), and hence is a conjunct in p_1 as we have shown that every conjunct in *p* is a conjunct in p_1, so that then both *r* and not-*r* are conjuncts in p_1, which

contradicts the fact that p_1 is the Big Conjunctive Contingent Fact of a *possible* world. Hence, not-*r* cannot be true in the actual world, so *r* must be true there. Since *r* is contingent, it must then be a conjunct of *p*.' (1999, p. 464).

In this way Gale and Pruss indeed show that every conjunct of p_1 is a conjunct of *p* and vice versa, so that, because of (1), the result of (6) immediately follows. The seventh stage is a consequence of stage (5) and (6) by substituting the actual world for w_1 in (5). At this point in their argument Gale and Pruss have established the existence of a proposition *q* that is true in the actual world and that explains the Big Conjunctive Contingent Fact of the actual world. In the second part of their argument Gale and Pruss set themselves to 'flesh out' proposition q. Stage (8) is justified in the following way:

> 'The only sort of explanations that *we can conceive of* [italics mine] are personal and scientific explanations, in which a personal explanation explains why some proposition is true in terms of the intentional action of an agent and a scientific one in terms of some conjunction of law-like propositions, be they deterministic or only statistical, and one that reports a state of affairs at some time' (1999, p. 465).

Now, this justification of (8) might be problematic, since there seems to be no compelling reason to hold that there are no other types of explanation, i.e. types of explanation we cannot (yet) conceive of. Nevertheless, stage (8) seems to be sufficiently warranted since, as Gale and Pruss correctly point out, 'in philosophy we ultimately must go with what we can make intelligible to ourselves after we have made our best effort' (1999, p. 465), and, the above two types of explanation appear to be the only ones we can think of after having made our best effort. The next stage also requires more argumentation. According to Gale and Pruss *q* is not a scientific explanation. This stage will be thoroughly evaluated as part of the discussion of the objections to Gale and Pruss's argument later on in this chapter. For now I shall only outline the reasoning that Gale and Pruss present to justify their claim that *q* cannot be a scientific explanation. Gale and Pruss maintain that each scientific explanation consists of one or more 'law-like propositions', which seem to be, as they point out, contingent. Thus, if *q* would be a scientific explanation, then *q* would be part of the Big Conjunctive Contingent Fact of the actual world, i.e. *p*. Further, since *q* must explain each of the conjuncts of *p*, it would follow that *q* would have to explain itself, which is impossible since, as Gale and Pruss hold, 'law-like propositions cannot explain themselves' (1999, p. 465). Note that in this derivation Gale and Pruss apparently presume the principle that the explanation of a conjunct (i.e. *q* explaining *p*) necessarily explains each of the conjuncts of the conjunct (i.e. *q* explaining *q*). This seems to be indeed a plausible principle. After all, a conjunction logically entails each of its conjuncts.

Hence, if some proposition explains some conjunction, then it seems cogent to employ that explaining proposition as an explanation of each of the conjuncts of the conjunction. Indeed, more generally, if a proposition *a* explains a proposition *b*, and if *b* logically entails some proposition *c*, then, reasonably, *a* also counts as an explanation of proposition *c*. But, is it reasonable to assume that each and every 'law-like proposition' is contingent? And, even if this would be the case, is it cogent to assume that 'law-like propositions' are not self-explaining? As mentioned, I shall have more to say about these pressing questions later on in this chapter. The next stage of the argument, (10), surely is a direct consequence of (8) and (9). But what about the eleventh stage of their derivation? According to Gale and Pruss (11) follows immediately from (10) since (11) amounts to a definition of what a personal explanation actually is. I do not believe that (11) exhaust the possibilities of what could count as a personal explanation, and I shall come back to this point once I turn to a discussion of the objections to Gale and Pruss's argument. The next two stages, (12) and (13), result in the conclusion that the being mentioned in (11) exists necessarily. So, how do Gale and Pruss infer from (11) that the being in question is a necessarily existing being? Well, they provide the following argumentation, which I take to be sufficiently cogent:

> 'It is impossible that *q* reports the intentional action of a contingent being. The reason is that if it did, there would be in the Big Conjunctive Contingent Fact a proposition reporting the existence of the contingent being in question. But *q* itself is not able to explain why the contingent being it refers to exists, since a contingent being's intentional action evidently must presuppose, and hence cannot explain, that being's existence' (1999, p. 465).

Notice that in the reasoning cited above Gale and Pruss employ, again, the principle that the explanation of a conjunction must be an explanation of each of its conjuncts. At this point in their derivation Gale and Pruss have argued for there being an intentional action of a necessarily existing being that explains the Big Conjunctive Contingent Fact of the actual world, that is to say, they have arrived at stage (13) of their new cosmological argument. To show that *q* is in fact a contingently true proposition, i.e. to obtain (14), they subsequently provide the following reductio ad absurdum:

> 'If *q* is necessary, *q* is a conjunct in every possible world's Big Conjunctive Fact. But *q* entails *p*, since that a necessary being intentionally brings it about that *p* entails that *p*, and thus *p* also is a conjunct in every possible world's Big Conjunctive Fact. Given that *p* is the actual world's Big Conjunctive Contingent Fact and that a possible world is individuated by its Big Conjunctive Contingent Fact, it follows that every possible world is identical with the actual

> world.[83] Therefore, there is only one possible world. And, this, is surely absurd' (1999, p. 467).

The above derivation is problematic for two reasons. First, it seems to beg the question against deterministic worldviews, that is, worldviews according to which libertarian free will does not exist and everything occurs by necessity.[84] After all, such a worldview would in fact imply that there is only one possible world. Second, Gale and Pruss apparently presume that the proposition '*q* explains *p*' and the proposition '*q* reports the intentional action of a necessary being' together entail the proposition '*q* reports that a necessary being intentionally brings it about that *p*'. But this entailment is not justified and not even plausible. I come back on both problematic aspects as part of my discussion of objections to the argument of Gale and Pruss. To bridge the gap between (14) and (15) Gale and Pruss set themselves to show that the action reported by *q* is a (libertarian) free action. Again, they presume, as they did in their previous derivation, that the proposition *q* can be taken to report that there is a necessary being who intentionally brings it about that *p*. Their strategy is to show that *q cannot* be understood as the proposition, denoted by q_2, that there is a necessary being who *unfreely* and intentionally brings it about that *p*.[85] To show this Gale and Pruss provide a reductio ad absurdum. They hold that, 'If *q* is understood as q_2, there is a proposition, *r*, not identical with q_2, that explains q_2' (1999, p. 467).[86] Now, surely, *r* is either necessarily true or contingently true. In order to complete their reductio Gale and Pruss provide the following reductio of each of both possibilities:

> 'Let us first assume that *r* is a necessary proposition. *r* entails q_2, because the proposition that something coerces q_2's necessary being to bring it about that *p* entails the proposition [...] q_2. [...] But [since r is necessary] it follows that [q_2 is necessary]; however, *q* has already been proven to be contingent, and since *q* is assumed to be the same as q_2, the contradiction that q_2 is both necessary and contingent results. Things fare no better if we assume that *r* is contingent. *r* explains q_2, since *r* explains how it is that q_2's necessary being is coerced into bringing it about that *p*. And q_2, in turn, explains *p*. But, since *r* is contingent, *r* is a conjunct in *p*, and this results in a vicious circularity of explanation – *r* explains q_2, while q_2 explains *r* since q_2 explains *p* and therefore every conjunct in *p*, including in particular *r*' (1999, p. 468).

Again, as I shall explain later on in more detail, the reductio ad absurdum proposed by Gale and Pruss in order to arrive at (15) gives problems as well. For example, why should q_2 have an explanation? It seems that Gale and Pruss invoke the principle of sufficient reason itself here, instead of only their weaker variant of this principle. Hence, it seems, contrary to what they have claimed, that their new argument is no advance because

83 Gale and Pruss refer to their explicit derivation of step (6) of the argument. Indeed, their derivation of (6) can be invoked here to obtain the conclusion that every possible world is identical to the actual world.

84 A deterministic worldview is understood here as being a worldview according to which everything that exists is necessarily caused by natural laws that themselves are necessarily true. So, a deterministic worldview does not allow for the existence of free will acts, genuine chance events, or brute unexplained facts.

85 Indeed, from this it follows that *q* is to be understood as the proposition that there is a necessary being who *freely* intentionally brings it about that *p*, which is precisely what (15) reports if we, as Gale and Pruss do, (i) identify *p* with the actual world's universe and, (ii), hold that 'brings it about that the actual world's universe exists' entails 'explains the existence of the actual world's universe'. Now, surely, the latter assumption seems obvious and thus unproblematic, but the first is, as I shall explain later on, problematic.

86 '*r* will report', as Gale and Pruss point out, 'that something, perhaps something psychological or perhaps and external force, compels the necessary being mentioned in q_2 to bring it about that *p*' (1999, p. 467).

it ultimately, similar to most traditional cosmological arguments, relies upon Leibniz' principle of sufficient reason.[87] The conclusion of their argument, as mentioned in (16), is that it is contingently true that there exists a necessary being that intentionally and freely creates the actual world's universe. This result is a direct consequence of stage (15) since *q* is proven to be a true proposition in the actual world, *and* because of the fact that Gale and Pruss, as we have seen, presume that 'being an explanation of the existence of the actual world's universe' really amounts to 'being that which brings the actual world's universe into existence', which is, as explained earlier, according to Gale and Pruss taken to be the same as 'being that which causes (and thus creates) the actual world's universe'.

87 Perhaps, as Jeroen de Ridder pointed out to me, Gale and Pruss would argue that 'being compelled by something' is part of the meaning of performing an intentional act unfreely. If so, it would be analytically true that there is a proposition, *r*, not identical with q_2, that explains q_2. Nevertheless, an opponent could object that it might be a genuine random event that the being in question intentionally brings it about that *p*. And, as the opponent could continue, genuine random acts might be unfree without having an explanation.

Objections

In what follows I shall concentrate on a large number of objections to Gale and Pruss's new argument. Gale and Pruss already present a number of objections themselves (1999, pp. 469–476). These I will assess first. After that I continue with an evaluation of the objections raised by Oppy (2000), Davey and Clifton (2001) and Almeida and Judisch (2002). I conclude with some further objections to the argument as identified by myself. As I shall argue most but not all objections can be adequately rebutted. Hence a number of objections remain unchallenged. They make Gale and Pruss's argument unconvincing.

Objections discussed and rebutted by Gale and Pruss (1999)

THE CLASSICAL HUMEAN OBJECTION

As discussed before the traditional Leibnizian cosmological argument infers the existence of a necessary being from the premise that the totality of all contingent beings must be explained by something outside this totality. Now, in section IX of Hume's *Dialogues Concerning Natural Religion* Cleanthes expresses the following critique to the Leibnizian cosmological argument: 'Did I show you the particular causes of each individual in a collection of twenty particles of matter, I should think it very unreasonable, should you afterwards ask me, what was the cause of the whole twenty. This is sufficiently explained in explaining the causes of the parts'. Hume's critique as expressed by Cleanthes amounts to the following. If each and every part of some whole is explained by referring to one or more other parts of that particular whole, then, the whole *itself* is explained. Therefore, in such cases, there is no need to refer to some *external* explanation that explains the whole. Hume's objection surely applies to Gale and Pruss' new cosmological argument. Indeed, one could point out that Gale and Pruss's argument simply overlooks the possibility that the actual world's Big Conjunctive Contingent Fact is *internally* explained, that is, each of its conjuncts might be fully explained by one or more other conjuncts. Thus, according to this objection, it is not true that the actual world's Big Conjunctive

Contingent Fact is explainable only by the free action of a necessary being. And therefore, there is no reason at all to accept the existence of such a being, unless Gale and Pruss successfully show that the actual world's Big Conjunctive Contingent Fact is not internally explained. Now, how do Gale and Pruss try to rebut this objection? They provide the following reply:

> '[The Humean objection] assumes that explanation is agglomerative, meaning that it is closed under conjunctive introduction: if there is an explanation for P and another explanation for Q, there is an explanation for the conjunction (P & Q). [But] it could be a mere coincidence that P and Q are true together, even when each of them has some explanation. It also is possible that there is a common cause that explains their conjunction – their being true together' (1999, p. 469)

Gale and Pruss hold that the Humean objection relies on an incorrect assumption, namely the assumption that explanations are agglomerative. It is true that this assumption is vital to Hume's objection. Without it the Humean objection fails. However, it seems to me that it is absurd to deny that explanations are agglomerative. What reason do Gale and Pruss provide to deny the agglomerative character of explanations? They say that 'it could be a coincidence' that two propositions are true together. Well, indeed, but I genuinely fail to see how this correct observation amounts to a rejection of the claim that explanations are agglomerative. For if someone provides an explanation for P, and, in addition to that, he or she also provides an explanation for Q, then, surely, those two explanations taken together provide an explanation for the claim that P and that Q. Oppy (2000) also seems to struggle with Gale and Pruss' reasoning for rejecting the agglomerative character of explanations. As Oppy writes: 'Gale and Pruss give an argument against the claim that explanation is agglomerative [...] which turns on the fact that an explanation for a conjunction *p&q* must be an explanation, not merely of each of the *p* and *q*, but also of their joint obtaining' (Oppy 2000, p. 349). If this is indeed the essence of Gale and Pruss' argument,[88] then I believe it does not hold. Why should someone asked to explain *p&q* also have to explain their 'joint obtaining'? Within the formal framework as deployed by Gale and Pruss the notion of 'joint obtaining' is not defined at all. The only notion that their formal framework allows is the straightforward conception of 'being true together' or 'being simultaneously true', but, precisely because of this reason, an explanation of *p* concatenated to an explanation of *q* already suffices as a proper explanation of *p&q*. So, to conclude, there seems to be no convincing reason for denying that explanations are agglomerative, and hence, the rebuttal of Gale and Pruss to the Humean objection fails. Now, nevertheless, I think that one can adequately rebut the Humean objection. For that I would like to refer to the response offered by James van Cleve in his book *Problems from Kant* (James van

88 Gale and Pruss's reference to 'common causes' as an example of a proper explanation of conjunctive facts confirms Oppy's proposed reading of Gale and Pruss's argument against the agglomerative character of explanations. For, if one is able to detect a common cause of two facts, then one not only explains both facts, but also why these facts jointly obtain. Their joint obtaining is grounded in their common cause.

Cleve 1999). The type of explanation as pointed at by David Hume, i.e. internal explanations, is analyzed by Van Cleve in the following way. The *explanandum* of this type of explanation is: 'All members of the set {a, b, c, d, e, ...} of Fs exist', and the corresponding *explanans* can typically be rendered as: 'a exists because b and c caused a to exist, b exists because d and e caused b to exist; and so on' (James van Cleve 1999, p. 205). Van Cleve then continues to argue: 'You would be giving an explanation of this type if you tried to explain the existence of zebras by noting, for each zebra, that it is the offspring of two other zebras – Zeb was begotten by Zeke and Zelda, and so on. I maintain that explanations of this sort are circular. The explanans invokes the existence of Fs, but Fs are the very beings for whose existence an explanation is being sought. To be sure, the circularity is not quite of the 'P because P' variety, since the existence of each zebra is explained by reference to other zebras. But if what is to be explained is the existence of zebras *in general* (or why there are zebras at *all*), the explanans provokes the very question it is supposed to answer. This is the sense in which the explanation is circular. If what is demanded is an explanation of the existence of zebras in general, no amount of appeal to zebras begetting zebras will satisfy it. The demand will be satisfied only when resource is had to something that is *not* a zebra – as happens equally in the explanations offered by creationists and evolutionists' (James van Cleve 1999, pp. 205–206). Now, this reasonable response can be invoked to rebut the Humean objection to Gale and Pruss's argument as well. For, let F be the property of 'being a contingently true proposition'. An internal explanation of the Big Conjunctive Contingent Fact would then be an explanation of why {a, b, c, d, e, ...} are the contingently true propositions from the explanans that, let us say, 'a is true because of b and c; b is true because of d and e; and so on'. But then, again, it would be left entirely unexplained why there are contingently true propositions, i.e. Fs, at all. Therefore, we have to conclude that, although the rebuttal provided by Gale and Pruss (1999) to the classical Humean objection is not convincing, Hume's objection can in fact be cogently rebutted by referring to Van Cleve's analysis.

THE OBJECTION THAT Q IS NOT SELF-EXPLAINING

The argument of Gale and Pruss infers that there is a contingently true proposition *q* that explains the existence of the actual world's universe by reporting that this universe came into being as the result of the free intentional action of a necessary being. Now, as we have seen, Gale and Pruss identify the actual world's universe with the actual world's Big Conjunctive Contingent Fact. Hence proposition *q* explains the conjunction of all the actual world's contingently true propositions. Assuming that an explanation of a conjunct explains each of the conjuncts, it follows that proposition *q* has to explain itself. After all, *q* is a contingent truth and hence part of the Big Conjunctive Contingent Fact. But is *q* a self-explaining proposition? Gale and Pruss turn this

89 My rendering of what Gale and Pruss call 'the taxicab objection' is quite different from the rendering that Gale and Pruss present themselves. They write: 'Our argument proved that the Big Conjunctive Contingent Fact is explained by a contingent proposition that reports the free action of a necessary being. But this contingent proposition goes unexplained. And, since we are willing to countenance an unexplained proposition why should we not have accepted as a brute, unexplained fact the Big Conjunctive Contingent Fact with which our argument started? Is not our argument [...] like a taxicab that we hire and dismiss when it suits our purpose?' (1999, pp. 469–470). I'm not in favor of this rendering of what Gale and Pruss call 'the taxicab objection'. Simply pointing out that *q* is left unexplained is not an objection to Gale and Pruss's argument at all. After all, Gale and Pruss do not accept Leibniz's principle that all true propositions have explanations. The objection is that *q* is not a self-explaining proposition. Indeed, this would, if true, contradict the fact that, within Gale and Pruss's framework, proposition *q* has to be self-explaining.

question into a swift objection to their cosmological argument, called 'the taxicab objection'. The objection is that *q* is not a self-explaining proposition and that therefore their new cosmological argument fails.[89]

Gale and Pruss respond to this objection by saying that *q* is self-explaining and that 'the reason for this is that a necessary being is one whose existence can be explained by an ontological argument, even if we cannot give it, and that a being *freely* performs an action, such as freely causing the actual cosmos to exist, stands in need of no further explanation, at least on the Libertarian Theory' (1999, p. 470).[90] Now, it seems to me that this response is insufficient. What also needs to be explained, in order for proposition *q* to be genuinely self-explaining, is *why* the necessary being reported by *q* has free will. It is very important to understand that the question is not to show *that* the necessary being reported by *q* has free will. Indeed, Gale and Pruss's argument already shows this to be the case. The point here is to explain *why* this being has free will. Proposition *q* is only genuinely self-explaining if we are able to provide an explanatory reason for the fact that the necessary being reported by proposition *q* has free will. Only in that case, to put it differently, one may truly say that *q* is a 'regress-of-explanation ender' (1999, p. 470).

What I will show is that the reason for the necessary being reported by *q* to have free will is that 'being free' is an essential property of the being in question, that is, the necessary being reported by *q* has free will in all possible worlds. Indeed, assume that this being is not free in some possible world *w*. In that case the proposition that the necessary being reported by *q* has free will is contingently true and therefore part of the Big Conjunctive Contingent Fact of the actual world, which would imply that *q* has to explain that the being reported by *q* has free will. But this is surely impossible. Proposition *q* is not able to explain why the necessary being it reports has free will, since a necessary being's free action must presuppose, and hence cannot explain, that being having free will. We therefore conclude that the necessary being reported by *q* is essentially free, i.e. free in all possible worlds, which explains it having free will in the actual world. I conclude that the objection that *q* is not self-explaining, and thus not a 'regress-of-explanation ender', can be refuted once we add to the response of Gale and Pruss the further observation that the necessary being reported by proposition *q* is *essentially* free, explaining why it is free in the actual world. Further, it might be worthwhile to note that, apart from the derivation provided here, it seems to be very reasonable to hold that 'having free will' is an essential property in the sense that no being can lose this property without ceasing to exist, without stopping to be *that very being*. Thus, it seems, if some being is free, then that being is essentially free. Of course, this does not imply that 'being free' is a necessary condition for personhood or for being human. If some human person loses its free will, than he or

90 On the Libertarian Theory free acts do not need a further explanation because such acts are taken to be *self-explaining*. Now, one may respond that free acts are always based upon *reasons*. If I freely take a glass of water, then I most likely have a reason for doing this, for example because I'm thirsty. Yet, this reason is not the originating cause of my free act. Reasons, being abstract objects, are not causes. On libertarianism the free act of taking a glass of water is caused by me as free agent. The reason can thus never explain the actual occurrence of the free act. The occurrence of the act is solely explained by referring to the free act itself. So, indeed, on libertarianism the proposition 'I freely take a glass of water' or 'I freely take a glass of water because I'm thirsty' does not stand in need of a further explanation. It is genuinely self-explaining.

she will stop being *that very human person*, yet, there would still remain a human person, having the same human rights as any other human person endowed with free will.

THE OBJECTION THAT THE ACTUAL WORLD'S BIG CONJUNCTIVE CONTINGENT FACT IS UNEXPLAINABLE

Another objection considered by Gale and Pruss is the objection that the universe as a whole, identified by the actual world's Big Conjunctive Contingent Fact, cannot have an explanation since explanations are to be based on empirical observations that indicate a statistically relevant relationship between causes and effects, and, as the objection goes, such a statistical pattern is not available in case of the question of the origin of the entire universe. Now, this objection is actually not a specific objection to Gale and Pruss's new argument at all. It is, more generally, a criticism of the entire project of natural theology or, for all that matter, the whole enterprise of metaphysics, or even philosophy as such. If all explanations would have to be based on statistically relevant observable patterns, then explanation within the context of (non-experimental) philosophy, such as metaphysics, would become entirely impossible. And in fact, even providing explanations within most (if not all) parts of fundamental physics, such as string theory, would become impossible. Further, there seems to be no specific reason why each and every explanation should be based on statistical observable patterns. Surely, from the fact that explanations within large parts of the empirical sciences are based on statistical observations it doesn't follow that *all* explanations, including those within metaphysics and fundamental physics, are to be grounded on observable statistical relationships. The objection therefore seems to be, as Gale and Pruss correctly point out (1999, p. 471), begging the question against the enterprise of metaphysics and fundamental physics. The objection seems to be nothing more than invoking the baseless dogma that revealing statistically relevant observations exhausts the realm of proper explanations. Hence the objection is unconvincing. It does not engage itself with the discourse of metaphysics *within which* the argument of Gale and Pruss is properly positioned. From the premises of Gale and Pruss's argument it follows that there is a necessary being that freely brought the actual world's universe into existence, and any serious objection to this argument should be sufficiently specific, i.e. actually engage with its premises and the way the conclusion is logically derived from them. Just stepping outside the discourse of natural theology in order to try to totally reject the entire project of metaphysics, and even philosophy itself, will not do to arrive at a good objection. Such an objection casts its net too wide. It's a ship passing in the night.

THE OBJECTION THAT AN ESSENTIALLY FREE AND NECESSARILY EXISTING BEING IS IMPOSSIBLE

Gale and Pruss briefly address the objection that their argument is to be rejected since a free necessary being cannot possibly exist,

i.e. there is no possible world in which some being has free will *and* exists necessarily. They reject this objection by noting that it lacks argumentative support and therefore amounts to nothing more than mere stipulation.[91] Now, I do not agree with Gale and Pruss that this objection is unsupported. I have shown earlier that the necessary being arrived at by Gale and Pruss is *essentially* free, that is, it is an essential property of this being to posses free will. Therefore, the objection can be sharpened by holding that an essentially free and necessarily existing being is impossible. And it is precisely this sharpened objection that can be based upon an argumentation. For, let us assume that an essentially free necessarily existing being is possible. In that case there is a possible world that contains such a being. By definition of necessary existence this being exists in all possible worlds. From this it follows that there is no possible world that does not contain a necessarily existing and essentially free being. But, it seems to me that there are such possible worlds. Take for example some world *w* that only contains one single necessarily existing and totally unconscious thing. This thing exists necessarily but is not free, since, plausibly, being free in the Libertarian sense (which is the theory embraced by Gale and Pruss) requires the possession of consciousness. World *w* surely seems to be a possible world in the broadly logical sense, but it does not contain some essentially free necessarily existing being, which contradicts the assumption that such a being is possible. Hence, an essentially free and necessarily existing being is impossible if we accept the broadly logical possibility of world *w*, and therefore, as the objection goes, the new argument of Gale and Pruss fails. Now, as we see this sharpened objection is supported by an argument. One cannot reject this objection by simply pointing out that it is unsubstantiated by argumentative support. On the other hand I would hold that this objection is not strong enough to justify us to reject Gale and Pruss's argument. After all, one may still hold that the argument of Gale and Pruss in fact shows us, perhaps contrary to our ordinary modal intuitions, that an essentially free and necessarily existing being is possible, and hence *w* is not a possible world after all. So, one may say, the argument of Gale and Pruss, unless properly rejected because of other independent reasons, forces us to reconsider our prima facie modal intuitions in this specific case. From this I conclude that the sharpened objection according to which an essentially free and necessarily existing being is impossible is not decisive. Gale and Pruss's argument establishes the existence, and therefore broadly logical possibility, of such a being, and any convincing rejection of it has to deal directly with the cogency of its premises and logical derivation.

91 In fact, in addition to this main response, Gale and Pruss provide another rejection of the objection under consideration. They argue as follows: 'We gave a *reductio ad absurdum* argument against the existence of [Leibniz' and Spinoza's] God, who is a necessary being determined by His nature [i.e. not being free] to actualize the best of all possible worlds, which showed that then there is only one possible world and that every true proposition is necessary' (1999, p. 471). Now, this response to the objection fails. For even a necessarily existing unfree being could, by necessity, produce agents having Libertarian free will, and then not every true proposition would be necessary. In other words, there being free will could originate from a necessary and unfree being by necessity, for example if *the best of all possible worlds* is a world containing free will. But, perhaps more importantly, the rejection Gale and Pruss provide here is not a rejection of the objection at all, since, the point is not to argue for the necessary being being free, which is something they already did as part of their new argument, but to rebut the objection that such a being could not exist at all.

THE OBJECTION THAT THE COSMOS IS CAUSED BY BLIND INDETERMINISTIC MECHANICAL CAUSATION

Gale and Pruss refer to an objection proposed by Phil Quinn. According to this objection the new argument of Gale and Pruss does not exclude the broadly logical possibility of there being a necessarily

existing impersonal being that does not have consciousness and thus no free will, and that 'generates the cosmos by means of blind [...] indeterministic mechanical causation' (1999, p. 472). In their paper Gale and Pruss provide two rebuttals of this objection. First, they hold that a blind indeterministic force leaves unexplained that the 'cosmos displays considerable law-like regularity and simplicity, as well as remarkable fine tuning of its physical constants' (1999, p. 472). However, it seems to me that one could reconcile a blind origin with our fine-tuned universe by holding that there is not just a single universe, but an ensemble of many universes, all blindly generated by a single impersonal origin. In any case I take it that the first response is not part of a defense of a cosmological argument *proper*, and hence I shall not further assess Gale and Pruss's teleological line of reasoning. The second response they provide is as follows:

> 'Moreover, there is a dilemma argument possible. Either the impersonal force acts deterministically or not. If it acts deterministically, then we end up in a universe that could not be other than it is. In such a case, e.g., that there exist humans will be a logical necessity. This seems highly implausible. On the other hand, if the impersonal force acts indeterministically then we still do not have an explanation of why it acted as it did, and so the objection contradicts the conclusion of our argument that there is an explanation of the actual universe, since any such explanation will have to be a self-explainer. For an indeterministic action is a self-explainer only if it is a *free* action' (1999, p. 472)

This response is premised on a very substantial thesis on the nature of causation. Gale and Pruss maintain that there are basically two ontologically different modes of causation in reality, i.e. causation resulting from deterministic mechanical processes and causation resulting from free actions of free agents. In other words, according to Gale and Pruss there is no causation resulting from random events. Reality does not contain stochastic processes that produce effects. The reason for this is that reality does not contain random processes at all. Randomness is not part of mind-independent reality. What we refer to as chances are not objective inherent features of reality. Chances only have epistemological import. They are not part of the ontological inventory of the world. If we accept this thesis then the dilemma argument of Gale and Pruss is indeed cogent. Now, this thesis seems indeed to be very plausible and reasonable. Our regular appeal to randomness and chances in ordinary cases, such as throwing a dice, is a consequence of the fact that we do not have sufficient information and computing power to timely forecast the outcome of the event in question, i.e. the final position of the dice. If we would have sufficient knowledge, i.e. if we would know precisely the initial conditions of the dice such as its mass, its velocity, its height, its volume, the wind speed, etc, and if we would have sufficient computation power to calculate the

entire trajectory of the dice, we would have no need at all to appeal to randomness, chances and stochastic processes. Thus in these ordinary day-to-day cases there is in fact no reason to hold that reality itself is inherently random. But also in the case of quantum mechanics, which is entirely based on chances and stochastic functions, nothing really forces us to accept that reality itself is inherently random. Quantum mechanics only forces us to accept that the mathematical formulas on which it is grounded are best rendered in terms of chances and stochastic functions. So nothing is prescribed regarding the nature of these chances and stochastic functions. For all we know they have nothing to do with mind-independent reality itself. As Dennis Dieks points out: 'Even if it is accepted that quantum mechanics is a fundamentally probabilistic theory, this provides us with no special reason to believe in "chances" in the sense of objectively existing factors that are responsible for the relative frequencies we encounter in experiments' (Dieks 2010, p. 117). It should therefore not surprise us that in addition to the classic indeterministic Copenhagen interpretation of quantum mechanics, as formulated by Niels Bohr and Werner Heisenberg in 1927, deterministic interpretations of quantum mechanics have been developed as well, such as those of David Bohm and Heinz Dieter Zeh (Bohm 1952, Zeh 1970). So, from both examples, throwing a dice and quantum mechanics, it becomes clear that there are no good reasons for holding that chances are objective features of mind-independent reality itself. Moreover, wholly independent of these examples, it seems to be inconceivable anyway how reality itself could be truly inherently random. Is not any occurring event eventually grounded in something that forces that event to take one of the many available equivalent routes it can take? In all those cases there must have been something that forced the event to take the direction it actually took instead of one of the many equally feasible alternative directions it could have taken. And what else could this 'something' be than a deterministic mechanical cause or a cause based on the free act of some free agent? Our causal ontology allows therefore of mechanical determinism and free acts. And as long as there are no compelling reasons to extend this ontology with a third type, i.e. causation from inherent randomness, Ockham's razor tells us to withhold ourselves from doing so. I conclude that the aforementioned thesis is cogent. Hence the dilemma argument as provided by Gale and Pruss constitutes an adequate rejection of Phil Quinn's objection.

THE OBJECTION THAT THE WEAK VERSION OF THE PRINCIPLE OF SUFFICIENT REASON BEGS THE QUESTION

A final objection discussed by Gale and Pruss[92] is the objection that the weak version of Leibniz's principle, as employed by Gale and Pruss, begs the question against atheism in a similar way as the possibility premise of the S5-based modal ontological argument, i.e. possibly there is a necessarily existing perfect being, does. Gale and Pruss do agree that atheists are rationally justified to charge this premise from begging the question against atheism. Why? Because its meaning is

92 There is one other objection evaluated by Gale and Pruss in their paper, namely the objection that the conclusion of their new argument, even if we take the second teleological and justificatory stage of this argument into account, is not sufficient to warrant theism. For that, as the objection goes, one would also have to show that the derived necessarily existing supernatural being that intentionally freely created the cosmos is not just very powerful, intelligent and good, but in fact absolutely perfect, that is, essentially one, essentially good, essentially omnipotent, essentially omniscient and essentially omnipresent. As mentioned earlier my review of Gale and Pruss's new argument is restricted to the first, proper cosmological, stage of their argument. Since this objection also brings the second stage into play, I shall not further analyse it here. Having said that, it seems to me that even the final conclusion of the first stage of Gale and Pruss's new argument, i.e. there being a necessarily existing being that freely created the cosmos, is already sufficient to favour theism above atheism. After all, how could such a being be reconciled with an atheistic worldview?

grounded in the S5-axiom that what is possibly necessary is necessary, and thus, a commitment to the possibility premise comes down to a commitment, contra atheism, to there being a necessarily existing perfect being. But Gale and Pruss deny that the weak version of Leibniz' principle they employ in their new argument begs the question against atheism. Although, as they explain, 'it might be felt that [the weak version of Leibniz' principle] leads too quickly, with too few steps, to the highly controversial and amazing proposition that there actually is an explanation for the actual world's Big Conjunctive Contingent Fact', this conclusion is in fact not immediate since much of their argument consists in its 'stage-setting – the concepts and distinctions that it employs' (1999, p. 475). And the real force of their argument depends for a very large part on these employed concepts and distinctions, as Gale and Pruss maintain. I do agree with Gale and Pruss that one must take the power and originality of an argument's background framework of concepts and distinctions into account if one wants to answer the question whether it begs the question or not, especially if the argument seems to rely on premises that almost immediately logically imply the conclusion argued for. However, in the case of Gale and Pruss's argument it seems to me that their background framework is not that distinguishing and original at all. It employs fairly standard concepts, such as abstract propositions, states of affairs and possible worlds, in a straightforward manner. The only real distinguishing factor seems to be an appeal to a specific weak version of the principle of sufficient reason. Yet, I agree that this weak version of the principle is prima facie more plausible than the principle of sufficient reason itself. After all, it seems much more likely that for any given true proposition *p* one can always construct some possible world, be it actual or not, in which *p* has an explanation, than that *p* must actually have an explanation in the world we live in. Especially if one realizes that there is a huge infinite plurality of possible worlds, and we may make use of our endless imaginative powers to find in this enormous heterogeneous infinitude just one possible world in which *p* has an explanation.[93] Therefore, unless the atheist gives a reason for doubting the weak principle, or convincingly shows it to be epistemically equivalent to Leibniz' principle itself, there is no ground for accepting the objection that the weak principle of sufficient reason, as employed by Gale and Pruss, is begging the question against the atheistic worldview.

SUMMARY

We have seen that in fact all main objections as raised by Gale and Pruss themselves can be cogently rejected. In the next section I shall turn to the objections from Graham Oppy.

Objections raised by Graham Oppy

Graham Oppy has raised a number of additional objections against Gale and Pruss's new argument (Oppy 2000). In what follows I present these

93 Here I implicitly appeal to Hume's principle that conceivability entails metaphysical possibility. Now, as Chalmers (2002) points out: 'In recent years, conceivability arguments have faced considerable opposition. Many philosophers hold that the step from conceivability to metaphysical possibility has been shown to be invalid, not least due to a number of apparent counterexamples. For example, it is often suggested that complex mathematical falsehoods (such as Goldbach's conjecture or its negation) are conceivable but impossible. It is also widely believed that a posteriori identities provide counterexamples: on this view, it is conceivable but not possible that Hesperus is not Phosphorus, and that water is not H_2O' (2002, pp. 145–146). Now, I do not appeal to Hume's principle as a strict universal rule. Instead, I invoke it as a default or exception permitting rule, that is, *normally*, a conceivable state of affairs is metaphysically possible. It seems to me that Hume's principle, considered as a defeasible rule, is still sufficiently plausible. See e.g. Chalmers (2002) for a detailed assessment of specific notions of conceivability and an examination of the extent to which each of these notions justify an entailment from conceivability to metaphysical possibility.

94 Oppy first shows that the Big Conjunctive Fact of each possible world has an explanation if the weak version of Leibniz's principle holds. Second, he infers the strong version of Leibniz's principle as follows: since the explanation of a conjunction is an explanation of each of its conjuncts, every proposition in every possible world has an explanation if the Big Conjunctive Fact of every possible world has an explanation. My rendering of the derivation as presented by Oppy does not need such a 'two-stage approach'.

95 Oppy contends that the claim that an explanation of a conjunct also explains its conjuncts, i.e. in his words, that explanation is dissective, 'seems plausible, to say the least' (Oppy 2000,

objections and assess whether they are strong enough to compel us to reject Gale and Pruss's argument. For this I also take Gale and Pruss's response to Oppy's objections into account (Gale and Pruss 2002).

THE OBJECTION THAT LEIBNIZ'S WEAK VERSION IS NO ADVANCE SINCE IT IMPLIES THE STRONG ONE

Oppy points out that the weak version of the principle of sufficient reason, i.e. for every true proposition *p* it is possible that *p* has an explanation, entails the strong version of this principle, i.e. every true proposition has an explanation. To show that the weak version implies the strong version he presents an ingenious derivation (Oppy 2000, p. 347). For our discussion I present a slightly simplified variant of his derivation.[94] Suppose that the weak version of Leibniz's principle is true. And assume, for reductio, that there is some possible world *w* and proposition *p* such that *p* is true in *w* and *p* has no explanation in *w*. Now consider the conjunctive proposition '*p* and *p* has no explanation'. This conjunction is true in *w*. Hence, according to the weak version of the principle of sufficient reason, there is a possible world w_2 such that '*p* and *p* has no explanation' is true in w_2 and has an explanation in w_2. Now, surely, *p* is true in w_2 as well. Moreover, since, as Gale and Pruss maintain, the explanation of a conjunction also explains each of its conjuncts,[95] it follows that the explanation of '*p* and *p* has no explanation' is an explanation of *p* as well. Hence *p* does have an explanation in w_2. But this contradicts with there being no explanation for *p* in w_2. We conclude that our initial assumption is incorrect. There is no possible world *w* and proposition *p* such that *p* has no explanation in *w*, that is to say, the strong version of Leibniz's principle is indeed true in case the weaker version of this principle is true.[96] From this Oppy concludes that Gale and Pruss's new argument is no improvement over traditional cosmological arguments employing the stronger version of Leibniz's principle. After all, as Oppy has it, the alleged weaker version of the principle is not weaker at all: not only does the strong version imply the weak version, which is of course trivially true, but it is also the case that the weak version implies the strong version. Thus both versions are equivalent and hence no advance over the classical cosmological arguments has been obtained. To put the point differently, the Gale-Pruss proof could be criticized for being just 'a notational variant of familiar cosmological arguments which rely on the stronger principle' (2000, p. 348). So, as the objections goes, Gale and Pruss's argument occasions the same charge of begging the question that was leveled against cosmological arguments employing the strong version of Leibniz's principle (Gale and Pruss 2002, p. 90).

This objection is unconvincing. It is indeed the case, as Oppy correctly claims, that both the weak and strong version of Leibniz's principle logically entail each other. They are therefore *logically* or *deductively* equivalent. But from this it does not follow that both versions are *epistemically* equivalent.[97] For, as I argued before, the weak version is

p. 347). As he asks himself: 'how could there be an explanation of why it is that both *p* and *q* if there is no explanation of why it is that *p*?' (2000, p.347). Later on he writes that the argument of Gale and Pruss against the claim that explanation is agglomerative 'seems to take for granted that explanation is dissective' (2000, p. 349). And also: 'It seems to me that there is no evidence that Gale and Pruss intend to deny that explanation is dissective; and it also seems to me that there is evidence that explanation is dissective' (2000, p. 349). Apparently Oppy does not realize that Gale and Pruss's new argument already makes heavily use of the claim that explanation is dissective. So there is no need at all to argue for the plausibility of dissectiveness as part of an objection against their new argument. Nor is it needed to suggest a commitment of Gale and Pruss to dissectiveness on the indirect basis of how they refute the claim that explanation is agglomerative.

96 Oppy also mentions that Pruss pointed out to him that the new argument of Gale and Pruss itself implies the strong principle of sufficient reason. After all, let *w* be a possible world. Now assume *w* to be the actual world. Then, according to the new argument of Gale and Pruss, the Big Conjunctive Contingent Fact of *w* has an explanation in *w*. Further, all necessarily true propositions are self-explaining. Or, to be more precise, according to Gale and Pruss all necessarily true propositions report the existence of necessarily existing items such as beings, events and states of affairs, and these items are such that there is a successful ontological (i.e. a priori and therefore possible world independent) argument for their existence (Gale and Pruss 1999, p. 462). This implies that all necessarily true propositions have an explanation in *w* as well. So the Big Conjunctive Fact of *w* has an explanation in *w*. Since explanation is dissective, all true propositions in *w* have an explanation. Now, the possible world *w* was arbitrarily chosen.

prima facie much more plausible than the principle of sufficient reason itself. After all, it is more likely that a true proposition will have an explanation in *some* possible world, i.e. in at least one of the infinitely many possible worlds, than that it must have an explanation in the actual world, of which there is in any given situation just only one. Moreover, there seems to be a generic way of generating a possible explanation for any true proposition. Let *p* be a true proposition in the actual world. Proposition *p* might or might not have an explanation in the actual word. Suppose it has. In that case *p* possibly has an explanation because it has one in the actual world and, surely, everything actual is possible. But let us now suppose that *p* does not have an explanation in the actual world. In that case we can envision another possible world, *w*, which is in all respects the same as the actual world, except for the fact that there is an agent in *w* that does nothing else but freely realizing the state of affairs S as reported by proposition *p*, and so making *p* true in *w*. In this way we have constructed a possible world in which *p* does have an explanation. Hence, in both cases *p* possibly has an explanation, and thus, since *p* was arbitrarily chosen, the weak version of Leibniz's principle holds.[98]

Secondly, the derivation of the weak version from the strong version of the principle of sufficient reason is trivial, whereas the derivation of the strong version from the weak version is far from being obvious. Indeed, as Gale and Pruss point out in their response to Oppy, it was not discovered until recently that the weak version entails the strong one (Gale and Pruss 2002, p. 92). Besides, Oppy writes that it would be nice to know the identity of an anonymous referee who provided an interesting Fitch-style derivation of the strong version of Leibniz's principle from the weak one (2000, p. 353). But, as Gale and Pruss rightly wonder, 'why would it be nice to know the identity of this referee if the argument were obvious or trivial?' (2002, p. 91).

Further, Oppy also claims in his response that, in order to understand the meaning of the weak version, it is necessary to know that the weak version entails the strong version (2000, pp. 349–350). From this it would follow that Gale and Pruss's new argument is still as question-begging as arguments relying on the strong version of Leibniz's principle. But, as Gale and Pruss explain, it is absurd to claim that this knowledge is required, since it would imply that nobody understood the statement that every true proposition possibly has an explanation until recently, i.e. until it became known that this statement entails that every true proposition has an explanation (Gale and Pruss 2002, p. 92). Therefore, contrary to what Oppy says in his response (2000, p. 350), the situation regarding the weak version of Leibniz's principle in Gale and Pruss' new argument is very different from the situation regarding the possibility premise of the ontological argument, which can, as we discussed before, only be understood if we already know the S5 axiom that being possibly necessary entails being necessary. Because of this

Thus every true proposition in every possible world has an explanation, that is, the strong version of Leibniz's principle is true (2000, p. 348). Now, surely, this derivation is much more cumbersome than the one presented before since it relies on the new cosmological argument of Gale and Pruss.

97 I take it that two propositions, *a* and *b*, are epistemically equivalent if and only if, ignoring any possible logical entailment relationships between both, the evidence for *a* is equally convincing as the evidence for *b*. Here evidence for a proposition refers to immediate empirical evidence, evidence from direct intuition, or evidence based on the coherence of the proposition in question with already accepted scientific theories.

98 This defense of the weak principle is an adjusted variant of a defense that Oppy himself considers and subsequently rejects in his paper (Oppy 2000, p. 351). I agree with the rejection of the defense of the weak principle presented by Oppy and shall therefore not discuss that defense here. But I believe that the adjusted variant I present is not vulnerable to Oppy's rejection of the defense he himself considers.

observation and the other considerations we are sufficiently justified to reject Oppy's objection that Gale and Pruss's new argument is no improvement over traditional cosmological arguments due to the alleged equivalence of the strong and weak version of Leibniz's principle.

THE OBJECTION THAT THE NEW ARGUMENT FAILS SINCE LEIBNIZ'S STRONG PRINCIPLE DOES NOT HOLD

Another objection from Oppy is that the new cosmological argument of Gale and Pruss is inadequate since it is based on a premise, i.e. the weak version of Leibniz's principle, that entails, as we have seen, the strong version of that principle; and the strong version of the principle of Leibniz 'is something which nontheists have good reason to refuse to accept' (2000, p. 349). This objection is problematic. What could be a good reason for nontheists to reject the strong principle of sufficient reason? Surely, it could not be the fact that they are nontheists, since that would evidently beg the question against theism. Now, Oppy writes: 'Granted that nontheists can be reasonable in refusing to take on theistic beliefs, nontheists can be reasonable in refusing to believe things which fail to cohere with other things which they believe' (2000, p. 349). From this it seems that Oppy holds that it is known that the strong version of Leibniz's principle of sufficient reason entails theism and nontheists reasonably reject theism and therefore the strong version. But this in itself does not constitute a rejection of Gale and Pruss's new argument. Indeed, the point of their argument is precisely to challenge the reasonability of nontheism, so an objection to Gale and Pruss cannot rely upon them simply granting that it is reasonable to refuse to take on theistic beliefs. So, to qualify as a proper objection Oppy would have to reject theism on cogent independent grounds, which Oppy does not do in his criticism of Gale and Pruss's argument. Besides, if the aforementioned is a correct interpretation of Oppy's objection, then his objection appears to come down to the point that the new argument of Gale and Pruss must be rejected since one of its premises entails theism and nontheists have good reason to reject theism. And this is in fact all that the objection amounts to, since Oppy writes: 'If nontheists have strong independent ground for refusing to accept theism, then the discovery that [the weak version of the principle of sufficient reason] entails theism will surely be good grounds for rejecting [this version and thus Gale and Pruss's argument itself]' (2000, p. 350). But, as said, this indeed does not suffice as a proper objection without providing those 'strong independent grounds'. And in addition, even providing strong independent grounds is not sufficient. To count as an adequate objection Oppy would also have to show that these independent grounds are equally or more compelling than Gale and Pruss's new cosmological argument.

However, although Oppy does not discuss this in his paper, there is in fact a well-known rejection of Leibniz's principle of sufficient reason that in no way relies on the claim that this principle implies theism. In

the chapter on the Leibnizian cosmological argument I presented the well-known rejection of Peter van Inwagen of the principle of sufficient reason (Van Inwagen 1983, pp. 202–204). Now, if Van Inwagen's rejection fits within the framework that Gale and Pruss deploy, then we must reject their argument since one of its premises entails Leibniz's principle of sufficient reason. Well, as I pointed out in the aforementioned chapter, the reductio of the principle of sufficient reason provided by Van Inwagen relies upon the premise that no contingent proposition explains itself. But, this premise is wholly unacceptable within the framework that Gale and Pruss employ, since Gale and Pruss accept Libertarian free will and they take it that, as they write in their paper, 'an indeterministic action is a self-explainer only if it is a free action' (1999, p. 472). Therefore, Gale and Pruss allow for contingent propositions that explain themselves. These are precisely the propositions that report the free actions of a Libertarian free agent.[99] So the rejection of Van Inwagen does not affect Gale and Pruss's argument. I conclude that the objection that their argument must be rejected since it entails Leibniz's principle of sufficient reason is indefensible.

99 Interesting enough, in his article 'The Leibnizian Cosmological Argument' as published in *The Blackwell Companion to Natural Theology*, edited by W.L. Craig and J.P. Moreland, Alexander Pruss analyses Peter van Inwagen's refutation of the principle of sufficient reason (Craig and Moreland 2009, pp. 50–56). He provides a formal rendering of Van Inwagen's reductio. The second premise of that rendering is the one that holds that no contingent proposition explains itself. This is what Pruss says about Van Inwagen's reductio: 'Let me now offer an argument that someone who accepts the possibility of libertarian free will *must* reject the Van Inwagen argument. Since Van Inwagen is a libertarian, he too must reject his own argument' (2009, p. 54). What follows accords with the citation above: libertarian free actions are self-explaining contingent truths, and thus proper counterexamples to Van Inwagen's premise that no contingent truth explains itself.

THE OBJECTION THAT WE ARE JUSTIFIED ONLY TO SAY THAT LEIBNIZ'S WEAK PRINCIPLE IS NEARLY TRUE

Oppy claims in his paper that there is an even weaker version of Leibniz's principle than the weak version as deployed by Gale and Pruss. He describes this weaker version in the following way: 'for most propositions *p* and worlds *w*, if *p* is true in *w*, then there is a world *w** in which *p* is true and in which there is a true proposition *q* which explains *p*' (Oppy 2000, p. 351). I shall denote Gale and Pruss's weak version of Leibniz's principle by (w) and the yet even weaker version of this principle, as presented by Oppy, by (w2). According to Oppy principle (w2) has no less intuitive force than (w). In addition, as the objection would go, (w2) is not sufficient to infer the conclusion that the Big Conjunctive Contingent Fact of the actual world has an explanation. Hence, since we have no reason to prefer (w) above (w2), the new argument of Gale and Pruss is untenable. Now, I do not think that this objection goes through. First of all, (w2) actually amounts to a defeasible reading of (w), that is, to a reading of principle (w) as a default or exception permitting rule: *Normally,* for every proposition *p* and world *w*, if *p* is true in *w*, then there is a world *w** in which *p* is true and in which there is a true proposition *q* which explains *p*. In other words, in absence of a good reason to think otherwise, we may infer, about any particular true proposition *p* in some world *w*, that there is a world *w** in which *p* has an explanation. In this way the burden of proof is again shifted to Oppy, who must now argue that the case of the Big Conjunctive Contingent Fact of the actual world is an exception to the rule. Therefore, unless Oppy provides a good reason for thinking that this case is indeed an exception, his objection is underdeveloped. Second, I believe that there is in fact an argument which warrants us to adopt (w) itself instead of its defeasible variant (w2). The argument I have in

mind is the construction of an explanation for any given proposition that I provided earlier. After all, the generic construction I presented starts with a wholly *arbitrary* true proposition, and therefore there seems to be no good reason at all to restrict ourselves to (w2), as would perhaps be the case if our only evidence for (w) would be intuition or inductive generalization. But more importantly, why should we, even in the absence of the aforementioned generic construction, insist to take into account the default exception permitting rule (w2)? Why would it, even if the aforementioned construction is not at our disposal, be unreasonable to accept (w) itself as a justified universal inductive generalization of the many available instances of possibly explainable propositions? After all, isn't many-instance inductive generalization a well-established cogent argumentative method? This question must be answered in order to arrive at a real objection, and this is something that Oppy does not do in his paper. Overall, I conclude that the objection fails.

THE OBJECTION THAT THE ABSTRACT PROPOSITIONS EMPLOYED BEG THE QUESTION OR ARE UNCLEAR

In the final part of his paper Oppy presents two worries that can be considered as further objections to the new argument of Gale and Pruss. The first worry is that 'Gale and Pruss begin by taking for granted the notion of an abstract proposition' and that it 'would be problematic if their proof stood or fell with the details of their favoured account of the nature of abstract propositions' (2000, p. 352). Now, this first worry can be transformed into a corresponding first objection by stating that the cosmological argument of Gale and Pruss begs the question against materialism or nominalism[100] because, as Gale and Pruss concede in their response to Oppy, 'it is ontologically committed to Platonic abstracts, which clashes with the nominalistic commitments of materialism' (2002, p. 93). The rebuttal of Gale and Pruss to this first objection is two-fold. First, they say that they 'are prepared to argue that any argument for nominalism [...] employs premises that are less plausible than [the weak version of the principle of sufficient reason]' (2002, p. 93). Apparently Gale and Pruss take it that the weak version of Leibniz's principle entails a commitment to Platonic propositions and therefore, if nominalism is less plausible then the weak version of Leibniz's principle, it immediately follows that a nominalistic account of propositions is less plausible than a Platonic rendering of propositions, which is indeed what one would have to show in order to counter this first objection. Yet, I don't think this is a cogent rebuttal at all. The reason is that the weak version of Leibniz's principle does not imply a commitment to a Platonic rendering of propositions, since we can reformulate the weak version of the principle as follows: 'For each sentence in the actual world that truly affirms or denies the obtainment of some state of affairs in the actual world, there is a possible world in which there is an explanation for why *this* sentence is true'. This rendering of the weak version of Leibniz's principle does not rely on

100 Nominalism is understood here as the thesis that abstract objects do not exist, neither in a possible world nor in some realm transcending the possible worlds. Abstract objects are objects that are neither spatial nor temporal. Putative examples of abstract objects include, but are not limited to, propositions and universals.

there being any Platonic abstract propositions, so it should be wholly acceptable for nominalists. Now, one might object that the notion of a possible world *itself* is already problematic for nominalists and so the rendering is not compatible with nominalism after all. However, as my emphasis of the word 'this' in the phrase 'this utterance' indicates, I rely on the Kripkean account of possible worlds, which is compatible with nominalism as I shall argue in what follows. In his book *Naming and necessity* Kripke uncovers the so-called transworld identity problem, that is, the problem of trying to give any sense to the notion of the identity of two objects in different worlds, as a pseudo-problem. Since nominalism makes it virtually impossible to solve the transword identity problem, the Kripkean account, which eliminates this problem as being a pseudo-problem, allows for nominalism. Besides, perhaps even more importantly, the Kripkean account is entirely epistemological instead of ontological.[101] This is pivotal for being compatible with the thesis of nominalism since non-Kripkean ontological accounts of possible worlds define possible worlds as being separate entities not located in space and time, that is to say, as abstract entities. Therefore, since nominalists reject abstract entities, these accounts are entirely unacceptable for them, as opposed to the Kripkean account I deploy above. So, my alternative rendering of the weak version of Leibniz's principle is indeed compatible with nominalism. And thus, the first part of Gale and Pruss's rebuttal doesn't go through.

But, as mentioned, the rebuttal of Gale and Pruss to the first objection is two-fold: they also point out that 'it is not clear that [their new cosmological] argument could not accommodate a nominalistic rendering of propositions' (2002, p. 93). In order to count as a proper rebuttal they would have to show that this is indeed the case, which they do not do in their response to Oppy. However, a nominalistic rendering of their new argument seems to me certainly possible, from which I conclude that Oppy's first objection has to be rejected. How would we cast a proper nominalistic version of Gale and Pruss's new argument? Well, I already presented a nominalistic rendering of the weak version of Leibniz's principle. Furthermore, we can, also in a nominalistic context, refer to the Big Conjunctive Contingent Fact of the actual world. Hence, the first stage of a nominalistic version of the new argument of Gale and Pruss would proceed in the following way. Let *a* be the sentence in the actual world that affirms the obtaining of the Big Conjunctive Contingent Fact *A* of the actual world *and* that at the same time denies the obtaining of all that does not obtain in the actual world. According to the weak version of Leibniz's principle there is a possible world *w* for which it holds that *this* sentence *a* is true and has an explanation. Hence, in world *w* it is the case that *this* state of affairs, *A*, obtains. Now, every state of affairs in the actual world is contained in *A*. Since *A* obtains in *w* it follows that every state of affairs in the actual world is a state of affairs in *w*. Vice versa, let *s* be a state of affairs in *w*. Suppose that *s* is not a state of affairs in the actual world. In that case

101 For Kripke a possible world is nothing more than just a stipulated *epistemic alternative* of the actual world. He holds that it is incorrect to think about possible worlds in the ontological sense as being some kind of separately existing entities: 'One thinks [...] of a possible world as if it were like a foreign country'. 'One looks upon it as an observer' which is 'the wrong way of looking at what a possible world is' (Kripke 1980, p. 43). 'Possible worlds', according to Kripke, 'are total ways the world might have been' (1980, p. 18). Indeed, 'a possible world isn't a distant country that we are coming across, or viewing through a telescope', but 'possible worlds are stipulated, not discovered by powerful telescopes' (p. 44). And thus it follows that 'a possible world is given by the descriptive conditions we associate with it' (p. 44). Kripke's epistemological approach to possible worlds is also apparent from his remark that we are 'running through all the possible worlds in our heads' (p. 38). So, his account doesn't need us to see them as abstract entities.

the claim that *s* does not obtain is part of *this* sentence *a*. Hence the claim that *s* does not obtain is part of *this* sentence *a* in possible world *w*, which contradicts the assumption that *s* is a state of affairs in *w*. The conclusion is therefore that the states of affairs of the actual world and world *w* coincide. In other words, *w* is in fact the actual world. Thus, *A* has an explanation in the actual world. And from this the new argument of Gale and Pruss can proceed, with minor modifications, as before. So, there is in fact a nominalistic rendering of the new cosmological argument of Gale and Pruss, and hence the first objection fails.

The second worry of Oppy starts with the claim that, for reasons which I do not reiterate here, the new argument of Gale and Pruss seems to rely on the thesis that each abstract proposition is either atomic or a conjunction of atomic propositions. And, as the second worry goes, it is unclear what the notion of an atomic proposition amounts to in Gale and Pruss's framework (Oppy 2000, p. 352). To transform this worry into a second objection one could say that Gale and Pruss's argument is not cogent, unless they supplement their argument with an explicit account of atomicity. Now, Gale and Pruss actually do provide such an account in their response to Oppy. They write: 'For the purpose of our argument we can accept an account of atomicity that is relativized to a given language or context of inquiry. A singular positive proposition counts as atomic if either it is not further analyzable relative to a given language, or it does not require any further analysis for the purpose for which it is being used in some inquiry' (2002, p. 93). Hence, even if we grant the point that Gale and Pruss need to provide an account for atomicity, then, since Gale and Pruss in response *do* provide such an account, the second objection fails as well.

SUMMARY

We have seen that in fact all main objections as raised by Oppy (2000) can be cogently rejected. In the next section I shall turn to Davey and Clifton's objections (2001).

Objections raised by Davey and Clifton

Davey and Clifton (Davey and Clifton 2001) raise some quite interesting objections which I shall analyze in what follows.

THE OBJECTION THAT, NECESSARILY, THE CONJUNCTION OF ALL CONTINGENT TRUTHS IS UNEXPLAINABLE

The new cosmological argument of Gale and Pruss relies on there being a possible world in which the Big Conjunctive Contingent Fact of the actual world has an explanation. In fact, the only reason for Gale and Pruss to introduce and defend their weak version of the principle of sufficient reason is precisely to show that there is such a possible world. Now, the objection of Davey and Clifton is that the Big Conjunctive Contingent Fact of the actual world is necessarily unexplainable, that

is, there is no possible world in which this fact has an explanation, and so Gale and Pruss's new cosmological argument has to be rejected. The proof Davey and Clifton offer for their claim is quite terse and perhaps for this reason hard to grasp. In what follows I turn to a detailed analysis of their proof.

Davey and Clifton start with some terminology (Davey and Clifton 2001, p. 486). They denote the Big Conjunctive Contingent Fact of the actual world, that is, the conjunction of all contingently true propositions, by A. Further, for all propositions p, E(p) denotes the proposition 'p has an explanation'. So, for all propositions p, E(p) entails p. Based on this terminology, what Davey and Clifton intend to prove is: 'Necessarily (not E(A))' or, even more briefly, $\Box\neg$E(A). In order to do this they further introduce the notion of *proper sub-proposition*. For any two propositions p and q Davey and Clifton write $p < q$ if and only if 'q = E(p) or q is a non-trivial conjunction of which p is a conjunct' (2001, p. 486). They do not clarify what they mean with a *non-trivial* conjunction. Yet, I take it that for their proof we can assume that a non-trivial conjunction is a conjunction consisting of two or more distinct propositions.[102] Thus, for example, '1+1=2 $\wedge$ 2+3=5' is non-trivial, whereas '2+3=5 $\wedge$ 2+3=5' is not. The *transitive closure* of the relation '<' is denoted by '$\subset$', that is to say, for any two propositions p and q we may write $p \subset q$ if and only if '$p < r$', '$r < s$', ... , '$t < q$' for finitely many propositions r, s, ..., t. If $p \subset q$ Davey and Clifton say that proposition p is a *proper sub-proposition* of q. Further, a proposition p is a *sub-proposition* of q, denoted by $p \subseteq q$, if and only if $p \subset q$ or $p = q$.

Davey and Clifton define proposition A* as being the conjunction of all contingently true propositions p such that not($p \subset p$). It is clear that every conjunct of A* is also a conjunct of A. Moreover, A* is a non-trivial conjunction since it contains many distinct conjuncts, such as for example the contingently true propositions p_1 = 'The Eiffel tower is located in Paris' and p_2 = 'Berlin is the capital of Germany'. Indeed, these two propositions satisfy respectively not($p_1 \subset p_1$) and not($p_2 \subset p_2$). Why? Well, propositions p such as these have clearly nothing to do with the 'has an explanation' predicate E(x). Therefore, they only would satisfy $p \subset p$ if it is possible to select some conjunct c_1 from p, and then some conjunct c_2 from c_1, and then some conjunct c_3 from c_2, and so on, until, after a finite number of steps, we arrive at some conjunct c_n equal to p. But this is impossible since these propositions do not contain conjuncts! And therefore they indeed satisfy not($p \subset p$).

Davey and Clifton simply state that A* $\subset$ A. But this is not obvious at all. I shall provide a detailed derivation of their assertion that A* $\subset$ A. First, are there any contingently true propositions p for which $p \subset p$ holds? For, if such propositions do not exist, then every conjunct of A would be a conjunct of A*, and thus A and A* would be the same. Well, in their response to the article of Davey and Clifton, Gale and Pruss present

102 In their paper Davey and Clifton introduce a conjunction (for the point I want to make here it is irrelevant which one) and point out that it 'is non-trivial, because it contains, e.g. the propositions "Pittsburgh is a city" and "Father Christmas does not exist"' (2001, p. 486). From this brief remark it appears that they understand a non-trivial conjunction more specifically as being a conjunction that consists of at least two distinct propositions a and b, such that the proposition '$a = b$' is not a tautology.

the following infinite proposition: '1=1 and (1=1 and (1=1 and (1=1 and (1=1 ...))))' (Gale and Pruss 2002, p. 93). This proposition, let us denote it by *q*, is a non-trivial conjunction that has itself as conjunct, thus $q < q$. Yet, *q* is not a contingent truth. However, *q* can easily be adjusted in order to obtain a contingently true proposition *r* such that $r < r$. Consider the proposition *r* that is obtained from *q* by replacing each and every instance of '1=1' by 'Paris is the capital of France'. Now, surely, *r* is both a contingently true proposition and a non-trivial conjunction. Moreover, *r* has itself as a conjunct, hence $r < r$. Thus $r \subset r$ since the relation $\subset$ is the transitive closure of the relation $<$. From this all it follows that *r* is a conjunct of A but not of A*. And so we conclude that not every conjunct of A is a conjunct of A*, i.e. A* is a strict part of A. Now, second, it follows that the proposition A consists of two collections of conjuncts: those together constituting A* and those that do not belong to A* (such as *r* and many others). In order to arrive at $A^* \subset A$, it seems that they allow us to consider the former collection, i.e. the collection of those conjuncts of A that together constitute A*, as being itself a conjunct of A.[103] For then it indeed directly follows that $A^* < A$, and therefore $A^* \subset A$, which was the claim to be derived.

103 As an example, take the proposition $a \wedge b \wedge c \wedge d \wedge e \wedge f \wedge g$. Apparently, Davey and Clifton allow us to consider not only *a*, *b*, or $a \wedge b \wedge c$, but also $b \wedge e \wedge g$ to be a conjunct of $a \wedge b \wedge c \wedge d \wedge e \wedge f \wedge g$. And therefore we may write $b \wedge e \wedge g < a \wedge b \wedge c \wedge d \wedge e \wedge f \wedge g$.

After these preliminary steps Davey and Clifton continue their proof by assuming, for *reductio ad absurdum*, that there is a possible world *w* in which A has an explanation, that is to say, that there is a possible world *w* in which E(A) is true (2001, p. 487). Hence, A is true in *w* as well. And thus, following the same reasoning as Gale and Pruss did in their argument, it follows that every contingent truth in the actual world is a contingent truth in *w* as well. Moreover, every contingent truth in *w* is also a contingent truth in the actual world, because, if the contingent truth *p* in *w* would be false in the actual world, then, since *not-p* would be contingently true in the actual world, it follows immediately that *not-p* is also true in *w*, which is impossible. Hence, the Big Conjunctive Fact of the actual world is the same as the Big Conjunctive Fact of w, and therefore *w is* in fact the actual world. So, E(A) is indeed actually true, as Davey and Clifton conclude (p. 487). As a next step they show that $E(A^*) \subset E(A^*)$. This step is quite clear and I cite it below:

> 'E(A) is actually true. But because $A \rightarrow A^*$ is a tautology, E(A*) must also be true [in the actual world]. Since E(A*) entails A*, and A* is not true necessarily, E(A*) can only be contingently true. [...] Moreover, E(A*) must be a proper sub-proposition of itself. For, if not$(E(A^*) \subset E(A^*))$ were true, E(A*) would have to be a conjunct of A*, and (hence) $E(A^*) \subseteq A^*$. But plainly, $A^* \subset E(A^*)$; so, by transitivity, $E(A^*) \subset E(A^*)$. Thus, in any case $E(A^*) \subset E(A^*)$' (2001, p. 487).

Davey and Clifton proceed with a crucial remark, which will be of eminent importance in what follows later in my analysis of their proof. They say: 'Now, because the only proper sub-propositions of E(A*) are

the sub-propositions of A*, E(A*) ⊆ A*' (p. 487). Well, *if* the only proper sub-propositions of E(A*) are the sub-propositions of A*, *then* indeed it follows directly that E(A*) ⊆ A*. After all, it has just been established that E(A*) itself is a proper sub-proposition of E(A*)! Furthermore, since A* is a proper sub-proposition of E(A*) it cannot be affirmed that the only proper sub-propositions of E(A*) are the *proper* sub-propositions of A*, for it is not guaranteed that A* is a *proper* sub-proposition of itself, which explains the lack of the adjective 'proper' in the conditional's consequent. But the key question here is: why would the only proper sub-propositions of E(A*) be the sub-propositions of A*? Well, according to the definition of proper sub-proposition, the only way to obtain a proper sub-proposition *q* of a given proposition *p* seems to be by either removing the 'has an explanation' predicate E from *p* (if *p* is of the form E(*q*)), or by 'picking' the relevant conjunct of *p* (if *p* is a non-trivial conjunction having *q* as one of its conjuncts), and moreover, by repeating this procedure finitely many times. If this is so, then, since E(A*) is itself not a non-trivial conjunction, the only way we could obtain a proper sub-proposition of E(A*) is by removing the E predicate, i.e. A* is a proper sub-proposition of E(A*), or, due to the transitivity of ⊂, by 'picking' conjuncts from A*. So it follows that the only proper sub-propositions of E(A*) are A* itself and the proper sub-propositions of A*, that is to say, the only proper sub-propositions of E(A*) are indeed the sub-propositions of A*.

As a next step Davey and Clifton conclude that E(A*) ⊆ A* entails E(A*) ⊂ A* since E(A*) is not equal to A*. After all, A* is a non-trivial conjunction whereas E(A*) is not. Subsequently they point out that the only way E(A*) could be a proper sub-proposition of A* is if E(A*) is a sub-proposition of one of the conjuncts of A* (p. 487). This is clear from what has been said before about how proper sub-propositions are generated. Now, since A* ⊂ E(A*), it follows that A* is a proper sub-proposition of one of the conjuncts of A*. Hence there is a contingently true proposition *p* such that not(*p* ⊂ *p*) and A* ⊂ *p*. And, since *p* is a conjunct of A*, it is also the case that *p* ⊂ A*, but then, due to the fact that ⊂ is transitive, it follows that *p* ⊂ *p*, which contradicts the fact that not(*p* ⊂ *p*). Hence Davey and Clifton conclude that the initial assumption has to be rejected: there is no possible world *w* in which A has an explanation, and therefore the new argument of Gale and Pruss fails: the Big Conjunctive Fact of the actual world is necessarily unexplainable.

Now, is this objection against the argument of Gale and Pruss sufficiently compelling to reject their new cosmological argument? In their response to Davey and Clifton Gale and Pruss point out that A* is not a proposition at all, and therefore the *reductio ad absurdum* of Davey and Clifton does not go through (Gale and Pruss 2002, p. 94). What Gale and Pruss seem to be saying is that the reductio provided by Davey and Clifton is in fact to be understood as a reductio of the assumption that

A* is a proposition. Indeed, one could, as Gale and Pruss do, accept the weak version of the principle of sufficient reason to infer that there is a possible world *w* within which A has an explanation. From then on we can simply follow the proof of Davey and Clifton, assuming that A* is a proposition, in order to arrive at the earlier established contradiction, and thus arriving at the conclusion that this assumption is false, that is, that A* is not a proposition. From this point of view the proof of Davey and Clifton is quite harmless. It suffices to reject the assumption that A* is a proposition, but it is useless to reject the cosmological argument of Gale and Pruss.

Yet, Davey and Clifton's objection is not so easily rejected. As Gale and Pruss know, and also acknowledge in their response, Davey and Clifton argue in their paper that if A is a proposition, then so is A* (2001, pp. 486–487). And hence it would follow that a refutation of the claim that A* is a proposition implies that we have to refute the claim that A is a proposition as well, thus forcing us to reject the new cosmological argument of Gale and Pruss after all. Let us therefore see how Davey and Clifton establish their claim that if A is proposition, so is A*. They write: '[Gale and Pruss] might claim that [the collection of all contingently true propositions p such that not($p \subset p$)] is a class, and, therefore, the proposition A* does not exist. But, if [the collection of all contingently true propositions p such that not($p \subset p$)] is a class, so is the collection of all contingently true propositions, and the proposition A would not exist for the same reason' (2001, p. 487). Well, the point Davey and Clifton make here is entirely correct. But it has no implications for Gale and Pruss at all, since, as I take it, Gale and Pruss reject the claim that a conjunction of a class cannot be a proposition. Indeed, they know that the collection of all contingently true propositions is not a set (Gale and Pruss 2002, p. 94), and hence, for all they know, this collection might be a class. Thus, if Gale and Pruss would contend that a conjunction of a class cannot be a proposition, their crucial Big Conjunctive Contingent Fact might not be a proposition at all, making their whole argument baseless! Still, Davey and Clifton do provide a second reason for their thesis that A* is a proposition if A is one. They state: 'Perhaps [Gale and Pruss] could argue, however, that [the collection of all contingently true propositions p such that not($p \subset p$)] is not even a class, because [this collection] can only be constructed by applying the axiom of separation to the class [of all contingently true propositions], yet the axiom of separation fails for classes. But [the collection of all contingently true propositions] is also obtained by applying the axiom of separation to the class of *all* propositions, and so, again, [Gale and Pruss] would have to question the existence of A itself' (2001, p. 487). Well, again, this point is also entirely correct, but, similar as before, without any consequences for Gale and Pruss. Indeed, what Davey and Clifton appear to suggest is that, if Gale and Pruss hold that a conjunction of a collection that is not even a class cannot be a proposition, they would, under the assumption that the collection of all contingently true propositions p such that

not($p \subset p$) is not even a class, have to accept that not only A*, but also A itself, is not a proposition. But why would Gale and Pruss have to hold that a conjunction of a collection that is not even a class cannot be a proposition? I take it that, precisely because of the reason as mentioned by Davey and Clifton, Gale and Pruss simply do not hold this. What Gale and Pruss *do* hold is the following, as they clearly explain in their response to Davey and Clifton: 'A given candidate for a proposition [i.e. A or A*] should be innocent until proven guilty. We have proved above, relying on [Davey and Clifton's] own argument, that the conjunction of all contingent true propositions that are no sub-formulae of themselves is guilty, that is, is not a proposition. But [Davey and Clifton] have not offered any paradox starting merely with the [Big Conjunctive Contingent Fact], and so the [Big Conjunctive Contingent Fact] is still innocent' (2002, p. 94). Indeed, we can conclude that the first objection of Davey and Clifton has to be rejected.

THE OBJECTION THAT WE HAVE NO AUTHORITY TO INFER THAT, POSSIBLY, THE BCCF[104] IS EXPLAINABLE

Based upon the aforementioned inquiry we are justified to contend that A is a proposition and A* is not, so that the first objection of Davey and Clifton does not go through. But the paper of Davey and Clifton contains another objection against the new argument of Gale and Pruss that allows for A being a proposition, whereas A* is not. They start with an analogy (2001, p. 487). Ben, who does not know Avogadro's number, that is, the (fixed) number of molecules in one mole, is told truthfully that some given vessel holds one mole of hydrogen. Of course he cannot detect that the proposition p = 'This vessel contains an even number of molecules' is true. Moreover, he even cannot infer that p is possibly true, since whether p is possibly true 'is entirely determined by a fact about the value of Avogadro's number that Ben simply does not know. Modal intuitions [...] can offer him no help in deciding whether [there is a possible world in which p] is true' (2001, p. 487).[105] Davey and Clifton turn this analogy into an objection against Gale and Pruss's new argument that, as said, would work even if A is a proposition and A* is not. I shall provide my own rendering of this objection below.

The proposition E(A) is either true or false in the actual world. Well, if E(A) is true in the actual world, then there exists a possible world, namely the actual world, in which E(A) is true, and so it is perfectly valid to infer that, possibly, E(A) is true. On the other hand, if E(A) is false in the actual world, then either not-E(A) is contingently true *or* not-E(A) is necessarily true. Now, if not-E(A) is necessarily true, then there is no possible world in which E(A) is true, and so it would be invalid to infer that, possibly, E(A) is true. And, if not-E(A) is contingently true, then A, being the conjunction of all contingent truths in the actual world, logically entails not-E(A), and thus, since A consists of the same conjuncts in all possible worlds, A entails not-E(A) in all possible worlds. From this it follows that, since E(A) entails A, that there is no possible

104 BCCF refers to the Big Conjunctive Contingent Fact of the actual world, that is to say, the conjunction of all contingently true propositions in the actual world. Surely, in the present context BCCF is denoted by A.

105 Davey and Clifton point out that they 'treat Avogadro's number as a rigid designator; i.e. [they] assume it has the same value in all possible worlds' (2001, p. 490). This assumption is indeed important because else Ben could easily stipulate a possible world within which p would be true, namely any possible world within which Avogadro's number has some even value. Further, we have to assume that 'this vessel' in p may only denote a vessel that contains a mole of molecules. For else it is trivial that p is possibly true. Indeed, any possible world in which the number of molecules in this vessel is, if needed, changed into some even value, would do. Now, in their paper Davey and Clifton maintain that p is *contingently* true in the actual world (p. 487). But, since we treat 'Avogadro's number' rigidly and take it that 'this vessel' in p always contains a mole of molecules, it follows that p is either necessarily true or necessarily false. This however is not a real problem for the analogy that Davey and Clifton provide. I simply avoid the incorrectness in my rendering above by not claiming that p is *contingently* true.

world in which E(A) is true, that is to say, it would again be invalid to infer that, possibly, E(A) is true. In summary, if E(A) is true in the actual world, then we can infer that, possibly, E(A) is true, and if E(A) is false in the actual world, then we cannot infer that, possibly, E(A) is true. So, according to Davey and Clifton, 'We are thus in precisely the same situation Ben was in with respect to his ignorance of the value of Avogadro's number. Whether or not E(A) is possibl[y true] is fully determined by something we do not know: this time, whether [E(A) is true or E(A) is false in the actual world]. Again we are not free simply to exercise our modal imaginations, for they give us no authority to [decide whether, possibly, E(A) is true]' (2001, p. 488). And therefore, as the objection concludes, Gale and Pruss are not justified at all to infer that there is some possible world *w* in which E(A) is true, which, since they essentially rely on this inference, makes their new cosmological argument ungrounded.[106]

Now, let us first see how Gale and Pruss respond to this objection. They write: 'A person who is ignorant of chemistry does not have epistemic grounds for determining whether or not it is possible for this piece of gold to have a certain atomic weight. [Davey and Clifton] suggest that analogously we lack adequate epistemic grounds for determining whether it is or is not possible for the actual world's Big Conjunctive Contingent Fact to have an explanation [...]' (2002, p. 98). Gale and Pruss take it that Davey and Clifton's objection 'suffers from a crucial disanalogy' (p. 98). Science must discover the essential properties of certain types of entities, and thus, as Gale and Pruss contend, 'it is not the prerogative of science to determine the sort of modal issues that enter into [their] argument, such as whether [...] the actual world's Big Conjunctive Contingent Fact possibly has an explanation' (2002, p. 98). I believe that this response has some force, but is not sufficiently convincing to reject the objection at stake. In what follows I propose a rejection that I believe more clearly shows why the objection of Davey and Clifton fails. Perhaps Gale and Pruss would maintain that this rejection amounts to the same point they make above. Well, let me start with pointing out that I fully agree with Davey and Clifton that Ben cannot decide whether *p* could be possibly true. It all depends on the exact fixed value of Avogadro's number. If it is even, then *p* is necessarily true and thus also possibly true, but if it is odd, then *p* is necessarily false and hence not possibly true. There is no way in which Ben can make a justified choice between both alternatives since he simply does not know Avogadro's number, and there are no other principles he might rely on to make an informed decision between both alternatives. But, as I contend, the epistemic situation in the case of the cosmological argument of Gale and Pruss is quite different from the epistemic situation Ben finds himself in. The two alternatives in this case are 'E(A) is true in the actual world' and 'E(A) is false in the actual world'. As we have seen, if E(A) is true in the actual world, then, possibly, E(A) is true, and if E(A) is false in the actual world, then it is not the

106 The rendering of the objection of Davey and Clifton that I provide here differs from the formulation that Davey and Clifton provide in their paper. They simply say that we know that either, necessarily, A entails E(A), or, necessarily, A entails non-E(A), and continue by stating that we simply do not know which of these two entailments hold. It seems to me that they take for granted that A, being the conjunction of all contingent truths in the actual world, either entails E(A) or not-E(A), since in the actual world either E(A) is contingently true or not-E(A) is contingently true. But this does not follow at all. They overlook the third possibility that not-E(A) is necessarily true and therefore E(A) would be necessarily false. In my rendering I take this third possibility into account. Having said this, it is surely not the case that the formulation of Davey and Clifton is incorrect, since, if E(A) is necessarily false, it also follows, trivially, that, necessarily, A entails E(A)! Yet, I take it that the rendering I provide has more appeal, since its dilemma is confined to one basic proposition, i.e. E(A), that is either true or false in the actual world, whereas the dilemma in the formulation of Davey and Clifton refers to two relatively complex entailments, only one of which is true in all possible worlds. Therefore, the analogy between 'the Ben example' and my rendering is clearer.

case that, possibly, E(A) is true. Initially we are inclined to say, just as Davey and Clifton do, that Gale and Pruss simply do not know whether E(A) is true or false in the actual world, and therefore they seem to be not allowed to infer that, possibly, E(A) is true. But this is in fact not the case at all. Indeed, as part of their new argument Gale and Pruss have introduced and defended a weak version of Leibniz's principle, according to which every contingent truth possibly has an explanation. As we have seen this principle is not just stipulated. On the contrary, I discussed and presented a number of good arguments in favor of this principle, which I shall not repeat here. Hence, while Ben has no further principle to invoke, Gale and Pruss have such a principle to appeal to, namely their weak version of Leibniz's principle of sufficient reason. From this principle it follows, since A is contingently true in the actual world, that, possibly, E(A) is true. And this implies, based upon the aforementioned, that E(A) is true in the actual world. Now, from this stage on the new argument of Gale and Pruss can proceed similar as before. Thus, in fact, the objection of Davey and Clifton comes down to nothing more than just an invitation to recast the new argument of Gale and Pruss in the following way:

1 In the actual world E(A) is either true or false *(bivalence)*
2 If, in the actual world, E(A) is true, then, possibly, E(A) is true *(shown above)*
3 If, in the actual world, E(A) is false, then it is not the case that, possibly, E(A) is true *(")*
4 E(A) is possibly true *(according to the weak version of Leibniz's principle)*
5 E(A) is true in the actual world *(from 1, 2, 3 and 4)*
6 ‹Include previous stages of the new cosmological argument to obtain the final conclusion›

Now, the only way to reject this reformulation is to refute the weak version of Leibniz's principle itself, or any other part as referred to by (6), and, as we have seen, the objection at stake fails to do this. Hence, I conclude that the second objection of Davey and Clifton is inadequate as well. It does not establish that Gale and Pruss are not authorized to infer that, possibly, the actual world's Big Conjunctive Contingent Fact has an explanation.

THE OBJECTION THAT THE WEAK VERSION OF LEIBNIZ'S PRINCIPLE VIOLATES OUR MODAL INTUITIONS

In fact, Davey and Clifton provide a third objection in their paper that directly attacks the weak version of Leibniz's principle as adopted by Gale and Pruss in their new argument. They grant that this version enjoys some intuitive appeal, since they 'can imagine that there might have been some explanation for the occurrence of the Big Bang, or some joint explanation for the fact that Kevin has two cats and Rob only one, even if there are no such explanations in the actual world' (2001,

p. 489). But, as they contend, this does not warrant us to accept the weak version of Leibniz's principle without restriction. In what follows I present my own rendering of their objection. Suppose, for reductio, that the weak version of Leibniz's principle holds *without restriction*. In that case the weak version of Leibniz's principle entails the strong version. Indeed, as discussed before, if *p* is true and E(*p*) is false in some possible world, then, by applying the weak version of Leibniz's principle to '*p* and not-E(*p*)' it follows that there is a possible world in which '*p* and not-E(*p*)' has an explanation, which is impossible since it would imply that E(*p*) is true and false in that world.[107] But, as Davey and Clifton maintain, our modal intuitions strongly suggest that there must be possible worlds (perhaps including the actual world, but this is not required) in which there are 'genuinely random events [i.e. events which do not have an explanation in those worlds] such as the flip of a coin that comes up heads, or a quantum measurement of an electron that returns a value of "spin up"' (2001, p. 489). In short, our modal intuitions strongly suggest us that it must at least be possible that some proposition is true without having an explanation. Now, as the objection continues, this possibility violates the strong version of Leibniz's principle and so also the weak version of this principle. Hence, as the objection concludes, given that the weak version entails the strong version, and given that there are possible worlds containing truths without any explanation, we have to reject the weak version of Leibniz's principle. And therefore we have to reject the new argument of Gale and Pruss, which relies on this principle, as well.

In their response to this objection Gale and Pruss offer four related considerations that together are supposed to 'lead credence to the claim that [the weak version of Leibniz's principle] is more deeply entrenched than is the [...] claim that it is possible that a given contingent proposition has no explanation' (2002, p. 96). First, our strong tendency to find explanations suggest we at least believe it is possible for truths to have explanations. Second, while we know what it is like to verify explanations, we do not know what it is like to verify that some proposition does not have an explanation. Third, they point at the deep resistance of scientists to the idea that there are unexplainable events. Fourth, in the case of the Big Conjunctive Contingent Fact, it is possible that God exists, and thus it is possible that the Big Conjunctive Contingent Fact has an explanation. Now, I fail to see why the second consideration would add to the creditability of the weak version of the principle of sufficient reason. And the same holds for third consideration. The first and fourth consideration have some force, but are together not convincing enough to conclude that the objection fails. However, as part of my analysis of the objection *that the cosmos is caused by blind indeterministic mechanical causation* I argued that the whole notion of genuinely random events is, for us as human beings, wholly unintelligible. So, since the objection of Davey and Clifton appeals to the possibility of genuinely random events, we are warranted to conclude

107 Oppy says in his *On 'A new cosmological argument'* that Pruss and a referee from *Religious Studies* told him about an alternative derivation of the strong version from the weak one. He writes: 'By inspection [the argument of Gale and Pruss] works for any world, not just the actual world: so, given [the weak version of Leibniz's principle], there cannot be a world in which the Big Conjunctive [Contingent] Fact for that world has no explanation in that world. But explanation is dissective. So, given [the weak version of Leibniz's principle], every true [contingent] proposition in every world has an explanation, i.e. [the strong version].' (Oppy 2000, p. 348). As part of this derivation the weak version of Leibniz's principle is, through the new argument of Gale and Pruss, applied to the Big Conjunctive Contingent Fact of a possible world, which is warranted by the above mentioned assumption that the weak version of Leibniz's principle holds *without restriction*. Davey and Clifton do not refer to this alternative derivation in their paper. This makes sense, since they believe to have shown that Gale and Pruss's new argument fails if a Big Conjunctive Contingent Fact would be a proposition. I argued this is not so, making the alternative derivation relevant here as well.

that it is not sufficiently convincing after all. Moreover, I also argued that we can understand the weak version of the principle of sufficient reason as being a default or exception permitting rule, that is, as a rule that applies unless we have good reasons to suspect that it does not apply to the specific case at hand. Well, the Big Conjunctive Contingent Fact does not seem to be such an exception. For, as argued above the objection *that, necessarily, the conjunction of all contingent truths is unexplainable* fails. And third, even if we would reject a defeasible reading of the weak version, it still seems to be the case that, possibly, the actual world's Big Conjunctive Contingent Fact has some explanation. For, according to Gale and Pruss's fourth consideration above, it is at least logically possible that some supernatural entity exists and also explains the Big Conjunctive Contingent Fact (2002, pp. 96–97). I conclude that these three observations, added to the first and fourth consideration of Gale and Pruss, provide us with a sufficient reason to reasonably reject the third objection obtained from Davey and Clifton's paper.[108]

SUMMARY

We have seen that the main objections as raised by Davey and Clifton can be cogently rejected. In the next section I turn to objections proposed by Almeida and Judisch (2002).

Objections raised by Almeida and Judisch

In their paper *A new cosmological argument undone* Almeida and Judisch (Almeida and Judisch 2002) raise further objections to Gale and Pruss's new cosmological argument. In what follows I present and criticize the additional objections that they have put forward.

Almeida and Judisch start with an important observation concerning the first premise of Gale and Pruss's new argument. As discussed, Gale and Pruss formulate the first premise of their new argument, by using the language of possible worlds, in the following way:

> 'If p_1 is the Big Conjunctive Contingent Fact of a world w_1 and p_2 is the Big Conjunctive Contingent Fact of a world w_2, and if p_1 and p_2 are identical, then $w_1 = w_2$' (1999, p. 462).

This premise comes down to the claim that possible worlds are individuated by their Big Conjunctive *Contingent* Fact, that is to say, there are no two possible worlds that have the same Big Conjunctive *Contingent* Fact. Gale and Pruss ground this claim by pointing out that all possible worlds 'share the same necessary propositions' (1999, p. 462). Indeed, since Gale and Pruss, by definition, *identify* worlds with their Big Conjunctive Facts, it follows that, if all of them share the same necessary truths, then every Big Conjunctive *Contingent* Fact uniquely identifies a single possible world. Now, in their paper Almeida and Judisch note that: 'if we wish to have the same necessary propositions

108 One might perhaps invoke one other argument against the weak version of Leibniz's principle. Take the proposition p = 'p has no explanation'. This proposition is necessarily true. Indeed, if it would be false in some possible world, then it would have an explanation in that possible world, which is impossible since E(p) entails p. Moreover, p is necessarily unexplainable. For, it is true in all possible worlds, and thus, in all those worlds it says truly of itself that it has no explanation. We might therefore conclude that proposition p is a falsifier of the weak version of Leibniz's principle. However, Gale and Pruss could easily resort to a defeasible reading of the weak version and hold that in the particular case of the self-referring proposition p the default rule that all truths possibly have an explanation simply doesn't apply. And, since p is necessarily true, p is not a conjunct of the Big Conjunctive Contingent Fact. So, the crucial case of the Big Conjunctive Contingent Fact rests unchallenged. Besides, they could argue that assertion p is actually not a well-formed proposition at all. Indeed, for all propositions q, shouldn't q be unequal to both E(q) and not-E(q)?

as conjuncts in every Big Conjunctive Fact (i.e., holding in every possible world) we must further assume that nothing weaker than the logic of S5 governs our modal inferences' (2002, p. 56). The reason being that 'S5 is usually characterized as permitting every world access to every world' (2002, p. 62).[109] Hence, as Almeida and Judisch have made clear, the new argument of Gale and Pruss is committed to the axioms and (thus) all theorems of the S5 system of modal logic. Subsequently, Almeida and Judisch utilize this fact to arrive at a *reductio ad absurdum* of Gale and Pruss's new argument, which I shall outline below.

The cosmological argument of Gale and Pruss establishes that there is in the actual world *w* a contingently true proposition *q* that explains the actual world's Big Conjunctive Contingent Fact *p* (1999, pp. 462–469). Since *q* is contingently true in the actual world, there are possible worlds in which *not-q* is true. Moreover, since for every proposition it holds that 'being an explanation of some other proposition' entails 'being true', it follows that the proposition '*q* is not an explanation of *p*' is true in those worlds in which *not-q* is true. To arrive at their reductio of Gale and Pruss's new argument, Almeida and Judisch assert a much stronger claim than the aforementioned rather evident observation. They maintain that there must be a possible world in which not just *not-q* and '*q* is not an explanation of *p*' are true, but in which, moreover, *p* itself is true. Now, indeed, if this would be the case, then, surely, their reductio succeeds, since, as we have seen, any world containing the Big Conjunctive Contingent Fact *p* of the actual world is in fact equal to the actual world, and this leads to a contradiction because it would entail that both *q* and *not-q* are true in the actual world, which is clearly impossible. Yet, their claim that the premises of Gale and Pruss's new cosmological argument entail there being a possible world verifying *p*, *not-q* and '*q* does not explain *p*' is definitely not evident. In their paper Almeida and Judisch provide two derivations for it. As I argue below, both derivations fail, which implies that their proposed reductio of the new cosmological argument of Gale and Pruss is untenable.

The first derivation is a reductio as well, which goes as follows: 'Suppose it were not true that there is some world [...] which contains the Big Conjunctive Contingent Fact of [the actual world], *p*, and *not-q* and the fact that *q* does not explain *p*. In that case, every world [...] which contained *p* would also contain *q* and the fact that *q* explains *p*. But that is just to say that [*q* is necessarily true], contrary to [*q* being contingently true]' (2002, p. 63). It follows indeed that *q* is true in each world in which *p* is true, since *p* and *not-q* entail that *q* does not explain *p*, which violates the assumption that there is no world in which *p*, *not-q* and '*q* does not explain *p*' are all true. But, this is not what Almeida and Judisch hold. They hold that possible worlds that contain *p*, also contain *q and* the fact that *q* explains *p*. It seems that they take it that if *q* explains *p* in some world, then *q* explains *p* in all worlds for which *p* and *q* are true. But why do they take this for granted? The argument of Gale and Pruss does not

109 This interpretation of S5, according to which every possible world is accessible from every other possible world, implies that a proposition that is possibly true in some world is in fact possibly true in every world, that is to say, all worlds share the same possible truths. And, since all worlds share the same necessary truths as well, it follows that, under the S5 system of modal logic, the very same modal propositions are true at each and every possible world, that is, all possible worlds are *modally equivalent* (2002, p. 56).

require explanations to be invariant across possible worlds. Yet, perhaps proposition *q* is a special case? After all, Gale and Pruss's argument entails that *q* is to be understood as 'a contingent proposition that reports the *free* intentional action of a necessary being that explains the existence of the actual world's universe' (1999, p. 468). Therefore, in each world in which *q* is true, *q* is an explanation of the universe of that world, and, since the universe of each world is defined by Gale and Pruss as the part of the world that verifies its Big Conjunctive Contingent Fact, it follows immediately that *q* is an explanation of the Big Conjunctive Contingent Fact of each world in which *q* is true. But then, since *p* is a part of the Big Conjunctive Contingent Fact of each world in which *p* is true, and explanation is dissective, it follows that *q* is also an explanation of *p* in each world in which both *p* and *q* are true. So, we can indeed accept their claim that, under the assumption of the reductio, worlds that contain *p*, also contain *q and* the fact that *q* explains *p*.[110] Now, as mentioned above, Almeida and Judisch conclude their reductio by asserting that this 'is just to say that [*q* is necessarily true], contrary to [*q* being contingently true]' (2002, p. 63). But why would this follow from the previous result? Why would proposition *q* be necessarily true? After all, they have only established that *q* is true (and explains *p*) in those worlds in which *p* is true, and this does not exclude there being a world in which *p* is false! For such a world, i.e. for a world in which *p* is false, we have no reason to assert that *q* is true. And, moreover, according to the argument of Gale and Pruss there must in fact be a possible world in which *p* is false, since *p* is a contingent proposition! So, the first derivation of Almeida and Judisch fails.[111]

The second derivation is a direct proof. It starts with the observation that proposition *q* is a *contingent explanation* of the Big Conjunctive Contingent Fact *p* of the actual world. And, as the direct proof continues, from this it follows that *p* might have had some other explanation *r* which is logically incompatible with *q*, that is, *r* is false in those worlds in which *q* is true and vice versa (2002, p. 63). Subsequently, it follows that there is a world w_2 in which *r* and *p* hold. Due to the logical incompatibility of *r* and *q*, world w_2 verifies *not-q*. Moreover, '*q* does not explain *p*' is true in w_2 since *q* is false in w_2. We conclude that w_2 verifies *p*, *not-q* and '*q* does not explain *p*', which completes the proof. Now, this second derivation fails as well. It does not follow at all that *p* might have had another explanation incompatible with *q*. For, surely, *q* is a *contingent explanation*, but this only means that *q* is an explanation and that there is a possible world in which *q* is false. Thus, to claim that it means that there might have been a logically incompatible explanation of *p* is an erroneous case of equivocation. Almeida and Judisch shift unwarrantedly to an entirely different meaning of 'being a contingent explanation', and hence their second derivation is invalid, as also Pruss and Gale point out (2003, p. 68). So, as mentioned, the *reductio ad absurdum* of the new cosmological argument of Gale and Pruss, as

110 In their response to Almeida and Judisch Pruss and Gale provide us with yet another reason for accepting that worlds containing *p* and *q* also contain '*q* explains *p*'. For they point out: 'Our argument proves that *q* explains *p* in [the actual world], and moreover (*q* explains *p*) is a contingent proposition since it is actually true and entails the contingent proposition *p* [...]. Thus, (*q* explains *p*) is a conjunct of *p*. [...] And since (*q* explains *p*) is a conjunct in *p*, there is no possible world that has *p* and not-(*q* explains *p*) as conjuncts [...]' (Pruss and Gale 2003, p. 67).

111 Pruss and Gale arrive along quite similar lines at the same conclusion in their response to Almeida and Judisch (Pruss and Gale 2003, p. 67).

proposed by Almeida and Judisch, has to be rejected. It is based on untenable derivations.

To finalize their objection against Gale and Pruss's new argument, Almeida and Judisch present in their paper some options 'to preserve the soundness of the new cosmological argument', and argue, by utilizing their earlier mentioned observation that this argument is committed to the S5 axioms of modal logic, that each of these options fail (2002, pp. 59–60). However, since, as shown above, their initial *reductio ad absurdum* does not hold, we do not have to analyze these options. After all, there is just nothing to repair.

Yet, from the paper of Almeida and Judisch a second objection can be extracted. To see this we must take a closer look at their invalid *reductio ad absurdum*. The whole reductio comes down to this inference: Suppose the new argument of Gale and Pruss holds. In that case it follows that *q* is a *contingent explanation* of the Big Conjunctive Contingent Fact *p* of the actual world. From this it follows that *p* might have had another explanation *r* which is incompatible with *q*, that is, there is no possible world in which *r* and *q* are both true. Furthermore, the world containing *r* and *p* must be equal to the actual world (since it contains *p*), and this implies that the actual world contains both *r* and *q*, which is clearly impossible. As we have seen this *reductio* is invalid since it is based on an erroneous equivocation on the phrase 'contingent explanation'. But, nevertheless, it can be adjusted easily into a valid *reductio ad absurdum* by accepting the following weak version of Leibniz's principle of sufficient reason: 'Any contingently true proposition possibly has an explanation, and it possibly has a second explanation that is logically incompatible with the first one'. This alternative weak version is clearly stronger than the weak version as employed by Gale and Pruss. After all, the former entails the latter while the latter does not entail the former. Furthermore, if we accept the alternative weak version, then, indeed, the aforementioned *reductio ad absurdum* succeeds, and therefore the real crucial question now becomes whether opponents of the new cosmological argument of Gale and Pruss are rationally justified to accept the alternative, stronger, weak version of Leibniz's principle. For, if so, the new cosmological argument of Gale and Pruss has to be rejected.

Pruss and Gale are fully aware of this point, and in their response to Almeida and Judisch they provide several reasons for rejecting the alternative version of Leibniz's principle of sufficient reason (2003, pp. 68–71). Pruss and Gale note that, since the alternative version is stronger than the weak version, it is quite reasonable to hold that the weak version they employ is more plausible, that is, more likely, than the alternative version (2003, p. 69). Hence 'the epistemically reasonable thing to do when confronted with a choice between accepting [the weak

version-]based cosmological argument and accepting [the alternative weak version-]based *reductio* of it is to accept the former' (2003, p. 69). I do believe that this reason has some force, but, surely, Pruss and Gale need more reasons to be warranted to reject the alternative version of Leibniz's principle. Another reason they provide is that the alternative version, contrary to the weak version they employ themselves, cannot be 'generalized' to necessarily true propositions, for these propositions, if taken to be self-explanatory, do not have more than one explanation. This fact, as they argue, 'cautions one not to think that there is something about the nature of explanations that ensures that there are always alternative explanations' (2003, p. 71). I agree that, if we assume that all necessary truths are self-explaining, there is some support for preferring the weak version above the alternative one, since, if no necessary truth allows for multiple explanations, the weak version seems to be the most natural of both. However, why should we take it that all necessarily true propositions explain themselves? Surely, within the framework of Gale and Pruss each necessary truth reports the existence of a necessary being or state of affairs (Gale and Pruss 1999, p. 462). And, within their framework, a necessary entity is self-explanatory in the sense that there exists a conclusive ontological argument for its existence. But why should we assume that all necessary entities explain themselves? Why couldn't there be some being or some state of affairs that exists in every possible world *because it is caused in every possible world*? If such an entity exists (let us call it E) and if there are at least two possible worlds for which the causes of E differ, then it is not the case that necessary truths do not have alternative explanations, which would render the appeal to the naturalness of the weak version less convincing. So, after all, to hold that the weak version is more natural than the alternative version is not very persuasive either.

What Pruss and Gale need is a good direct argument against the alternative weak version. In fact, in their response to Almeida and Judisch they present a direct argument, that is, they provide a *reductio* of the alternative weak version of Leibniz's principle (2003, p. 70), which I shall analyze in what follows. It is evident that the alternative weak version, if applied to the Big Conjunctive Contingent Fact of the actual world, entails a logical contradiction. Indeed, if there are two incompatible possible explanations of the actual world's Big Conjunctive Contingent Fact, then both explanations would have to be true in the actual world,[112] which is clearly impossible. Pruss and Gale take this to be a cogent *reductio* of the alternative version. For, suppose the alternative weak version is true, then, if we apply it to the Big Conjunctive Contingent Fact of the actual world, a contradiction arises, and therefore, the alternative version simply cannot be true. This line of reasoning however fails, since an opponent of Gale and Pruss's new cosmological argument could respond that their aforementioned *reductio* is in fact not a reductio of the alternative weak version, but instead, it is a reductio of their premise that the Big Conjunctive

112 This is a direct consequence of the fact that each of these possible explanations is true in some world, and worlds containing the actual world's Big Conjunctive Contingent Fact are in fact equal to the actual world.

Contingent Fact is a proposition! This premise is crucial to the new cosmological argument, and thus, as our opponent could proceed, what their reductio shows is that their new argument is invalid. Now, this response has force, especially if we take into account Gale and Pruss's rejection of Davey and Clifton's reductio of the new cosmological argument. For, as we have seen, Gale and Pruss, in order to refute Davey and Clifton's reductio, argue that it is not to be understood as a reductio of the weak version of Leibniz's principle, but, instead, as a reductio of the assumption that conjunction A*[113] is a proposition (Gale and Pruss 2002, p. 94). In other words, in the case of refuting Davey and Clifton's reductio, when having to decide between giving up a weak version of Leibniz's principle or the idea that some conjunction is a proposition, Gale and Pruss opt for the latter. So, why should we now, in the present case of their own reductio, opt for the opposite? That is to say, why should we this time conclude that we have to give up the version of Leibniz's principle under consideration, here being the alternative weak version? Why not, like they did before, give up the idea that the conjunction at hand, here being the conjunction of all contingently true propositions, is a proposition? Without a good answer to this question, I take it that the response of our opponent indeed has force: Pruss and Gale's reductio of the alternative weak version lacks proper ground. Their 'direct argument' is not cogent.

On the other hand, the direct argument of Pruss and Gale reveals something important. It seems that there is something problematic with considering the alternative weak version of Leibniz's principle as a universal law without any exceptions. For, indeed, the specific case of the Big Conjunctive Contingent Fact is at the very least a problematic case. It is a case for which we do not appear to be justified to apply the alternative weak version of Leibniz's principle. Moreover, Pruss and Gale present two examples of problematic cases for the alternative weak version that are at least as problematic as the case of the actual world's Big Conjunctive Contingent Fact. Their first example appeals to Kripkean origin essentialism: '[The alternative weak version of Leibniz's principle] is incompatible with the Kripkean doctrine that there exist entities whose origin is essential to them. For suppose that it is essential to me that I come from a union of sperm *A* and egg *B*. Then that I exist is explained by *A* and *B* having come together. Moreover, [...] there is no [possible] world in which my existence is explained by a proposition incompatible with the one based on *A* and *B* coming together, and this would be a counter-example to [the alternative weak version of Leibniz's principle]' (2003, pp. 70–71). As a second example they point out that it would be implausible to hold that moral obligations have multiple explanations that are mutually incompatible, since, plausibly, moral values arise from a single source in all possible worlds, being either God, nature or convention (2003, p. 71). Although I consider the first example much more convincing than the second one, I take it that in general we can conclude that, besides many ordinary normal cases

113 As we have seen during our evaluation of the objections of Davey and Clifton, conjunction A* is defined as the conjunction of all contingently true propositions *s* such that not($s \subset s$). That is, conjunction A* is the conjunction of all contingently true propositions that are not a proper sub-proposition of themselves.

to which the alternative weak version could be applied without any problem,[114] there are also at least a number of problematic cases to which the alternative weak version does not apply. So, if the alternative weak version of Leibniz's principle is to have any force, it will only be as a default or exception permitting rule: *Normally*, a contingently true proposition possibly has an explanation, and it possibly has a second explanation that is logically incompatible with the first one. In other words, *in absence of a good reason to think otherwise*, we may infer, about any particular contingently true proposition *s* in some world *w*, that there is a world *w** in which *s* has an explanation *t*, and a world *w*** in which *s* has an explanation that is incompatible with *t*. But, if we grant a defeasible reading of the alternative weak version, then the dialectical situation changes significantly in favor of Pruss and Gale. For, their reductio should now simply be understood as being a reason to maintain that the case of the Big Conjunctive Contingent Fact of the actual world is an exception to the rule. We have a good reason to maintain that the alternative version, being an exception permitting rule, does not apply to the a-typical case of the actual world's Big Conjunctive Contingent Fact, and hence Almeida and Judisch's second objection, that is, the adjusted reductio of Gale and Pruss's new cosmological argument, fails as well.

SUMMARY

We have seen that the main objections as raised by Almeida and Judisch can be cogently rejected. In the next, final, section I shall argue that despite the fact that all objections discussed thus far do not go through, there are a number of yet unnoticed objections that render the new cosmological argument of Gale and Pruss untenable after all.

Further objections

The new cosmological argument consists, following the argumentation scheme provided by Gale and Pruss themselves (1999), of sixteen stages. Earlier in this chapter each of these stages has been described in detail. The first part of their argument comprises seven stages and results in the intermediate conclusion that there is in the actual world a true proposition *q* that explains the Big Conjunctive Contingent Fact *p* of the actual world. The second part of their argument is composed of nine stages and leads to the final conclusion that proposition *q* reports the existence of a necessary being that intentionally and freely brought the universe into existence.[115] Well, up until now, we assessed fifteen objections against the new cosmological argument. Notably, of these fifteen objections no less than twelve are solely directed at the first part of Gale and Pruss's argument, that is, at the derivation of the intermediate conclusion that the Big Conjunctive Fact of the actual world has an explanation.[116] In fact, none of the objections raised by Oppy, Davey and Clifton, and Almeida and Judisch are aimed against the second part of the new argument. All these opponents assail

114 Pruss and Gale mention as an example of such an ordinary case the state of affairs of Smith's briefcase lying on his desk. They argue 'that Smith's briefcase is on his desk is explained by the proposition that he left it there but [is] also possibly explained by the incompatible proposition that his wife left it there' (2003, p. 69). Surely, there are many unproblematic day-to-day cases like this.

115 Gale and Pruss present in their paper further stages to establish that this necessary being is very powerful, intelligent and good. However, as mentioned in the beginning of this chapter, I have left aside these stages since they invoke teleology and theodicies, thus bringing us outside the realm of cosmological arguments.

116 One of these twelve objections is the very first objection discussed in this chapter, that is, the classical Humean objection. Now, to be precise, the classical Humean objection grants that the actual world's Big Conjunctive Contingent Fact *p* is explainable. However, the point of this objection is, as we have seen, that *p* might be wholly *internally* explained, i.e., each of the conjuncts of *p* may be explained by one or more other conjuncts of *p*. Thus, as the objection goes, there is no need to infer an *external* explanation *q* of *p*, contra the intermediate conclusion. In this sense this objection targets the intermediate conclusion as well.

nothing else than the intermediate conclusion. The only objections, three in total, that target the second part of Gale and Pruss's argument are mentioned by Gale and Pruss themselves (1999). These objections are respectively, first, the objection that proposition *q* cannot be a *contingent* truth,[117] second, that *q* cannot truly report the existence of a free *and* necessary being, and, third, that, for all we know, *q* might report that the cosmos is caused by blind *indeterministic* mechanical causation.

Apparently non-theistic opponents of the new cosmological argument are so averse to the idea of there being some explanation *q* of the Big Conjunctive Contingent Fact of the actual world, that they fully fixate on trying to reject this intermediate conclusion, thus focusing entirely on just the first part of Gale and Pruss's argument, and hence brushing aside its second part, which infers that the explanation *q* in question reports there being a free necessary entity causing the cosmos. Indeed, the eagerness to distrust *any* candidate explanation of the universe, regardless of its specific content, is quite obvious from what for example Oppy states in his rebuttal of the new cosmological argument: 'While there are things to contest in [the second part of Gale and Pruss's argumentation], it seems to me that most nontheists *will not be happy with* [italics mine] the claim that there is an explanation for the [Big Conjunctive Contingent Fact] of the actual world; in any case, my aim is just to object to the argument to this conclusion' (Oppy 2000, p. 346). And, Davey and Clifton also notice as part of their refutation of the new argument: '*Our main interest* [italics mine] is not in the philosophy of science and religion steps of [Gale and Pruss's new cosmological argument], but rather the logical and metaphysical assumptions underlying [the first steps of this argument]' (Davey and Clifton 2001, p. 486). Yet, as we have seen, all discussed attempts to reject the first part of Gale and Pruss's argument have failed.[118] Now, in what follows I shall show that Gale and Pruss's cosmological argument can be refuted after all *if* we provisionally grant there being some explanation *q* of *p* and subsequently shift our attention to some unnoticed weaknesses involving the neglected second part of their new cosmological argument. I do this by proposing two objections to Gale and Pruss's argument that address these weaknesses and that I take to be cogent.

THE POSSIBILITY OF AN INFINITE DOWNWARD REGRESS WITHIN THE PROPOSITION Q IS NOT EXCLUDED

Stage (7) of Gale and Pruss's new cosmological argument establishes the existence of a proposition *q* that explains the actual world's Big Conjunctive Contingent Fact. Now, as we saw, the argument proceeds with the claim that proposition *q* is either a personal or a scientific explanation. Gale and Pruss hold that *q* cannot be a scientific explanation since *q*, if contingent, would have to explain itself[119] whereas scientific laws, according to Gale and Pruss, are contingent but *not* self-explaining. Well, I surely agree that scientific laws, if contingent, are not self explaining, since within Gale and Pruss's formal framework a

117 It should be noted, though, that, although Almeida and Judisch (2002) do not specifically object to *q* being contingent, in their reductio ad absurdum of Gale and Pruss's argument they make use of the fact that according this argument *q* is in fact contingently true. They need this fact in order to start-up their reductio.

118 Surely, for that matter, the aforementioned three objections that *do* focus on the second part of Gale and Pruss's new cosmological argument also have to be rejected, as I argued for earlier in this chapter as well.

119 Indeed, *q* is an explanation of the conjunction of all contingent truths, and thus, since Gale and Pruss take explanation to be dissective, *q* also explains each individual contingent truth, including *q* if *q* is contingent.

proposition that explains itself is either a (self-evident) necessary truth, or the report of a libertarian free action (which applies to personal, not scientific, explanations). However, there seems to be no reason to hold that all scientific laws are contingent. Why couldn't there be some final scientific theory, i.e. 'a theory of everything', that consists of one or more necessarily true scientific laws? Perhaps the universe we inhabit is just one of many universes that together comprise a single multiverse governed by one or more necessarily true scientific laws. Moreover, perhaps these necessary laws imply that each of the individual universes inherits some specific collection of natural laws. This would explain why the natural laws ruling our universe appear to be contingent. Or, as another option, perhaps the scientific laws known to us are not the most basic laws governing the universe. Perhaps there are much more fundamental, necessarily true, laws that ultimately govern the universe and that conclusively explain all seemingly arbitrary aspects of the scientific laws we today appeal to, such as the seemingly arbitrary values of the cosmological constants. However, I shall not further pursue this criticism. Let us for now grant that all scientific laws are contingent. In that case, indeed, as mentioned, it follows that proposition *q* cannot be a scientific explanation. Thus *q* must be a personal explanation.[120] Now, the problem I want to point to occurs at stage (11) of Gale and Pruss's argumentation. They maintain that a personal explanation allows for only two options: either *q* reports the intentional action of a contingent being or *q* reports the intentional action of a necessary being. Yet, as I already mentioned earlier in this chapter, I do not believe that these two options exhaust the possibilities of what could count as a personal explanation. Perhaps, one could argue that these two options exhaust the possibilities of a *one*-person explanation, but there is no reason at all why we should exclude there being *many*-person explanations. I take this to be a quite fundamental point. Remember that the framework of Gale and Pruss allows for infinite propositions, that is, propositions consisting of infinitely many conjuncts, and it seems to me that *q*, being the explanation of the Big Conjunctive Contingent Fact, which is plausibly an infinite proposition, could very well be an infinite proposition itself. For example, why couldn't there exist infinitely many necessarily existing persons $\{P_n\}_n$ such that person P_1 intentionally brought the universe into existence, P_2 intentionally and necessarily[121] brought P_1 into existence, P_3 intentionally and necessarily brought P_2 into existence, P_4 intentionally and necessarily brought P_3 into existence, and so on, ad infinitum? In this case we do have a multi-person explanation, and thus a personal explanation, of the universe at our disposal that doesn't meet stage (11). One might object that necessarily existing persons cannot be caused. But, as I argued earlier, there is no reason at all to maintain that there couldn't exist some being that exists necessarily because it is caused in each and every possible world. The only remaining way to exclude such multi-person explanations might be to notice that they imply there being an infinite downward regress of causes, which violates our basic intuitions.

120 Note that I already conceded earlier in this chapter that, plausibly, there are no more than two different types of explanation, being 'scientific explanations' and 'personal explanations'. Therefore, if *q* is not a scientific explanation, then we may indeed reasonably conclude that *q* must be a personal explanation.

121 In order to count as a coherent explanation it is required to maintain that P_1 is *necessarily* brought into existence by P_2. For, if not, P_1 would be a contingent being, and therefore part of the universe. Now, since P_1 brought the universe into existence it would follow that P_1 brought itself into existence, which is absurd: no contingent being can be its own originating cause. The same holds for all other persons in the collection $\{P_n\}_n$. Note that to derive (12) from stage (11) of their argument Gale and Pruss make a quite similar point.

However, this does not seem to be sufficiently convincing, since an infinite downward regress of causes might be possible, even though it is hard for us to conceive. Besides, and more importantly, such a move would imply that Gale and Pruss's new cosmological argument is no improvement over the mediaeval cosmological argument of Aquinas, that is, 'the second way' of his 'Five Ways' in *Summa Theologiæ*, which, as shown in an earlier chapter, ultimately also relies on nothing more than the implausibility of an infinite regress of causes. Therefore, an appeal to the intuitive impossibility of an infinite downward regress of causes is not an option for Gale and Pruss. Their goal is to provide an improved cosmological argument that does not rely on the implausibility of an infinite downward regress of causes.[122] This is quite relevant because most (if not all) non-theists do not accept the absurdity of such a regress. Indeed, there would be no need at all for an improved cosmological argument if non-theists would agree that one could reasonably exclude there being an infinite regress. For in that case (a slightly improved version of) the second way of Aquinas would suffice to convince non-theists. So, to conclude, we have to reject stage (11) and therefore also the subsequent five stages of Gale and Pruss's new cosmological argument.

122 And, of course, as discussed earlier, they also intend their new cosmological argument to be an improved version of the traditional Leibnizian cosmological argument, which is based on Leibniz's famous principle of sufficient reason. That is why Gale and Pruss's argument, as they have argued, appeals to a much more convincing version of Leibniz's principle, being the claim that every truth *possibly* has an explanation.

A BEING THAT BRINGS ALL CONTINGENT THINGS INTO EXISTENCE ITSELF VIOLATES LIBERTARIAN THEORY

At stage (14) of their new argument Gale and Pruss conclude that *q* is contingent. They argue that *q* entails proposition *p*, so that, if *q* would be necessarily true, it would follow that *p* reports a necessary truth as well, which is impossible since proposition *p*, being the actual world's Big Conjunctive *Contingent* Fact, is by definition a contingent truth. But why do Gale and Pruss hold that *q* logically entails *p*? It is not the case that they contend that logical entailment is a necessary condition for explanation. For the formal framework of concepts and principles that they deploy to get their argument does not presuppose, nor requires, that the explanans of each explanation logically entails its explanandum. Indeed, as we have seen, Gale and Pruss provide a specific argumentation for their claim that *q* logically entails *p*: '[...] *q* entails *p*, since that a necessary being intentionally brings it about that *p*, entails that *p*' (Gale and Pruss 1999, p. 467). Now, as I mentioned earlier, their argumentation is quite problematic. Apparently Gale and Pruss hold that proposition *p* is part of *q*, so that *q* is to be rendered as: 'There is a necessary being that intentionally brought it about *that p*'. In other words, the necessary being *itself* brought into existence all contingent states of affairs verifying *p*. But this conflicts with the Libertarian theory of free will, as adopted by Gale and Pruss for their argument, because, under this theory, the products built by craftsmen, or the artworks created by artists, are contingent things that have been brought into existence *by those people* (due to their free will) instead of by the necessary being as reported by *q*. So, the only way to render stage (14) valid is to assume that humans do not have free will, but are just

unconscious mechanical products of the necessary being that *q* reports. This is surely something that Gale and Pruss would not be prepared to accept, since they both take it that human beings are libertarian free creatures. As a consequence, their derivation of stage (14) does not go through, and thus their new cosmological argument is not sufficiently convincing after all.

Yet, one might want to refute this objection by invoking a distinction, proposed by Alvin Plantinga, between strong actualization and weak actualization (Plantinga 1974, pp. 172–173). Thomas P. Flint explains this distinction in the following way: '[The phrase] "bring about" can be given (at least) two rather different meanings. On the one hand, we can be said to bring about that which we directly cause; on the other hand, we can be also be said to bring about those states of affairs which result, albeit not with causal necessity, from situations which we directly cause' (Flint 1998, p. 110). He also gives an example to illustrate the difference: 'It was [...] in the first of these senses that Henry II brought it about that he uttered the words, "Will no one rid me of this turbulent priest?"; it was [...] in the second of these senses that Henry could be said to have brought about the death of Thomas Becket [who was killed by four knights who freely reacted to Henry's words]. To use the terminology introduced by Plantinga, Henry may have *strongly actualized* his pronouncing those words, but he only *weakly actualized* Becket's death' (Flint 1998, p. 111). In other words, strong actualization of the state of affairs X by agent S refers to the activity of agent S that directly determines the obtaining of X, while weak actualization refers to the activity of S that places one or more free creatures in circumstances in which they freely cause X. Now, as the response would continue, in order to ensure that Gale and Pruss's argument is compatible with libertarian free will, proposition *q*, rendered as 'There is a necessary being that intentionally brought it about *that p*', is to be interpreted as: 'There is a necessary being that intentionally weakly actualizes a contingent state of affairs verifying *p*'. This interpretation of *q* meets Gale and Pruss's requirement that *q* logically entails *p*, for, that a necessary being intentionally weakly actualizes a contingent state of affairs verifying *p*, entails that *p*. Moreover, as the response goes, this specific interpretation of *q* allows for there being creaturely libertarian free agents, created by the necessary being referred to by *q*, whose free activity, together with the free acts of the necessary being, results in the obtaining of the state of affairs verifying *p*. Hence, indeed, as the response concludes, the aforementioned interpretation of *q* ensures that Gale and Pruss do not have to give up the idea that humans are endowed with free will, which forces us to reject the objection that their argument doesn't allow for human free will.[123] Nevertheless, I do not find this response convincing. In what follows I shall explain why.

Let us grant that we should indeed interpret *q* as the report that there is a necessary being that intentionally weakly actualizes a state of affairs

123 The response I discuss here was suggested to me by Jeroen de Ridder.

verifying *p*. Now, the premises of the Gale and Pruss's argument imply that proposition *q* is a *personal* explanation instead of some impersonal scientific one. Because of this the *intentionality* of the necessary being in question is crucial. It is not just the case that some necessarily existing entity produced unintentionally and wholly arbitrarily some agents whose free choices just happened to result into a contingent state of affairs verifying *p*. For, such a course of events would not be a genuine case of *intentionally* actualizing *p*. In order for *q* to be a genuine *personal* explanation, the necessary being as reported by *q* must therefore have had *p* in mind as a goal. Indeed, it actualized *p intentionally*. Its aim was precisely to actualize *p* and not something else. From this observation it follows that what proposition *q* is in fact saying is that there is a necessary being A that intentionally creates a collection of free agents B and circumstances C *such that* the free acts of A and B together result in a contingent state of affairs verifying *p*. But how was this necessary being able to do that? How did this being succeed that *p* and only *p* was actualized instead of something else? The only way seems to be that the necessary being in question has so-called 'middle knowledge'.

Now, the notion of middle knowledge was introduced by the sixteenth century theologian Luis de Molina.[124] It holds that God knows truths about how any individual person would freely act in any situation, if that person would be placed in that situation. More precisely, to say that God has middle knowledge is to say that God has knowledge of all true counterfactuals of creaturely freedom, that is, of all counterfactuals of the form 'If creaturely essence P were instantiated in [...] circumstances C [...], the instantiation of P would (freely) do A' (Flint 1998, p. 47). Note that each true counterfactual of creaturely freedom is a contingently true proposition. Indeed, although God knows that person P would do X in circumstances Y, it is still true that P is free in Y not to do X, that is, the state of affairs of P not doing X in Y is metaphysically possible. There is a metaphysical possible world in which P is not doing X in Y. Also, the true counterfactuals of creaturely freedom are not under God's control. Thus, God's middle knowledge limits His creative options. Due to God's middle knowledge, there are universes that God cannot actualize. In other words, there are universes that are metaphysically possible but nevertheless not feasible for God to bring about. Therefore, to specify God's middle knowledge amounts to specifying which metaphysically possible universes are feasible for God to actualize. In the specific case of Gale and Pruss's new argument, if we assume that the necessary being reported by *q* has middle knowledge, then, indeed, the necessary being is able to intentionally create a collection of free agents B and circumstances C such that the B's free actions, together with the necessary being's free actions, result in a state of affairs verifying *p*, thus reconciling Gale and Pruss's argument with human free will. But, this doesn't mean that the response to the objection is convincing. For, first, it relies on the presumption that the necessary being has middle knowledge, which is a quite drastic and rather controversial assumption.

124 See Flint (1998) for a solid development and defense of the Molinist account of middle knowledge.

In any case, the invocation of middle knowledge seems to be a much too strong premise for a cosmological argument to rely on, especially if we take into account that Gale and Pruss's aim is to establish a new cosmological argument based on *weaker* premises than the traditional arguments. Second, I take it that the whole concept of middle knowledge is not sufficiently tenable. For, how could the necessary being, or for that matter, God, a priori know what some agent will freely do in a specific situation? If that agent is truly free, then it is really finally up to the agent itself what to do, and there just isn't something for God to know upfront about what that free agent will freely do in those circumstances.

Moreover, I propose the following argument against middle knowledge. Let us suppose that Molinism holds. In that case, there is at least one true counterfactual of creaturely freedom, that is, it is true that subject S in circumstances C will freely perform action A. Let us denote this true counterfactual by {S, C, A}. Now, since {S, C, A} is true, S will in fact perform A in C. Yet, since S is a libertarian free agent, S *could have decided* not to do A in C. Thus S could have brought it about that {S, C, A} is false. Hence, S could have brought it about that {S, C, A} is true and false.[125] In other words, although S will not do A in C, S still had the power in C to do A. But this is impossible. Nobody, free or not, can ever be in a position to bring it about that a logical contradiction obtains. There just aren't situations in which an agent would be capable of realizing a logical contradiction, even if that agent never uses this alleged power. Therefore we have to conclude that our original assumption that Molinism holds is not cogent. Middle knowledge is untenable.

Based upon the above considerations, I conclude that the proposed refutation is not convincing. Thus, the objection that Gale and Pruss's new argument cannot be reconciled with human free will remains cogent, until a more convincing rejection of it is proposed.

Closing remarks

As we have seen all objections mentioned by Gale and Pruss are already properly refuted by themselves or can be cogently refuted if we take some further considerations into account. The classical Humean, Kantian and Russellian objections to their argument do not go through either, and the same is true of the main contemporary objections from Oppy, Davey and Clifton, and Almeida and Judisch. Yet, I showed that there are two strong objections against Gale and Pruss's cosmological argument. In the next chapter I turn to a detailed assessment of the various cosmological arguments of J. Rasmussen.

125 Note that the following modal-logical principle is applied here. If proposition X is true, and if agent S has the power to bring it about that proposition Y is true, then S has also the power to bring it about that the conjunction of X and Y is true. Indeed, {S, C, A} is assumed to be true, and S has the power to bring it about that {S, C, A} is false, so that the principle entails that S has the power to bring it about that the conjunction of {S, C, A} and the negation of {S, C, A} is true, that is, that {S, C, A} is both true and false.

v Cosmological arguments of Rasmussen

Introduction

As we have seen in the previous chapter, Gale and Pruss (1999) arrive at a new cosmological argument by turning Leibniz's principle of sufficient reason, that is, the principle according to which every contingent truth *actually* has an explanation, into a weaker version, holding 'only' that every contingent truth *possibly* has an explanation. Their reason for doing so, as discussed, is that, due to the objections raised, amongst others by Peter van Inwagen (1983), Leibniz's principle has become quite controversial for many nontheists, such as for example Oppy (2000). Yet, as I explained in the chapter on the traditional cosmological arguments of Aquinas and Leibniz, there is a *restricted version* of Leibniz's principle that is, as I showed, not vulnerable to Van Inwagen's criticism. This restricted version is, as we saw, the principle according to which every contingent concrete object actually has a cause for its existence. Hence, the restricted version merely claims that contingent *concrete objects* have originating causes, not that all contingent *truths* have explanations. Now, recently Joshua Rasmussen has proposed a renewed cosmological argument for the existence of a concrete necessary being (Rasmussen 2010a, pp. 183–194). His point of departure, as I understand it, is to do the same to the restricted version of Leibniz's principle as Gale and Pruss did to Leibniz's principle itself, that is to say, Rasmussen turns the restricted version of Leibniz's principle into the following weak version: every contingent concrete object *possibly* has a cause. From this weak restricted version he develops a path to a cosmological argument that I shall refer to as *the argument from a maximal contingent state of existence*. And moreover, Rasmussen has proposed three additional alternative paths to the existence of a concrete necessary being, which I shall examine in this chapter as well (Rasmussen 2010a, pp. 194–196; 2010b).

126 Rasmussen often omits the adjective 'abstract' when talking about abstract states of affairs. Similarly, in what follows, I shall use the phrase 'state of affairs' as a short-hand for 'abstract state of affairs'.

The argument from a maximal contingent state of existence

Background framework

The main argument for the existence of a concrete necessary being that Rasmussen develops assumes a metaphysical framework. Central to this framework is the existence of 'abstract states of affairs that can obtain or fail to obtain' (Rasmussen 2010a, p. 183).[126] For example, *that Paris is the capital of France* is an abstract state of affairs that obtains, and

that Paris is the capital of Italy is an abstract state of affairs that fails to obtain. In general, as becomes apparent from Rasmussen's paper, a state of affairs is taken to be comprised of one or more concrete objects, and, optionally, of some of their properties or interrelationships. Further, the framework includes the conception of 'possible world', which is defined by Rasmussen in the following way: 'A possible world W is a state of affairs such that for every possible state of affairs, W either entails it or its complement' (2010a, p. 184).[127] This definition gives rise to two worries. First, the definition refers explicitly to *possible* states of affairs. Now, this may seem to suggest that according to Rasmussen there are also *impossible* states of affairs. But, what is the meaning of these types of states of affairs? It seems wholly unfeasible to provide a definition of both sorts without assuming a prior understanding of the notion of possible world. And this, if true, renders the definition circular. Now, in fact the adjective 'possible' in the definition is redundant. It does not do any work. Indeed, Rasmussen's framework is premised on a fixed given collection of abstract states of affairs and hence the adjective 'possible' can simply be removed from the definition. As a second worry, the definition takes it that *each* abstract state of affairs has a complement. Yet, Rasmussen does not provide a definition of the complement of a state of affairs. Does he assume that the complement of a state of affairs is itself a state of affairs? So, for example, are we supposed to assume that the complement of the state of affairs *that Paris is the capital of France* would be the state of affairs *that Paris is not the capital of France*? But, one might ask, could the latter really be a structural element of reality? Therefore, to avoid the objection that negative states of affairs are 'just unwarranted reifications' Rasmussen would have to introduce and defend a thorough conception of negative states of affairs, and this he does not do in his paper. Now, surely, Rasmussen could argue that the complement of a state of affairs is not a single state of affairs, but instead a whole range of states of affairs. For example, the complement of the state of affairs *that Paris is the capital of France* would be a collection including states of affairs such as *that Paris is the capital of Italy*, *that Nice is the capital of France*, and many more. Such a move would suffice to avoid the aforementioned objection. Nevertheless, without providing a proper definition of the complement of a state of affairs Rasmussen's reference to complements of states is unfounded. Still, this second worry can be resolved if we modify the definition as follows: A possible world W is an abstract state of affairs such that for every abstract state of affairs S, the proposition that W obtains either entails that S obtains or that S does not obtain.[128] This definition does not contain any reference to complements of states of affairs anymore. In what follows I shall assume this definition.

Rasmussen leaves the notion of 'obtainment' undefined. It is one of the primitive terms of his metaphysical framework. Instead of saying that an abstract state of affairs *obtains* [does not obtain] one could also say that that state of affairs *is actual* [non-actual]. The framework also

127 One might wonder how one state of affairs can entail another state of affairs. It seems that, according to Rasmussen, state of affairs X entails state of affairs Y if and only if the proposition that X obtains entails the proposition that Y obtains, which I take to be a cogent definition of entailment between states of affairs.

128 Note that in this formulation a direct reference to entailment between states of affairs is avoided. Instead the definition of entailment between states of affairs, as mentioned in the previous footnote, is invoked.

includes the notions of necessary and contingent state of affairs. Here Rasmussen adopts the well-known characterizations, that is, state of affairs X is *necessary* if and only if X exists in all possible worlds, and, state of affairs X is *contingent* if and only if X exists in some but not all possible worlds (2010a, p. 184). In these definitions 'existence' is a two-place predicate. It takes a state of affairs and a possible world as its arguments: state of affairs A *exists in* world B. Conversely, 'obtainment' is a one-place predicate, taking a state of affairs as its argument: state of affairs A *obtains*. So, in Rasmussen's framework the notion 'existence' is, contrary to that of 'obtainment', always relative to a possible world. Rasmussen's metaphysical framework further presumes that causal interactions are relations between obtaining states of affairs. Thus, we can speak about some obtaining state of affairs S having a cause or a causal explanation (Rasmussen 2010a, p. 184). One final characteristic of Rasmussen's background framework that needs to be mentioned is that it includes S5 modal logic, most importantly the modal axioms that 'if it is possible that it is necessary that P, then it follows that it is simply necessary that P', and, 'if it is necessary that P, then it is necessary that it is necessary that P' (Rasmussen 2010a, p. 184). With these remarks we are now in the position to follow the path of Rasmussen to his cosmological argument for the existence of a concrete necessary being.

The argument

As mentioned Rasmussen's first steppingstone is to posit the principle that each contingent concrete object *possibly* has a cause that accounts for its existence. This principle is indeed rather intuitive. Rasmussen states: '[It] can be supported by reflecting upon familiar concrete objects. Consider, for example, your favorite armchair. Surely the armchair's existence *can* be the result of causal factors, such as a craftsman or factory machine piecing together materials [...]. The principle seems to apply to very small objects, too: neutrinos, for example, can be produced from proton collisions in a particle accelerator. It is natural to generalize: [...] any contingent concrete object can have a cause' (2010a, p. 185). Rasmussen notes that, assuming Kripkean origin essentialism, this principle entails the stronger and more controversial thesis that each contingent concrete object *actually* has a cause. For, 'Kripke's doctrine [...] implies that necessarily, if a [concrete contingent] object has *no* cause, then it *cannot* have a cause (if having no cause is a kind of origin)' (2010a, p. 185). And this, indeed, would directly contradict the principle that concrete contingents are possibly caused. However, in what follows Rasmussen does not adopt Kripke's view that objects have their origin essentially. Further, Rasmussen readily acknowledges that perhaps the principle might fail for concrete objects that are radically different from 'ordinary concrete particulars' such as armchairs and neutrinos. Therefore, in order to avoid the objection that there is no ground to accept the principle as a universal rule, he opts for a defeasible reading of it: *Normally*, if X is a

contingent concrete object, then, *possibly*, X is caused. In other words, we are justified to apply the principle in a given case; unless there is a good reason for holding that the case in question is in fact an exception to the rule. Take for example the uncaused contingent that I constructed in the chapter on the traditional cosmological arguments of Aquinas and Leibniz. In order to arrive at a case that is an exception to the default rule that concrete contingents are possibly caused, I shall slightly modify that example below, while limiting myself to a brief sketch. Those who would like to work out the modified example in its full detail should refer back to the details I provided in the aforementioned chapter. Now, consider some contingent concrete object *F* that is essentially composed of two parts, F_1 and F_2, such that, essentially, one of these parts, say F_1, is the originating cause of the other part, F_2. In that case, object *F* is uncaused in every possible world in which *F* exists. For, suppose to the contrary that object *F* is caused in some possible world *W*. Now, plausibly, the cause of F_2 is a part of the complete cause of *F* since F_2 is one of the caused parts of *F*. But F_1 is the cause of F_2. Hence F_1 is a part of the complete cause of *F*. Surely F_1 is a part of *F* as well. Thus, the cause of *F* and *F* itself are not disjoint, which contradicts the prima facie evident thesis that causes and effects must be separate existences,[129] that is to say, do not overlap. So we must conclude that the assumption that *F* is caused in *W* is false. In other words, there simply is no possible world in which object *F* is caused, and hence *F* is necessarily uncaused. We conclude that the case of *F* is a situation for which the principle that concrete contingents are possibly caused does not hold. Rasmussen is thus quite right to limit himself to a defeasible reading of this principle. Due to cases like that of object *F* it follows that the principle he adopts is warranted as a default rule only.[130]

The next step in Rasmussen's pathway is to combine his basic principle with the premise that it is possible that there is a concrete object that cannot have a cause, thus arriving at an argument for there being a necessary being that goes back to Duns Scotus (2010a, p. 186):

(1) Possibly, there is a concrete object that cannot have a cause (premise),
(2) Every contingent concrete object, possibly, has a cause (premise),
(3) There is a necessary concrete object.

The logical derivation of this Scotistic cosmological argument is straightforward. According to the first premise there is a possible world that contains an object, say A, being uncaused in every possible world in which it exists. Now, due to the second premise, object A cannot be a contingent object. After all, every contingent object is caused in at least one possible world. Therefore, A is a necessarily existing object. Object A exists in all possible worlds, including the actual world.[131] Both premises of this argument seem sufficiently plausible and, moreover, together they already entail the conclusion that Rasmussen is looking

129 The Humean principle that cause and effect must be separate existences is to be understood as the claim that the originating cause of the coming into being of an object is mereologically disjoint with that object.

130 Those who contend that there are abstract objects, i.e. objects that cannot enter into causal relations, might argue that, in addition to necessarily uncaused *concrete* contingents, there are cases of necessarily uncaused *abstract* contingents. A putative example of such an abstract object is discussed by Peter van Inwagen (Van Inwagen 2009, p. 6). He considers the proposition *that Alvin Plantinga is an able philosopher*. According to some philosophers, as Van Inwagen explains, this proposition, understood as being an abstract object that exists (and is true) in the actual world, has Alvin Plantinga itself as one of its essential components or constituents. And therefore, according to those philosophers, this proposition would not exist in those worlds in which Alvin Plantinga does not exist, making it an example of a necessarily uncaused abstract contingent.

131 Note that here we implicitly appeal to the earlier mentioned S5 modal axiom that *if it is possible that it is necessary that P, then it is necessary that P*. The specific instance appealed to here would be that if some object, in our case object A, exists necessarily in some possible world, then it exists in all possible worlds.

for, namely, that there exists a concrete object in the actual world that exists necessarily. And in fact, the conclusion of the argument is even stronger, for, since A is both necessary *and* necessarily uncaused, the conclusion of the argument is not 'just' that there exists actually a necessary being, but that there exists actually a necessary being *that is uncaused in each and every possible world*. So, is *this* the cosmological argument Rasmussen's pathway arrives at? Is it this argument that he ultimately intends to defend? No, this is not the case, for Rasmussen is simply not willing to accept premise (1). He argues: 'Can we *just see* that it is possible for there to be an object that cannot have a cause, or do we merely fail to see that it is impossible? If we can just see that such an object is possible, it seems that we should just as easily be able to *just see* that the non-existence of such an object is possible, too' (2010a, pp. 186–187). Now, let (1*) be the premise that it is possible for there not to be an object that cannot be caused. Given premise (2), if premise (1*) would be true, that is, if there would be a possible world in which there is no object that cannot have a cause, then premise (1) cannot be true, since (1) and (2) together entail, as we have seen, that there is a necessarily existing object, i.e. an object existing in all possible worlds, which cannot have a cause. So, given (2), if (1*) is true, and thus (1) false, the above Scotistic argument needs to be rejected. But, given (2), if (1) is true, and thus (1*) false, the conclusion Rasmussen is looking for follows. Moreover, as Rasmussen points out, 'neither one [(1) nor (1*)] seems more evident *prima facie* than the other' (2010a, p. 187). In other words, we have arrived at the epistemic situation of equipollence. Hence, the pathway to the conclusion that there actually is a necessary being has not been completed yet.

Before I continue with the pathway Rasmussen is following I would like to notice a rather significant point. At some stage of his evaluation of the Scotistic argument Rasmussen states the following: '[1*] says that the non-existence of a necessarily uncaused concrete object is possible. It follows that the non-existence of a necessary concrete object is *possible*. Now if the non-existence of a necessary concrete object is *possible*, it then follows that there *isn't* a necessary concrete object [...]' (2010a, p. 187). This reasoning relies on a hidden premise. For how is it supposed to follow from (1*) that the non-existence of a necessary concrete object is possible? This would only follow if we assume that all necessary objects are necessarily uncaused. But why should we assume that? Why couldn't there be a necessary object that is caused in all (or some) possible worlds? Indeed, as Peter van Inwagen points out: 'Does 'x exists necessarily' entail 'x is uncreated'? Anyone who said that this entailment held would be contradicted by Richard Swinburne, if by no one else. For Swinburne holds that the Son and the Holy Spirit are necessarily existent beings who were created [...] by the Father. Revealed theology aside, one might point out, simply as a matter of abstract logic, that if A exists necessarily, and if it is a necessary truth that if A exists, then A creates B, it follows that B exists

necessarily' (Van Inwagen 2009, p. 5).[132] So, the claim that necessary objects are necessarily uncaused is groundless, unless good reasons for it are provided. Nevertheless, Rasmussen seems implicitly to rule out the possibility of caused necessary objects.[133] For him necessary objects are necessarily uncaused.[134] And in fact, it seems to me that this is precisely why for Rasmussen the conclusion that there exists a necessary being is relevant for natural theology. For, a necessary being, *if uncaused*, would be a good candidate for an ultimate first cause: God. But, once we realize ourselves that *being necessary* does not necessarily entail *being necessarily uncaused*, one might start to wonder whether Rasmussen's quest for a good argument for the existence of a necessary being is really helpful to support theism over a-theism, as he seems to be thinking. For, surely, God, if anything, is uncaused,[135] and therefore an argument for a necessary being that does *not* entail this necessary being to be uncaused cannot be sufficient to defend theism. Similarly, any adequate *natural* account of necessarily existing things, that is to say, any plausible conception of 'necessary existence' according to which specific *natural* things can be said to exist necessarily, renders each argument for the existence of a necessary entity useless as evidence for theism, unless it establishes certain 'theistic features' of this entity, such as being the first cause of the cosmos, or, perhaps, being a person endowed with libertarian free will and enormously powerful causal powers. For now I shall leave these considerations for what they are, and I will proceed with my evaluation of Rasmussen's pathway to a cogent cosmological argument for there being a necessary being. Later on in this chapter I shall address the question of whether the cosmological argument Rasmussen arrives at entails a necessary being having enough 'theistic features' to render his new cosmological argument relevant for the project of natural theology.

The next step for Rasmussen is to hold on to his basic principle, that is, *normally*, if X is a contingent concrete object, then, *possibly*, X is caused, and to generalize this principle to arbitrary *collections of* concrete contingent objects. For that, Rasmussen defines the notion of a contingent state of existence. A contingent state of existence is 'a possible state of affairs of certain contingent individuals, the *c*'s, existing' (2010a, p. 189). Rasmussen uses the term 'individual' as a synonym for 'concrete object'. Hence, a contingent state of existence is any possible collection of concrete contingent objects, i.e., any collection of concrete contingent objects that exists in at least one possible world. For example, if A, B and C are contingent concrete objects that jointly exist in some possible world, then {A, B, C} is a contingent state of existence. But if there is no possible world in which A, B and C all exist together, then {A, B, C} is not a contingent state of existence, even though A, B and C are contingent objects. This definition enables Rasmussen to formulate his generalized principle, which I refer to as principle (3): *Normally*, if S is a contingent state of existence, then, *possibly*, S is causally explained (2010a, p. 189). Now,

132 Yet, Peter van Inwagen also maintains that he is 'inclined to think that "x exists necessarily" does entail "x is uncreated"', but then he immediately continues by saying that he will 'not use this thesis as a premise because it is controversial and [he knows] of no very interesting argument for it' (Van Inwagen 2009, p. 5).

133 Although his assumption is unfounded, it does not influence the fact that the earlier discussed Scotistic argument brings us in a situation of epistemic equipollence. For, my brief explanation above of how this equipollence arises does not depend on the assumption that all necessary objects are uncaused. In that sense one can consider my explanation as a minor correction of the explanation provided by Rasmussen himself.

134 Note that premise (2) is equivalent to the premise that all necessarily uncaused objects are necessary. But, of course, from this the *opposite* claim, that is, the claim that all necessary objects are necessarily uncaused, does not follow. Therefore, as mentioned, to justify one's commitment to the truth of the opposite claim, one needs to argue for it, and this is something that Rasmussen does not do in his paper.

135 The property of *not being caused by something else* is an essential part of every adequate conception of God. For, if God would be caused by some other entity, then that other entity would be ontological prior to God. Moreover God would be ontologically dependent on that other entity, i.e. without that other entity God would not exist. Because of both reasons the cause of God would be more adequately called God than God itself, which is absurd. Indeed, traditionally, created gods have a specific name. They are called *idols*.

136 It may be assumed that Rasmussen holds that the object external to S is also a *concrete* object. For else, as becomes clear shortly, Rasmussen's pathway never leads to a *concrete* necessary being, which is what he promised to get to at the beginning of his journey. Still,

what does it mean for the obtaining of a contingent state of existence to have a causal explanation? The definition Rasmussen provides is as follows. The obtaining of a contingent state of existence S is causally explained if and only if 'for every concrete object *x* in S, *x*'s existence [has] a cause, and for at least one concrete object in S, its existence [...] is caused by (the activity or presence of) an object not in (that is, external to) S' (2010a, p. 188).[136] So, to say that a contingent state of existence is possibly caused[137] is to say that, possibly, each concrete object in it is caused and, moreover, one of them has a cause outside of the contingent state of existence. Thus, while Rasmussen allows for there being contingent states of existence having no causal explanation, or having a causal explanation that is entirely internal to itself, he claims that it is at least *possible* that a contingent state of existence has a causal explanation involving an external cause. This seems prima facie indeed sufficiently plausible to accept as a causal principle. However, I will have a bit more to say about it in the remainder of this chapter. Principle (3) is, as Rasmussen maintains, a relatively modest causal principle, or at least, as he holds, it is more modest than the causal principles deployed by Richard Gale and Alexander Pruss (1999, pp. 461–467) and Robert Koons (1997, pp. 193–212). For Gale and Pruss's causal principle applies to contingent states of affairs *in general*, whereas Koons' causal principle states that each wholly contingent state of affairs is *actually* caused (2010a, pp. 189–190). Moreover, as Rasmussen explains, principle (3) is more modest than the causal principle of the Kalam cosmological argument according to which whatever that begins to exist has a cause. For, principle (3) allows for there being uncaused beginnings (2010a, p. 190). After all, this principle only implies that contingent states of existence that began to exist are *possibly* caused, not that they do in fact *actually* have a causal explanation. Hence (3) seems indeed the most modest causal principle thus far.

The next step in Rasmussen's path to a concrete necessary being is the notion of a maximal contingent state of existence. A maximal contingent state of existence is a contingent state of existence that entails every contingent state of existence compatible with it (2010a, p. 191). It is not entirely clear what Rasmussen means with 'being compatible with' in this context. I take it that, in general, the relation '... is compatible with ...' is a relation between states of affairs, and that state of affairs X is compatible with state of affairs Y if and only if there is a possible world W in which both X and Y exist, that is, it is possible for X and Y to obtain together. From this it follows that a contingent state of existence S is maximal if and only if S contains all contingent objects in those possible worlds in which S exists.[138] In what follows I shall denote this characterization of being a maximal contingent state of existence with (4).

Now, after the aforementioned steps, Rasmussen completes his path to a necessary concrete object by presenting a new cosmological argument

we could ask ourselves why we should take this external object to be a *concrete* object. Couldn't this external object be in some cases, for all we know, an abstract object? Most likely Rasmussen would respond by saying that abstract objects are causally inert: they cannot cause anything. But then the reader is referred to my remarks on causation by abstract objects.

137 Surely, 'being caused' is an ontological notion and therefore not equivalent to the epistemological notion of 'having a causal explanation'. Yet, in the case of states of affairs, I shall occasionally use the phrase 'is caused' merely as a linguistic short-hand for 'has a causal explanation'.

138 It is not difficult to see why this characterization indeed holds. For, let S be a maximal contingent state of existence. In that case S entails every contingent state of existence compatible with it. Now, suppose, for reductio, that S does not contain all contingent objects in some possible world in which S exists, say world W. In that case there is an object O in W such that S does not contain O. Now, surely, S is compatible with O because there is a world, W, in which both S and O exist. But then, since S is a maximal contingent state of existence, it follows that S entails O, which contradicts the fact that S does not contain O. Vice versa, let S be a contingent state of existence that contains all contingent objects in those possible worlds in which S exists. Now, suppose, for reductio, that S is not maximal. In that case there is a contingent state of existence T compatible with S and not entailed by S. Thus, there is a possible world V in which S and T both exist and in which S does not (entirely) contain T. Hence there is a contingent object in V that is not contained in S. But this contradicts the fact that S contains all contingent objects in those worlds in which S exist.

for a necessarily existing being. This new cosmological argument can be schematically represented in the following way:

a Normally, contingent states of existence are possibly causally explained (principle [3]),
b There is at least one maximal contingent state of existence, say state M (premise),
c Maximal contingent states of existence are no exception to the first premise (premise)
d State M is no exception to the first premise (from b, c),
e State M is possibly causally explained (from a, d),
f There is a possible world W, in which M is causally explained (definition of 'possibly'),
g In W an object N *not* in M causes some object in M (definition of 'causal explanation'),[139]
h State M contains all contingent objects in W (from b, [4]),
i Object N is not a contingent object in W (from g, h),
j Object N is a necessary object in W (from i),
k A necessary object exists (from j, S5).

The argument is quite straightforward. The default rule that contingent states of existence are possibly caused entails, combined with the premise that there is a maximal contingent state of existence which is not an exception to this rule, that there must be a possible world in which there exists a maximal contingent state of existence that has a causal explanation (2010a, p. 191). So, indeed, premises (a), (b) and (c) imply, through two intermediate steps, proposition (f). By definition this causal explanation refers to an 'external cause', i.e., a concrete object *not* in the maximal state, that causes one of the objects contained *in* that state. Now, surely, this external object must be a necessary object, for it is not contained in the maximal state and, according to (4), every maximal state contains *all* contingent objects in those worlds in which it exists. But then, according to the S5 axioms of modal logic, this external object exists in all possible worlds, including the actual world. Thus, there exists a necessary object, which concludes the new cosmological argument that Rasmussen's pathway has arrived at.

An assessment

Is Rasmussen's cosmological argument tenable? In any case his argument is deductively valid. That is to say, the conclusion that there exists a necessary object follows logically from the premises. The three main premises on which the argument is based are (a), (b) and (c). In this section I first discuss and asses the main reasons Rasmussen provides for accepting premises (a), (b) and (c). After that I assess the objections to his new cosmological argument as discussed by himself in his paper (2010a, pp. 196–199). Subsequently I propose a number of additional objections of my own. Finally, I shall conclude whether Rasmussen's new

139 Note that, as mentioned earlier, Rasmussen takes object N to be a *concrete* object. Hence the necessarily existing object arrived at by his cosmological argument, i.e. object N, is in fact a necessary *concrete* object.

cosmological argument, if we take into account these assessed reasons and objections, is sufficiently justified and thus reasonable to accept.

AN ASSESSMENT OF RASMUSSEN'S CASE FOR ACCEPTING THE FIRST PREMISE

As we have seen earlier, Rasmussen introduces the first premise, that is, principle (3), as a generalization of his basic principle that, normally, contingent objects are possibly caused. He supports this basic principle, as we saw as well, by appealing to typical examples, such as armchairs and neutrino's, for which it is quite clear that they *can* be caused, e.g. in furniture factories respectively particle accelerators. Hence, as Rasmussen holds, the basic principle is sufficiently plausible. It is natural enough to be accepted, especially as a defeasible rule. But how does he defend its generalization, that is, how does he ground his premise that, normally, contingent states of existence are possibly causally explained? In his paper Rasmussen argues as follows: 'If it is plausible to think that an armchair can have a [...] cause, then it should also be plausible to think that there can be a [...] cause of there being certain particles arranged armchair*wise*. It seems, therefore, that examples that motivate [the basic principle] motivate another principle in the neighborhood' (2010a, p. 187). His neighborhood principle is that, normally, an arrangement of certain contingent concrete objects,[140] i.e., a possible state of affairs of certain contingent concrete objects that are related to one another in a certain way, possibly, has a causal explanation (2010a, p. 188).[141] As the above citation reveals, Rasmussen accepts this neighborhood principle on grounds of the same evidence as he appealed to for the justification of his basic principle. For his point is that if some given contingent arrangement resembles an object such as an armchair, and if contingent objects are possibly caused, then it follows that contingent arrangements themselves are possibly caused. However, the neighborhood principle talks about arrangements *in general*, not just the regular ordered ones. In other words, a switch is made from natural arrangements, i.e., ordered arrangements reflecting ordinary objects such as armchairs, to all kinds of arrangements, ranging from perfectly natural arrangements to the most haphazard ad hoc arrangements one can think of, such as the at this very moment obtaining spatiotemporal arrangement of my left toe, your right foot, some piece of wood in Ireland and the upper part of the Statue of Liberty. Rasmussen justifies his broadening with the observation that if we can conceive ordered arrangements being possibly caused, we can conceive ad hoc arrangements being possibly caused as well (2010a, pp. 188–189). Indeed, why couldn't there be a possible world in which some supernatural agent brings it freely and intentionally about that some haphazard arrangement obtains? It would surely be a weird situation, but that does not imply it is broadly logically or metaphysically impossible. So, indeed, Rasmussen's broadening from ordinary arrangements to arrangements in general seems to be sufficiently justified.[142] Rasmussen continues his defense of the first premise by claiming that it follows from the

140 Rasmussen often uses the term 'contingent arrangement' as a short-hand for referring to an arrangement of certain contingent concrete objects. In what follows I shall do the same.

141 As Rasmussen explains, this principle now also enables mereological nihilists to affirm that "armchairs", understood by them as collections of simples arranged armchair*wise* , are possibly caused (2010a, p. 187).

142 According to mereological universalism any type of arrangement, natural or gerrymandered, resembles an object. Therefore, if mereological universalism is true, Rasmussen doesn't need to provide a motivation for his switch from ordered arrangements to arrangements in general. For he can directly apply his basic principle, i.e., the principle that each contingent object is possibly caused, to each given arrangement. Yet, mereological universalism is, as I argue in this dissertation, not an uncontroversial thesis, to say the least.

neighborhood principle. For, as he briefly remarks: 'a causal explanation of an arrangement includes a causal explanation of the collection of objects in that arrangement. So, if any contingent arrangement can be causally explained, then so can any contingent state of existence' (2010a, p. 189). This seems rather evident. A precise formal derivation of the first premise from the neighborhood principle would however proceed as follows. Let S be a contingent state of existence. Then there is some possible world W in which state S exists. Now, surely, the contingent concrete objects in S can be assumed to be arranged in some way in W. Thus, in W, there is an arrangement S* of the contingent objects of S. According to the neighborhood principle arrangement S* possibly has a causal explanation. But then there is a possible world W* in which arrangement S* has a causal explanation. We have already seen how Rasmussen defines the conception of a causal explanation for a *contingent state of existence*. But what does it mean for a *contingent arrangement* to have a causal explanation? As he defines, a causal explanation for a contingent arrangement consists of the identification of a cause of each object in the contingent arrangement *and* a cause of each relation between objects in the contingent arrangement, *such that* there is at least one object not in the contingent arrangement that is the cause of an object *or* a relation between objects in the contingent arrangement (2010a, p. 188). At first sight this definition, like that for being a causal explanation for a contingent state of existence, seems to be a salient equivocation of the meaning of 'being a causal explanation'. For, as one could ask, what is the exact intuition appealed to here? It seems to be this. If certain particles arranged armchair*wise* can have a causal explanation, then there is something that produced this specific arrangement. So, what we are affirming when we hold that some given contingent arrangement has a causal explanation is simply that there is something that has produced it. Now, as a matter of fact, this definition entails the definition of causal explanation for contingent arrangements provided by Rasmussen. For if there is something, say A, that has produced the contingent arrangement B, then A has produced each object and relationship between objects in B. Thus we have properly identified a cause of every object and relation in B, being in each case either A itself or some proper part of A. Moreover, surely, either A itself or a proper part of A must exist external to the arrangement B, since nothing can be its own cause, and this ensures that there is indeed at least one object that is not contained in the contingent arrangement B, being either A or some proper part of A, and that is the cause of an object or relation between objects in the arrangement B. So, it follows that B can properly be said to have a causal explanation in the sense of the definition provided by Rasmussen. Hence, Rasmussen's definition is not unreasonable.[143]

From this stipulation it is to follow, as Rasmussen's aforementioned remark alludes to, that S* and the causal explanation of S* in W* respectively reduce to S and a causal explanation of S in W* if we simply

143 A contingent arrangement is causally explained according to this definition *only if* each object in the arrangement is caused. Now, as we have seen before, there seem to be adequate examples of necessarily uncaused contingent objects, such as the earlier discussed case of an object *F* essentially composed of F_1 and F_2 such that, again essentially, F_1 causes F_2. So contingent arrangements, and, for that matter, also contingent states of existence, that contain one or more of these or other types of necessarily uncaused contingent objects, are themselves necessarily uncaused. Further, by slightly modifying the aforementioned case, it is quite straightforward to show that any contingent arrangement containing two objects A and B and the relation 'A causes B' (assuming that causal relationships could be part of contingent arrangements) is another example of a necessarily uncaused contingent arrangement. So, the first premise, if cogent, must be considered as being a default, exception permitting, rule, just as the basic principle it is derived from.

remove all relations from S* and all causes of those relations from the causal explanation of S*. Yet, notice that this is only true in case the external object figuring in the causal explanation of S* is the cause of an *object* in S*. For if that external object would be only the cause of one of S*'s relationships, then the causal explanation of S* cannot be reduced to a causal explanation of S. After all, what would be the object not in S causing one of the objects in S? To avoid this complication Rasmussen must include in his definition the requirement that the external object causes at least one *object* in the contingent arrangement. Without this modification Rasmussen's derivation of the first premise from the neighborhood principle fails. Yet, I take this modification to be unproblematic, and I assume it in this rest of this section.[144] And thus, indeed, within Rasmussen's framework, the neighborhood principle entails the first premise of his argument: normally, contingent states of existence are possibly caused.

So, indeed, Rasmussen's evidence for his basic principle can be used for grounding the first premise as well. Nevertheless I take it that the derivation that Rasmussen himself provides is too laborious. I suggest the following more direct, and for that matter, also more convincing, derivation. The derivation I propose doesn't appeal to the concept of contingent arrangement at all. It relies on the more fundamental notion of contingent state of existence only and goes as follows. Let S be a contingent state of existence. From the basic principle that normally contingent objects are possibly caused it follows that for each contingent object s_i in S there is a possible world w_i in which s_i is caused. So, there is some cause c_i for s_i in w_i. Now, prima facie there seems to be no reason at all to hold that there isn't some possible world w in which all the c_i obtain together and cause respectively all s_i. So, at first sight, it might seem that we can conclude our derivation by observing that world w is an example of a possible world in which S itself is caused. Yet, our derivation cannot be settled so easily. For, suppose S consists of the objects s_1, s_2 and s_3. Further, assume s_1 causes s_2 in w_1, s_2 causes s_3 in w_2, and s_3 causes s_1 in w_3. In that case, following the above reasoning, there would be a world w in which s_1, s_2 and s_3 taken together would cause s_1, s_2 and s_3 taken together. But this is absurd, for nothing can be its own cause. Therefore, to complete our derivation one must require that at least one of the c_i is not part of S. This isn't a problematic additional requirement, since for any object one can always postulate an intrinsic duplicate,[145] that is, a second object that has exactly the same fundamental characteristics and capabilities as the original object. And, moreover, we can stipulate that duplicate to be not a part of contingent state of existence S at all. Hence, to avoid problematic cases similar to the example above one can simply stipulate one or more of such duplicates. And so it follows that S is possibly caused, which concludes the derivation of the first premise. This alternative derivation amounts to the observation that something (in this case a collection of contingent objects) that possibly exists and, moreover, the constituents

144 Nevertheless, perhaps one might want to object that this modification is ad hoc or arbitrary. For, as one could ask, why shouldn't we require that the external object causes at least one *relation between objects* in the arrangement? What is the justification for choosing *object* here rather than *relation between objects*? A response would be that without objects no relations between objects can obtain, while relations between objects are not needed for objects to obtain. Thus, a proper definition of causal explanation for contingent arrangements should refer to something outside the arrangement causing at least one of the arrangement's *objects* instead of one of its relations between objects. So, as mentioned, the modification is warranted.

145 In his paper Rasmussen, for a quite different reason, also makes use of the notion of 'intrinsic duplicate', which he defines as follows: 'An intrinsic duplicate of [an object] is an object having all the same intrinsic properties (e.g., shape, size, mass) as [the first] object' (2010a, p. 185). Now, perhaps one might argue that a first cause, if there is one, is an object for which there is no intrinsic duplicate. Indeed, one can show that under specific conditions there can be only one uncaused direct or indirect cause of everything else. This is not a problem either, since we can simply add the assumption that there is no first cause to any first cause argument in order to arrive at a reductio of that assumption, thus showing that there is a first cause.

of which (in this case the collection's objects) are possibly caused, is *itself* possibly caused, which indeed seems to be a sufficiently plausible and thus reasonable thesis.

AN ASSESSMENT OF RASMUSSEN'S CASE FOR ACCEPTING THE SECOND PREMISE

According to the second premise of Rasmussen's new cosmological argument there is at least one maximal contingent state of existence. Thus, on account of characterization (4), there is a contingent state of existence that contains all the contingent objects in all possible worlds in which it exists. His initial defense of the second premise can be paraphrased as follows. A maximally incompatible object[146] either exists or not. If there is such an object, then it is in itself a maximal contingent state of existence, and thus the second premise is true. If, on the other hand, there is no maximally incompatible object, then, plausibly, contingent objects are in general compatible with one another.[147] Hence, every contingent object is compatible with every other. From this it follows that the collection obtained by taking *all contingent objects together* is a contingent state of existence, that is, there is some possible world in which this collection exists. Now, surely, the state of affairs of all contingent objects taken together is a maximal contingent state of existence. So, also in the second case it follows that the second premise is true. This concludes Rasmussen's initial defense (2010a, pp. 191–192).

Yet, interestingly enough, Rasmussen challenges his initial defense by suggesting that, for all we know, there might be some wholly compatible collections of contingent objects[148] that still cannot obtain because they are 'too large' (2010a, p. 192). Now, *if* there are such collections, we are not justified to conclude that some given wholly compatible collection of contingent objects is a contingent state of existence. After all, it might be too large to obtain. So, if there are too large wholly compatible collections of contingent objects, then the initial defense of the second premise fails. Indeed, in the second case of this defense it was concluded that the collection of all contingent objects taken together is a contingent state of existence *because* it is wholly compatible, and, as mentioned, such an inference is unwarranted. For the wholly compatible collection of all contingent objects taken together might nevertheless be too large to obtain. Besides, if there are too large collections of contingent objects, then the collection of all contingent objects taken together, being the largest collection of contingent objects, *is* in fact too large to obtain and thus cannot be a contingent state of existence. Now, is there a good reason to accept that there are in fact too large collections of contingent objects? The example that Rasmussen provides to illustrate that we have indeed a good reason to believe that such collections exist is as follows. He assumes that space is continuous, that material objects are spatially extended, that material objects do not overlap in space and, last but not least, that for every possible shape there can be a material object having that shape. These assumptions

146 Rasmussen defines a *maximally incompatible object* as a contingent concrete object 'which is necessarily incompatible with every other contingent concrete object' (2010a, p. 191). Thus a maximally incompatible object is the only contingent concrete object in those possible worlds in which it exists.

147 As Rasmussen points out: 'For example, if there can be a particle *p* that's incompatible with the existence of your favorite armchair, then why can't there be a particle *q* that is incompatible with your armchair as well as *p*? Furthermore, why can't there be a particle *z* that is incompatible with your armchair, *p*, *q*, and *anything else*?' (2010a, p. 192). So, if there are incompatible objects, then plausibly there is a maximally incompatible object. But then, indeed, in the absence of such an object all objects are in general compatible.

148 Here and in what follows a wholly compatible collection of contingent objects is defined as a collection of contingent objects for which it is true that all its objects are mutually compatible. Two contingent objects are said to be mutually compatible if and only if there is a possible world in which both of them exist. So, in short, all the objects within some wholly compatible collection of contingent objects are compatible with one another, i.e., every object in such a collection is compatible with each other object in that collection.

entail that the cardinality of the wholly compatible collection of all possible material objects is higher than the cardinality of space itself.[149] Hence, 'there isn't enough space to *fit* every possible material object' (2010a, p. 192). And therefore the collection of all possible material objects, although wholly compatible, is too large to obtain. In other words, although all objects in the collection are compatible with one another, i.e. for each pair of objects there is some possible world in which that pair exists, there isn't enough space for all of them to obtain together (2010a, p. 192). Rasmussen believes that this example does show that we have reasons to assume that there really are wholly compatible collections of contingent objects that, despite them being wholly compatible, cannot obtain because they simply are too large. And, as mentioned, from this it follows that his initial defense fails.

Now, how does Rasmussen overcome this interesting challenge to his initial defense of the second premise? He argues as follows: 'Nevertheless, even granting the [...] assumptions, there may still be maximal [contingent] states of existence that aren't too large. Consider a world containing a [contingent] object that necessarily takes up all of space.[150] Call this object *Big Blob*. [...] Then a contingent state of existence consisting of Big Blob, plus all [...] [contingent] objects compatible with it (non-spatial and/or overlapping ones), is maximal.[151] Therefore, we can support [the second premise] without accepting the possibility of a maximally incompatible object' (2010a, pp. 192–193). However, this reasoning fails. First, for all we know, there could be two contingent objects (non-spatial and/or overlapping ones) both compatible with Big Blob *but incompatible with one another*. In that case the collection of Big Blob, plus all contingent objects compatible with it (non-spatial and/or overlapping ones) cannot obtain and thus is not a contingent state of existence, let alone a maximal one. Second, there might be another reason for Big Blob, plus all contingent objects compatible with it (non-spatial and/or overlapping ones) being too large to obtain. For, why would space limitations be the only possible ontological reason for some collection of contingent objects being too large to obtain? Plausibly, there is more to ontology then just 'fitting objects into a region of space' (2010a, p. 192). Indeed, if there is not enough space for some collections of contingent *spatially extended* objects to obtain together, then, in general, there might not be enough 'being' for some collections of contingent objects *simpliciter*, spatial or non-spatial, overlapping or non-overlapping, to obtain together.[152] And therefore, for all we know, it could be true that the collection proposed by Rasmussen, i.e., Big Blob plus everything compatible with it, is in this more generic sense still too large to possibly obtain. So Rasmussen has not really provided us with a sufficiently convincing reason to accept his second premise.

Yet, one might rebut the above refutation of the response of Rasmussen to his own challenge in the following way. To ground his new

149 It can be shown within the context of mathematical set theory that the cardinality of the set of all possible shapes on a given continuum is indeed higher than the cardinality of that continuum itself.

150 It seems reasonable to presume that such an object is metaphysically possible. Perhaps there is some type of destructive continuous 'stuff' occupying all space it can take. Surely, if the possible world in which that stuff exists is a multi-verse, then each single universe of the multi-verse must contain some part of it.

151 Rasmussen takes it that there are non-spatial and/or overlapping contingent objects. This follows indeed from applying the first premise of his argument to the collection consisting of Big Blob only, as Rasmussen explains (2010a, p. 192). Note that he must hold that at least one of any two overlapping objects, if there are such objects, is *im*material, since, as said, he assumes that material objects do not overlap each other.

152 'Being' perhaps understood here along the lines of a Heideggerian ontological difference, i.e., being as the common ground of all beings or that by virtue of which all beings are beings and which therefore itself can not be identified with any one of them. This is not to say there are not other interpretations of 'being'.

cosmological argument he adopted a highly generic framework of states of affairs. According to this generic framework, a state of affairs refers to a collection of objects and, optionally, to properties of, and relationships between, those objects. So, as far as this framework is concerned, reality is comprised of objects, properties of objects and relationships between objects, *and nothing else*. Hence, objects, properties and relationships are *all there is to reality*. But then, from the point of view of this highly generic framework, even time and space itself are objects, properties of objects and/or relationships between objects. Indeed, *every* ontological category one could possibly think of is absorbed by his framework as a specific conglomeration of objects, properties and relationships. Now, what would it mean, under this framework, to say that some collection of contingent objects is 'too large to obtain'? What could possibly account for that collection being 'too large'? Let us assess in more detail the example provided by Rasmussen. The reason for the collection of all possible material objects being 'too large' was the fact that these objects were supposed to fit within space. In short, there is not enough space to fit all matter. So, what we have here is, on the one hand, the sum of all material objects ('all of reality's matter') and, on the other hand, all of reality's space. These two, all of reality's matter and all of reality's space can properly be understood as two separate objects within the framework of Rasmussen. But then, Rasmussen actually misunderstood, from the point of view of his own framework, the import of his example. For, from the perspective of his metaphysical framework, he should have said that his example in fact shows that there are two objects that are not mutually compatible, namely all of reality's matter (or, in short, matter) and all of reality's space (or, in short, space). Hence, what Rasmussen did in fact show, within the context of his highly generic metaphysical framework, is that there are two mutually incompatible objects.[153] And this implies, as discussed, that we are sufficiently warranted to hold that there must be some maximally incompatible object, which, as mentioned as well, straightforwardly entails that the second premise is true. Therefore, it can be concluded that, if we accept Rasmussen's highly generic, object-oriented, ontological framework, we are justified after all to maintain that the second premise of his new cosmological argument is sufficiently reasonable.[154]

AN ASSESSMENT OF RASMUSSEN'S CASE FOR ACCEPTING THE THIRD PREMISE

The third premise of Rasmussen's cosmological argument contends that maximal contingent states of existence[155] are no exception to the first premise, that is, one can reasonably infer that maximal contingent states are possibly caused. So, for each maximal contingent state there is a possible world in which that state has a cause. This premise seems prima facie problematic. Let me explain why. According to (4) a maximal contingent state contains all the contingent objects in all possible worlds in which it exists. Now, let S be a maximal contingent state and let A be some contingent object not in S. Then S and A are incompatible

153 From this it follows that the largest collection of contingent objects, that is to say, the collection of all contingent objects taken together, is incompatible, since, it contains two objects not mutually compatible.

154 So, within Rasmussen's framework, the insight that there is not enough space for all collections of spatial figures to obtain *cannot* be generalized to the conclusion that there is not enough 'being' for all compatible collections of beings to obtain. Indeed, this generalization is based upon an incorrect analogy. For, within Rasmussen's framework, spatial figures do not stand to space as beings stand to 'being'. After all, from the perspective of Rasmussen's object-oriented framework space itself is an (aggregate) object. In short, if we take his object-oriented framework as point of departure, it becomes untenable to refer to a Heideggerian ontological distinction between beings and 'being', as the above presented alleged refutation is doing.

155 Hereafter more briefly referred to as 'maximal contingent states'.

because, due to (4), there is no possible world that contains both S and A. From this it follows that a maximal contingent state is incompatible with *all other* contingent objects. But then, one may wonder, what makes this to be the case? By virtue of what is a maximal contingent state incompatible with all other contingents? Perhaps, as one might argue, what makes such states incompatible with all other contingents is that they are incompatible with *everything else simpliciter*? But then a maximal contingent state cannot be caused at all, since its cause, being an object not in the state, would co-exist with it in the same possible world, which is impossible in case the state is incompatible with every other object whatsoever. Here we seem to have arrived at a reason to start doubting the third premise. Further, note that if maximal contingent states are indeed incompatible with everything else, then it follows that everything is contingent and hence necessary objects do not exist.[156] Now, Rasmussen himself considers a more immediate doubt of the third premise by zooming in straightaway on the latter aspect of the existence of necessary objects. He writes: 'A maximal contingent state of existence [...] can be causally explained only if a necessary concrete object can and does exist. Yet, it is uncertain [...] that a necessary concrete object exists. Therefore, it is also uncertain [...] that [the first premise] applies to maximal contingent states of existence' (2010a, p. 193). So, if we take the above two mentioned considerations seriously, it might appear that we are indeed justified to doubt the applicability of the first premise to the case of maximal contingent states of existence.

Nevertheless, the third premise cannot be brushed aside that easily. First, remember that the first premise is a defeasible rule, i.e., for every given case it holds unless good independent reasons are provided for maintaining that the case in question is an exception to the rule. So, without a good reason for believing there to be no necessary objects, Rasmussen is warranted to apply his first premise to the specific case of maximal contingent states. Second, the earlier mentioned generalization from maximal contingent states being incompatible *with all other contingent objects* to them being incompatible with *all other objects simpliciter* is in fact, in the absence of good independent grounds for this generalization, not convincing enough to treat maximal contingent states as an exception. Third, in his paper Rasmussen provides a positive motivation for the third premise, which I take to be sufficiently adequate for at least an initial justification of that premise. His motivation proceeds as follows: 'We observe that maximal states of existence can be intrinsically just like non-maximal ones, differing only in virtue of containing more or different objects. Consider, for example, a non-maximal state of existence that contains every object that is contained in some maximal state of existence except for a single [object]. If the non-maximal state of existence can be caused to obtain, then shouldn't the slightly more complicated, maximal one be possibly caused to obtain as well?' (2010a, p. 193). Indeed, as Rasmussen argues for here, there is

156 For, if there would be a necessary object, then it exists in every possible world. And, since a maximal contingent state of existence exists in at least one possible world, it follows that the necessary object exists together with each of those states in some possible world, which contradicts the fact that maximal states are taken to be incompatible with everything else, including the necessary object in question. Thus, there are no necessary objects if maximal contingent states of existence are incompatible with everything else.

nothing specific to a contingent maximal state of existence *itself* that distinguishes such a state from non-maximal contingent states, and therefore, if all contingent non-maximal states of existence are possibly caused, we have, in the absence of sufficiently convincing arguments to believe the contrary, no adequate reason to assume that the same would not be true for maximal contingent states, other than plainly insisting upfront that necessary objects do not exist, which, until a good independent reason for rejecting the logical possibility of necessary objects is provided, begs the question against Rasmussen's cosmological argument. Thus, to summarize, in the present dialectical situation, the third premise is in fact sufficiently reasonable. Rasmussen is justified to take it that maximal contingent states, like the non-maximal ones, are possibly caused.

ASSESSING OBJECTIONS TO THE NEW COSMOLOGICAL ARGUMENT DISCUSSED BY RASMUSSEN HIMSELF

Rasmussen presents four well-known objections from David Hume and argues that they don't form a problem for his cosmological argument (2010a, pp. 196–197). Hume's first objection is that there are no necessary objects since conceivability entails possibility and everything that exists can be conceived of as not existing (2010a, p. 196). If this would be a cogent objection, then there is in fact an adequate reason for believing that necessary objects do not exist, and consequently, for doubting the third premise of Rasmussen's argument. Now, the rebuttal as given by Rasmussen himself is not entirely clear. Nevertheless, I take it that the paraphrasing below accords sufficiently with what he is up to. The metaphysical framework on which his new cosmological argument is premised refers to abstract states of affairs. These abstract states exist regardless of whether they do or do not obtain. Let S be one of those states. Then, if we can conceive S not being there, it follows that conceivability does not imply possibility, since state S cannot fail to exist according to the framework. But, on the other hand, if we cannot conceive S not being there, then it is not true that everything that exists can be conceived of as not existing. Hence, in either case one of both assumptions the objection is based on fails, and therefore the objection itself is not cogent. Now, although this rebuttal has some force, it is not convincing for those who do not accept Rasmussen's metaphysical framework. Indeed, his rebuttal takes that framework as a given starting point. I therefore propose the following alternative rebuttal to Hume's first objection. As we saw, Hume's first objection is based on two underlying assumptions. The first underlying assumption, that is, conceivability entails possibility, seems to me plausible. According to the second assumption everything that exists can be conceived of as not existing. Now, I take it that something that exists can *only* be conceived of as not existing if we are able to conceive the very thing *itself*. After all, without having a proper conception of the thing in question we can never establish that we conceive of *that thing* as not existing. Moreover, without a proper conceptualization of the thing in question we cannot

even establish that we are conceiving of that thing *as not existing*. Therefore, Hume's second assumption should at least be restricted to the assertion that everything that exists *and is conceivable* can be conceived of as not existing. But then Hume's first objection, in order to become a problem for Rasmussen's argument, requires us to accept the claim that necessary objects are conceivable. For, only if we accept this further claim, it would follow, under the objection's assumptions, that there are no necessary objects. Now, the claim that all necessary objects are conceivable, in the sense of humans being able to properly conceptualize them, does not follow from Rasmussen's argument at all. For, his new argument deductively arrives at the conclusion that there must be a necessary being, but this does not entail that that necessary being is also conceivable. For all we know it is for human beings inconceivable. Hence Hume's first objection does not go through. And in fact Hume's two assumptions, taken into account the above mentioned modification of the second one, can be used to infer that the necessary object arrived at by Rasmussen's argument *must* be inconceivable. For indeed, if the necessary object arrived at would be conceivable, then the two assumptions together imply that its non-existence is possible, which is absurd since necessary objects exist in all possible worlds. Therefore, if the necessary object inferred by Rasmussen's new cosmological argument is properly referred to as the first cause (which is, as mentioned, a question to which I shall come back later on in this chapter), then the above shows how the assumptions underlying Hume's first objection can actually be used to derive the famous doctrine of negative theology, namely the tenet that God, being the first cause, exists inconceivably, so that no human conceptualization will ever be adequate to grasp or conceptualize God's nature, that is to say, to adequately conceive of God *itself*.

According to the second Humean objection, the necessary object that Rasmussen's argument arrives at could be a *material* object, and, as the objection proceeds, in that case Rasmussen's new argument loses its significance as a *cosmological* argument (2010a, p. 197). Rasmussen rebuts that it is highly unlikely that a necessary material object would be a constitutive part of a proper causal explanation of all concrete contingents, both material and immaterial. Now, I agree that this would indeed be very unlikely, and so the second objection is not convincing. Moreover, in the light of the already discussed modified assumptions of Hume, this objection becomes even more untenable. For according to these assumptions it follows that no material object can be necessary *if* we are able to properly conceive material objects. Indeed, if we can conceive material objects, then due to the second of these assumptions it follows that we can conceive of material objects as not existing. But then, since according to the first assumption everything conceivable is possible, it follows immediately that there is a possible world without material objects, which entails that material objects do not exist necessarily. Now, I would argue that we are in fact perfectly capable to

conceptualize material objects. We have many adequate conceptions of such type of objects, both from our ordinary sense experiences and from modern scientific discourse. And indeed, anyone who has at least some rudimentary understanding of what is meant by 'material object' readily admits that we can conceive of a possible world in which there are no material objects, perhaps because that world only consists of empty space and time, or perhaps, if some account of substance dualism is true, because it consists of space, time and immaterial conscious agents located in space. We are thus warranted to hold that no material object is necessary, contra the second objection.

The third objection ascribed to Hume by Rasmussen is the objection that 'it makes no sense to inquire as to the cause of the whole of all contingent things, since the uniting of parts into a whole is merely a mental abstraction which does not apply to reality' (2010a, p. 197). Now, this objection clearly fails in the case of Rasmussen's new cosmological argument because his argument is premised on causal explanations of abstract states of affairs. And those states are *not* properly understood as being aggregated concrete wholes. Indeed, Rasmussen defines causal explanations of abstract states of affairs in terms of the causes of the concrete objects *within* those states, and nowhere he does contend that such states are *themselves* possibly caused concrete wholes.

According to Hume's fourth objection the concept of an uncaused object is not contradictory and thus one may not assume that all contingent objects are caused (2010a, p. 197). Now, as Rasmussen points out, this objection is inapt since his cosmological argument clearly allows for there being uncaused objects. After all, the first premise of his argument only entails that all contingent objects, being specific examples of contingent states of existence, are *possibly* caused, and this is not the same as holding that all contingent objects are *actually* caused.

Rasmussen also decisively rebuts the Kantian objection that his argument begs the question because it presumes the quite doubtful premise that a necessary concrete object is possible. As Rasmussen points out: 'One might be agnostic about whether the existence of a necessary concrete object is possible and yet find [the premises of the new argument] to be evidently true. Once one sees that [these premises] can be used to support the existence of a necessary concrete object, one may *then* believe that a necessary concrete object is both possible and actual' (2010a, p. 198). Indeed, there being possibly (and thus, due to the S5 axioms of modal logic, also actually) a necessary concrete object is a consequence of Rasmussen's argument, and not one of its explicit or implicit starting points.

Another objection goes back to Russell. It comes down to the claim that infinite causal series possibly exist and cannot have a proper causal explanation. Now, surely, no *logical* contradiction results from claiming

157 The assumption that each member in the infinite causal series is *entirely* causally explained in terms of its predecessor is required because of the following observation of Rasmussen: 'It is unclear that a causal series, even an infinite one, cannot have members that are at least partially caused by something outside the series. For example, *perhaps* for any causal series *s*, it is possible for something outside *s* to cause the members in *s* to be causally connected. It's hard to see why that should be ruled out.' (2010a, p. 198). I agree with Rasmussen's point here. But, if we restrict our attention to infinite causal series for which each and every member is the *complete* cause of its successor, as I do above, then it still follows that nothing outside the series can partially cause one or more of its members, and so the proponent of the Russellian objection is still warranted to maintain that infinite causal series cannot have a proper causal explanation.

that infinite causal series are metaphysically possible. And, indeed, infinite causal series seem to have no proper causal explanation. For, first, there is no first member we could point at for causally explaining how that series came into being. And, second, assuming that each member *fully* explains it successor by being its *complete* cause, it follows straightforwardly that there could neither be anything *outside* the series that answers the question of its ultimate origin.[157] For any external cause of the series as a whole must be at least a partial cause of one or more of its members, which contradicts the fact that the complete causes of these members are within the series. Nevertheless, it is not clear, as Rasmussen points out, how the result that (certain) infinite causal series cannot be causally explained could be an objection to his cosmological argument. For, after all, 'even if there are *causal series* that cannot be causally explained, it does not follow that there are contingent *states of existence* that cannot be causally explained' (2010a, p. 199). Indeed, contingent states of existence don't include relations such as causal relationships: they just contain objects. Moreover, there is no reason at all to assume that the objects of some given infinite causal series cannot, in some other possible world, be causally arranged differently in such a way that that state can be properly said to be causally explained in that possible world. So, Russell's objection as rendered by Rasmussen doesn't go through. Nevertheless, I take it that Russell's reference to the possibility of causally unexplainable infinite causal series does point us to a much more serious objection against Rasmussen's new cosmological argument, an objection which I shall propose in what follows below.[158]

DOES RASMUSSEN'S NEW COSMOLOGICAL ARGUMENT QUALIFY AS AN ADEQUATE FIRST CAUSE ARGUMENT?

As mentioned, Rasmussen's argument for a necessary being from a maximal contingent state of existence would only be relevant as a defense of theism[159] if the necessary being is shown to be a first cause, that is, an uncaused object that is the direct or indirect cause of everything besides itself. Now, the first thing to mention is that Rasmussen's argument *only* shows that there is a necessary being that is part of the cause of a maximal contingent state of existence in some possible world.[160] But, surely, this does not say anything about the causal behavior of that necessary being in the *actual* world. Indeed, for all we know, it might be the case that the necessary being implied by Rasmussen's cosmological argument does not cause anything whatsoever in the actual world. Hence, the necessary being could just be sitting there, doing nothing at all, and the whole contingent cosmos might be there, without any of its contingent parts being caused by the necessary being in question. In that case the necessary being simply cannot be called a first cause in the actual world. For, a first cause should at least *cause something* in order to be properly called a cause at all. Thus, the being that Rasmussen arrives at is not guaranteed to be something we can adequately refer to as a first cause, let alone

158 Rasmussen also evaluates William Rowe's objection that *any* weak variant of Leibniz's principle of sufficient reason (PSR), thus including Rasmussen's first premise, is rationally untenable because, as Rowe holds, they all depend on PSR and, according to Rowe, PSR is demonstrably false (2010a, p. 199). I shall not discuss Rasmussen's evaluation since I believe it does not add to what was said in the previous chapter.

159 Rasmussen himself is definitely interested to draw a connection between the necessary being entailed by his new cosmological argument and this being having theistic properties. In another paper he proposes paths from this necessary being to it having the properties of volition, infinite power, infinite knowledge, and infinite goodness (Rasmussen 2009). Yet, as I argued for earlier, I take it that *being a first cause* is an essential property of a being properly called God. Therefore, without first establishing that the necessary being in question is in fact a first cause, the aforementioned paths just aren't sufficient to support theism.

160 Sure enough Rasmussen's cosmological argument shows a bit more than that. After all, the fact that the necessary being is a part of the causal explanation of the existence of some state of affairs in some possible world entails that that being *possibly* has causal powers. Thus this being *possibly* is not causally inert. From this one might, plausibly, want to infer that the necessary being in question does in fact have causal powers *simpliciter*, that is to say, although this being is not guaranteed to be causally efficacious in all possible worlds, the being can be taken to have causal powers in all possible worlds, including the actual world.

something that has sufficient 'theistic features' to support theism over a-theism.

Second, it could be the case that the necessarily existing being in question *does* cause at least something contingent in the actual world, perhaps just one contingent particle. Nevertheless, as I shall argue, the necessary being that Rasmussen's cosmological argument arrives at is not guaranteed to be a first cause *even* if we assume that the state of existence of *all* contingent objects in the actual world has a causal explanation, and that the necessary being in question is part of that explanation. Thus, let us assume that the necessary being *does* cause at least one contingent object in the actual world, and that the state of *all* contingents is caused. Now, according to the aforementioned objection of Russell, infinite causal series are possible. And, indeed, Rasmussen cannot rule out the existence of such infinite series upfront, because, as discussed, by doing so his new cosmological argument would become irrelevant. After all, if it would be impossible for there to be infinite causal series, then, as we saw earlier, a slightly revised Thomistic cosmological argument would already suffice to establish there being a first cause. Let us therefore accept the metaphysical possibility of infinite causal series. From this it follows that, for all we know, the ontological situation in the actual world *could* be as follows. The actual world consists of countably infinitely many contingent objects, denoted by $\{c_1, c_2, c_3, ...\}$. The necessary being in question, let us say *N*, is the cause of c_1 and for all $i > 1$ object c_{i+1} is the total or complete cause of object c_i. In that case $\{c_2, c_3, ...\}$ is an infinite causal series. Within the context of Rasmussen's framework it is indeed correct to say that *N* is part of the causal explanation of the state of affairs of *all* actual world's contingent objects. Thus, in short, *N* is part of the cause of the cosmos of the actual world. Yet, it seems to me wholly clear, just by looking at the ontological situation for this case, that *N* in fact doesn't explain at all why the infinite causal series $\{c_2, c_3, ...\}$ obtains. For the only causal act of *N* is to cause c_1. And therefore *N* just hasn't anything to do with the coming into being of all other contingents in the actual world. Hence, it would be wholly inadequate to maintain that in this case *N* is properly referred to as a first cause. But then, since Rasmussen's new cosmological argument is not able to rule out this, or similar, ontological situations, it fails to establish that there is a first cause. Indeed, generally speaking, it is one thing to be the originating cause of one or more contingent objects, but quite another to be the direct or indirect originating cause of the maximal state of affairs of *all* contingent objects in the world.

Third, Rasmussen's new cosmological argument does not establish that the necessary being in question is a first cause even if we assume that it *in fact did* cause the state of affairs of all actual world's contingents. The reason for this, as discussed before, is that a first cause is the *uncaused* cause of everything else. So, *being uncaused* is an inherent feature of

being a first cause; being uncaused is part of what it means to be a first cause. And this simple observation is fatal for Rasmussen's argument. For, although the necessary being in question might have produced the entire contingent cosmos, this does not say anything at all about whether the necessary being in question is uncaused. For all we know, it might be *necessarily caused*, that is, it might be caused by a second necessary being in the actual world and be caused by that second (or another) being in all other possible worlds.[161] It might even be the case that the necessary being Rasmussen arrives at stands in the actual world at the end of a downwards infinite causal series of necessary beings each causing the existence of its successor. These types of ontological situations are not excluded by Rasmussen's new argument, and therefore the argument doesn't entail that the necessary being in question is an uncaused being. Hence, his argument is not tenable as an argument for the existence of a first cause, let alone for the existence of a being properly referred to as God. As long as this and the other two mentioned problems are not resolved, Rasmussen's argument is insufficient as a *cosmological* argument relevant for supporting theism. At best, Rasmussen's argument from a maximal contingent state of existence rejects naturalistic 'everything is contingent'-views.

Three additional alternative paths to the existence of a concrete necessary being

As mentioned in the introduction to this chapter Rasmussen also proposed three alternative paths to there being a concrete necessary being. None of these paths requires the possibility of there being a maximal contingent state of existence. I briefly assess these paths below.

THE PATH FROM IT BEING POSSIBLE TO EXPLAIN WHY THERE IS AT LEAST ONE CONCRETE CONTINGENT OBJECT

The first path is premised upon the principle that for any type of contingent concrete objects, it is possible for there to be a causal explanation as to why at least one member of that type of contingent concrete objects exists (2010a, p. 194).[162] Now, of course, in the actual world there exists at least one contingent concrete object. Thus, if *being a contingent concrete object* is a type of contingent concrete objects, then, it immediately follows that there is a possible world W in which the obtaining state of affairs of there being at least one contingent concrete object has a causal explanation. Of course this causal explanation cannot rely upon a contingent concrete object itself without begging the question. As Rasmussen puts it: 'Now it may seem that an explanation as to why there are any members of a type T can't itself be one of the members of T. For example, the explanation as to why there are any emeralds can't *itself* be one (or more) of the emeralds, it seems. After all, the causal activity of an emerald will never tell us why there are emeralds to begin with' (2010a, p. 194). Therefore in W there must be

161 One could rebut that necessary objects cannot be caused, perhaps because, as one could argue, plausibly, such objects did not began to exist whereas the effect of a cause is always something that begins to exist. In short, as this rebuttal has it, the concept of causation requires effects to be temporal. But is this indeed the case? Rasmussen writes: 'It seems we can grasp the relation *caused by* without also grasping the relation *caused by something spatial*. Therefore, it is not *analytic* (determined solely by the meaning of "cause") that causal relations can only hold between spatial objects' (2010a, p. 199). Now, I agree with Rasmussen and I think the same line of reasoning applies to temporal objects. Grasping an object as beginning to exist is not necessary for grasping that object as an effect. For grasping the latter, it is sufficient to grasp that there is another object that is ontologically prior to it and that is responsible for its existence. And this other object is then grasped as its cause. This all can be true of both temporal and a-temporal objects. So, there is no reason to hold that effects must be temporal. The notion of causation doesn't exclude a-temporal effects.

162 Strictly speaking, types do not have members. Types have instances or tokens. So, we should say, more precisely, that for any type of contingent concrete objects it is possible for there to be a causal explanation as to why at least one member of *the set defined by* that type of contingent concrete objects exists. Here, *the set defined by a type* is straightforwardly understood as being the set of all instances or tokens of that type.

a necessary object that explains why there is any concrete contingent object at all.[163] And given the S5 axioms of modal logic this necessary being exists in all possible worlds, including the actual world. In this way the first of the three alternative paths for there being a necessary being is completed. Now, Rasmussen contends that 'we have a new path to the existence of a concrete necessary object' (2010a, p. 195). This path is however not new. As an example we could take the discussion of the cosmological argument by James van Cleve (van Cleve 1999, pp. 204–207) to which I briefly referred in the chapter on the cosmological argument of Gale and Pruss. Further, as will be clear from what has been said before, this first alternative path also fails as a first cause argument because it is not guaranteed at all that the necessary being arrived at is uncaused. Yet, the alternative path is quite straightforward if we compare it with Rasmussen's new argument from a maximal contingent state of existence. This is perhaps remarkable since the first alternative path is prima facie no less plausible than Rasmussen's new argument, while providing us with the very same result: there exists a necessary being. It has one problem, though, that I would like to mention here. If the basic premise on which it is based is cogent, then it seems that there is no reason for denying the cogency of the following more general principle. For any type of objects *simpliciter* it is possible to explain why there is at least one member of that type of objects.[164] And so, by taking the type *being a necessary object*, it would follow that it is possible to explain why there exists in the actual world at least one necessary object. But how are we ever to explain *that* without referring to necessary objects? Should we try to show that there being at least one necessary object follows from the a priori laws of logic themselves? But this surely would bring with it a whole new range of additional worries and difficulties to which I shall not turn here. In any case, we appear to have identified here a real substantial problem for the first alternative path of Rasmussen.

THE PATH FROM IT BEING POSSIBLE TO EXPLAIN WHY THERE ARE EXACTLY N CONCRETE CONTINGENT OBJECTS

The second alternative path as proposed by Rasmussen starts from a principle that is similar to the principle on which the first alternative path is premised. It states that for any type of contingent concrete objects it is possible for there to be a causal explanation as to why there are a particular number of members, say *n*, of that type.[165] Now consider the type 'contingent concrete object' and the state of affairs E of *there being the number of contingent concrete objects that there are in the actual world* (2010a. p. 195). According to the aforementioned principle this state of affairs has a causal explanation in some possible world W. Now, as the second path continues: 'Every contingent concrete object not contained in E is incompatible with E, since E entails that there be only and exactly the number of contingent concrete objects contained in E.

163 One might object, similarly as before, that in world W there could also be a contingent *abstract* object that explains why there is at least one concrete contingent object in W. To rebut this objection one could hold that abstract objects are causally inert. Or, if one wants to allow for causally efficacious abstract objects, as for example I do, one can rebut this objection by applying the argumentation to the more general type of *being a contingent object* instead of to the less generic type of *being a concrete contingent object*.

164 Assuming that the relevant type has a non-empty extension, i.e., there is at least one object of that type.

165 The positive number *n* is greater than zero. For if *n* would be zero, there would not be an explanandum.

Therefore [...] only a *necessary* concrete object could [causally explain E].[166] Therefore, we can infer that a necessary concrete object exists' (2010a, pp. 195–196). The second path is however invalid. For, it might be the case that in W there exists a concrete contingent object, say O, that directly or indirectly causes all the other *n-1* concrete contingent objects. And in that case a proper causal explanation of E does not need to appeal to a necessary being. Instead it would be sufficient to point at object O's causal effects. One might however want to rebut that in that case we still need to explain why O obtains in order to arrive at a proper explanation of E, and therefore, as the rebuttal might conclude, it is not sufficient just to point at O. Let us grant this rebuttal. What would follow? To explain why O obtains we could invoke the first alternative path. After all, the first alternative path gives us an explanation for why there exists at least one concrete contingent object in W, and there is no reason why we couldn't subsequently assume that one of these concrete contingent objects is the direct or indirect cause of all the other concrete contingent objects, that is to say, there is no reason why we couldn't take any of these objects to be O. Therefore, if we demand an explanation of O, it follows that the second path collapses into the first. Besides, if the first path fails, then the second path fails as well. After all, if a necessary being explains why there are exactly *n>o* concrete contingent objects, then that being of course also explains why there is at least one concrete contingent object. So, indeed, the second path just cannot succeed if the first path doesn't. At the very best the second path is therefore entirely redundant.

THE PATH FROM IT BEING POSSIBLE THAT THERE IS A FIRST CAUSED CONTINGENT CONCRETE PARTICULAR

The third path towards a necessary being is premised on the principle that it is possible that there is a first contingent concrete particular that was caused to exist (Rasmussen 2010b, pp. 351–353).[167] Now, Rasmussen's third path amounts to the observation that the first contingent concrete particular in some possible world, if caused to exist in that possible world,[168] cannot have been caused by a contingent object, and therefore must have been caused by a causally powerful necessary being (2010b, pp. 351–352). In one of his recent papers John Turri has raised two objections against this third path (Turri 2011, pp. 357–359). The first objection is that, as Turri puts it: 'All that follows is that the cause must be either necessary (the opposite of contingent), or abstract (the opposite of concrete), or universal (the opposite of particular). We're given no reason to prefer the first of these to the latter two' (Turri 2011, p. 358). The second objection is that it does not follow that the necessary being is causally powerful in *every* possible world. It only follows that this being is causally powerful in the possible world in which it causes the first contingent concrete particular of that world. That is to say, it only follows that the necessary being arrived at is *possibly* causally

166 Although Rasmussen does not say this explicitly in his paper, it is quite important to notice that the exact number of concrete contingent objects, i.e. *n*, is assumed to be *finite* instead of some infinite cardinal. For if the exact number of concrete contingent objects would be some infinite cardinal, it just doesn't follow that adding one additional concrete contingent object would change the number of concrete contingent objects. For example, in order to explain why there are exactly a countable infinite number of concrete contingent objects we can, for explanatory purposes, without any problem assume a finite, or even countable infinite, number of additional objects. After all, adding a finite, or even countable infinite, number of further objects to a given countable infinite collection of objects doesn't change the cardinal number of that collection.

167 In fact, the principle that Rasmussen introduces is more subtle. He has it that 'normally, for any intrinsic property *p* that (i) can begin to be exemplified and (ii) can be exemplified by something that has a cause, there can be a cause of *p*'s beginning to be exemplified' (2010b, p. 351). He then goes on to argue that the property of *being a contingent concrete particular* is an intrinsic property, that can begin to be exemplified, and that can be exemplified by something that has a cause. And this entails the above mentioned principle.

168 Note that the aforementioned principle implies that there indeed is at least one possible world in which there exists a first contingent concrete particular whose existence has been caused in that world.

powerful (2011, p. 358). In order to overcome both objections Turri provides the following reformulation of the path:

(1) It is possible that the first contingent *thing*[169] is caused to exist (premise),
(2) In the possible case where the first contingent thing is caused to exist, a causally powerful necessary being must cause it to exist (premise),
(3) A *possibly* causally powerful necessary being exists (from 1, 2, S5 modal axioms).

169 Italics mine.

This reformulation indeed solves the two challenges as put forward by Turri. Yet, of course, the reformulated argument doesn't qualify as a first cause argument for the same reasons as mentioned before. First, it is not guaranteed that the necessary being causes anything at all in the actual world. Second, even if it did in fact cause the first contingent thing in the actual world, it is not guaranteed that the necessary being itself is uncaused. Moreover, contrary to what Turri appears to believe, the reformulated argument is still not valid. In what follows I show why. Let us assume that the first premise is true. In that case there is a possible world W endowed with a temporal order T (which enables us to speak about 'first') and containing a first contingent caused thing, say FCT. Now, because FCT is the first contingent thing, it follows that (i) there is a t_o in T such that FCT is the *only* contingent thing in W that exists at t_o and (ii) for all $t < t_o$ it holds that there is no contingent thing in W existing at t. Note that it might be the case that there is in fact no t in T such that $t < t_o$. In that case t_o represents the absolute beginning of T in W. This is however not necessary. For all we know there are many t's in T such that $t < t_o$. Now, according to the second premise FCT must have been caused by a necessary being. But does this follow? It seems to me that there is another possibility that is not ruled out by the argument as reformulated by Turri. For, although W is endowed with a temporal order T, it does not follow that all things in W are temporal. Indeed, we cannot rule out there being one or more a-temporal things in W, each one of them being either contingent or necessary. But then we cannot rule out either that there exists an a-temporal contingent thing in W, say ACT, that causes FCT. And, since a-temporal things exist outside time, there is no t in T at which ACT exists. So, the assumption that FCT is caused by ACT is coherent with FCT being the first contingent thing. To overcome this challenge one could reply that a-temporal things do in fact exist per definition at all t in T. For what makes a thing a-temporal, as the reply goes, is that the thing in question would exist even if there is no temporal order T in W. In other words, a-temporal things are not dependent on there being a temporal order for their existence, and it is precisely *this feature* that distinguishes them from temporal things. Thus, as the reply has it, it doesn't follow at all that a-temporal things do not exist at any t in T. For a thing can be a-temporal according to

the aforementioned feature while existing at all t in T. In fact, plausibly, they exist automatically at each t in T because it is precisely their a-temporality that ensures that they exist regardless of T. So, ACT would in fact exist at t_o in T, and this is impossible since FCT is considered to be the first contingent in W. Therefore, after all, we can rule out there being an a-temporal contingent thing ACT in W that causes FCT. Hence, as the reply concludes, it indeed follows that FCT is caused by a causally powerful necessary being. Is this reply convincing? Let us have a look at the temporal order T in W. Plausibly there are possible worlds without a temporal order. Hence, T exists contingently in W. Moreover, by definition, T itself exists at all t in T, and thus T exists at t_o as well. But then neither T nor FCT is the first contingent in W, which renders the reformulated argument invalid. A way out of this difficulty seems to be to claim that T is not a thing. This is however unreasonable, since Turri's reformulation allows for a maximal range of existents to be called 'things', such as abstracts, universals and tropes. In fact, on Turri's reformulation, everything that exists is properly called 'thing'. But then, since T does exist in W, there is no good reason to deny 'thing-hood' of T in W. Another way to resolve the difficulty is to introduce a new, restricted, concept whose extension is obtained by removing temporal orders from the extension of the concept of thing. Thus the extension of this new concept would be all things not identical to some temporal order. Although this would surely be an ad hoc move to make, it would help us to obtain a valid reformulation of Turri's reformulation of Rasmussen's third alternative path. Let us denote the aforementioned new ad hoc concept by thing*. In that case the following reformulation of Turri's reformulation is valid:

(1) It is possible that the first contingent thing* is caused to exist (premise),
(2) In the possible case where the first contingent thing* is caused to exist, a causally power-ful necessary being must cause it to exist (premise),
(3) A possibly causally powerful necessary being exists (from 1, 2, S5 modal axioms).

Needless to say that this reformulated reformulation still not helps to arrive at a first cause for the same reasons as Rasmussen's original third alternative path fails as first cause argument. Yet, the above adjusted argumentation, if sound, provides us with a necessary being that is possibly causally efficacious. Thus, if sound, it requires all worldviews, including naturalistic ones, to explain how their ontology accounts for there being at least one such being. Some naturalists might respond that perhaps some of the fundamental laws of nature are necessarily existing abstract objects that have causal powers in at least some of all the possible worlds. A full discussion on the nature of natural laws under naturalism is however not at stake here.

Closing remarks

In this chapter I argued that some of Rasmussen's argumentative paths arrive indeed, though not all with the same force, at a necessary being. Yet, as I also showed, none of these arguments entail that there is a first cause. Nor can they be transformed in cogent first cause arguments. Now, since *being a first cause* is, as discussed, an essential theistic property, Rasmussen's cosmological arguments cannot be invoked to warrant theistic worldviews over non-theistic views such as naturalism. In the next chapter I turn to a detailed presentation and defense of my own proposed new first cause argument.

VI Atomism, causalism and the existence of a first cause

Introduction

This chapter provides a new first cause argument by showing that *atomism*, i.e. the thesis that each composite object is composed of simple objects, together with *causalism*, understood in this chapter as the thesis that every object is a cause or has a cause,[170] logically imply the existence of a first cause *if* some additional general premises regarding the interplay between parthood, composition and causation are accepted. Thus it is shown that a commitment to atomism, causalism and the additional premises result in a commitment to there being a first cause. The chapter starts with some required preliminary stage setting. Next a number of definitions and two basic principles regarding the mereological nature of parthood and composition are presented. Subsequently the additional premises of the new argument are introduced and the conclusion that there is a first cause is logically derived from them. The chapter ends with a justification of the new argument's premises. The justification of some of them appeals to the aforementioned two principles. Although the present chapter provides a new first cause argument, its aim is not particularly to argue for the existence of a first cause, but, instead, to show that, under some very generic and sensible conditions on parthood, composition and causation, one cannot reasonably be both an atomist and a causalist, while at the same time deny that there is a first cause.[171]

The argument presented in this chapter does not rely on the principle of sufficient reason, that is, the principle that there is an explanation for every contingent truth. Second, it does not depend on any weaker variant of this principle either, such as the restricted variants of Gale and Pruss (1999) and Pruss (2004).[172] Third, the first cause argument as proposed in this chapter does not depend on the presumption that every contingent object has a cause for its existence. Furthermore, fourth, it does not rely on any weaker variant of this presumption, such as the restricted variants of Koons (1997) and Rasmussen (2010).[173] Fifth, the proposed new argument does not depend on the notions of necessary truths and contingent truths. In addition, sixth, the argument does not rely on the notions of necessarily existing and contingently existing objects either. Hence, the new argument as proposed in this chapter does not depend on any metaphysical modal notion or principle. In this respect it is entirely different from the aforementioned contemporary first cause arguments of Koons, Gale and Pruss, and

170 Surely, the thesis of causalism as understood in this chapter does not rule out there being objects that are caused *and* that are the cause of one or more other objects.

171 It might perhaps be worthwhile to notice that the viewpoints of atomism and causalism are sometimes associated with traditional materialistic worldviews that deny there being a first cause, such as for example Epicurianism. The argument developed in this chapter thus shows that such an association is problematic.

172 Respectively 'For any contingently true proposition, it is logically or conceptually possible that it has an explanation' (Gale and Pruss 1999) and 'All explainable true propositions have explanations' (Pruss 2004).

173 Respectively 'Every wholly contingent fact or situation normally has a cause' (Koons 1997) and 'Normally, for any intrinsic property p that (i) can begin to be exemplified and (ii) can be exemplified by something that has a cause, there can be a cause of p's beginning to be exemplified' (Rasmussen 2010).

Rasmussen, which all do in fact rely upon metaphysical modal concepts and corresponding metaphysical modal principles.

Stage setting

Some initial stage setting is indispensable before the new first cause argument can be advanced. First, in this chapter anything that exists is called an object and an object is something that exists. There may be different kinds of objects, e.g. abstract objects in addition to concrete objects, and universal objects in addition to particular objects. Still, discerning kinds of objects is not relevant for the proposed argument: a first cause, if it exists, is an object of some kind. Second, for this chapter causality is plausibly understood as a relationship between two objects: the cause and the effect. Thus this chapter adopts an objectual, i.e. object oriented, conception of causality according to which causation is a two-place relation whose relata are objects. Any given object may *as a cause* stand in multiple cause-effect relationships. For example, object A may be the cause of object B and object C. In that case effect B has A as its cause, and effect C has A as its cause as well. Yet, any given object may *as an effect* stand in only one cause-effect relationship, that is, every effect has precisely one cause. Third, the concept of causation as deployed in this chapter is limited to causation with respect to bringing about something's existence. In what follows an object is thus understood to be the cause of another object if and only if the former object brings the latter into existence. In other words, some object causes another object in case it is the cause of *the existence of* that other object. Fourth, for this chapter a first cause is defined as an uncaused cause whose effect is ontologically prior[174] to every other caused object. From this definition it follows immediately that there can be at most *one* first cause. After all, suppose to the contrary that there is more than one first cause. Let A and B both be first causes. In that case, since A is a first cause, the effect of A is ontologically prior to the effect of B. Now, because B is a first cause as well, the effect of B is ontologically prior to the effect of A, which contradicts the asymmetry of being ontologically prior. Thus, indeed only one object can be a first cause.[175] So, if there is a first cause, it is properly described as the ultimate origin of all other objects. Fifth, the new argument is deductive in nature. The conclusion that a first cause exists follows logically from the premises, that is, if the premises are true then the claim that there is a first cause is also true.

Parthood and composition

The proposed new first cause argument consists of six premises and one conclusion, i.e. the conclusion that there is a first cause. Before the argument is presented the nature of parthood and composition on which the justification of some of its premises is based has to be clarified. For that some mereological definitions are required. In this chapter the notion of parthood is taken to be a relationship between two objects.

174 The concept of being ontologically prior is difficult to explicate. In this chapter an object X is considered ontologically prior to an object Y in case the existence of Y is not required for X to exist but the existence of X is required for Y to exist. It is taken that the cause is ontologically prior to its effect and that a part is ontologically prior to the whole. Notice that the relationship of being ontologically prior is a strict partial order, i.e., this relationship is irreflexive, asymmetric and transitive. Let me show this. If X were ontologically prior to X it would follow that the existence of X is not required for X to exist, which is absurd. Thus, the relation is indeed irreflexive. Moreover, if X is ontologically prior to Y and Y is ontologically prior to X, it would follow that X is both required and not required for Y to exist, which is absurd as well. Hence, the relation is asymmetric. To derive transitivity more work is needed. Let X be ontologically prior to Y and let Y be ontologically prior to Z. In that case the existence of X is required for Y to exist and the existence of Y is required for Z to exist. But then the existence of X is also required for Z to exist. Does it also follow that the existence of Z is not required for X to exist? Assume, for reductio, that the existence of Z is required for X to exist. We know that the existence of Y is required for Z to exist. But then the existence of Y is required for X to exist, which contradicts the fact that X is ontologically prior to Y. Hence it is indeed the case that the existence of Z is not required for X to exist, which completes the derivation of transitivity.

One object can be a part of another object. Parthood is taken to be a basic concept and thus not definable in terms of other more basic concepts. Object A is called a proper part of object B if and only if A is a part of B and A is not equal to B. Object A is called an improper part of object B in case A is equal to B. Further, object A is said to contain object B if and only if B is a part of A. Another mereological concept employed in this chapter is the concept of disjointness. Disjointness is defined here in terms of parthood. Two objects are disjoint in case they do not share a (proper or improper) part. Further, the notion of the sum of two or more objects is a concept that denotes the totality of those objects, i.e. those objects taken together. A composite object, also called a composite, is an object that has at least one proper part. Now, a simple object, also called a simple, a mereological atom, or an atom, is an object lacking proper parts. So, a simple object is not a composite object and a composite is not a simple. Obviously, every object is either a simple or a composite. Another relevant mereological concept is that of composition. Composition is not the same concept as the concept of a sum. Some objects $\{O_i\}_i$ compose an object O if and only if object O is the sum of the O_i and all the O_i are mutually disjoint (Sider 1993). In addition, some objects $\{O_i\}_i$ are called a composition of an object O in case the $\{O_i\}_i$ compose O. Note that a composite can have more than one composition. Now, the nature of parthood and composition on which the justification of some of the premises of the new argument is based accords with two mereological principles: 'supplementation' and 'composition-as-identity'. Both principles are clarified below.

SUPPLEMENTATION

The supplementation principle states that every proper part of an object is 'supplemented' by another disjoint part of that object (Varzi 2009). From this principle it immediately follows that every composite object has a composition consisting of two or more objects.

COMPOSITION-AS-IDENTITY

As mentioned before the sum of some objects is those objects taken together, i.e. the sum of some objects is a term to refer to those objects as a totality. A sum is thus ontologically neutral, innocent or harmless, that is, the sum of some objects introduces nothing beyond these objects themselves. Thus, a commitment to sums is not a further commitment, since sums are nothing over and above their objects. Now, compositions are sums. This implies that the same holds for the ontological relation between an object and its compositions, i.e., if some objects compose an object, then that composed object is those objects taken together. Thus, the composite simply *is* the composition. This principle is often referred to in the literature as composition-as-identity (Koslicki 2008). It should not be confused with mereological universalism. According to mereological universalism every arbitrary sum of objects is itself an object. Composition-as-identity does not imply universalism. After all, even if all composites are identical to their

175 One might think that this derivation fails since it does not exclude scenarios with two or more first causes. Take for example the following scenario. Let A, B and C be uncaused objects that together cause object E. Let object E be ontologically prior to any other caused object. Isn't it the case that in this scenario there are three first causes instead of one? No, this is not the case. The reason is that causation is defined as a relation between *two* objects, the cause and the effect. In the present case the effect is clearly object E. But what is the cause of E? Now, the cause of E is not object A, not object B, and not object C. The cause of E is A, B and C taken together, that is to say, the cause is a fourth object, distinct from A, B and C. So, in fact we do have a single first cause in this scenario, namely *the sum of* A, B and C. I define the notion of 'sum' below.

compositions, it might be the case that some sums are not objects, e.g. because these sums do not stand in the proper causal relationships with other objects.[176] Further, universalism does not imply composition-as-identity, because, even if all sums are objects, it might be the case that composites are something above and beyond their compositions. The proposed new argument is based on composition-as-identity. However, the new argument does *not* assume universalism. In fact, universalism is a quite implausible position. Surely, the sum of some piece of wood in Italy, the left front wheel of some car and the Statue of Liberty does not count itself as an object. It is a sum of objects and nothing more. For amongst others, it was not caused *as a whole*, nor does it, *as a whole*, causes anything else.[177]

Mereological universalism is also referred to as unrestricted composition. The denial of universalism is either nihilism or restricted composition. According to nihilism sums of two or more objects are not objects. Nihilism therefore implies that composition does not occur. Restricted composition is a position between nihilism and universalism. According to restricted composition some sums are objects and some sums are not. It is important to note that restricted composition does not imply that there are only a few concise natural necessary and sufficient conditions for composition to occur. After all, for all we know it might be a brute fact that some sums are objects and other sums are not. So, the cases in which composition occurs might be quite irregular. In other words, restricted composition does not imply that the Special Composition Question,[178] i.e. the question under what circumstances some objects compose a further object, has a concise natural answer.[179] The defense of one of the premises of the new argument is based upon the acceptance of the following sufficient condition for composition to occur: some objects compose another object if they together make up a 'demarcated natural kind'. This sufficient condition is explained and argued for later on in this chapter. Note that the validity of this (or any other) sufficient condition for composition to occur does not imply that the Special Composition Question has a concise natural answer. As becomes clear later on, the proposed argument does not depend on this question having a concise natural answer.

The argument

After these preliminary remarks, definitions and basic principles the six premises and the conclusion of the new argument can be presented. They are enumerated in the list below.

1 There are objects,
2 Every composite object is ultimately composed of simple objects (atomism),
3 Every object is caused by or[180] is the cause of another object (causalism),

176 A principle that could be assumed here is that a sum of objects only counts as an object in case it causes *as a whole* another object, or, if it was caused *as a whole*. In fact, this seems to be an intuitively plausible principle. Moreover, the third premise of the proposed new argument that is presented later on in this chapter does actually amount to a closely related (yet different) principle.
177 Here the same intuition is applied as mentioned in the previous footnote.
178 The Special Composition Question concerns the nature of composite objects. It was raised by Van Inwagen and can be more precisely formulated as: 'For any collection of objects, what are the necessary and sufficient conditions for there being an object composed of those objects?' (Van Inwagen 1990).
179 For example, an enumeration of all the sets of objects for which it is true that they compose a further object would certainly not count as a concise natural answer. Examples of concise natural answers include the view that some objects compose a further object if and only if they are 'fastened together' and the view that some objects compose a further object if and only if 'their activities constitute a single life'. Van Inwagen discusses both views. He rejects the former view and argues for the latter (Van Inwagen 1990).
180 The truth-functional connective 'or' is an inclusive disjunction instead of an exclusive one. Thus, the third premise does not rule out objects that are caused *and* that are the cause of one or more other objects.

4 The sum of all caused simple objects, if not empty,[181] is an object,
5 The cause of an object is disjoint with that object,
6 Every caused composite object contains a caused proper part,
7 There is a first cause (conclusion).

181 If the mereological sum of all caused simple objects is empty (i.e. if there are no caused simple objects), then obviously this sum is not an object. Therefore, the fourth premise requires the sum to be non-empty.

Below a logical derivation of the conclusion from the premises is provided, that is, it is shown that if the premises are true, the conclusion, that there is a first cause, is true as well. The derivation of the conclusion consists of five main steps. First, from (2) and (6) a principle is derived, i.e. the principle that every caused composite contains a caused simple. Second, this principle is used to infer that the sum of all caused simples, denoted by M, is an object. Third, it is shown that M is not a cause. Hence, according to premise (3), M is caused by some object A. Fourth, it is shown that object A is itself uncaused, and, fifth, it is shown that object A is in fact a first cause (and thus the unique first cause).

FIRST STEP: EVERY CAUSED COMPOSITE CONTAINS A CAUSED SIMPLE

Now, as stated, the first step is to show that premise (2) and (6) together imply that every caused composite object contains a caused simple object, i.e. that each caused composite has at least one caused simple as a part. In what follows this metaphysical principle is referred to as principle (p). To show that principle (p) indeed holds, let C be a caused composite object and consider the following step by step algorithmic procedure:

1 Let $i := 0$ and $C^{(0)} := C$,
2 According to the sixth premise $C^{(i)}$ contains a caused proper part $C^{(i+1)}$,
3 If $C^{(i+1)}$ is a simple object, then STOP the procedure,
4 Let $i := i + 1$ and proceed with the second step.

According to premise (2) the sequence C, $C^{(1)}$, $C^{(2)}$, ... does not proceed to infinity, i.e., there is a natural number n such that $C^{(n)}$ is a caused simple object. Due to the transitivity of the part-of relation, it follows that $C^{(n)}$ is a part of C. Thus, C contains a caused simple object. So, (p) is derived.

SECOND STEP: THE SUM OF ALL CAUSED SIMPLES (CALLED M) IS AN OBJECT

It is shown that the sum of all caused simple objects is an object. Let M be the sum of all caused simple objects. According to premise (1) there is an object. Premise (3) implies that this object is caused or the cause of another object. So, in any case, there is a caused object N. Object N is simple or composite. It is now shown that in both cases M is not empty. If N is simple, then N is a caused simple, and thus M is not empty. If N is composite, then, according to principle (p), N contains a caused simple object, and thus M is not empty. It follows that in both cases M is not

empty. Therefore, since one of both cases obtains, M is not empty. But then premise (4) implies that M is an object.

THIRD STEP: M IS NOT A CAUSE

It is shown that M is not a cause. Suppose, for reductio, that M is the cause of another object, i.e. K. According to premise (5) object M is disjoint with object K. Thus, K is not a caused simple. Object K is a caused composite. From principle (p) it follows that K contains a caused simple K*. Object K* is a part of M. From this it follows immediately that M and K share K* as a part. But this is contradictory since M and K are disjoint. So, the assumption that M is the cause of one or more other objects needs to be rejected. Object M is not a cause.

FOURTH STEP: THE CAUSE OF M (CALLED A) IS UNCAUSED

According to premise (3) M is caused. Let object A be the cause of M. It is now shown that A is uncaused. Suppose, again for reductio, that A is caused. From premise (5) it follows that A and M are disjoint. So, A is not a caused simple, i.e. A is a caused composite. Principle (p) then implies that A has a caused simple A* as one of its parts. So, the objects A and M share A* as part. But this is surely in conflict with the disjointness of A and M. Therefore, the assumption that A is caused is incorrect. Object A is uncaused.

FIFTH STEP: A IS A FIRST CAUSE

Now, object A is the uncaused cause of the sum of all caused simples, i.e. M. Does it follow that A is a first cause? To show that A is indeed a first cause it also needs to be demonstrated that the effect of A, that is M, is ontologically prior to every other caused object. Thus, let B be a caused object. In that case B is either a caused simple or a caused composite. Principle (p) implies that in either case B has at least one caused simple as a part. But then M is indeed ontologically prior to B. So it follows that A is a first cause.[182]

In defense of the premises

The above shows that the new argument is valid, that is, the conclusion that there is a first cause follows logically from the premises. Now, are there good reasons to think that the premises are true? In what follows a justification of each of the six premises is provided.

PREMISE (1): THERE ARE OBJECTS

The first premise seems to be evident. Surely there are objects. The claim that there are objects is so obvious that it is not even clear how to derive this claim from claims that are intuitively more evident than the claim to be argued for. This shows that the first premise is sufficiently plausible. One could argue that the premise that there are objects is an empirical datum. If so, the argument is a posteriori. On the other hand one could argue that the claim that there are objects is to such an

182 If B is a caused *atom*, then M, being the sum of all caused atoms, is *by definition* not ontologically prior to B. However, this is not problematic at all. For, M surely includes all caused atoms. All caused atoms are subsumed by M. Hence, we can, without loss of generality, adjust the definition of 'first cause' as follows. A first cause is an uncaused cause whose effect is ontologically prior to, or includes, all other effects.

extent basic or fundamental that it is more properly described as being an a priori principle. After all, is there being at least one object not a necessary condition for the activity of rational discourse itself? If so, the truth of the first premise is already taken for granted once one starts to consider the plausibility of that premise, i.e. without objects there would be no question of whether the first premise is plausible and thus that very question implies that premise (1) is true.

PREMISE (2): EVERY COMPOSITE OBJECT IS ULTIMATELY COMPOSED OF SIMPLE OBJECTS

This premise is known as atomism. A thorough defense of atomism is surely beyond the scope of the present chapter. In what follows an initial justification of atomism is given by providing a response to Schaffer's criticism of atomism (Schaffer 2003). Schaffer argues that there is no evidence in favor of atomism.[183] He first discusses and justifiably rejects some a priori arguments for atomism (2003, pp. 501–502). After that he rejects the view that science indicates atomism (2003, pp. 502–505). The view that science indicates atomism is understood by him as the claim that somewhere in the future there will be a complete microphysics that postulates mereological atoms. He rejects this claim because, according to him, there is not a good reason to assume that there will ever be a complete microphysics, let alone one that postulates atoms. Now, Schaffer correctly rejects this claim. There are indeed no good reasons to claim that there will ever be a complete microphysics that postulates atoms. However, this claim is not the only rendering of the view that science indicates atomism. Here a Quinean rendering is proposed according to which it is justified to commit to the ontology presupposed by our best scientific theories, particularly physics. Thus, following this dictum, since physics presumes the existence of a fundamental level of basic building blocks (nowadays 'strings'),[184] it is justified to accept atomism as a premise. In fact, a fundamental level of basic entities is presupposed by all mainstream microphysical theories developed in the past 200 years or so, which makes a commitment to atomism perhaps somewhat more justified than if only the latest generally accepted physical theory would presuppose a fundamental level of basic building blocks.

In what follows a second argument for atomism is provided. This argument is not found in Schaffer (2003). In order to present this argument some additional terminology is needed. Assume a formal additive measure of being that measures the amount of being contained in each object. Let O be an object and denote the amount of being contained in object O by 'being(O)'. Thus, being(O) is zero in case there is no object O. Now, let the objects $\{O_i\}_i$ compose object O. Hence $\{O_i\}_i$ is a composition of O. The additive nature of the involved measure implies by definition that $\text{being}(\{O_i\}_i) = \sum_i [\text{being}(O_i)]$.[185] Now, according to the principle of composition-as-identity, object O simply *is* the objects $\{O_i\}_i$ taken together, that is, object O is nothing above or beyond the

183 In fact Schaffer argues that there is no evidence for the existence of a 'fundamental level'. Yet, for him this amounts to there being no evidence for atomism: '[…] the question of the evidence for fundamentality is best understood as the question: What is the evidence for mereological atoms?' (2003, p. 500).

184 For those who believe string theory is (still) too speculative I refer without loss of argumentative force to the standard model of elementary particle physics, which is entirely accepted and assumes atoms as well.

185 Strictly speaking this formula is not well-formed since *b* has been introduced as a function on objects and not as a function on sets of objects. Yet, this is not a real problem. We may allow the domain of *b* to consist of the class of all sums. In that case the formula becomes 'being(sum$\{O_i\}_i$) = $\sum_i$ [being(O_i)]'.

objects $\{O_i\}_i$ taken as a totality. From this it follows that $being(O) = \sum_i [being(O_i)]$. Next, let O be an object and let Ω and Ω^* be two different compositions of O such that every object in Ω^* is either equal to or a part of an object in Ω. In that case Ω^* is called a refinement of Ω. It follows that $being(\Omega) = [being(\Omega) - being(\Omega^*)] + being(\Omega^*)$. This formula indicates that the amount of being at a certain level of composition is the arithmetical sum of the amount of being at the previous level and the incremental amount between both levels. Now, let $\{\Omega_n\}_n$ be a sequence of compositions of object O such that for all natural numbers n composition Ω_{n+1} is a refinement of composition Ω_n. The sequence $\{\Omega_n\}_n$ is either finite or infinite. Suppose first that $\{\Omega_n\}_n$ is finite and let Ω_N denote the final composition in the sequence. It follows that $being(O) = \sum_{(n=1 \text{ to } n=N)} [being(\Omega_{n-1}) - being(\Omega_n)] + being(\Omega_N)$. How should this arithmetical formula be adapted to the case that $\{\Omega_n\}_n$ is infinite? This case is obtained if N proceeds to infinity and the final composition Ω_N vanishes from the sequence. Hence, the only natural answer appears to be that in that case one obtains the formula $being(O) = \sum_{(n=1 \text{ to } n=\infty)} [being(\Omega_{n-1}) - being(\Omega_n)]$.[186] After these remarks the second argument for atomism can be provided. Suppose, for reductio, that atomism is false. In that case there is a composite object C that is not composed of simple objects. Due to the principle of supplementation C is composed of two or more other objects. So, there is a composition of C. Now, since C is not composed of simple objects there is an infinite sequence of compositions $\{\Omega_n\}_n$ of C such that for every natural number n composition Ω_{n+1} is a refinement of composition Ω_n. Because of the aforementioned observations it follows that $being(C) = \sum_{(n=1 \text{ to } n=\infty)} [being(\Omega_{n-1}) - being(\Omega_n)]$. Further, the principle of composition-as-identity implies that $being(C) = being(\Omega_{n-1})$ and $being(C) = being(\Omega_n)$. Hence, for all natural numbers n, it follows that $being(\Omega_{n-1}) - being(\Omega_n) = 0$. This implies that $being(C) = \sum_{(n=1 \text{ to } n=\infty)} [being(\Omega_{n-1}) - being(\Omega_n)] = \sum_{(n=1 \text{ to } n=\infty)} [0] = 0$. But then $being(C) = 0$ which by definition implies that there is no object C. This however directly contradicts with the fact that C exists. Thus, the initial assumption that atomism is false needs to be rejected. Atomism is true. As mentioned earlier Schaffer (2003) does not contain this argument. Yet, perhaps surprisingly, he agrees that the assumption that 'there are no composite macroentities at all but only fundamental entities in various arrangements' (2003, p. 509) *together with* a commitment to infinite descent 'would have the absurd consequence that all objects would dissolve into thin air' (2003, p. 509). In this respect Schaffer approvingly cites R.W. Sperry (1976) who writes: 'The reductionist approach that would always explain the whole in terms of the parts leads to an infinite regress in which eventually everything is held to be explainable in terms of essentially nothing' (citation from Schaffer 2003, p. 515). But, this is of course the main point of the second argument provided above! The reality of an object inducing an infinite regress of compositions would indeed, so to speak, be left hanging in the air. Its existence would not truly obtain, that is, the idea of that object actually being there would be a sheer delusion. Its existence would be

186 Note that I'm not claiming here that the formula for the infinite case can be mathematically derived from the formula for the finite case. For, such a claim would be clearly ungrounded. The reasoning is qualitative and not quantitative. I am arguing that given the structure of the formula for the finite case, expressing the insight that the amount of being of some composite is obtained bottom-up in precisely two ways, namely incremental influx of being between the levels of composition *and* inheriting the amount of being already available at the lowest level, it follows that the equivalent structure for the infinite case is just an infinite sum of incremental infusions of being, since in the infinite case there is no lowest level. So, this conceptual reasoning should not be taken for a quantitative mathematical derivation of the infinite formula from the finite one. I especially thank Fred Muller for his insightful note on the indeed highly problematic nature of my argument *if* understood as a formal quantitative derivation and not as a qualitative conceptual inference.

187 If atomism is false then there exists a least one downwards infinite sequence of proper parts. Hence, if an *actual* infinite number of objects *cannot* exist it follows immediately that atomism is in fact true. Now, I believe that there is indeed a good argument against the existence of an actual infinite number of objects. The argument is that the assumption that an actual infinite number of objects exists leads to unacceptable absurdities, since in that case 'one can subtract equal quantities from equal quantities and arrive at different answers. For example, if we subtract all the even numbers from all the natural numbers, we get an infinity of numbers, and if we subtract all the numbers greater than three from all the natural numbers, we get only four numbers. Yet in both cases we subtracted the *identical number* of numbers from the *identical number* of numbers and yet did not arrive at an identical result. In fact, one can subtract equal

an illusory fantasy. So, each sequence of downward compositions for a given object indeed terminates, which is precisely the main conclusion of the second argument. Note that 'the reductionist approach that would always explain the whole in terms of the parts' is basically the same assumption as composition-as-identity. Thus, it might be the case that Schaffer, in the light of his approval of Sperry's point, avoids a commitment to atomism by withholding himself from a commitment to composition-as-identity. If so, it may be concluded that Schaffer actually accepts that composition-as-identity implies atomism, which is of course in accordance with the second argument.[187]

PREMISE (3): EVERY OBJECT IS CAUSED OR IS THE CAUSE OF ONE OR MORE OTHER OBJECTS

This premise holds that everything that exists is caused by another object or is the cause of the existence of at least one other object.[188] The disjunction is inclusive. It may be that an object is itself caused and is also the cause of one or more other objects. Note that this premise implies that mereological universalism is untenable since it follows that the sum of all objects is not an object.[189] Premise (3) is reasonable enough to accept as a premise. The intuition behind it is that something can only exist if it is part of 'the causal fabric' of the world. Something that is not caused and that is neither the cause of anything else can not exist simply because it does not take part in the *all-embracing* process of causation. Premise (3) is thus grounded in the viewpoint that the world is a causally intertwined totality. The world does not contain fully isolated inert objects since reality is a causally interweaved unity in which every object participates. So, indeed, as premise (3) holds, everything that exists is caused or a cause because reality is a causally connected unity.

Moreover, premise (3) is constantly confirmed by common experience and by scientific evidence, which gives us a good reason to accept it on empirical grounds. In any case it is cogent as a default or exception permitting rule, which is in fact already sufficient to run the new argument. In addition premise (3) is a claim about the *actual* world only. It is a claim about reality *as given*. Therefore, by accepting premise (3) we are not committed at all to the far-reaching modal assertion that it is metaphysically impossible for there to be a causally inert object, that is, an object that is neither a cause nor caused, which would of course be a much more controversial assertion to accept.

Now, one could object that abstract objects are causally inert, that is, they are uncaused and they do not cause anything.[190] As such they falsify premise (3). This objection does however not have sufficient force. First, there might not be abstract objects, that is, nominalism with respect to abstract objects could be true. Nominalism regarding abstract objects, i.e. the viewpoint that all objects are concrete objects, is surely a defensible position. Due to space limitations this point is not further

quantities from equal quantities and get any quantity between zero and infinity as the remainder. For this reason, subtraction and division of infinite quantities are simply prohibited in transfinite arithmetic a mere stipulation which has no force in the nonmathematical realm' (Craig and Sinclair 2009, p. 112). And, even if the mathematical realm would exist mind-independently, the aforementioned stipulation would have no force therein either.

188 This principle is mentioned and accepted already by Aristotle: 'Everything has an origin or is an origin' (*Physics* 203b6). A variant of it can be found in Plato's *The Sofist*. In this dialogue the stranger says: 'My notion would be, that anything which possesses any sort of power to affect another, or to be affected by another, if only for a single moment, however trifling the cause and however slight the effect, has real existence' (Project Gutenberg, Benjamin Jowett translation). The principle that everything that exists is a cause or has a cause is related to a contemporary position within the philosophy of science known as causalism. Causalists such as N. Cartwright argue 'that we are entitled to speak of the reality of [objects] because we know that they have quite specific causal powers' (Hacking 1983). The exact opposite of the principle that everything that exists is caused or a cause is the principle of existence from Parmenides of Elea. Parmenides maintains that something exists if and only if it is uncaused and not itself a cause. The intuition behind Parmenides' principle is that something can only exist if it is completely changeless and that being caused or being a cause implies change. The principle of existence from Parmenides is surely problematic since it implies that none of the regular objects in our world, such as tables and chairs, exist.

189 It is not difficult to show that this is indeed the case if we use premise (5), that is, the premise that the cause of the existence of an object is disjoint with that object. Now, the sum of all objects cannot be caused and can neither

discussed. Second, even if there are abstract objects, one could argue that they are all caused and therefore do not falsify premise (3). After all, concepts and propositions are paradigmatic examples of abstract objects. Concepts and propositions such as 'bicycle', 'elevator' and 'The bicycle is in the elevator' are certainly plausibly understood as being the product of human thought and therefore as being caused. The same can be maintained for other classes of abstract objects, such as the objects of mathematics. One could plausibly argue that mathematical objects are caused by a specific activity of human thought, namely *abstraction from* or *idealization of* concrete objects in nature. This line of thought can be further extended, that is, it can be defended that all abstract objects are man-made artifacts and thus caused. Note that this line of thought collapses into a defense of nominalism with respect to abstract objects if one contend that humans can only cause concrete objects, i.e. mental contents or material states of affairs. Third, even if some abstract objects, such as sets, are uncaused, it might be the case that they are the originating cause of other abstract objects. One could for example argue that sets are the originating cause of numbers since numbers are mathematically 'constructed' from sets. So, in that case, uncaused abstract objects are causes and therefore they do not falsify premise (3). Fourth, suppose that there are causally inert abstract objects after all. In that specific case one could recast the new first cause argument presented in this chapter by replacing all occurrences of 'object' by 'concrete object', i.e. by limiting the domain of discourse to concrete objects.[191] The conclusion of the new argument would then be that there is a unique concrete uncaused cause whose effect is ontologically prior to every other concrete caused object. Such an object definitely qualifies as a first cause in a metaphysically interesting non-trivial sense.

be the cause of another object because such a cause or effect would have to be disjoint with all objects taken together. This is impossible since there is nothing outside the sum of all objects.

190 Both René van Woudenberg and Jeroen de Ridder pointed to this specific objection.

191 This suggestion was provided by Jeroen de Ridder.

PREMISE (4): THE SUM OF ALL CAUSED SIMPLE OBJECTS, IF NOT EMPTY, IS AN OBJECT

Additional terminology is required to justify the premise that the sum of all caused simple objects, if not empty, is itself an object. Koslicki (2008) defines *kinds* as 'categories or taxonomic classifications into which particular objects may be grouped on the basis of shared characteristics of some sort'. In her book Koslicki provides examples of kinds, such as 'objects that are currently in my visual field'. 'children born on a Tuesday', 'objects that can be used either as doorstops or as cleaning supplies', 'chairs', 'bachelors', 'janitors', 'hunters', 'electrons', 'water', 'planets', 'diamonds', 'tigers', 'cats' and 'gold'. Now, some kinds are *natural kinds*. Natural kinds are kinds that are rooted in some underlying structural uniform regularity out there in nature. There is no single conclusive answer to the question how to decide which kinds are natural. Still, in the literature criteria are proposed for the identification of kinds plausibly thought of as being natural. In what follows the criteria examined in Koslicki (2008) are captured. First, a natural kind is not 'arbitrary, heterogeneous or gerrymandered'. Second, the members of a natural kind have much more features in common than just the

features already present in (or logically implied by) the definition of that kind. So, natural kinds are such that we continuously discover previously unforeseen common features. In other words, a natural kind is a kind for which its specification does not capture everything that is true about its members. Third, natural kinds 'provide grounds for legitimate inductive inferences concerning the members in question'. Fourth, natural kinds are expected to figure in the laws and in the explanations of science. These criteria are best understood as follows. The more criteria are met by a given kind, the more plausibly that kind is thought of as being a natural kind. The earlier mentioned kinds 'the objects that are currently in my visual field', 'children born on a Tuesday' and 'the objects that can be used either as doorstops or as cleaning supplies' meet none of the above criteria and are thus plausibly rejected as being examples of natural kinds. The kinds 'chair', 'bachelor', 'janitor' and 'hunter' meet the first criterion, but not the other three, and are therefore not plausibly thought of as being natural either. On the other hand, the kinds 'electron', 'water', 'planet', 'diamond', 'tiger', 'cat' and 'gold' all meet the first three criteria. Besides, most (if not all) of them also satisfy the fourth criterion. So, these seven examples are plausibly understood as being natural kinds.

Now, the notion of a *demarcated natural kind* is introduced. A demarcated natural kind is a natural kind for which it holds that membership is not vague, i.e. the specification of that natural kind is such that it is never unclear whether a given object is a member of that natural kind or not. With respect to kind membership there are no indeterminate cases if the natural kind in question is a demarcated natural kind. The boundaries of a demarcated natural kind are not vague, i.e. we can draw a clear unambiguous principled line between what counts as a member and what does not count as a member. Of the seven examples of natural kinds only 'electron', 'water' and 'gold' seem to be demarcated natural kinds. After all, biological species such as tigers and cats are, according to Darwinism, not demarcated. Also, there is no explicit definition of what counts as a planet or a diamond.

The mereological sum of the members of a demarcated natural kind is properly defined since there is a clear unambiguous line between what does and what does not count as a member of the kind in question. Such a sum is not problematic in other ways either since the objects in the sum do not overlap each other, i.e., they are all mutually disjoint. 'We are simply aggregating concrete particulars' to utilize a phrase from Koons (1997). Now, the sum of all the members of a demarcated natural kind is best understood as being an object itself, i.e. the relation between the totality of members of a demarcated natural kind and each of the individual members of that kind is best understood as the relation between a whole and its parts.[192] As an example one could take the case of water. The totality of all water molecules in the universe counts plausibly as an object that can be referred to as 'the water in

192 It is required to restrict this claim to *demarcated natural* kinds. First, the sums of the members of non-natural kinds, e.g. 'children born on a Tuesday' or 'objects that are currently in my visual field' are not plausibly understood as objects. The claim that these sums are objects would imply that even more gerrymandered sums, such as the sum of the bottom of the statue of liberty and three atoms in the handlebar of some bicycle, or the sum of the handlebar of a bicycle and one or more atoms in someone's left hand, etc., would also count as objects, which is unreasonably counterintuitive. Moreover, as is shown earlier in this chapter, the third premise of the new argument implies that mereological universalism is false. Second, the sums of the members of non-demarcated natural kinds (such as tigers or cats according to Darwinism) are not plausibly understood as objects either. So, a restriction to natural kinds *merely* does not suffice.

the universe' or 'the universe's water'. Surely, the fact that currently the water molecules are spatially spread across the entire universe does not make the totality of water molecules any less a concrete particular whole than if all the water molecules would be spatially 'packed together'. Thus, the spatial structure of the universe's water might change, but it is still 'the water of our universe', or, 'the universe's water', i.e. an object amongst other objects.

Now, the caused simples are a kind, its definition being 'the objects that are both caused and simple'. Surely, this kind is a natural kind. First, it is not arbitrary or gerrymandered. Second, the properties of the caused simples are not exhausted by being simple and being caused. After all, the discipline of string theory[193] (or any future discipline having the basic building blocks of reality as its subject) is concerned with nothing less than an in-depth understanding of all the properties of the ultimate constituents of our universe. Thus, if the common features of the caused simples would be nothing more than being caused and simple, string theory (or any subsequent future discipline having the ultimate constituents of the world as its object) would be a rather empty idle discipline, which it surely is not. Third, the kind of caused simples is plausibly not a conventionalistic or nominalistic type of classification, since being caused and being simple refers to some realistic regularity or uniformity in nature. Therefore, the kind of caused simples provides sufficient ground for inductive inferences. Fourth, as already mentioned, the kind of caused simples plays a quite important role in science, i.e. in the quest for the most fundamental laws of nature, and in scientific explanations (such as, nowadays, within string theory). It follows that the caused simples adhere to all four discussed identification criteria for natural kinds. So, it is sufficiently reasonable to maintain that the caused simples are a natural kind.[194]

It is now shown that the caused simples are in fact a demarcated natural kind. Consider the definition of the natural kind in question, i.e. 'objects that are both caused and simple'. This specification is unambiguously clear. After all, the existence of each given object is either caused or uncaused, and every given object either does or does not contain a proper part. Thus, according to the aforementioned principle, that is, the principle that the sum of all the members of a demarcated natural kind is an object, the sum of the caused simples, if not empty, is an object, which is what is stated by the fourth premise.

PREMISE (5): THE CAUSE OF AN OBJECT IS DISJOINT WITH THAT OBJECT

The premise that the cause of an object is disjoint with that object is justified, since, within the context at issue, causing an object's existence, its negation would have highly counter-intuitive, if not to say rather absurd, consequences. Plausibly, the cause of the existence of an object

193 For those who take string theory as (still) too speculative I refer instead, without loss of argumentative force, to the standard model of elementary particle physics, which is surely accepted as a scientific theory.

194 One might point out that there could be different types of caused simples. Yet, this does not imply that the caused simples are not a natural kind. After all, exemplary examples of natural kinds, such as human beings and quarks, consist of different types as well, for example 'man' and 'woman' (in the case of human beings), and 'up', 'down', 'charm', 'strange', 'top' and 'bottom' (in the case of quarks).

is ontologically prior to that object and each of its parts. So, if an object's cause would not be disjoint with the caused object, it would follow that the cause of the object is prior to a part of itself, which seems impossible. Nothing is prior to a part of itself. Therefore the cause of an object is disjoint with that object. A caused object and its cause have a 'separate existence' (Koons 1997). So, they do not share a common part.

PREMISE (6): EVERY CAUSED COMPOSITE OBJECT CONTAINS A CAUSED PROPER PART

According to the sixth premise each caused composite object contains a caused proper part. This seems to be a reasonable premise as well. Surely, at least one of the proper parts of a caused composite is itself caused. It is now shown that the sixth premise is indeed justified. Suppose, for reductio, that there is some caused composite, let's call it N, for which none of its proper parts are caused. Thus, each and every proper part of N is an uncaused object. In that case N's proper parts taken together, i.e. the totality of the proper parts of N, is not caused either. Now, because of the principles of supplementation and composition-as-identity,[195] the mereological sum of the proper parts of object N simply *is* object N. This implies that N is also uncaused, which contradicts the initial assumption. Therefore, this assumption needs to be rejected, i.e. every caused composite contains at least one caused proper part, which is what is stated by the sixth premise.

Closing remarks

As argued above each of the six premises of the new argument is justified for the context in question, i.e. causation with respect to bringing about the existence of an object. It was already shown that the premises logically imply that there is a first cause. Thus, the new argument seems a good argument, i.e. its conclusion follows deductively from justified premises. As mentioned in the introduction of this chapter, the proposed new argument does not depend on metaphysical modal notions, such as those of metaphysical or broadly logical possibility and necessity. In this respect it is, as said earlier, wholly different from the other new contemporary first cause arguments.[196] One could argue that it is beneficial not to depend on metaphysical modal concepts because hitherto there is hardly consensus of opinion on their meaning. For example David Lewis, Alvin Plantinga and Theodore Sider each offer different accounts of the nature and characteristics of metaphysical possibility and necessity (Rocca 2010). As explained in the introduction, the primary aim of this chapter was to show that, atomism and causalism together imply the existence of a first cause if some very generic and sensible conditions regarding the nature of parthood, composition and causality are accepted. Thus, to conclude, a commitment to a first cause comes quite naturally with a commitment to the viewpoints of atomism and causalism.

195 Both principles have been introduced and discussed earlier in this chapter.
196 i.e. those of Koons (1997), Gale and Pruss (1999) and Rasmussen (2010).

VII A critical assessment of the argument from causalism and atomism

Introduction

As argued for in the previous chapter, the argument for the existence of a first cause from the theses of causalism and atomism, supplemented by a number of generic principles about the nature of (the relationship between) mereological parthood and originating causes, is both logically valid and has adequate, that is to say sufficiently plausible, premises. This argument will hereafter be referred to as 'the new argument'. In this chapter I turn to a detailed critical assessment of the new argument by considering whether the objections against the traditional arguments of Aquinas and Leibniz, and the objections against the contemporary arguments of Koons, Gale and Pruss, and Rasmussen, as evaluated in the previous chapters, have any force against the new argument. Moreover, I shall propose and assess a set of additional objections that specifically address the new argument. As I intend to show, all discussed objections in the previous chapters, including the additional specific ones, do not pose a problem for the new argument, which implies that the new argument for the existence of a first cause is indeed cogent. We are warranted in accepting it.

Objections discussed as part of the traditional Thomistic and Leibnizian arguments

If we reconsider the paradigmatic versions of the cosmological arguments from Aquinas and Leibniz, as described and examined in the second chapter, it seems clear to me that the objections raised against both versions have no impact on the new argument. In what follows I show that they indeed fail as objections against the new argument.

One objection against the Thomistic argument was that an infinite regress of causes might still be possible, even though it is hard for us to conceive. But, surely, this objection doesn't apply to the new argument because none of the new argument's premises assumes that an infinite downwards regression of originating causes is impossible. Indeed, even if there are one or more downwards infinite sequences of causes, *the uncaused cause of all caused simples* would still be the sole cause of all caused simples contained in each and every member of all infinite causal sequences. Thus the uncaused cause of all caused simples would still adequately be referred to as *the ultimate origin or ground of each member of all infinite causal series*, which is precisely what one expects of

something referred to as a first cause. Hence, even if there are infinite causal series, the uncaused cause of all caused simples as inferred by the new argument is still properly referred to as a *first cause*.

The second objection against the Thomistic paradigmatic version is not a threat for the new argument either. According to this second objection one cannot easily infer from there being an initial uncaused cause of every finite causal series that the total number of initial uncaused causes is one. So, the objection goes, the Thomistic argument has not really arrived at *one* single object that could then properly be called *the* first cause. This objection doesn't touch the new argument since the definition of a first cause as used by the new argument, that is, a cause that is uncaused and the effect of which is ontologically prior to every other effect, entails that there can be at most one first cause.[197] But then the conclusion of the new argument, that there is at least one first cause, immediately implies that there is in fact *precisely one first cause*, which of course is again exactly what we would expect from something referred to as a first cause.

The paradigmatic version of the traditional Leibnizian cosmological argument, as described in the second chapter, does not rely on the principle of sufficient reason, according to which every contingent truth has a sufficient explanation, but on the weaker principle that every contingent object has an originating cause. The reason for this was, as discussed, that the principle of sufficient reason itself has been shown to be problematic by Peter van Inwagen (Van Inwagen 1983, pp. 202–204). Yet, as became clear, the aforementioned weaker variant of the principle of sufficient reason is problematic as well, since under two rather plausible conditions on the nature of causation, that is, *(i)* originating causes are disjoint with their effects, and *(ii)* the cause of a caused part of a caused whole is a part of the cause of the caused whole, it can be shown that there are uncaused contingent objects. Hence, not all contingents have to be caused and thus the weak variant of the principle of sufficient reason doesn't hold unconditionally. This problem for the Leibnizian paradigmatic version does however not impair the plausibility of the new argument at all, since the new argument does not use the modal notions of contingent and necessary objects. And indeed, the causal principle on which the new argument is based, that is, every object is a cause or has a cause, is different from the weak principle as invoked by the Leibnizian argument.

Another serious problem facing the Leibnizian argument is that the necessarily existing cause of the sum of all contingent objects is not shown to be a *first* cause of everything else besides itself. For, first, there might be one or more other necessary objects that have no causal relationship with the necessarily existing cause of all contingent objects, and, second, the necessary cause of the sum of all contingent

197 Indeed, as mentioned in the previous chapter, if A and A* are both first causes, then their effects, say, B and B* would have to be ontologically prior to each other, but this is impossible since the relationship of being ontologically prior is asymmetrical.

objects is not shown to be an uncaused object. After all, as we have seen on various previous occasions, necessary objects might themselves be caused. Therefore it is not shown that the necessary cause of the cosmos is uncaused and thus a first cause. Needless to say that this second problem for the Leibnizian argument is not a problem for the new argument either, simply because the premises of the new argument entail that the cause of all caused simples is uncaused and thus properly first. In other words, the new argument does not rely on some unfounded path from a necessary being to a first cause. Indeed, the whole notion of necessary (and contingent) being plays no role at all in the new argument.

A third significant worry for the paradigmatic Leibnizian argument that we discussed earlier is that it is not shown that the sum of all contingent objects is itself a contingent object. Now, since the weak principle that every contingent object has a cause may, even if it would hold unconditionally, obviously only be applied to contingent objects, it follows that the application of this principle to the sum of all contingent objects is groundless until a good reason is provided for why this sum would be a contingent object.[198] This worry for the Leibnizian argument does not have an impact on the new argument either. And this is not just because the new argument does not refer to contingent objects (although this fact in itself already suffices to conclude that the worry is not relevant for the new argument), but also, and more importantly, because in the case of the new argument the sum of all caused simples can plausibly be considered as being an object. For, as I have argued in the previous chapter, the collection of caused simples constitutes a so-called demarcated natural kind, and each demarcated natural kind can itself be considered as being an object. Therefore, in the case of the new argument, a reasonable ground is given and defended for considering the mereological sum of all caused simple objects as being an object. Now, this ground, that is, the fact that the caused simples constitute a demarcated natural kind, does unfortunately not help to solve the worry for the Leibnizian argument because the contingent objects are not plausibly understood as being a natural kind, let alone a demarcated natural kind. For, only one of the four criteria for natural kinds as discussed in the previous chapter is met by the contingent objects. I shall briefly demonstrate this. The first criterion for natural kinds is that natural kinds are not arbitrary or gerrymandered. Well, this criterion is properly satisfied in the case of contingent objects. The kind of contingent objects is characterized by a clear definition, being those objects that exist but for which it would have been possible not to exist. Yet, the second criterion, the requirement that the members of a natural kind have much more features in common than just the features implied by their definition, is not met. For we simply are not able to give any example of a feature that all contingent objects share and that is not already entailed by the definition of contingent object.[199] And also

198 Now one may argue that our universe is plausibly understood of as being an object. For example, as W.L. Craig points out in a defense of the Leibnizian argument: 'One thinks of Richard Taylor's illustration of finding a translucent ball while walking in the woods. One would find the claim quite bizarre that the ball just exists inexplicably; and increasing the size of the ball, even until it becomes coextensive with the cosmos, would do nothing to obviate the need for an explanation of its existence' (Craig 2007, p. 76). Here the intuition is that the existence of the universe demands an explanation because it is an object, just as the ball or any other object in the universe. And indeed, as modern cosmology learns, the universe is something with specific properties (e.g., an age, volume, mass, density and expansion rate) just like any other object, which provides further support for the claim that the universe is an object. But then, these observations, while reasonable in themselves, do not solve the third worry for the Leibnizian argument. After all, for all we know, there might be many contingent objects outside our universe, either within other universes or even outside the realm of space-time. Moreover, it is not guaranteed upfront that all objects in our universe are contingent. Hence, our universe cannot be equated with *the sum of all contingent objects*, and therefore, even if our universe is an object, the sum of all contingent objects does not have to be an object at all.

199 Surely, 'being caused' is not a good example of such a feature, since, as I argued for, under certain quite plausible conditions on the nature of causation and parthood, there could be uncaused contingent objects.

the third criterion is not satisfied. After all, 'being a contingent object' is not shown to provide a sufficient legitimate ground for proper inductive inferences. Further, 'being contingent' is not a property of objects that has been shown to figure in the laws and explanations of science, so that the fourth criterion for being a natural kind isn't met either. In fact one might wonder whether 'being contingent' is rooted in some ontological structural regularity in nature at all. For that surely doesn't follow if we would adopt an epistemic account of possible worlds, such as the Kripkean account according to which possible worlds are nothing more than just stipulated epistemic alternatives of actual states of affairs. We conclude that the contingent objects cannot be taken to be a natural kind, and hence neither to be a demarcated one. So the new argument's ground for holding that *the sum of all caused simples* is an object, that is, the sum constitutes a demarcated natural kind and is therefore an object, cannot be used to dismiss the worry of Leibniz's traditional cosmological argument that *the sum of all contingent objects* might not be an object. In other words, the principle that demarcated natural kinds are objects, as invoked by the new argument, does not help to restore the Leibnizian argument.[200] The only way to argue that the sum of all contingent objects is itself a contingent object seems to be to accept mereological universalism. But, as we saw as well, the thesis of universalism is itself a highly implausible problematic thesis.

200 Besides, there is still another significant difference between the caused simples and the contingent objects that suggest that the sum of the latter, contrary to the former, is not an object. For, since all caused simples are mutually disjoint and hence do not overlap each other, the sum of the caused simples is obtained in an unproblematic way by aggregating disjoint particulars, whereas this isn't true for the sum of all contingents.
201 Reasons do not have to be understood as pure epistemic constructs, that is to say, as being *explanations*. For the concept of being a reason for an object's existence could have (at least partially) ontological import.

Objections discussed as part of the arguments of Koons, Gale & Pruss, and Rasmussen

From what has been said above I conclude that the main problems for both the Thomistic and the Leibnizian paradigmatic versions of the cosmological argument do not pose difficulties for the new argument. Let us now turn to the objections against the contemporary versions of the cosmological argument, that is, the objections raised against the arguments of Koons, Gale and Pruss and Rasmussen as discussed in detail in the previous three chapters.

OBJECTIONS FROM HUME, KANT AND RUSSELL

The aforementioned three contemporary versions of the cosmological argument have been confronted with the classic objections from Hume, Kant and Russell. Let us see how the new argument holds against these objections. I start with the well-known objections from Hume. Hume argues that the cosmological argument cannot come off the ground since we lack other contingent universes as reference cases for the claim that our contingent universe must have a cause. This objection does not pose a problem for the new argument. For, the new argument appeals to the thesis of causalism in order to infer that the mereological sum of all caused simples is either a cause or caused, and, in order to defend both causalism and its application to the sum of all caused simples, it is surely not required to empirically observe that nearly all worlds in some hypothetical observational sample of worlds are caused.

The new argument is also not vulnerable to the Humean objection that only logical truths are necessary. Indeed, the new argument does not invoke the modal notions of contingent or necessary truths at all. As we saw Hume also contends that causes and effects must always stand in a relationship of temporal priority, that is to say, causation implies that the cause always precedes its effect in time. Now, this objection does not have much force against the new argument. First, as we have seen in the previous chapters, it is perfectly valid to argue that causes do not need to be temporal. For, what appears to be at most analytically captured in the concept of causation is the following. Object A *causes* object B if and only if (i) A is *ontologically prior* to B, and (ii) A is *ontologically responsible* for the existence of B. Now, object A is ontologically prior to B if and only if object A could exist without B, but B could not exist without A. Thus, the notion of temporality is not analytically contained in the notion of being ontologically prior. Further, object A is taken to be ontologically responsible for B if and only if A is part of the reason[201] of the existence of B, which isn't in itself a temporal notion either. Therefore, since none of both notions require temporal priority, it follows that the above characterization of causation doesn't include temporal priority either. Thus, according to that characterization causes could be both temporal and non-temporal. And indeed, in the previous chapters we have seen plausible candidates for non-temporal causation. For example, under mathematical Platonism, mathematical objects can be said to be the cause of mathematical truths. Thus, the objects '1' and '2', together with the relationships of addition and equality, can be said to be the originating cause of the truth that 1 plus 1 equals 2.[202] Thus, because the above mentioned characterization of causation allows for both temporal and non-temporal causation, it follows that Hume's objection that causal priority entails temporal priority is not properly founded after all. And there is yet another reason why this objection has no force against the new argument. The ontological framework on which the new argument is based is so generic that time (and space) cannot be introduced as separate types of reality in addition to the type of being an object. For, according to the new argument's ontological framework every one-thing that exists is called an object and an object is nothing more than some one-thing that exists. In other words, as far as the new argument's framework is concerned, objects and relationships between objects (such as the relationships of causation and parthood) are in the end all there is to reality.[203] But then even time and space itself are objectual, that is, are to be considered as (sums of) objects. And thus, in such a generic framework, it becomes quite reasonable to think about causation in a much more abstract sense, encompassing both temporal and non-temporal causation. For only such an abstract metaphysical stance, being surely a much more generic perspective than that of traditional physics, makes it possible to ask prima facie quite sensible questions such as 'Is there a cause of time? If so, what caused the state of affairs of there being time?' It is precisely these types of sensible metaphysical questions which require

202 As another example, one could argue that the constituents of a composite are an integral part of the explanation for that composite's existence, so that in this case one might want to agree that the constituents are ontologically responsible for that composite's existence. And if these constituents are also ontologically prior to the composite it would follow that they could adequately be called the cause of the composite. This cause is not temporal if we assume that the constituents have never been temporally prior to the composite, which is defensible if we consider the composite as being a structured whole containing its own structure as one of its constituents (cf. Koslicki 2008). For then, as soon as *all* constituents exist, the composite exists.

203 Note that a relationship between objects is not considered as being some one-thing, that is, as being an object. The framework has it that the objects are the existents or entities that together make up the world and that allow for there being relationships between them, without these relationships being themselves objectified. Indeed, the framework has 'relationship' as a primitive term in addition to the term 'object'. So, the framework does not support a reification or thingification of the relationships between objects. Take for example the causal relationship. According to the ontological framework the cause *is* an object, i.e. the object that produces the effect, and the effect *is* an object as well, and the relationship between cause and effect is not some third thing or entity. The same holds for the relationship of part and whole. The part *is* an object, i.e. the object that is part of the whole, and the whole *is* an object, and the relationship between part and whole isn't some further third object either. Everything we need and want to say about causation and parthood is captured by the relata-objects of these relationships. And thus further existents are not required.

a concept of causation more generic than Hume is able to offer us, and I take it that the new argument's framework provide us which such a much more abstract encompassing notion of causality. Therefore, to conclude, the typical Humean presumption that causation can only be temporal doesn't have much force against the new argument.

In our evaluation of the Gale and Pruss's cosmological argument we also looked at Hume's objection that there is no need to refer to an *external* causal explanation of a given whole in case every part of it is properly explained by referring to one or more other parts of that particular whole. As became clear this objection is not a concern for Gale and Pruss's cosmological argument. And it isn't a threat for the new argument either. For, the premises of the new argument entail that there is a cause of the sum of all caused simples which is disjoint and therefore external to that sum. Of course, one might want to challenge the new argument's premise that originating causes do not overlap their effects, but I shall address that objection later on in this chapter.

Our treatment of the cosmological arguments of Rasmussen confronted us with still some additional objections from Hume. Neither Hume's objection that there are in fact no necessary objects since conceivability entails possibility and everything that exists can be conceived of as not existing, nor his further objection that the necessary object arrived at by cosmological arguments could as well be prime matter itself, have any force against the new argument. After all, the new argument doesn't appeal to contingent or necessary objects. And also Hume's objection that the concept of an uncaused object is not contradictory and thus one may not assume that contingent objects are caused, has no impact on the new argument, simply because, as we have seen, the new argument allows for there being uncaused objects, which, on account of the premise of causalism, are taken to be the originating cause of at least one other object. Moreover, Hume's objection that one may not inquire into the cause of the whole of all contingent things, since that whole is merely a concept in the mind and hence non-existent in reality, has no force either because, apart from the fact that the new argument does not refer to contingents, the new argument provides a specific ground for why the sum of all caused simples can properly be considered an object that exists in reality instead of just in the mind. So we can conclude that none of the classical objections of Hume has sufficient force to render the new argument untenable.

I take it that the same holds for the classical objections to the cosmological argument of Immanuel Kant. First, Kant's claim that causation is an internal concept of the mind that does not refer to an external mind-independent reality has no force against the new argument. For, as we have seen earlier, Koons points out in defense of his own cosmological argument that 'the notion of causation has taken root once again within philosophy, proving to be indispensable to recent

advances in semantics, epistemology and cognitive science' (1997, p. 193). And indeed, we simply cannot avoid to appeal to a notion of causation in order to find scientific explanations of most (if not all) phenomena. The Kantian objection that cosmological arguments are not cogent since they presuppose the ontological argument, which is unsound because it is based upon the untenable premise that a necessarily existing being is possible, has no impact on the new argument either, for, clearly, the new argument does not assume the metaphysical or broadly logical possibility of such a being.

What about the classical objections of Russell? One of Russell's objections against all cosmological arguments is that they commit the fallacy of composition, that is to say, these arguments apply the principle that every contingent object is caused to the total sum of all such objects, which is ungrounded. In other words, as Russell contends, from the fact that each contingent thing in the universe is caused one cannot conclude that the universe itself is caused. Indeed, as Russell famously proclaims in his BBC radio debate with Frederick Copleston: 'The universe is just there, and that's all'. But, again, it should be clear that his objection does not have any force against the new argument, for it is shown as part of the new argument that the effect of the derived first cause is defined as the sum of all caused simples, which is shown to be an object amongst other objects and thus quite naturally something to which the premise of causalism can be applied. Hence, at no point in the derivation of the conclusion of the new argument do we run into the risk of a category mistake. Quite the contrary, for, as we have seen, special attention is given to demonstrate that the sum of all caused simples is an object and therefore indeed the kind of entity to which we can apply the premise that every object is either caused or a cause.

As we saw Russell also raised the objection that the universality of causation is merely heuristic in the sense that scientists should always strive to find causes for phenomena, but that this doesn't imply that every contingent thing is guaranteed to have an originating cause. Now, surely, this objection is harmless to the new argument for none of the premises of the new argument entails the universality of causation. Instead, the new argument is premised on the thesis of causalism, which is the claim that everything that exists is either caused or itself a cause. Now, I take it that causalism can indeed be taken as a cogent description of reality, not just for the reasons mentioned in the previous chapter, but also, and perhaps more suited to rebut an Russellian objection, due to the enormous empirical scientific confirmation of this thesis. In any case the thesis of causalism is much more plausible than its negation and therefore it is surely sufficiently reasonable to accept this thesis as a premise in a metaphysical argument. Indeed, as Peter van Inwagen points out: 'I am happy to admit that I am uneasy about believing in the existence of 'causally irrelevant' objects. The fact that abstract objects, if they exist, can be neither causes nor effects is one of the many features

of abstract objects that make nominalism so attractive.' (Van Inwagen 2009, p. 19).

A third objection of Russell that we encountered during our evaluation of Rasmussen's cosmological arguments is that it is possible that there are infinite causal series. And since, as the objection concludes, such series cannot have a proper causal explanation, it follows immediately that cosmological arguments for there being a first cause of the whole of reality are not tenable. However, as we noted earlier in this chapter, this objection fails as an objection to the new argument since the new argument's premises all allow for there being infinite causal series.

OBJECTIONS RELATED TO KOONS' ARGUMENT

Let us now have a closer look at some of the objections that have been specifically raised against the cosmological argument of Koons, both objections as mentioned and rebutted by Koons himself (Koons 1997, 2001) and the further objection that I have put forward against his argument. One objection was that quantum mechanics provides counter evidence to the universality of causation. But surely, this objection, to have force against the new argument, should be rephrased as the objection that quantum mechanics provides counter evidence *to causalism*, that is, to the premise that everything that exists is either caused or a cause. But, is this the case? Does quantum mechanics convincingly shows that causalism doesn't hold in an unrestricted sense? The main worry is that according to quantum mechanics so-called 'virtual particles' can come all of a sudden into existence without any reason at all, that is *uncaused*. Therefore, since it is not guaranteed that these particles are themselves originating causes of other particles, they are alleged examples of objects that are not caused or the cause of other objects, which would violate the principle of causalism the new argument relies on. However, it cannot be ruled out that easily that virtual particles are not in any sense the cause of another object, especially since the ontological framework the new argument is built on allows for a wide inclusive range of items being properly called objects, a range in principle much wider than the collection of items considered objects according to quantum mechanics. So, in fact it might still be true that these uncaused virtual particles cause objects in some wider sense than allowed by quantum mechanics itself. In addition, the claim that virtual particles can pop into existence spontaneously, apparently without any originating cause whatsoever, would be only defendable if we accept upfront an *in*deterministic interpretation of quantum mechanics, such as the Copenhagen version. For, if we would accept one of the deterministic interpretations of quantum mechanics, for example the interpretation of David Bohm (Bohm 1952) or of Heinz Dieter Zeh (Zeh 1970), it does not follow at all that virtual particles can come into existence without any cause. And in fact, as I have argued for in the chapter on the cosmological argument of Gale and Pruss, there are good philosophical reasons to prima facie favor deterministic interpretations

of quantum mechanics over indeterministic ones. Besides, one could argue that *even in the case of the Copenhagen interpretation* virtual particles do not pop into existence wholly uncaused. For, they originate *from the quantum vacuum*, which is an object in itself, so that, on a neo-Aristotelian view of causation, one could adequately hold that these particles, although not having an efficient cause (causa efficiens), have a proper material cause (causa materialis) and are therefore not uncaused. Indeed, as W.L. Craig writes: 'Even on the traditional, indeterministic interpretation, particles do not come into being out of nothing. They arise as spontaneous fluctuations of the energy contained in the sub-atomic vacuum [...] Popular magazine articles touting [sub-atomic physics] as getting 'something from nothing' simply do not understand that the vacuum is not nothing, but is a sea of fluctuating energy endowed with a rich structure and subject to physical laws' (Craig and Sinnott-Armstrong 2004, p. 6). So, by taking the above considerations into account, I conclude that there is no good reason to straightforwardly accept that quantum mechanics provides sufficient counter evidence to the premise of causalism, and, thus, the objection from quantum mechanics, as it stands today, has no real force against the new argument.

Another objection against Koons' argument was the objection referred to as the 'adjusted Ross' objection. The main point of that objection is that, *even* if we accept that there is an uncaused object that causes the cosmos, a vicious infinite regress is still not prevented. In what follows I present a slight modification of that objection and argue that it fails as an objection against the new argument. Let us indeed accept that there is an uncaused object that causes the cosmos. Now consider the fact or state of affairs *that the uncaused object causes the cosmos*. As the objection goes, one could still ask what causes this fact. And directly after having received an answer one could ask for the cause of the fact or state of affairs *that the cause of the fact that the uncaused object causes the cosmos is causing that very fact*, and so on, ad infinitum. Now, this specific objection is no threat to the new argument since it appeals to a type of causation to which the new argument's ontological framework is not committed at all, namely causation of facts or states of affairs. For, as explained in the previous chapter, the notion of causation adopted by the new argument's framework is that of causation of *objects* by *objects*. In other words, causation within the new argument's framework is a two-place relationship between objects instead of facts or states of affairs. Thus, we can ask for the cause of *an object*, such as the sum of all caused simples, but not for the cause of the fact or state of affairs *that that very cause causes that very object*. Hence, a vicious infinite regress is prohibited due to the objectual nature of the notion of causation as adopted by the ontological framework of the new argument. Moreover, it seems to me indeed cogent to limit the notion of causation *to objects* in the context of the new argument, precisely because this context is the context of the coming into being of *objects* due to the actions

or effects of other entities or beings (that is, other objects) that have certain efficacious powers or dispositions. Finally, the new argument allows for there being uncaused objects. So, naturally, there might also be uncaused facts.

Other objections against his argument that Koons considers, such as that effects typically have contingent causes, or that postulating a multi-verse helps to avoid an appeal to a first cause, or that one could always ask the further question where the cause of the cosmos came from, pose no problems for the new argument either, because, first, as stated, the new argument does not rely on the notion of *contingent* objects, and, second, if there is a multi-verse, then the mereological sum of all caused simples would be co-extensive with it, so that it would follow from the new argument's premises that the first cause is the sole originating cause *of the entire multi-verse*, and third, as we saw before, the premises of the new argument deductively entail there being an *uncaused* cause of the sum of all caused simples, and thus the new argument's premises logically exclude that this cause is itself caused.

Yet, in the chapter on Koons' cosmological argument I provided a further objection against his argument that might be a concern for the new argument. As pointed out in that chapter one of the main challenges for any first cause argument is answering the question *what it is that we are trying to establish a first cause for*. I introduced the term 'derived reality' to refer to the effect for which the first cause is to be understood as being the ultimate originating cause. Now, each first cause argument is premised on some underlying ontological framework that sets the ontological context for the argument. This ontological context determines amongst others the proper candidate for 'derived reality' for that argument. For example, a first cause argument that argues for the existence of an ultimate originating cause of our observable universe is not an adequate argument if the underlying ontological framework assumes, or at least leaves open, that there might exist a multi-verse comprised of many, perhaps infinitely many, universes. For, the context set by such a framework entails that the proper candidate for 'derived reality' is not just our own universe, but the multi-verse, even if it would actually only consists of our universe. Now, surely, the proper candidate for 'derived reality' for the argument of Koons, being a contemporary version of the Leibnizian cosmological argument, is the mereological sum of *all* contingent objects. But, and that was the core of my objection, Koons argues that there is an ultimate originating cause of the sum of all *wholly* contingent objects, which is not shown to be co-extensive with the sum of all contingents *simpliciter*. Therefore, his argument does in the end not establish there being a cause of the whole of derived reality, which renders his cosmological argument unconvincing as a first cause argument. Is such an objection also cogent in the case of the new argument? The new argument shows that there is an uncaused cause *of all caused simples*. Thus, the question becomes

whether the sum of all caused simples is the proper candidate for 'derived reality' within the context of the new argument. I think this is indeed the case. For, according to the underlying ontological framework and the premises of the new argument, every composite object is composed of simples *and* composites are nothing over and beyond the mereological sum of the simples they are composed of, that is to say, composites are identical to the sum of the simples contained in them as a part. Therefore, an uncaused object that is the cause of all caused simple objects indeed qualifies as the, direct or indirect, ultimate originating cause of all caused composites as well, that is, it qualifies as being a first cause.

OBJECTIONS RELATED TO GALE AND PRUSS'S ARGUMENT

In the chapter on the cosmological argument of Gale and Pruss (Gale and Pruss 1999) a large number of objections against their argument have been assessed, such as objections addressed by Gale and Pruss themselves (1999), objections from Oppy (2000), Davey and Clifton (2001) and Almeida and Judisch (2002), and some further objections from myself. I already pointed out above that the classical Humean objection as mentioned by Gale and Pruss (1999), that is, the objection that the Big Conjunctive Contingent Fact might have a sufficient internal explanation (and thus doesn't need an external one) since a whole is already properly explained if each part of it is explained by another one, has no force against the new argument. The objection that the necessary being their argument arrives at is not yet a regress-of-explanation stopper fails as an objection against the new argument as well. For, as mentioned before, the premises of the new argument already logically entail that the ultimate originating cause of the sum of all caused simples is *uncaused*, so there is no need to provide further reasons for this ultimate originating cause to be a regress-of-explanation ender, as is the case for Gale and Pruss's argument.

The objection that the universe as a whole cannot have an explanation since explanations are supposed to be based on solid empirical observations indicating a statistically relevant relationship between causes and effects poses no concern for the new argument either, precisely for the reasons already mentioned to rebut this objection as an objection against the cosmological argument of Gale and Pruss. Moreover, the objection that an essentially free and necessarily existing being is impossible has no force against the new argument because, again, the new argument does not rely on the modal notion of a necessary being.

The objection against Gale and Pruss's argument that, for all we know, the cosmos might have been caused by some blind indeterministic mechanical causation, surely does not apply to the new argument because the claim of the new argument is limited to there being a first cause, that is to say, it infers *that* there is a first cause without

establishing *what* the actual nature of this first cause is supposed to be. As such it is a first crucial step to defend the worldview of theism, but it of course does not constitute in itself a complete case for theism. And I take it that this is not a disadvantage of the new argument at all, precisely because all other contemporary arguments that we have assessed in the previous chapters do eventually *not* succeed in establishing *a first cause*, which, as I pointed out before, is the very first thing that one must establish in order to provide a rational case for the existence of God. Indeed, God, if anything, must at least be the first cause of derived reality. In other words, the new argument provides the very first crucial ingredient for any theistic worldview, that is, there being a first cause, whereas the other arguments might establish one or more theistic features, such as there being a necessary powerful being endowed with free will, but do not entail the crucial key proposition of there being a first cause, so that the new argument is quite relevant, to say the very least, to support the worldview of theism over alternative worldviews, such as naturalism.

A number of other objections against Gale and Pruss's cosmological argument attack the weak version of Leibniz's principle of sufficient reason which they employ as part of their argumentation, such as the objection that the weak principle violates our modal intuitions, or begs the question against atheism, or can only be said to be nearly true, or entails the (alleged untenable) strong version. Since the new argument does not rely on Leibniz's principle of sufficient reason, nor on any of its weaker versions, these objections do not pose any problem for the new argument at all.

We have seen that Oppy (2000) presents two specific objections against the underlying ontological framework of Gale and Pruss's argument. The first objection, that the argument of Gale and Pruss begs the question against materialism or nominalism since their underlying framework is based on an ontological commitment to Platonic abstract propositions, has no force against the new argument. After all, the new argument is not premised on any commitment to Platonic abstracts whatsoever. Oppy's second objection, as we saw, is that Gale and Pruss rely on the thesis that each abstract proposition is either atomic or a conjunction of atomic propositions. And, as the objection goes, it is not sufficiently clear what the notion of an atomic proposition amounts to in Gale and Pruss's framework. Now, this objection does not result in a problem for the new argument either since the underlying framework on which it is premised includes an explicit mereological account of atomicity, or more specifically, of what is meant by being a simple or atomic object.

Two of the objections from Davey and Clifton (2001), i.e., (i) that the Big Conjunctive Contingent Fact of the actual world (BCCF) is necessarily unexplainable, and, (ii) that even if the objection that the BCCF is necessarily unexplainable fails it still follows that we lack adequate

epistemic grounds for determining whether or not it is possible for the BCCF to have an explanation, so specifically address Gale and Pruss's cosmological argument that they have no force at all against the new argument. The same is true of the objections proposed by Almeida and Judish (2002).

A further objection that I proposed to the argument of Gale and Pruss was that in the end their argument does not prevent the possibility of an infinite regress of explanations because it does not rule out the consistent scenario that there exist infinitely many necessarily existing beings $\{P_n\}_n$ such that being P_1 intentionally brought the entire cosmos into existence, P_2 intentionally and necessarily brought P_1 into existence, P_3 intentionally and necessarily brought P_2 into existence, and so on, ad infinitum. Now, this further objection fails as a good objection against the new argument for the already stated reason that the new argument's premises logically entail that the ultimate originating cause of the sum of all caused simples is itself an *uncaused* object, so that scenario's such as the aforementioned one are immediately ruled out in the case of the new argument. Another further objection I proposed was that the argument of Gale and Pruss is incompatible with *human* free will, since, as I showed, their argument entails that the necessary being freely brought all contingent things into existence *itself*, so that there is no room left for free will causation by human agents. Yet, this objection does not pose a problem for the new argument either. For, the first cause as established by the new argument is *only* the direct originating cause of all caused *simple* objects. Hence, in this case it does not follow that the first cause is the direct cause of *all* caused objects.

OBJECTIONS RELATED TO RASMUSSEN'S ARGUMENTS

In the previous chapter I proposed a number of specific objections to the cosmological arguments from Rasmussen. Now, none of these specific objections have consequences for the new argument's credibility. Take the objection that, even if *the contingent state of existence of all actual contingents objects* has an originating cause involving a necessary being (which is, as I argued, not implied by Rasmussen's main cosmological argument), it does not follow that the necessary being in question is a first cause, because, according to Rasmussen's notion of causation for contingent states of existence, it might, for all we know, be the case that the necessary being causes just one or a few actual contingents, while all other contingents constitute a *causally closed* infinite causal series. Surely, this objection is harmless to the new argument because the new argument doesn't rely upon Rasmussen's notion of causation for contingent states of existence. Indeed, the notion of causation as adopted by the new argument's ontological framework applies to objects and not to states of affairs. Another specific objection, which targets the first alternative path of Rasmussen, is the observation that the explanatory principle on which the first path is based, that is, the principle *that for any kind of contingent objects it is possible to explain*

why there are members of that kind at all, leads to serious difficulties. This objection does also not threaten the new argument since the new argument does not depend on the aforementioned explanatory principle. And similar points can be made about the specific objections I proposed to the other two alternative paths provided by Rasmussen.

Objections specifically addressing the new argument's framework or premises

Now, in what follows I shall identify some additional objections that one might want to raise specifically against the new argument, and that have not been discussed thus far. My aim is to argue that these additional specific objections do not have sufficient force, and thus are no threat to the new argument either.

THE OBJECTION THAT THE UNDERLYING FRAMEWORK OF THE NEW ARGUMENT IS TOO RESTRICTIVE

The first objection I want to consider is the objection that the underlying ontological framework of the new argument is too restrictive since it presumes that the whole of reality can be viewed as nothing more than a universe of just *objects* having parts and entering in causal relations. For, as one could object, how can space and time, which do not seem to be objects, be handled by the framework? I respond that the *object oriented* nature of the framework is compatible with space and time. First, the framework of the new argument is premised on a rather inclusive conception of object-hood. An object is just some-thing that exists. So, if space and time exist, they can both be introduced as objects in the underlying framework. But, surely, this observation will not suffice as a response to the objection. Hence, let us have a closer look at space-time. If space-time, as contemporary cosmology predicts, is finite in the past, and is overall in an average state of cosmic expansion, then space-time has all kinds of properties, such as a geometrical structure or shape, an age and an (average) expansion rate. And we could mention more properties of space-time, such as that according to the physical theory of general relativity space-time can be *curved* or transformed by other objects. Moreover, in the specific case of space we can also point to multiple classical *field* properties, such as its permittivity and permeability. Now, something which has a wide range of properties is, as bearer of those attributes, properly seen as being an object. Further, there are a number of contemporary quantum gravity theories, that is, theories of space-time blending quantum mechanics and general relativity, which are based upon a *quantization* of space-time. So, these theories actually propose that not only matter and energy, but also space and time itself are quantized, that is, can be understood as a composite of space and time *quanta*, which again supports the thesis that the nature of space and time is essentially objectual, and hence fits the underlying object oriented ontological framework of the new argument.

Another objection, closely related to the previous one, focuses on the mereological features of the new argument's underlying framework. According to this objection the framework is not able to account for ordinary material compounds such as tables, houses and motorcycles, since these composite objects cannot properly be understood as being mereological sums whereas the framework presupposes that all composites are sums. The objection comes down to the following worry. If composite objects such as tables, houses and motorcycles are nothing but mereological sums, as the framework presupposes, how are we then able to distinguish between, say, 'the vast and important difference between a heap of disassembled motorcycle parts, piled up, as they might be, at the Honda factory or in someone's garage, and the motorcycle in running condition that results from assembling these parts in a particular, fairly constrained way[?]' (Koslicki 2008, p. 4). For, as the objection in this particular case would have it, the heap and the motorcycle have the very same parts, and hence in both cases the mereological sums, and thus the objects themselves, are numerically identical, which is absurd. Therefore, the framework is not realistic and should be abandoned, which leaves the new argument unfounded. The objection can also be illustrated in a similar way by pointing out that the framework is not able to solve the classical metaphysical problem known as the Problem of Constitution (Koslicki 2008, p. 6), that is, the problem how to properly distinguish between, say, a statue and the lump of clay which constitutes it. For, as the objection can be rendered, the statue and the lump of clay are both objects and thus mereological sums according to the framework, which entails, since the statue and the lump of clay have precisely the same parts, that they are in fact the very same object, which conflicts with our intuition that the statue is *not* numerically identical to the lump of clay that constitutes it.[204] So again, the objection concludes that the framework is too artificial or counterintuitive to accept.

How to respond to this objection? Well, as I shall argue in what follows, I take it that the account of parthood and composition for ordinary material objects, as developed by Kathrin Koslicki (Koslicki 2008), not only solves the raised problems, but is also entirely compatible with the mereological principles of the new argument's framework. As such Koslicki's analysis of the nature of the relations of parthood and composition for ordinary material objects qualifies as a cogent rejection of the aforementioned objection. Koslicki develops a *neo-Aristotelian* structure-based conception of parthood and composition. As she explains: 'My project [...] is [...] to put the notion of *structure* or *form* squarely back at the center of any adequate account of the notions of part, whole and object. To this end, I propose in what follows a conception of ordinary material objects as *structured wholes*: it is integral to the existence and identity of an object, according to this approach, that its parts exhibit a certain configuration or manner of arrangement. [...] Moreover, in what is perhaps the most radical feature of my view,

204 This intuition is properly supported by the principle, usually attributed to Leibniz, that if two objects are numerically identical it follows that they share the very same properties, that is to say, there is not a single property that one object has and the other hasn't. Indeed, in the case of the statue and the lump of clay there seem to be many modal and temporal properties that only one of them possesses, such as 'being constituted by a lump of clay', 'being essentially a statue', 'being able to survive squashing', 'having come into existence after the lump of clay came into existence' or 'having come into existence before the statue came into existence'. I obtained these examples of differentiating properties from Koslicki (2008, pp. 179–180).

I argue [...] that the structure which dictates how the remaining parts of a whole are to be arranged is itself, literally and strictly speaking, *part* of the whole it organizes. The main historical inspiration for this view is, of course, Aristotle [...]. In Aristotle's view, an object, such as a bronze sphere, consists of two components, its *matter* (the bronze) and its *form* (sphericity); as I read him, both the matter and the form of an object are taken by Aristotle to be strictly and literally *part* of the object, just as my hand is part of my arm.' (2008, pp. 5–6). As we see here, on Koslicki's view, an ordinary material compound, such as a table or house, is *not* simply the sum of its material parts. For, the manner of arrangement of the material parts, that is, the form or structure of the material object, is a (proper) part of the material object as well. A material compound is an object only if its material parts expose an intrinsic unity imposed on these parts by a structure or form dictating how the material parts are to be arranged. Now, this view is compatible with the new argument's framework. I explain why. According to the framework of the new argument objects are simply mereological sums. If we follow Koslicki, then, as explained above, the structure or form of any object is a proper part of that object. Now, a proper part of an object is plausibly itself an object as well, especially if we take into account the maximally inclusive conception of object as deployed by the new argument's underlying framework. Hence, structures or forms are objects. And thus the new argument's framework can refer to them. Further, since proper parts are the constituents of mereological sums, it follows as well that the structure or form of an object is contained in the corresponding sum. Therefore, within the context of the framework, if we say that some given material compound, such as a house or table, is a sum, then, what we are actually saying is that it is the sum of its material parts *and* its unifying form or structure. It is thus entirely cogent to commit to Koslicki's structure-based conception of ordinary material objects, that is to say, the viewpoint that ordinary material objects are structured wholes that contain their structure as a proper part, *while at the same time* remain fully committed to the new argument framework's mereological principle that objects are mereological sums.

Let us now see how Koslicki's account provides a cogent solution to the aforementioned Problem of Constitution. She explains: 'The Problem of Constitution concerns the nature of the relation which obtains between an object and what it is made of, e.g., a statue and the clay which constitutes it. Metaphysicians are puzzled by this relation, because, on the one hand, the statue and the clay are sufficiently similar to one another to make it tempting simply to identify them; on the other hand, there are sufficient differences between them to make us think that we cannot simply be dealing with a single object. The neo-Aristotelian thesis that objects are compounds of matter and form yields a solution to the Problem of Constitution: the clay now turns out to be merely a proper part of the statue (viz., its matter); the "remainder" of the statue is made up of [its form or structure] which distinguish it from the

205 Later on in her book Koslicki presents a more formal derivation of her solution. She argues: 'By Leibniz's Law [...] we seem to arrive at the conclusion that objects that are constitutionally related must be numerically distinct, since they do not share all of their properties [note: Koslicki refers to "Leibniz's law" as the metaphysical principle that if x and y are identical objects, then every property of x is also a property of y and vice versa; and indeed, as we saw in the previous footnote, the statue and the lump of clay do not have the same properties]. Suppose that this Leibniz's Law-style argument for the numerical distinctness of constitutionally related objects is cogent; then, in the case at hand, in which a mereologically complex object consists of just a single material component, the following explanation of their numerical distinctness is actually *dictated* to us by our endorsement of the Weak Supplementation Principle [WSP], which was earlier taken to be partially constitutive of the meaning of "is a proper part of": by WSP, we know that the *something extra* which distinguishes the statue from the lump of clay that constitutes it must in fact be an additional *part*: for, according to this principle, an object which has a proper part must consist of *other* proper parts in addition, which supplement the first. Since there is overwhelming evidence in favor of the thesis that the lump of clay, i.e., its single material component, is a proper part of the statue, we must now look for additional proper parts within the statue besides its single material component: the most likely candidates for these additional proper parts are [..] its "formal components" [i.e., its form or structure]. Thus, assuming WSP and the cogency of Leibniz's Law-style arguments for the numerical distinctness of wholes and their material components, we arrive at the conclusion that the [form or structure] of a whole as well must be counted among its proper parts [...].' (2008, pp. 180–181). Now, I take it that Leibniz's Law as referred to by Koslicki is a self-evident metaphysical

principle. Further, what Koslicki refers to as WSP is precisely the supplementation principle as adopted by the new argument's framework. So, the solution that Koslicki provides to the Problem of Constitution (and related problems) is in fact entailed by the new argument's framework. Indeed, Koslicki's proposed solution fits the new argument's framework perfectly.

clay.' (2008, p. 6).[205] Now, this neo-Aristotelian analysis indeed fits the underlying framework of the new argument perfectly. For, a statue can be understood as the mereological sum of two objects, being a material object, that is, the lump of clay that constitutes the statue, and a non-material or formal object, being the form or structure of the statue. But this entails that the statue is not the lump of clay. Indeed, according to the aforementioned analysis the lump of clay is only a proper part of the statue, and hence not the very statue itself. The same analysis applies to the example of the heap of disassembled motorcycle parts and the motorcycle in running condition. For, although in both cases the material parts are exactly the same, the form or structure of the heap, that is, the manner of arrangement of the material parts of the heap, differs from the form or structure of the motorcycle in running condition. Because both structures are to be considered a proper part of respectively the heap and the motorcycle (their formal parts), it follows that the corresponding mereological sums, each consisting of the same material parts but of a different formal part, are not identical, so that the heap and the motorcycle are indeed not the same object. Because of the above considerations, I conclude that, if we commit to Koslicki's neo-Aristotelian structure-based conception of parthood and composition for ordinary material compounds, the objection that the new argument's framework is too abstract or counterintuitive since it does not seem to be able to deal with ordinary material objects, such as statues and motorcycles, has to be rejected.

A third objection, closely related to the previous two, is that the argument's framework is too restrictive since it can't account for *identity through time* for ordinary material objects such as tables and ships. Let me explain the objection. According to the new argument's framework, some mutually disjoint objects compose an object if and only if the latter *is* the mereological sum of the former. But then, since the framework has it that a sum of objects introduces nothing beyond these objects themselves, it follows that a composite object is nothing over and beyond the objects that compose it. That is, the composite simply *is* the composition. And this, as the objection has it, implies that identity through time cannot be accounted for. For, every object is a composition of micro-particles. And, at every time instant every object loses and gains a few micro-particles. So, given that objects are *identical* to their compositions, there is in fact not a single object that persists through time. The table now is a composition of different micro-particles than the table one instant of time ago, and therefore it isn't the same table anymore. It's another object.

This objection can be refuted by appealing again to Koslicki's neo-Aristotelian account of composition and parthood. For, indeed, the-table-now is not the same object anymore as the-table-one-time-instant-ago. After all, what we have at this very moment is a sum of different micro-particles than what we had one moment before. So, it is

in fact trivially true that the object now differs from the object before. Yet, the table-wise arrangement of the particles has not changed. In other words, the structure of both objects is identical and *that* is what allows us to say that we have here something that is identical to what we had before: a table. I fail to see how this would not solve the worry of lack of identity. There is no mystery at all. From an ontological point of view the object now is not the same as the object before. But we can still properly speak about *this* table due to the *identity* between the current structure, that is, the current way the particles are arranged, and the previous structure, that is, the way the particles were arranged one instant of time ago. Indeed, the-structure-now and the-structure-one-time-instant-ago are precisely the same, given the spatial-temporal continuity between them and the fact that the previous one is entirely isomorphic to the current one. In cases where we do not seem to have a structure, that is, a spatial arrangement of particles, such as most notably in the case of *personal* identity through time, there isn't a problem for the new argument's framework either, since we could argue, accepting some proper defendable account of substance dualism, that each person is identical to a simple object,[206] being its mind or soul, so that his or her identity through time is guaranteed by the persistence of that simple (Woudenberg 2000). Indeed, a simple can't lose or gain parts. So its persistence through time is unproblematic.

206 Plausibly, in this case, each creaturely person is a *caused* simple, which would entail, given the new argument's conclusion, that the first cause is the direct cause of each creaturely person. This surely fits the general theistic view regarding the ontological relationship between the first cause, i.e. God, and every creaturely person.

THE OBJECTION THAT THE 2ND PREMISE IS INSUFFICIENT TO COMPLETE THE NEW ARGUMENT'S FIRST STEP

The next specific objection to the new argument that I would like to consider addresses its second premise. According to the second premise every composite object is ultimately composed of simple objects. Thus, the premise amounts to a commitment to mereological atomism. Now, the objection I have in mind is not to criticize (my defense of) atomism. Instead, the objection has it that a commitment to mereological atomism is not sufficient to complete the first step of the new argument. Let us revisit the first step. It aims to show that every caused composite contains a caused simple. In the previous chapter I referred to this thesis as principle (p). To establish (p) an arbitrary caused composite, denoted by C, was subjected to a specific algorithmic procedure, which, by utilizing premise (6) of the new argument, produced a sequence $C^{(0)}$, $C^{(1)}$, $C^{(2)}$, ... of parts of C, such that $C^{(0)} = C$, and for all natural numbers *n*, $C^{(n+1)}$ is a caused proper part of $C^{(n)}$. Now, according to the first step, this sequence must, because of the second premise, eventually terminate in a caused simple part of C, which shows that C indeed contains a caused simple, and thus, because C was an arbitrary caused composite, it follows that principle (p) holds. But, as the objection I have in mind goes, the second premise, that is, the thesis of mereological atomism, it *not* sufficient to conclude that the sequence $C^{(0)}$, $C^{(1)}$, $C^{(2)}$, ... terminates. For, as the objection proceeds, there are cogent examples of mereological models that satisfy atomism while *at the same time* they allow for *infinite* sequences of parts of some caused composite,

such that each subsequent member of the sequence is a caused proper part of the previous member. Now, if there are such models, then atomism by itself cannot imply that the aforementioned sequence $C^{(0)}$, $C^{(1)}$, $C^{(2)}$, ... terminates. A proper example of such a model, as the objection continues, is the following. Consider the open interval (0,1) of real numbers. Let every subset of (0,1) be an object. Suppose that all objects are caused. Further, the part-of relation for this model is defined as follows. An object X is part of an object Y if and only if X is a subset of Y. Now, for this model atomism is true. After all, the simples in this model are the real numbers in (0,1) and each composite is composed of a set of these numbers. Now, take $C = C^{(0)} = (0, ½)$ and let, for all natural numbers *n*, $C^{(n)} = (0, 1/(n+2))$. It is clear that C is a caused composite, and that the sequence $C^{(0)}$, $C^{(1)}$, $C^{(2)}$, ... of parts of C is such that $C^{(0)} = C$, and, for all natural numbers *n*, $C^{(n+1)}$ is a caused proper part of $C^{(n)}$. But surely this sequence does not terminate. In the given model this sequence goes on forever; there will never be a final terminating element, even though in the model atomism in fact holds. So, the objection concludes, mereological atomism is insufficient to properly complete the first step of the new argument. Hence, the new argument is not logically valid and should therefore be rejected.

Is this objection adequate? The mathematical model as presented by the objection, that is, the model of the real numbers between zero and one, seems rather artificial. Why should we believe that this or similar far-fetched models have *ontological* significance? Shouldn't we require a reason for accepting the relevance of such set-theoretical models for answering the ontological question of whether atomism allows for downwards infinite series of proper parts? Nevertheless, let us for now presuppose that, for some reason, the artificial (0,1)-model in fact does force us to conclude that atomism, understood as the thesis that all composites are composed of simples, is insufficient to infer that there are no downwards infinite sequences of proper parts. In that case the first step of the new argument is indeed not valid. However, if we look at the defense of atomism as provided in the previous chapter, what was argued for is that mereological atomism must be true since, if it would be false, there would exist at least one infinite sequence of compositions such that each member of this sequence is a refinement[207] of the previous member, which, as I showed as part of my defense, results in a contradiction. So, in short, I showed that atomism must hold because there are no infinite sequences of ever further refinements of some given composite. Now, surely, a downwards infinite series of proper parts of some composite can easily be transformed into an infinite series of ever further refinements of that composite.[208] Therefore, in the previous chapter I in fact showed that there are no downwards infinite sequences of proper parts, which, as already mentioned, is precisely what we need in order to complete the first step of the new argument. Thus, if we adjust the second premise so that it states that there are no downwards infinite sequences of proper parts, then the objection

207 See my defense of atomism in the previous chapter for a formal definition of the term 'refinement'.

208 According to the framework's *supplementation principle* (see the previous chapter) every proper part of an object is supplemented by another disjoint part of that object. It is quite straightforward to appeal to this principle for constructing ever further refinements from a given downwards infinite series of proper parts.

loses its force.[209] Moreover, let us note that the adjusted premise is *not* similar to the traditional Thomistic premise that downwards infinite causal series do not exist. For, the adjusted premise maintains that *in the order of composition* there are no downwards infinite sequences of proper *parts*, which is totally different from the Thomistic premise that in *the order of causation* downwards infinite series of *causes* do not exist. Hence, it is not the case that accepting the adjusted second premise would render the new argument as just another version of the traditional Thomistic argument. Indeed, as we saw, the framework of the new argument is entirely compatible with there being one or more infinite series of originating causes.

THE OBJECTION THAT THE SUM OF ALL CAUSED SIMPLES IS NOT PRIOR TO EVERY CAUSED OBJECT

Another specific objection addresses the fifth step of the new argument. The fifth step, as we saw, is to establish that the sum of all caused simples is ontologically prior to every other caused object. It goes as follows. Let B be an arbitrary caused object. B is either a caused simple or a caused composite. Principle (p) entails that in either case B contains a caused simple as part. But then, as the fifth step concludes, the sum of all caused simples is ontologically prior to B. Now, as the objections points out, why would the sum of all caused simples be ontologically prior to B? For, from the fact that B contains at least one caused simple, it does not follow that B contains *all* caused simples, and therefore there is no reason to conclude that the sum of all caused simples is ontologically prior to B. As I shall argue, this objection is not adequate. Let us suppose, for reductio, that the sum of all caused simples is *not* ontologically prior to B, that is to say, suppose, for reductio, that B exists and that the sum of all caused simples does not exist. The fifth step shows that B contains a caused simple, say S, as a part. Obviously, the sum of all caused simples exists as soon as there is at least one caused simple. So, since it is assumed that the sum of all caused simples does not exist, it follows that there are no caused simples. But then, since there are no caused simples, S does not exist. However, B contains S as a part. Thus, if S does not exist, it follows that B does not exist either, and this contradicts with the fact that B *does* exist, which completes the reductio. Hence, the assumption that the sum of all caused simples is not ontologically prior to B must be rejected, so that the objection fails.

THE OBJECTION THAT THE NEW ARGUMENT'S ENTAILED FIRST CAUSE DOES NOT HAVE TO BE A 'UNITY'

One might also want to raise the objection against the new argument that the first cause as entailed by its premises is not shown to be any kind of *unity* at all. For all we know, as the objection goes, the first cause as established by the new argument might be a bunch of totally unrelated uncaused simples.[210] Is this objection cogent? No, it overlooks a perhaps trivial yet crucial fact. What the new argument's premises actually entail is that there exists *an object* that is the uncaused cause

209 In the previous chapter I gave a second reason to accept atomism, which, similarly to my argument for atomism as discussed above, constitutes a defense of the adjusted premise as well. Let me explain. The second reason is that we are justified to commit to the ontology presupposed by our best scientific theories, and thus, since microphysics presumes a fundamental level of basic building blocks, we are justified to accept atomism. Now, from this Quinean view, it in fact follows that we are not only justified to accept atomism, but also the thesis that downwards infinite series of proper parts do not exist. After all, there being no such series is presupposed by all microphysical theories of the last two centuries as well. For, as all these theories have it, we can arrive at the basic building blocks from any given object in a *finite* path, e.g., from an object to one of its molecules, from that molecule to one of its atoms, from the atom to one of its elementary particles, then to one of the particle's quarks, and, finally, from that quark to one of its strings, which is one of nature's basic building blocks according to contemporary microphysics. Therefore, the second reason is also a defense of the thesis that in nature there are no downwards infinite series of proper parts, which, as said above, is what we need to complete the first step of the new argument.

210 Note that the first cause cannot have a caused simple as a part. This is because the first cause is the cause of all caused simples, and, according to the premises of the new argument, causes and effects are disjoint.

of the sum of all caused simples. In other words, what has been shown is that the first cause is in fact *an object*. Hence, even if the first cause is the sum of many uncaused simples, it is still a unity, for it is *a single object* that contains all these uncaused simples as its *proper parts*. The fact that the first cause is an object is indeed important as a motivation for its unity since within the context of the new argument's underlying ontological framework many mereological sums, especially arbitrary gerrymandered sums such as the sum of the some piece of art in the Louvre and my left hand, are not objects at all. Therefore, following the new argument's framework, being an object is a proper 'unity indicator'. The first cause is an object, not just a sum.

OBJECTIONS ADDRESSING THE NEW ARGUMENT'S NOTION OF CAUSATION OR ITS CAUSAL PRINCIPLES

I continue this chapter with a response to some objections to the notion of causation or corresponding causal principles as adopted by the new argument's framework. First, as we saw, the framework understands causality as a two-place relationship between objects: the cause and the effect. Now, one might object that this is not a proper rendering of causation since effects might have more than one cause. However, this objection does not have any force since we may simply assume that the cause of an effect refers to the *total* or *complete* cause of the effect, that is to say, to the sum of all objects participating in causing the effect.[211] So, in that case, we still have a causal relationship between two objects. Further, one might object that causation is not to be understood as a relationship between objects at all. For, as this objection would have it, causation is more properly seen as a relationship between events, or states of affairs, or facts. However, this objection overlooks that the new argument is based upon a very generic framework that presupposes a rather inclusive notion of what it is to be an object. Further, the framework is quite theoretical in the sense that time and space themselves are taken as being objectual. In this sense the framework is compatible with events as causes and effects. But more importantly, why would an objectual notion of causation be inadequate? A familiar category of causation, agent causation, is for example best understood as a kind of causation for which the cause is in fact an object, i.e. the agent. In contemporary literature agent causation has indeed found its place as a defendable notion of causation (e.g. O'Connor 2000, Lowe 2008). So there are defendable accounts of object causation next to states of affairs or event causation. Therefore, a swift de jure objection that object causation is just 'ill conceived' will not do anymore without showing why this notion would in fact be contradictory, which is, as I take it, not something that can easily be shown.

In addition to objections to the specific *notion of causation* deployed by the new argument, there are also objections aimed at the new argument's *causal premises*. An example would be the objection that originating causes and their effects do not have to be disjoint. One

211 In the previous chapter I suggested a, as I take it, plausible principle regarding the interplay between causation and parthood. The principle has it that a sum of objects only counts as an object in case it causes *as a whole* another object, or, if it was caused *as a whole*. Note that this principle implies that the sum of all objects participating in causing some effect can itself be taken to be an object, which is important since a total or complete cause, has to be, within the context of the new argument's framework, an object.

could argue that John existing at some time t *is the cause of* John existing a time instant later, say at t + Δt. But then the cause, John at t, is not disjoint at all with the effect, John at t + Δt, so that in general one cannot hold that causes and effects are disjoint. This objection can be rebutted by arguing that the correct analysis of this situation would be that *the time-slice of* John at t is the cause of *the time-slice of John* at t + Δt, and, since these time-slices are in fact disjoint, it does not follow at all that in this example case cause and effect overlap. Moreover, the relationship between the time-slices of John and John himself can be defined in terms of mereological parthood, that is, both time-slices are proper parts of John, so that the proposed alternative analysis of the situation fits the new argument's underlying framework. But perhaps one might argue that for example in biological growth processes, new parts of an animal, for example the tail of a horse, grow out of an earlier tail-less instance of that horse, so that in this case one might want to claim that the effect, that is, the tail, is not disjoint with the cause, i.e. the growing horse. Still, as I would respond, we can analyze this situation by either appealing to the aforementioned time-slice approach, or by claiming that the cause is disjoint to the effect, since the cause may be properly understood as being the *tail-less* horse, while the effect is the non-overlapping tail.

Another specific objection targets the definition of a first cause as deployed by the new argument's framework, that is to say, a first cause *is an uncaused cause whose effect is ontologically prior to every other caused object*. The objection I have in mind here argues that this is not a satisfactory definition of a first cause, since it does not guarantee that a first cause is the direct or indirect cause of each and every other object. Yet, even if there is no causal chain from the first cause to each and every other object, *the uncaused cause of all caused simples*, as entailed by the new argument, is still the sole cause of all caused simples that are contained in all other objects. Thus the uncaused cause of all caused simples would still adequately be referred to as *the ultimate origin or ground of the caused simples of each and every object*, which is what we expect of something referred to as the first cause.

Some further objections by an anonymous referee of the new argument
I would like to close this chapter by considering some further objections as proposed by an anonymous referee of the new argument. The first objection is that philosophers who believe in causally inert abstracta reject the third premise of the new argument, that is, the premise of *causalism* according to which each object is caused or a cause, on the ground that abstracta do not enter into causal relations. The provided response to this worry, as the referee points out, is merely 'to hold out hope for' nominalism or mind-produced abstracta. Now, in the previous chapter I indeed proposed to accept nominalism or mind-produced abstracta in order to overcome the objection that abstracta are causally inert. However, it is not the case that accepting one of both theses

would be just a matter of hope. Quite the contrary, nominalism is surely a defensible thesis, and the same holds for the thesis that abstract objects exist but are caused by a specific type of human thought, namely *idealization of* concrete objects, as I explained in the previous chapter. Besides, I give two additional suggestions which one could follow if one does not want to accept nominalism or mind-produced abstracta. According to my third suggestion one could argue that abstracta cause other abstracta. For example, sets could be understood as the cause of numbers since numbers are constructed from sets. As the fourth suggestion has it, *even if there are causally inert abstract objects*, which is unlikely since it seems impossible to explain how we could know these objects without them being at least partially causally responsible for us having this knowledge, we can still limit the domain of the new argument to *concrete objects*. The new argument would then entail that there is a unique *concrete* uncaused cause A whose effect is ontologically prior to every other *concrete* caused object. As mentioned in the previous chapter, such an object A definitely qualifies as a first cause in a non-trivial sense. To conclude, because of these four suggestions, the worry about causally inert abstracta does not pose an irresolvable problem for the new argument.

Another objection of the referee against the third premise goes as follows. Theists who think that God does not have to create a cosmos will surely not accept the third premise. For, God, properly understood as an uncaused being, would still exist if He doesn't create a cosmos, which, as the objection has it, violates the third premise. However, this objection overlooks the fact that God still causes objects if He does not create a cosmos. Indeed, God produces His own thoughts and these thoughts are properly understood as being mental objects, so that God satisfies the third premise, even if He would decide not to create a cosmos.

According to the referee's third objection 'It seems possible to have a universe where every entity is a person (either a divine person of a created person). But then by reasoning parallel to [the fourth premise], shouldn't there be a sum of all the persons in that world? But that sum [...] does not seem to cause or be caused by anything outside itself [...]'. This objection misunderstands the import of the new argument's framework. As I explained in the previous chapter the framework does *not* rely on metaphysical modal notions such as necessary or contingent objects or truths. Hence the concepts and principles as adopted by the framework do not claim to hold in every metaphysically possible world. For, as mentioned, the notion of metaphysically possible worlds is not part of the framework at all. Thus, the new argument's framework concepts and principles are claimed to be cogent only for the world as given, i.e., for reality as such. Now, once this is understood, it becomes clear why this objection fails. For, evidently, the world does not consist only of persons, and hence the objection has not presented us with

a falsification of the third premise. But, *even if we would suppose* that all premises of the new argument are claimed to hold for all possible worlds, then the objection still fails. After all, every person produces thoughts and these thoughts can reasonably be understood as being (mental) objects. Thus, even in the case as sketched by the objection, the sum of all persons causes another object, namely, the sum of all their thoughts. And, again by reasoning parallel to the fourth premise, it follows that the sum of all thoughts of all persons can indeed be plausibly understood as being a (mental) object, since 'thoughts of persons' or 'the mental' is demarcated and meets, plausibly, all four Koslicki criteria for natural kinds.

The fourth and final objection provided by the referee can be rendered in the following way. The new argument infers that the non-empty sum of all caused simples is an object *because the caused simples form a demarcated natural kind*. But, as the objection points out, if caused simples are a demarcated natural kind, then clearly the simples themselves are a demarcated natural kind as well. For, it is easy to see that the simples, similarly to the caused simples, are demarcated and meet Koslicki's criteria for being a natural kind.[212] Hence, the defender of the new argument is also committed to the assertion that the sum of all simples is an object. But then, because of the third premise of the new argument, it follows that the sum of all simples is caused or the cause of one or more other objects. Hence, according to the fifth premise of the new argument, that is to say, the premise that cause and effect do not overlap, there exists something that is disjoint with the sum of all simples. But this is impossible since the second premise of the new argument, i.e. the premise of atomism, entails that there is in fact nothing disjoint with the sum of all simples. Hence, as the objection concludes, the new argument leads to a contradiction and must therefore be rejected.

Is this objection tenable? Let us have a closer look at natural kinds. Is there a necessary condition that should be met by all natural kinds? Natural kind terms address 'aspects' or 'segments' of reality, and should therefore not *a priori* exclude there being multiple aspects or segments. These terms allow, at least a priori, for there to be two or more kinds. Thus, the *definition* of each natural kind should *in principle* allow for there being something disjoint with the sum of the members of the natural kind. In other words, it should *not* be the case that the definition of a natural kind already logically excludes upfront that there exists something outside the sum of its members. This principle seems to be evident. The *definition* of a kind should allow for there being other kinds, *even* if in reality this would in fact not be the case. Take for example the natural kind 'water'. Now, even if Thales would have been right after all, i.e., even if the whole of reality would consist of nothing but water, so that everything that exists is a (proper) part of the sum of all water molecules, then it would still be the case that the *definition* of

212 The referee supports the claim that the simples meet the Koslicki criteria by considering each of them. I present the referee's assessment with minor textual changes: '(i) *not gerrymandered*: if "caused simples" is not gerrymandered, a fortiori "simples" is not gerrymandered either; (ii) *specification does not capture everything*: there might indeed be quite a lot of serious metaphysics to do to figure out what simples are like. Maybe they will turn out to be monads. Maybe they will turn out to be either particles or minds; (iii) *grounds for inductive inference*: it seems indeed plausible that you can do induction over simples, about as plausible as you can do induction over caused simples. For example, it seems plausible that if all simples that we have observed have charge but lack mass, then we have reason to think that no simple has both charge and mass; (iv) *natural kinds figure in laws*: caused simples play a role in fundamental theory. But so do simples. Particle physics will not only say that some token quark is a caused simple, it will also say that it is a simple'. So indeed, as the referee shows, the simples meet Koslicki's criteria for being a natural kind.

what it is to be a member of the natural kind 'water' allows *in principle* for there to be something outside the sum of all water molecules. And indeed, collections of objects for which this is not the case, that is to say, collections of objects for which it holds that their definition already implies that there cannot be anything disjoint with the sum of its members, are not natural kinds, for they do not even allow *in principle* for there to be other kinds.[213] Hence, to summarize, we have the following necessary condition for natural kinds. If the collection of objects X is a natural kind, then it is *not* analytically true, that is, true by virtue of the definition of X, that everything that exists is a part of the sum of the members of X. Surely, natural kinds such as water and gold meet this condition because their definitions clearly allow in principle for there to be an object disjoint with the sum of their members, even if Thales would have been right after all or king Midas would have been so successful that everything that exists, including himself, would have been turned into gold. Now, what about the caused simples? Well, obviously the caused simples meet this necessary condition as well since the definition of 'caused simple', even if in fact atomism would be true and all simples in the world would be caused, still allows *in principle* for there to be objects disjoint with the sum of all caused simples, namely *un*caused simples. So, the necessary condition is compatible with the caused simples being a natural kind, which is quite important since the defense of the fourth premise of the new argument commits to the claim that the caused simples are a natural kind. But take the collection of all objects *simpliciter*. Is this a natural kind? The answer is no because the collection of all objects does not meet the necessary condition. For, *by definition* nothing that exists can be disjoint with the sum of all objects. The fact that the collection of all objects is not a natural kind is consistent with the new argument, since its premises entail that the sum of all objects is not an object, which would immediately contradict with the collection of all objects being a natural kind.[214] Now, and this is crucial, under atomism, which is the second premise of the new argument, the simples are *not* a natural kind either! For, indeed, if every composite object is composed of simples, then it follows *by definition* that nothing can be disjoint with the sum of all simples, which violates the necessary condition for being a natural kind. Thus, we conclude that the final objection is unsuccessful.[215] The simples do not meet the necessary condition and hence they are not a natural kind. Further, the explicated necessary condition is *not* just some ad hoc claim to avoid the referee's objection. In fact, the condition is surely plausible enough to reasonably accept it wholly independently of the current context. And precisely because of this I conclude that the objection forms actually a compelling corroboration of the new argument, so that its real impact on it is to increase its overall epistemic credibility. With this response I end this chapter. As we have seen none of the discussed objections to the new argument poses a problem to the new argument, that is to say, none of them goes through.

213 Note the parallel with the famous twentieth century's Russell paradox in mathematical set theory, which showed that 'the set of all sets' cannot itself be a set, for, if it would, irresolvable contradictions arise.

214 Indeed, as discussed before, the defense of the fourth premise of the new argument commits to the thesis that the sum of the members of a demarcated natural kind is an object. Thus, if the collection of all objects would have been a natural kind, then, since membership of this collection is not vague because everything that exists is an object, it would be in fact a *demarcated* natural kind. But then, due to the aforementioned thesis, the sum of its members would be an object, which contradicts with the fact that the third and fifth premise of the new argument logically entail that the sum of all objects is not an object.

215 In the previous chapter I proposed four different suggestions to refute the objection that causally inert abstracta falsify causalism. The fourth suggestion is that one could restrict the scope of the new argument to concrete objects only. I take it that my current response to the fourth and final objection provided by the referee remains tenable if we accept the fourth suggestion. For, as I would argue, the principle that natural kind terms *a priori* allow for other kinds, also applies to the realm of the concreta. That is, there isn't a kind of concrete objects of which the definition *a priori* excludes there being other kinds of concrete objects.

VIII Conclusions and further work

Introduction

In this chapter I would like to bring together some of the threads of the previous chapters and point at some likely fruitful directions for further research. More specifically, I would like to do three things. First, I start with sharing a relevant observation, a lesson learned if you want, which is not directly part of the project's objectives, but which I believe reveals a quite deep and interesting feature of all cosmological arguments in general. Second, I indicate two more fundamental worries one could have with the new argument and its underlying framework. The first worry would not only apply to my argument, but in general to all arguments for the existence of an object that is the direct or indirect cause of all other objects. The second worry specifically addresses my new argument. I shall argue why I take it that the first worry is in fact not a real problem for my argument at all. Yet, as I shall explain, I believe that the second worry actually reveals an inherent tension in my defense of the argument that requires further investigation into how this tension can be removed or perhaps significantly reduced.

As mentioned in the introduction of this thesis, my project is part of a much broader program that deals with the intellectual respectability of (bare or mere) theism. Therefore, in the third and final part of this chapter, I expound my view on how the main results of my project count as a meaningful contribution to the intellectual discussion of the rationality of theism. In this final part I also propose some additional insights which, I contend, are promising enough to be worked out in more detail by further research. And if so, these supplementary ideas can become an intrinsic part, along with the new argument, of a more extensive case for theism.

An inherent limitation of cosmological arguments

The cosmological arguments discussed in this thesis can be partitioned into two groups. The first group consists of Thomas Aquinas' second of five ways presented in his *Summa Theologiæ*, the 'first paradigmatic form' as derived from this second way, and my new argument. All these arguments have in common that they aim to establish the existence of a first cause. The second group consists of Leibniz's argument as presented in amongst others his *Monadology*, the 'second paradigmatic form' derived from Leibniz's argument, the argument of Koons, the

argument of Gale and Pruss, Rasmussen's argument from a maximal contingent state of existence, and Rasmussen's three alternative paths. These arguments have in common that they aim to establish that there is a necessary being. Or, more accurately, Rasmussen's arguments purport to establish that there is a necessary existing and causally efficacious being that might have, but is not guaranteed to have, caused (some part of) the cosmos. The other four arguments in this second group aim for more, namely, the existence of a necessarily existing being that caused the whole cosmos.

Now, what this overview clearly shows is that *none* of the cosmological arguments discussed in this thesis establish that there is a necessarily existing first cause. For, each of these arguments either provides us with a necessary but perhaps non-first being or with a first but perhaps non-necessary being. Hence, it seems we can't have both within a single argument. Either the argument infers a necessarily existing being (being first or non-first) or the argument entails a first cause (being necessary or non-necessary). I generalize this observation and contend that it holds for all cosmological arguments, either mentioned or not mentioned in this thesis. But, if so, what is it that makes this the case? Why can't we have both, being a first cause *and* existing necessarily, in one and the same cosmological argument? The reason why cosmological arguments for a necessary being cannot be first cause arguments is that they infer a necessary being from contingent beings. They depart from some contingent features of the actual world in order to arrive at there being a non-contingent, and thus necessary being. But a necessary being, as I have argued for in this thesis, might have been caused. So, these arguments cannot guarantee that the necessary being they arrive at is uncaused, that is, a first cause.

A reason for why, on the other hand, first cause arguments cannot also be arguments for a necessary being is that first cause arguments typically rely on principles about causality *only*, such as the Thomistic principle that a downwards infinite regress of causes is impossible, the principle deployed by the Kalam argument according to which everything that begins to exist has a cause,[216] or the principle of causalism according to which every object is either caused or a cause. These and other purely causal principles are not able to distinguish between necessary and contingent objects. After all, they apply to both types of objects. I verify this for each of the three aforementioned principles. The principle that everything is caused or a cause can indeed be applied to both contingent and necessary objects, even if all necessary objects would be uncaused. For, in that case it follows that all necessary objects cause some other object. Note that the principle entails that the same is true of uncaused contingents. Every uncaused contingent causes some other object. The Thomistic principle applies to necessary objects as well. For, there can be objects that are both necessarily existing and caused. Consider next the Kalam principle

216 Craig and Sinclair 2009, p. 102

according to which everything that begins to exist has a cause. Does this causal principle also apply to necessary objects? Surely, necessary objects might be caused, but could it also be the case that a necessary object begins to exist? I argue that this is indeed possible. For, there could be a necessary object, say A, that has as an essential property that it causes object B at some point in time. But then B does begin to exist *in each and every possible world*, so B is an example of a necessary object that (necessarily) begins to exist. Therefore, the Kalam principle indeed applies to both contingent and necessarily existing objects, similar to the other two principles.[217] So, to summarize, the purely causal principles do not distinguish between contingent and necessary objects. But then first cause arguments, which are built on these causal principles, can indeed not simultaneously be arguments for a necessary being.

There is also another reason why first cause arguments cannot simultaneously infer a necessary being. For, given that, as we have seen in this thesis, some contingent objects can be uncaused, it follows that an uncaused cause arrived at by a first cause argument is not guaranteed to be a necessarily existing object. For all we know the uncaused object is an uncaused contingent, similar to the examples I provided in the previous chapters.

We may thus conclude that cosmological arguments are inherently limited. After all, they cannot arrive at a necessary uncaused object, let alone at a necessary first cause. But then, if one wants to infer a necessary first cause based on cosmological arguments alone, there is no other choice than to build a cumulative case of at least two cosmological arguments.

Two further, more fundamental, problems

IS THE NEW ARGUMENT INCOMPATIBLE WITH THEISM?

One could argue that new argument is incompatible with theism since it seems to imply that the derived first cause must be natural instead of supernatural. This problem could be expressed as follows. The new argument commits us to the claim that the first cause is an *object amongst objects*. And, in addition, just like all the other objects, the first cause is a causally efficacious object that has or lacks mereological parts. Thus, in terms of its most elementary metaphysical features, the first cause is quite similar to each and every other object. Moreover, as the argument's underlying framework has it, the whole of reality is a causally interconnected whole, of which the first cause, as any other object, is an intrinsic part. From these considerations it would follow that it is not possible to draw a principled absolute line between the first cause and the other objects, so that the first cause cannot be taken to stand for some separate realm of reality. But then, given the obvious existence of the natural realm, we cannot reasonably qualify the first cause as a

217 Note that the Kalam principle is more plausible for *necessary* beginnings than for *contingent* beginnings. Let me explain. A contingent beginning could possibly not have taken place. Thus, one might content that such a beginning is simply a brute or random fact. It happened in our world but it would not have happened in other possible worlds. Yet, in the case of a necessary beginning this beginning occurs in every possible world, which is less likely to be a mere brute or random fact than a contingent beginning. So, there must be a reason for this necessary beginning to occur. This reason cannot be found in the object that begins itself, say by arguing that 'beginning to exist' is some sort of essential property of the object. For, that object does not exist without the beginning, and it would be incoherent to argue that a non-existing object induces its own beginning of existence. From this is follows that the ground for its necessary beginning must be found outside the object, that is, in some external cause, which is precisely what the Kalam principle asserts. This external cause may be nothing more than some collection of metaphysical or broadly logical laws, but these count in the new argument's framework as a collection of abstract objects or even a single abstract object.

non-natural, that is, supernatural entity. Therefore, the most reasonable position would be to hold that the first cause as implied by the new argument, or, for that matter, as implied by *any* cosmological argument of which the underlying framework is in the relevant aspects similar to that of the new argument, is *not* supernatural, but, just as many other objects, part of the natural realm. But then naturalism[218] would be true. For, if the first cause is natural, everything is.

I propose a two-fold response. My initial response, consisting of five parts, is focused on the alleged similarity of the first cause to natural objects. First, the first cause is the direct or indirect uncaused cause of all other objects, that is, of everything else that exists. Thus, identifying God with the first cause would still be compatible with a conception of God as 'The Ultimate', 'The Metaphysical Absolute' or equivalents. Second, as discussed in previous chapters, the notion of 'object' deployed by the new argument's framework is rather inclusive. Anything, that is, any-one-thing that exists is called an object. So the new argument's conclusion merely comes down to the assertion *that* there is a first cause, and this doesn't say anything about *what* the first cause is. Therefore the new argument certainly allows for a first cause that represents an entirely different realm of reality. Third, indeed, the first cause shares fundamental properties with all natural objects, such as entering in causal relations and being either simple or composite. But again, this surely should not exclude a theistic interpretation of the first cause, for, as I would argue, most, if not all, theistic conceptions of God take it that God is causally related to the cosmos, at least to the cosmos's coming into existence. And next to that, many theistic philosophers have in fact argued that God is mereologically simple, or hold that this could be the case. Fourth, God having causal and mereological features doesn't commit us to the claim that there would be no fundamental difference between God and the rest of reality. For, God's essence could still be totally different from that of the natural objects that surround us. One could think for example of God's infinitude, inexhaustibility, necessity, eternality, immateriality, a-temporality, a-spatiality, omnipotence, omniscience and omnipresence. Plausibly, there is no ordinary natural object that has such extraordinary features. And finally, given the aforementioned observations, I would say that in fact the new argument also leaves more than sufficient room for those theistic notions of God that include typical negative-theological, or even outright mystical, descriptions of the divine, such as 'The Wholly Other', 'The Radical Different', 'The Beyond' or 'The Mystery'.

My other response to the above is that the problem seems to be premised on the idea that we have to make a distinction between the natural and the supernatural. For, only if we accept this distinction one can assert that the first cause as entailed by the new argument is in fact plausibly natural and not supernatural. But, one may ask, what *is* natural? Is it space and time with all its contents? Would, if substance

218 *Metaphysical* naturalism is meant here. Metaphysical naturalism holds that the natural world is 'all there is'. According to metaphysical naturalism non-natural or supernatural entities do not exist. Metaphysical naturalism has to be distinguished from *methodological* naturalism, according to which science may only posit natural entities or causes. Metaphysical naturalism implies methodological naturalism. But the reverse does not hold. Indeed, a methodological naturalist might leave it open whether supernatural entities or causes exist, but still hold that the supernatural, if it would exist, is beyond the potential reach of science. See entry 'Naturalism' of the *Stanford Encyclopedia of Philosophy* for more background on both positions.

dualism is true, minds belong to the natural? Or suppose that there are abstract objects such as universals, propositions, properties and numbers. Would they also belong to nature? Perhaps nature is simply that which is subject to the laws as discovered by the natural sciences, that is to say, physics, chemistry, biology and astronomy. But then again, what determines the proper scope of the natural sciences? As Hempel's Dilemma[219] shows it is impossible to define nature by referring to those sciences that study nature. Indeed, such a definition would be circular. I therefore conclude that the distinction between the natural and the supernatural is not helpful. We should speak about *the world*, or better, *the whole of reality*. In fact, we can refer to the whole of reality, to everything that exists taken together, as *being*. Being is by definition everything that exists. Thus God, if God exists, is part of being, just as you and I and the chair that I'm currently sitting on. And this does nothing to downplay God's divinity, for precisely those reasons I mentioned in my first response. So, to conclude, the first cause is itself also a part of being, just as is everything else, and the reason that we attribute a special status to it is based on its unique and strikingly extraordinary features, such as being the absolute ground of everything, the metaphysical ultimate, or, as theists affirm, being God. And for this we do not need the ill-defined class of the 'supernatural'.

219 Hempel (1969)

220 To put it differently, the notions of 'object' and 'being caused or a cause' are *not* intensionally equivalent.

IS THERE A TENSION BETWEEN THE FRAMEWORK'S GENERIC NATURE AND ITS SPECIFIC DEFENSE?

The new argument's framework is based on a quite universal all-embracing interpretation of the notion 'object'. An object, within the framework's context, is literally every-one-thing that exists. We can hardly conceive of a more generic, more inclusive, notion of object-hood. And in fact one could argue that this feature of the framework is at odds with the defense offered for one or more of the new argument's premises. In what follows I shall illustrate the problem by means of a detailed consideration of the third premise of the new argument, that is, the premise of causalism. This premise has it that every object is either caused or the cause of one or more other objects. To defend causalism I appealed to Alexander's dictum that says that to exist is to have causal powers. More precisely my defense rested on a variant of the Eleatic principle: one should not posit the existence of anything outside the net of causes and effects, since only that which participates in causal processes can be said to exist, that is, can be properly called an object. It is important to notice that the thesis of causalism does not define what an object is. The phrase 'being caused or cause' is not the definiens of the definiendum 'object'. So it is not the case that being an object *means* being caused or being the cause of something else.[220] Indeed, as we have seen, the new argument's framework considers 'object' to be a *primitive term*. The only thing said of 'object' is that it is an existent, that is to say, something that exists. The starting point of the framework is therefore a *given* totality of objects, called 'the world' or 'reality'. There simply are *these* objects. And what it is for an object to be an object is

left open. Hence the notion of object is kept at an intuitive level, with the exception of the generic idea that object-hood is to be understood in the broadest, most inclusive, sense.

Further, as we saw, the argument's framework does not answer Van Inwagen's Special Composition Question. No sufficient and necessary conditions are provided to describe the circumstances under which some objects compose another object. In fact, for all the framework is concerned, there might not even be a single finite answer to the Special Composition Question.[221] The only thing we can do from the framework's perspective is to propose and defend metaphysical principles that help us to 'detect' objects. For this we could use paradigmatic examples of objects, such as tables and chairs. One example is the neo-Aristotelian principle proposed and defended by Koslicki according to which *being a spatially structured whole* is a sufficient condition for object-hood. This neo-Aristotelian principle is context dependent because it is specifically intended to apply to the context of ordinary material objects.[222] Now, our premise in question, i.e., the premise of causalism, is actually an example of such a principle as well. This principle is not context dependent. It offers us a necessary condition for *any* X[223] to be an object. So, if it can be shown that X is not caused, and if it can also be shown that X is not a cause, then we may conclude, according to this principle, that X is not an object.[224] Further, everything that is caused or that causes something else is by definition an object.[225] Hence, 'being caused or a cause' is not only a necessary, but also a sufficient condition for object-hood. That is to say, the notion of object is extensionally equivalent to the notion of 'being caused or a cause'.

As we know the new argument heavily relies on the principle of causalism. However, its defense reveals the very tension that I alluded to above. Let me explain. In my defense of causalism I presumed a conception of objecthood that is not as generic as the framework has it. For, my defense implicitly appeals to a rather specific neo-Aristotelian notion of objecthood according to which objects are understood as concrete particulars or as substances endowed with causal powers. And indeed, if we limit ourselves to these paradigmatic examples of objects, the thesis of causalism is sufficiently plausible, to say the least. But given that the new argument's framework adopts a far more universal all-encompassing conception of objecthood, the tension between the framework and my defense of causalism becomes apparent. For, given the framework's much broader view of what may count as object, why should we accept that *every* object is either caused or a cause? Take for example a mathematical point on some geometrical structure or a spatial point on some spatial surface. Are these points objects? They may very well be. Are they caused or the cause of something else? They

221 See also Markosian (1998) who argues that such an answer to the Special Composition Question indeed does not exist. As a result we are left with, as Markosian calls it, *brutal* composition.

222 The fourth premise of the new argument, according to which the sum of the members of a demarcated natural kind is an object, is another example of a principle for 'detecting' objects. This principle is surely context dependent in the sense that it only applies to the specific context of demarcated natural kinds.

223 Typically X would be a sum of already given objects, or X would denote some empirical state of affairs.

224 As discussed previously this principle is closely related to the principle that a sum of objects is plausibly itself an object just in case this sum is caused as a whole, or if it, as a whole, causes something else.

225 Indeed, for the framework's causal relation is by definition a relation *between objects*.

may very well not be. So causalism could be false after all. It might apply to concrete substances, but it might not apply to *all* objects.

How to respond to this problem? I believe that the above mentioned tension is indeed real and justifies additional research on how it can be significantly reduced, or even removed, by modifying the underlying framework's structure. Yet, I would argue that the tension is perhaps not as fierce as one might think. For, indeed, it would be counterintuitive to hold that some specific notion of causation, say, merely 'mechanical' causation, would suffice to conclude that *all* objects are either caused or a cause. However, the notion of causation as adopted by the framework is actually also quite generic. After all, in the previous chapters we saw that it can be taken to apply both to spatial-temporal and to non-spatial-temporal states of affairs. Moreover, the framework's concept of causation allows us to even consider abstract objects as being the cause of other abstracta. For example, I argued that within the mathematical realm certain sets of sets[226] can be understood as cause of the natural numbers and other mathematical objects. Thus, the notion of causation as adopted by the framework appears to be generic enough to subsume different types of causation. Take as yet another example the notion of a *sustaining cause*, that is, a cause of which the effect comes into being or ceases to exist when the cause itself comes into being or ceases to exist. There does not seem to be a good conclusive reason for excluding this type of causation from the framework's scope of causation. Therefore, since the sustaining cause of an object can properly be taken to be its *ontological ground*, it would follow that the framework's conception of causation seems in fact inclusive enough to render all cases of ontological grounding as cases of causation.[227]

In addition, one can point at a specific reason why the framework's conception of causation *must* in fact be more inclusive, more generic, than perhaps initially expected. For, as one might want to point out, for all we know, it might be the case that *all* caused simples are arranged in just one single downwards infinite series.[228] In that case every caused simple is caused by exactly one other caused simple, namely its predecessor in the causal series. But then, given that the new argument implies that the sum of all caused simples is caused by the first cause, it is quite clear that the sense in which the first cause can be said to cause the sum of all caused simples must be significantly different from the sense in which each of the individual caused simples can be said to cause its successor in the series. After all, the framework cannot allow for causal overdetermination. There are (at least) three candidates for the distinguishing sense in which the first cause can be said to be the cause of the sum of all caused simples. For example, one might have it that the first cause causes the sum of all caused simples in the sense that the first cause is the single ultimate explanation for the state of

226 See for example Halmos (1991, pp. 42–53) for a full exposition of how numbers are constructed from sets.

227 In that case the first cause as entailed by the new argument might very well be the sustaining cause of all dependent simples, that is, of all those simples in need of a sustaining cause. This is compatible with theism in that many theistic theologians and philosophers understand God as the sustaining cause of the cosmos.

228 I thank Herman Philipse for making me aware of this possibility.

affairs of there being caused simples at all. Or, alternatively, the first cause could be understood as being ultimately responsible for the structured arrangement of all caused simples into a single causally ordered series. And, as a third option, it could be that the first cause causes the sum of all caused simples in the sense that it causes the causal activity of each caused simple causing its successor.[229]

Based upon the above observations I conclude that the framework's notion of causation is indeed rather universal. But then the framework's highly inclusive notion of object-hood does not immediately render the principle of causalism problematic. After all, this highly generic notion of objecthood is 'matched' by a quite generic notion of causation, so that it is much more likely that for any object there is another object that can be understood, in some specific sense, as being its cause or its effect. Therefore, the tension within the new argument's framework, although real, is not *too* fierce. It doesn't break the framework.

One might however point at another possible tension in the new argument's framework. As we have seen the framework utilized the relationship of 'ontological priority'. Object A is ontologically prior to object B if and only if A can exist without B but B cannot exist without A. This relationship is of course asymmetric, that is to say, if A is ontologically prior to B, then B is not ontologically prior to A. Further, the framework holds that the parts of a whole are ontologically prior to the whole. Thus, the whole is not ontologically prior to its parts. Note that the asymmetry of the ontological priority relation entails that this relationship is irreflexive.[230] Moreover, as we have seen, the framework assumes the principle of composition-as-identity. According to this principle composites are identical to their compositions, that is, if the objects X_i compose some object X, then X is nothing more than the X_i taken together. Now, inspired by a recent argument of Bailey (Bailey 2011) one could argue that there is an irresolvable tension between both commitments, i.e., the commitment to composition-as-identity and the commitment to the thesis that the parts of a whole are ontologically prior to the whole. For, consider the following slightly modified version of Bailey's argument.[231]

1 X is composed of the X_i *(assumption)*
2 X is identical to the X_i *(from 1, composition-as-identity)*
3 The X_i are ontologically prior to X *(from 1, parts are prior to the whole)*
4 X is not identical to the X_i *(from 3, irreflexivity of the ontological priority relation)*
5 X is identical and not identical to the X_i *(from 2, 4)*

This argument shows that composition-as-identity is incompatible with the thesis that parts are ontologically prior to their wholes, and therefore the conclusion would be that the new argument's framework

229 Nevertheless, one might argue that the metaphysical possibility of all caused simples being arranged in a single infinite series does *not* force us to accept a broader notion of causation. For, first, one could respond that causal overdetermination does not have to be a problem (Sider 2003). Second, one could argue that the premises of the new argument actually entail, given that causal overdetermination is to be ruled out, that the caused simples are not arranged in a single downwards infinite causal series. Or, third, one may hold that, given that even time and space are objectual, our best physical theories imply that the world is not such that all caused simples are arranged in one single infinite causal series, so that, wholly independent of the new argument's premises, this metaphysical possibility can be excluded.

230 This follows indeed straightforwardly. Suppose that X is ontologically prior to X. In that case asymmetry implies that X is not ontologically prior to X. So we arrive at a contradiction. Hence, there is no X such that X is ontologically prior to X.

231 Bailey's argument refers to the notion of *grounding* instead of the ontological priority relationship.

indeed contains an irresolvable tension. Is this indeed the case? Is this tension irresolvable? If we take a closer look at each of the steps of the new argument it appears that we actually do not need the relationship of ontological priority. For, we can recast the argument in such a way that it does not contain any reference to ontological priority. Indeed, the only step we would have to adjust is the fifth step, i.e. the step in which it is shown that A is a first cause. In what follows I show how this can be done. Let us first eliminate the reference to ontological priority in the definition of a first cause by adjusting this definition. X is a first cause if and only if the effect of X, say Y, is such that without Y there would be no effects. This definition still guarantees that there can be *at most* one first cause. For, if X_1 and X_2 would both be first causes then the effect of X_1, say Y_1, would not exist without the effect of X_2, say Y_2, and vice versa. But this is the case if Y_1 and Y_2 are identical.[232] However, if Y_1 and Y_2 are identical, then surely their causes are identical as well, so that it follows that X_1 is identical to X_2. Now, with this adjusted first cause definition the fifth step can be rephrased without any reference to ontological priority. Let A be the uncaused cause of the sum of all caused simples, i.e. M. To show that A is a first cause it needs to be demonstrated that there would be no effects without the effect of A, that is, without M. Thus, let B be some effect. In that case B is either a caused simple or a caused composite. Principle (p) implies that in either case B has at least one caused simple, say C, as part. But then, without M object C, and therefore object B, wouldn't exist. Hence, A is indeed a first cause. I thus conclude that the alleged 'irresolvable tension' can be resolved after all. The framework doesn't break here either.

232 Note that it might be the case as well that Y_1 and Y_2 partly overlap without being identical, but in that case the first cause can be taken to be the sum of X_1 and X_2 and would therefore be unique as well.

The case for theism

As mentioned in the introduction I now turn to the question of whether the results of my project would justify the conclusion that theism has become more reasonable, that is, rationally more compelling, than it was before. Now, the results of my project are two-fold. In the first part of this thesis I presented a full and detailed assessment of traditional and contemporary cosmological arguments. After that, in the second part, I proposed and defended a new first cause argument. Below I first discuss the impact of my assessment of the existing arguments. After that I shall discuss the implications of the new argument.

Implications of the assessment of the existing cosmological arguments
My detailed analysis of the existing cosmological arguments has resulted in a number of clear conclusions. I showed that the first paradigmatic form of a traditional cosmological argument is not sufficiently warranted since two of its premises are problematic. And also the second paradigmatic form was found to be not sufficiently justified because it is based upon three problematic premises. With respect to Koons' new cosmological argument I concluded that two objections against it are cogent, and together these objections render

his argument unconvincing as a first cause argument. Regarding the cosmological argument of Gale and Pruss I showed that there are two strong objections against it. One renders their argument unconvincing as first cause argument and the other objection is a problem for their cosmological argument as such, since the objection is that their argument has the absurd consequence that the necessary being arrived at brings *all* contingent things into existence *itself*. The situation for Rasmussen's four cosmological arguments is not that different. I argued that his cosmological argument from a maximal contingent state of existence is inadequate as an argument for the existence of a first cause. Also I demonstrated that the first two of his three alternative paths are problematic due to substantial problems, while the third path is not suited as a first cause argument.

From the above overview one could easily get the impression that my assessment of these arguments diminishes the overall reasonability of theism. After all, didn't I show that all the traditional and contemporary cosmological arguments are problematic, and that thus a significant part of the rational case for theism, that is, the cosmological arguments, has to be given up? Now, the two paradigmatic versions of the classical cosmological argument are, as my assessment has shown, surely untenable, but, as many atheists and theists will reply, this is not a surprisingly new result. Hence, it all comes down to the implications of my assessment for the credibility of the contemporary versions of the argument. Well, as I argue for below, these implications are quite different from the above initial impression.

Let me start with Koons' cosmological argument. As we have seen I showed that *none* of the known objections to this argument is effective. For, first, I showed that the objections mentioned by Koons are either cogently refuted by himself, or can be cogently refuted by taking further considerations or minor modifications into account. Second, I argued that all remaining classical Humean, Kantian and Russellian objections to his argument fail as well. And, third, I demonstrated that the contemporary objections from Ross and Oppy do not go through either. Further I also proposed my own objections to Koons' cosmological argument. However, my additional objections, apart from the worry that there might exist uncaused wholly contingent objects, do not threaten Koons' argument. Why not? Well, as we have seen, my additional objections are solely meant to show that Koons' argument is untenable as a *first cause* argument, that is to say, as an argument for the existence of an uncaused cause of everything else besides itself. So therefore these additional objections do nothing at all to threaten Koons' argument itself, that is, his argument for the existence of a necessary fact that is the cause of the aggregate of all wholly contingent facts. Thus, given the above, I conclude that my detailed assessment of Koons' argument as argument for *a necessary cause of all wholly contingents* has increased its epistemic credibility.

The dialectical situation for Gale and Pruss's argument is quite similar. As in the case of Koons' argument I showed that the objections mentioned by Gale and Pruss are properly refuted by themselves or can be cogently refuted if we take some further considerations and small adjustments into account. Moreover, I demonstrated that all remaining classical Humean, Kantian and Russellian objections to their argument do not go through, and I showed that the same is true of the main contemporary objections from Oppy, Davey and Clifton, and Almeida and Judisch. And, third, the additional objections that I proposed to Gale and Pruss's argument, except for my objection that their argument doesn't appear to allow for libertarian human free will, are merely meant to show that their argument does not qualify as a proper *first cause* argument, but again, this does not affect the tenability of their new argument itself, that is, their argument for the existence of *a necessary being that freely and intentionally brought it about that the Big Conjunctive Contingent Fact of the actual world is true*. Thus, given these observations, I conclude that my full discussion of Gale and Pruss's argument also increases the epistemic tenability of their argument.

Let us now consider Rasmussen's four cosmological arguments. His main argument, that is, the argument from a maximal contingent state of existence is, as I argued, based on sufficiently reasonable premises, and the argument's conclusion that a necessary and possibly causally efficacious being exists follows logically from these premises. Moreover, I showed that all known objections to this argument as mentioned by Rasmussen himself are harmless if we take into account in some cases further considerations and minor modifications. The further objection that I proposed myself was solely meant to show that this argument is not suited as a *first cause* argument. But this observation, similarly as before, does nothing to the epistemic tenability of the argument as argument for the existence of *a necessary being that is possibly causally efficacious*. So, also in this case, my discussion has actually increased the overall credibility of Rasmussen's first argument. What about Rasmussen's alternative paths? I showed that the first and second path cannot succeed due to substantial problems, but, since both paths are actually not new at all and have been criticized before, I would say that this observation does not change the dialectical situation with respect to the tenability of theism. And the third path is, as I argued, again only problematic as a *first cause* argument, and not, given that we apply some adjustments to Turri's reformulation of it, as an argument for there being *a necessary, possibly causally efficacious, being*.

Therefore, based on the above considerations, I conclude that my detailed assessment of the contemporary cosmological arguments changes the epistemic or dialectical situation in favor of all three arguments *as long as* we do not view these arguments as first cause arguments but, instead, as arguments for the existence of a necessary object that is (or might be)[233] the cause of the aggregate of all (or

233 Rasmussen's arguments, as we saw earlier, merely establish that the necessary being arrived at *might have been* the cause of all or some contingents. The arguments of Koons and Gale and Pruss establish much more, namely that the necessary being in question actually *is* the cause of all or some contingents.

some)[234] contingents. And, since surely, given their conclusions, these arguments are incompatible with 'everything is contingent'-types of metaphysical naturalism, and, moreover, because their conclusions are perfectly compatible with theism, I conclude that my detailed analysis of the contemporary arguments of Koons, Gale and Pruss, and Rasmussen has increased the overall credibility of theism over naturalism, which is quite the opposite of the above mentioned initial impression.

IMPLICATIONS OF THE NEW COSMOLOGICAL ARGUMENT

The main intuition behind the new cosmological argument is actually quite basic. For, the argument is essentially rooted in the idea that while composites are derived from simples we cannot refer to a similar origin in the case of those simples themselves. If they have an origin at all, then their source must be of a wholly different nature. Thus, composites are composed of simples, yet these simples, being indivisible, can only have some ultimate origin as their ground. This basic thought may be as old as philosophy itself. The ultimate constituents of nature, the 'prime matter' of the world, must, if caused, have been caused by something entirely different from the entities that cause composites from simples. One could say that the new argument does actually not do much more than to give a precise formalization of this fundamental idea, and to explicate from which reasonable premises it follows. We could therefore imagine that many would argue that the new cosmological argument is to be considered as being nothing more than a supplementary justification of a proper basic intuition, namely, the fundamental belief that the simples of the world, or for that matter, the whole cosmos, must have some absolute uncaused origin, that is, the idea that there must be some first cause. For surely, as those who defend this basic belief would have it, there must be some 'metaphysical ultimate', some absolute independent ground of reality in which everything that exists is ultimately grounded. Indeed, as Kant puts it: 'The cosmos sinks into the abyss of nothingness, unless, beyond this infinite chain of contingencies, something supports it' (KrV A622/B550). But then, we should ask, how does the new argument, being the justification of the in itself already plausible or even self-evident idea that there must be some ultimate source of reality, a first cause, contribute to the rational defense of *theism*? In what sense does it support theism *as such*?

Now, as I argued before, any adequate conception of God has it that God is *at least* also the first cause of reality.[235] For, if God is not the first cause of reality then God is itself caused. But if so, God would be causally dependent on some other ontologically more fundamental entity, which is simply absurd. Hence, whatever definition of God is presumed, being the first cause of the entire world *must* be part of it. This is important since, as we have seen, *none* of the traditional and contemporary cosmological arguments qualifies as a first cause argument. Therefore none of these arguments, even if we would take them all together, justify the claim that God exists. Precisely for this

234 As we have seen before only Gale and Pruss's cosmological argument entails that the necessary being in question is the cause of all contingent facts. Koons' cosmological argument entails that the necessary fact is only the cause of *all wholly contingent facts*, and Rasmussen's arguments only guarantee that the necessary being is possibly the cause of *at least one contingent object*.

235 This phrase must be carefully understood. If there is a first cause, then, surely, it is part of reality just as any other existent. It is thus incorrect to say that the first cause causes reality. For, such an assertion would entail that the first cause also causes itself, which is absurd since nothing can cause its own existence. So, what is actually meant is that reality *has* a first cause, that is, reality *contains* an uncaused object that is the direct or indirect cause of everything *else*. In other words, the first cause grounds everything *besides* itself.

reason the new first cause argument is in fact crucial, for only if the other arguments are combined with it, we obtain a case for theism. This case then begins with the new first cause argument in order to justify the existence of a *first cause*. After that the cosmological arguments of Koons and Rasmussen can be invoked to argue that the first cause is a metaphysically *necessarily existing being*, which is one of the qualities often attributed to God. Third, the cosmological argument of Gale and Pruss can be appealed to in order to argue that this necessarily existing first cause is in fact a *person* that *freely intentionally* brought the universe into existence. Thus, to summarize, without the new first cause argument the arguments of Koons, Rasmussen and Gale and Pruss are insufficient to arrive at a proper case for theism, while, *if* we combine these arguments with the new first cause argument, we arrive at a necessary uncaused free person that freely caused the entire universe. And, of course, this comprehensive result *does* sufficiently justify theism.

So, although the new first cause argument does not entail theistic features such as being a person or being omniscient, and so on, the argument is in fact crucial for the debate since it establishes the single state of affairs that all arguments for the existence of God have to entail, and which none of the current contemporary arguments in fact does, namely, that there is a first cause. For God, if anything, is the first cause, and thus any rational case for theism must first infer a first cause, before it can go on arguing for this cause having the proper theistic features. Hence, the new first cause argument is the first step in any case for theism, only after which other arguments, for necessity, for personhood, etc., follow.[236]

Let us approach the relevance of the new first cause argument for the rational justification of theism also from a slightly different perspective. In general we can clearly distinguish between two distinct types of atheism, say *type I* and *type II* atheism. Type I atheists deny that there is a first cause of reality. They deny that the world is ontologically grounded in some unconditional ultimate uncaused cause of everything else. Now, given that 'being the first cause' is an intrinsic part of any proper definition of God, it follows immediately that type I atheists indeed do not believe in God. Type II atheists actually *do* accept that there is a first cause. They affirm that the whole of nature must of course eventually be grounded in some ultimate absolute uncaused cause of everything besides itself. Yet, as these type II atheists have it, they believe that the first cause of the world is *non-personal*. The first cause, according to type II atheists, is some non-personal object. So, it is clear that type II atheists do not believe in God either, for God is understood as being personal instead of non-personal. Obviously, the new first cause argument addresses type I atheists directly. For, the argument, if sufficiently convincing, renders the epistemic position of type I atheists untenable. On the other hand the new argument leaves the position of type II atheists totally untouched. For, type II atheists could actually

236 Note that any convincing argument for the existence of a first cause already rules out pantheism. For, surely, the first cause would have to be considered 'more divine' than the sum of the first cause and all of its direct and indirect effects, that is, reality as such. So, pantheism can be discarded if there is a first cause.

accept the new argument without thereby having to accept theism. So, the argument supports theism in the sense that it reduces the viable options for atheists to type II atheism only. And in this way the debate between theists and atheists is transformed significantly. For, once the existence of a first cause has been accepted as *common ground* for both theists and atheists, the debate can focus solely on the features of this first cause, or, to be more specific, on the single question whether the first cause is personal (entailing bare theism)[237] or not (entailing atheism). In this case the seemingly unbridgeable difference between atheists and theists would be effectively reduced to a mere difference of opinion on just one single specific feature of the first cause, namely the question whether it is personal or not. And, I would argue, it is a substantial advantage if one would be able to bring the debate to this level of convergence. Indeed, a lot is won if the whole debate would be reduced to 'just' a debate on the specific question of whether the first cause is personal or non-personal, instead of the much broader debate on the reasonableness of theism as such versus atheism as such.

237 Actually (bare) theism comprises of course much more than 'just' a personal first cause. Yet, it is clear that there being a personal first cause would defeat atheism while being perfectly compatible with theism, to say the least. Therefore, a rationally compelling case for the existence of a personal first cause in a debate between atheists and theists reasonable counts as a convincing justification of theism over atheism.

So, given the first cause as a common ground, there is actually quite a lot that theists and atheists share. They agree on the basic structure of the world and their difference shrinks to merely a difference of opinion on only one feature of the first cause, a gap much easier to close than between the views of theists and type I atheists. Thus, again, the new first cause argument suggests a two-stage approach for any adequate defense of theism. First, theists should argue for the existence of a first cause, thereby eliminating type I atheism. Only then should they aim to demonstrate that the first cause arrived at is in fact personal, thereby eliminating type II atheism as well. But then the new argument is indeed crucial.

ARGUMENTS FOR A PERSONAL FIRST CAUSE

As I said the 'real debate' should be about whether the first cause is personal or not. Now, in the remaining part of this final chapter I will, in addition to Gale and Pruss's argument, suggest three further arguments for the claim that the first cause as implied by the new argument is in fact personal. Each of these suggestions requires more work in order to count as a fully developed argument. This work has to be part of future research since it is not within the scope of the present thesis. The first of these three suggestions is no more than a hint for a possibly feasible argument. It is premised on the classical idea of there being an *intrinsic resemblance between being and knowledge*. It was proposed by D. Georgoudis on Prosblogion and I take it to be interesting enough to mention it briefly. The second argument, which I will outline in a bit more detail, is axiological. It deduces that the first cause has to be personal from two premises on *the nature of value*. The third argument is, as I would call it, modal-epistemological, for it is premised on *modal claims about knowledge*. This argument I will develop in much more detail than the other two. As the above descriptions indicate none of these

arguments is cosmological, teleological or ontological. So a rational case for theism can be built from quite different arguments.

A DEEP LINKAGE BETWEEN THE NATURE OF COGNITION AND THE NATURE OF REALITY

Let us start with Georgoudis's hint.[238] On Prosblogion he first argues that cognition should not be identified with the concepts and formalisms it relies on: 'Concepts and formalisms strike me as being mere tools. They are there to serve us in our quest for understanding. It is thus understanding which expresses itself in concepts and formalisms, and not the other way around. Those who are inclined to do analytic philosophy should be careful not to put the cart before the horse. [Concepts and formalisms] are useful in testing our understanding, but [they] cannot by themselves lead us to better understanding. Concepts and formalisms have not a life of their own, and are useful only if one uses them properly. Philosophy is not a business of formal/mechanical discovery. Not even math, which is understood by many as being the paradigmatic case of a business of formal/mechanical discovery, is ultimately so'. What Georgoudis points out here is the fundamental idea that our understanding or cognition is ultimately a matter of personal acquaintance and not merely a set of procedures for producing and applying concepts and formalisms. Our personal cognitive understanding *requires* concepts and formalisms, but that does not imply that our understanding has to be *identified* with those concepts and formalisms. Cognition is *personal understanding*, not just formal or mechanical concept formation and deployment. On the basis of this intuition Georgoudis proposes a justification for the assertion that 'the metaphysical ultimate', that is, the first cause, is of a personal nature: 'Cognition is an intrinsic part of reality. If we find that all cognition is ultimately not one of mechanical discovery, and that on the contrary all knowledge is ultimately the result of personal acquaintance, then the foundations of reality must be of a personal and not of a mechanical nature'. Thus, assuming a deep linkage between cognition and reality, if cognition is ultimately of a personal nature, then the ultimate ground of reality itself is plausibly personal as well. I take this to be a quite interesting justification for the personal nature of ultimate reality and therefore for the assertion that the first cause is personal. The proposed argument can be rendered more schematically as follows. The first premise is that cognition exists. Things are being known. There is knowledge. Note that this claim is not to be identified with the claim that there are subjects who know propositions. What is meant is something else. If subject S knows proposition P, then there exists something *in addition to* subject S, proposition P and the relationship 'S knows P'. The additional reified existent can be referred to as 'knowing P' or perhaps more properly as 'that what it is to know P'. The second premise would be that this very existent, the cognition *itself*, is deeply affiliated to reality in the sense that it not only adequately reflects reality but is in fact entirely isomorphic to it. That is, there is a profound

238 http://prosblogion.ektopos.com/archives/2011/11/counterpossible.html#comment-265513

parallelism between the order of knowledge and the order of being. But, as the third premise would have it, such a deep connection between the two is only plausible if the ultimate nature of cognition is similar to that of reality. Now, the fourth premise has it that, as we have seen above, cognition is ultimately subjective personal acquaintance. So, from these four premises the conclusion follows that, plausibly, reality is ultimately personal as well. But again, as said, this line of reasoning surely needs more work in order to evolve in a fully developed argument.

AN ORDER OF VALUE OF TYPES OF EXISTENTS WITHIN WHICH EVERYTHING THAT EXISTS PARTICIPATES

I next turn to my suggestion for an axiological argument for the claim that the first cause is personal. According to one formulation of Kant's categorical imperative we should 'act in such a way that we treat humanity, whether in our own person or in the person of any other, never merely as means to an end, but always at the same time as an end'.[239] This imperative expresses the intuition that each human being, as a person, has a worthiness or dignity that differs in an absolute sense from that of all lifeless things. A human being is a *someone* instead of a something. Human persons are self-consciousness autonomous free individuals, and as such inherently endowed with a level of dignity that no unconscious lifeless thing will ever match. So in general we can say that there are types of beings (e.g. human persons) that have a value that other types of beings (e.g. lifeless things) lack. But then it seems not unreasonable to generalize and hold that all types of beings have some level of dignity that is equal to, or different from, the level of dignity of other types of beings. We thus arrive at an axiological postulate, the postulate of an *order of value* on the types of being in which all types of beings participate. This order is transitive. Indeed, to give a perhaps obvious example, if each human being has a higher value than a given piece of art, and if each given piece of art has a higher value than some given elementary particle, then it follows that each human being has a higher value than each elementary particle. Let us now focus on the first cause, which is also a being and therefore has a certain value. The first cause is the ultimate ground, the unconditional source of reality. It is the origin of the world. The first cause, the arche, therefore has an ontological primacy above everything else that exists. All derived beings came into existence from it. Without the arche nothing would have begun to exist. Nothing at all would have come into being.

The question that one may now ask is *where* the origin of the world, the first cause, is to be located on the aforementioned transitive order of value. It seems plausible to hold that the first cause, the arche, has a value that is at least *not lower than* that of every human being. For, the ultimate source of the world is plausibly not less valuable than the beings within the world, such as human beings. The absolute, the 'metaphysical ultimate' cannot be lower in dignity than those beings whose very existence is dependent on a cosmos that arises from it. But

239 Kant, Immanuel (1785), *Grounding for the Metaphysics of Morals*

240 Note that for example in the biological realm some organisms would count as unconscious objects (e.g. bacteria) while others would count as conscious subjects (e.g. birds). Further, the proposed distinction is compatible with there being grades of consciousness. One conscious subject (e.g. monkey) can be taken to be more conscious than another (e.g. butterfly). And at some stage conscious subjects become self-aware.

then, since human beings have a value that goes beyond that of lifeless things, the transitivity of the order of value entails that the first cause is not an impersonal thing. So, assuming that, plausibly, everything that exists is either a subjective conscious being or some unconscious thing, in short, a subject or an object,[240] it follows that the first cause has *personhood*, that is, 'subject'-features. It is not a something, but a *someone*. Thus, in short, if everything is either an object or a subject, and if subjects have a higher value than objects, it follows that the first cause, being an entity that has at least the same value as human subjects, cannot be a mere object, and therefore must be a subject as well. This concludes the second suggested argument for the personal nature of the first cause.

THE IMPLICATIONS OF THE IDEA THAT REALITY IS ULTIMATELY METAPHYSICALLY INTELLIGIBLE

Below I present and assess in full detail my third suggested argument. Take the following modal-epistemological principle, connecting possible worlds,[241] knowledge and truth: 'If it is metaphysically impossible[242] to know *p*,[243] then *p* is necessarily false'. This principle seems cogent. For, if a given proposition *p* could be true, then, plausibly, there is some possible world in which some subject in fact knows that *p* is true. In other words, if in *all* possible worlds *all* subjects do not know that some proposition *p* is true, then, plausibly, that is because that very proposition, *p*, cannot in fact be true. So, if some proposition *p* cannot be known in the actual world, and not in possible worlds quite similar to the actual world, and not in possible worlds distinct from the actual world, and not even in possible worlds that are radically different from the actual world, then it seems plausible to conclude that *p* is in fact not true. On Prosblogion D. Georgoudis commented on my modal-epistemic principle as part of a discussion of my proposed argument. In the next three sentences I shall paraphrase the way Georgoudis describes the basic intuition behind it. The principle expresses a commitment to the idea that reality in itself is ultimately intelligible, i.e. amenable to understanding or knowable. This commitment seems to be necessary for doing metaphysics. For, if the world is ultimately not intelligible, or, to put it differently, if what is metaphysically ultimate is not intelligible, then why think about metaphysics? Indeed, one can consider my proposed principle as being a formalized modal-logic rendering of a plausible necessary condition for doing metaphysics, i.e. the intelligibility of reality. Moreover, the claim that all possible truths are knowable has a very high confirmation and corroboration rate. It holds for example of all our everyday assertions and all propositions present in our best scientific theories. And of course the principle that reality itself is ultimately intelligible, that is, that all possible truths are possibly known, is only plausible if we take into account what people *and all other metaphysically possible actors, either human or non-human, in all metaphysically possible words* can know. For, the essence of the principle is that it is reasonable to hold that every possible truth is always at least

241 In what follows the S_5 system of modal logic is assumed, that is, it is taken that every possible world is accessible from any other, which is a valid assumption in the case of *metaphysical* possibility. For, in this case, we have the universal question what is actualizable *simpliciter*, that is, what could obtain *at all*. Yet, I take it that all the argumentative steps of my argument are justified even if we would not assume S_5.

242 Contrary to my first cause argument, and to the aforementioned two suggested arguments for this cause to be personal, the third suggested argument deploys again the modal notions of metaphysical possibility and necessity. Now, in light of my earlier remarks on the nature of these notions, I consider this to be an epistemic 'price' that we have to pay in order to get the third argument of the ground. But there is also something that this argument brings and that the other two suggested arguments lack. For, as becomes clear in the rest of this chapter, it entails a personal first cause *without* having to assume upfront that a first cause exists. As such it does not depend on my first cause argument for supporting theism. Nevertheless, the third suggested argument still depends on the first cause argument in a weaker or secondary way. For, as will become clear later on in this chapter as well, it needs to assume that a first cause is metaphysically possible.

243 Some given proposition *p* is *metaphysically unknowable*, or, in short, unknowable, if and only if there is no logically possible world *W* and no subject *S* such that *S* knows *p* in *W*. That is to say, a proposition is unknowable just in case there is no possible world in which that proposition is known. Moreover, it is quite important to note that 'subject' does not refer only to *human* persons. 'Subject' refers to *any possible type* of agent or actor capable of knowledge, or, more precisely, capable of knowing at least one proposition.

somewhere possibly known, in our world, in some similar possible world or in a radically different possible world. And this is indeed the case for all our everyday and scientific assertions. So, why would there, given that reality is ultimately uniform and not arbitrary, be suddenly some 'very special truths' for which the principle does not hold? This is not plausible. Because of this reason and the aforementioned considerations I take it that the principle can be reasonably accepted.[244]

Now, on a Cartesian view of knowledge, that is, to know *p* is to be certain[245] that *p* is true, the above principle has an interesting consequence. For, take for *p* the proposition 'God[246] does not exist'. In this proposition and in what follows 'God' is understood as 'personal first cause'. It seems reasonable to hold that it is impossible to know that God does not exist. For, whatever the arguments against the existence of God, there will always remain some non-neglectable epistemic possibility that God does exist after all, so that we can never truly say, on the Cartesian view of knowledge, that we know that God does not exist. But then, by taking the earlier mentioned principle into account, it follows that it is necessarily false that God does not exist. Hence, it is necessarily true that God exists. The aforementioned principle, combined with the claim that it is impossible to know that God does not exists, thus supports[247] bare theism:

1 For all *p*, if *p* is unknowable, then *p* is necessarily false *(first premise; the principle)*,
2 The proposition 'God does not exists' is necessarily unknowable *(second premise)*,
3 Therefore, 'God does not exists' is necessarily false *(from both premises)*
4 Therefore, necessarily, God exists *(conclusion; from (3))*.

Further, I take it that, reasonably, the *prior* plausibility of the premises (1) and (2) of my argument is higher than the *prior* plausibility of the proposition that God necessarily exists, which, I would say, makes the argument relevant for the debate between theists and atheists. Now, is this argument for a personal first cause sufficiently convincing?

#1

The atheist might object that it is also impossible to know that God exists. And thus, by similar reasoning, it would follow also that it is necessarily true that God does not exist. However, I would argue that there is a possible world in which some subject can truly say that he or she knows that God exists. Take a possible world in which God exists[248] and in which there is an afterlife, such that all who enter the afterlife in that possible world will encounter the divine. In that case, those subjects who enter the afterlife will in fact know that God exists. So, it is not impossible to know that God exists. Note that a similar move to reject

244 In fact, since at least Parmenides many ancient philosophers accepted the core idea expressed by the principle. Aristotle is a well-known example. He holds that reality is essentially intelligible, that there is a strict parallelism between reason and being, that 'being' and 'being-known' are extensionally equivalent. And this is precisely what the principle affirms: all truths are knowable. In addition to ancient thinkers such as Parmenides and Aristotle, also philosophers from the modern area would agree with the principle. For example transcendental idealists, or G.W.F. Hegel who famously proclaimed the intrinsic intelligibility of being: 'What is reasonable is real; that which is real is reasonable'. Contemporary worldviews committed to the principle include, but are not limited to, various forms of internal realism and neo-Aristotelianism.

245 Note that the certainty, as intended here, does not have to be *absolute*. It is not the case that a subject S must conclusively logically eliminate each and every *extremely remote skeptical non-P scenario* for having Cartesian knowledge that P. In order for S to have Cartesian knowledge that P it is sufficient that P is true and S is in an ideal epistemic situation regarding P, i.e., S cannot else but believe P. It would be self-denial for S to hold that S doesn't believe P. Hence, S has Cartesian knowledge that P if and only if P is intuitively self-evident for S or S has an incorrigible experience that P. So, *absolute* certainty is indeed not required.

246 Here and in what follows God is defined as 'personal first cause'. That is, God is an uncaused personal being that is the indirect or direct cause of everything else that exists. This definition is logically consistent. Note that this definition doesn't require God to be omniscient, omnipotent or omnipresent. It also doesn't require that God exists necessarily or that God is all-good. Yet, as discussed before, a cogent

argument for a personal first cause is surely sufficient to refute naturalism and atheism, and to warrant (bare) theism.

247 Strictly speaking it does not *entail* bare theism if it is assumed that bare theism includes the claim that God has (one or more of) the 'omni'-attributes, such as omniscience, omnipotence or omnipresence.

248 One might think that taking a possible world in which God exists begs the question since it seems to be that by doing so I appeal to God's existence to show that God exists. However, I'm not appealing to God's existence. For, my appeal to the mere logical *possibility* of there being a God is not the same as assuming that God *actually* exists. Let me clarify this. I claim that it is *logically possible* for God to exist. That is, I'm claiming only that there is a possible world, either the actual world ('our world') or another possible world, in which God exists. For, even if God does not exist in the actual world, it would still be true, given that the concept of God (personal first cause) is consistent, that there is another non-actual logically possible world in which God exists. Thus, I am not assuming that God *actually* exists. Indeed, such an assumption would surely render the argument circular. It would be a clear case of begging the question. Further, as mentioned, the argument does not rely on the claim that God is by definition a necessary being. Hence my appeal to the mere logical possibility of God's existence does not reduce the argument to the ontological argument.

249 Note however that we cannot *logically* exclude the metaphysical possibility of there being an afterlife without God. After all, an atheistic substance dualist might want to argue that the human mind can exist separately from the human body, so that an afterlife without God remains a metaphysical possibility.

the argument is not open to the atheist. For, if God doesn't exist, then, plausibly, there is no afterlife.[249] And besides, even if there would be an afterlife, then entering it would not bring a subject in the epistemic condition of knowing that God does not exist.

Yet, the atheist might want to offer three additional objections, which I shall present and respond to in what follows. The second objection was suggested by Alexander Pruss.

#2

The main principle on which the argument for theism is based can be formulated as: 'If *p* is possibly true, then *p* is knowable'. This principle entails that every truth is knowable. But from that, as Fitch has shown in his 1963 paper 'A Logical Analysis of Some Value Concepts', it can be logically deduced that every truth is in fact known! An atheist might reason that this is a highly problematic, if not absurd, consequence. Thus, as the atheist would have it, the proposed argument is not convincing and should be rejected.

I would respond as follows. Now, it is indeed the case, following Fitch, that the principle entails that every truth is in fact known (call this consequence T). But why hold that T is false? After all, for all we know, there might be an omniscient being in the actual world knowing all truths. So, even though T does seem problematic for atheism, it does not follow that T is false. It would be begging the question for the atheist to deny T solely because T does not fit with atheism and favors theism (since the theist can hold that God knows all truths). Indeed, the fact that my principle entails T is not sufficient to reject it. For, it would be unreasonable for the atheist to initially accept the principle as plausible (which I would contend it is), but then, when it becomes clear (after a quite complex non-trivial deduction) that it has a consequence unpleasant for atheism, to reject the principle.

Nevertheless, the atheist could insist that she has actually offered a *reductio ad absurdum* of my principle. After all, if we combine my principle with Fitch's result, we arrive at a conclusion that is way too absurd for atheists to accept, namely that all truths in the actual world are known. I would reply to this as follows. First, I provided some intuitive support for the principle. The atheist can therefore only reasonably reject the principle if she also argues why this intuitive support for it is not convincing. And for doing that the alleged reductio is surely not sufficient. Second, and much more importantly, the reductio offered by the atheist, if accepted, does in fact not show that my modal-epistemic principle fails. It only shows that the *conjunction* of this principle and Fitch's result fails. Hence, for the atheist to arrive at her desired conclusion that my principle fails, she has to accept Fitch's result. However, I argue below that Fitch's result cannot reasonably be

accepted, neither by atheists nor by anyone else. Thus the proposed reductio of my principle fails after all.

To begin with, let us notice that Fitch's proof, that is, if all truths are knowable, then all truths are known, is highly counterintuitive. In fact, it is not merely counterintuitive, but truly paradoxical. It should therefore not surprise us that Fitch's proof is referred to in the literature as the *Knowability Paradox*. Its fundamental paradoxical character stems from the fact that it is undeniably absurd to believe that the mere possibility that all truths *can* be known already entails that all truths are in fact *actually* known. Fitch's proof leads to a collapse of the obvious and clear difference between *possible* knowledge of all truths and *actual* knowledge of all truths, which is seriously disturbing. As Kvanvig points out: 'the idea that there is no distinction between knowable and known truth [...] is too much to ask' (Kvanvig 2006, p. 205). Therefore, like any other deep paradoxical result, we should *only* accept Fitch's proof if there is no reason to doubt whether this proof holds. And this is not the case at all. There is a good reason to doubt whether Fitch's proof is valid. In the introduction of his thorough book on Fitch's Paradox of Knowability Kvanvig argues: 'I pursue [...] a strategy for solving the knowability paradox in terms of the general category of the fallacies involved in substituting into intensional contexts. It is well known that such substitutions are not always valid: from the fact that Clark Kent is Superman and that Lois adores Superman, one can't infer she adores Clark; and from the fact that 9 is the number of planets, we can't infer that the number of planets is necessarily greater than 7 simply because 9 is necessarily greater than 7. [...] When we examine the logical details of the paradox, it involves substitutions into intensional contexts as well, and that fact should alert us to the possibility that the substitution is illicit.' (Kvanvig 2006, p. 4). Kvanvig's strategy is to demonstrate that Fitch's proof amounts to a substitution into a modal context, and might therefore be a modal fallacy. This lack of trust in the validity of the proof gives us enough reason, given the proof's huge paradoxical implications, not to accept it. Thus, after Kvanvig the burden of proof has shifted again to the proponents of Fitch's result. For they now must argue why Fitch's proof is not just another example of a failure of substitutivity in intensional contexts. And a well-known attempt of Williamson (2000) to do so has been extensively addressed and finally rejected by Kvanvig (2006). Besides, Kvanvig does much more than raising sufficient doubt on Fitch's proof. In his book he develops a so-called neo-Russellian treatment of quantification that does actually entail that Fitch's proof is indeed a special instance of an invalid substitution into a modal context. His neo-Russellian notion of quantification shows that the substitution in Fitch's proof is in fact mistaken, by enabling us to explain precisely why it is a failure of modal substitutivity. Thus, *if* we accept Kvanvig's neo-Russellian treatment of quantification, it follows that Fitch's proof is not only doubtful, but indeed actually invalid. It goes beyond the scope of this chapter to present the neo-Russellian notion of quantification.[250]

250 Kvanvig's neo-Russellian treatment of quantification is not an ad-hoc proposal. It is akin to the Kripkean treatment of names as terms that 'reach out directly into the world' without such reach being mediated by a definite description. The neo-Russellian notion of quantification holds 'that the connection between the quantifier and the domain of quantification is unmediated' (Kvanvig 2006, p. 5). In the neo-Russellian treatment of quantification the domain of quantification does *not* 'enter the picture at a later semantical stage, the stage at which an evaluation of the truth-value of the proposition expressed is calculated' (2006 p. 5). In other words, the neo-Russellian view of quantification 'proposes that modal contexts introduce the need to tie the domain more closely to the thought expressed by a quantified sentence.' (p. 203).

Enough has been said to see that Fitch's proof is simply too doubtful to reasonably accept, which concludes my refutation of the second objection.

#3

The atheist might reject my response to the first objection. After all, someone could, even encountering God in the afterlife, believe that he or she is dreaming, or hallucinating, or being deceived. Therefore, on the Cartesian view of knowledge, it is impossible to know that God exists after all. But then, given my modal-epistemic principle, it also follows that, necessarily, God does not exist. And thus the proposed argument fails. My response would be that even if someone could think that he or she is dreaming, hallucinating or being deceived, it still does not follow that God's existence is unknowable. For, take a possible world in which God exists. In such a possible world there is a subject that knows that God exists, namely God. Indeed, in that world God knows that God exists. So, it is not impossible to know that God exists.[251]

#4

Another objection would perhaps be to argue that there might be some true mathematical Gödel sentence G that cannot be proven by any proper mathematical system. Hence, G is unknowable. But then not all truths are knowable, and therefore my principle (which entails that all truths are in fact knowable) fails. My response would be that G *is* in fact knowable. For, there is a possible world in which G is known. Take again a possible world in which God exists and in which God's direct mathematical intuition is perfect. In this possible world God can be taken to know all logico-mathematical truths immediately by direct intuition,[252] and therefore God knows G as well.

In the rest of this chapter I present and refute further objections that have been raised by people participating in discussions about the argument on Prosblogion and elsewhere.

#5

Let *p* be the proposition that there are no unicorns. Now, one could propose the following parody of my argument. Whatever the arguments against *not-p*, there is always some non-neglectable possibility that unicorns do exist after all, so that, on the presumed Cartesian view of knowledge, we can never truly say that we *know* that unicorns do not exist. Hence, according to the presumed modal-epistemic principle, it is necessarily true that there are unicorns. But this is clearly absurd. And hence that principle must be false.

Let me respond to this objection. Take a possible world *W*, in which (i) intelligent agents exist, (ii) space-time is relatively limited in extent, and (iii) physics and technology are extremely advanced. In this world it might be the case that intelligent agents are able to scan the whole

251 Note that we do not have to affirm that God knows to be God in *all* metaphysically possible worlds in which God exists. For, it is sufficient for there to be *at least one* metaphysically possible world in which God exists and in which God knows to be God, which is surely a reasonable given that God, being the ultimate ground and origin of being, is in an maximally ideal epistemic situation regarding its own nature. Besides, in order to know this nature God doesn't have to reach out beyond its own condition of existence.

252 Let me briefly clarify this statement. We know for example by immediate intuition that 'a = a' or that something cannot both have and lack a certain property at the same time in the same way. Both truths are for us self-evident and therefore part of our knowledge under the Cartesian view. Now, the difference between us and God existing in the possible world in question, is just that for God in that world not only these two truths, but in fact all logico-mathematical truths (including Gödel's theorem itself) are wholly self-evident, and therefore, on the Cartesian view of knowledge, part of God's knowledge in that world. Further, notice that knowing all logico-mathematical truths does not have to be an essential property of God. That is to say, there might be many other possible worlds in which God does not know all logico-mathematical truths. Moreover, knowing all logico-mathematical truths is certainly not the same as being omniscient. My response to the fourth objection therefore doesn't assume that God is possibly omniscient.

of space-time for specific objects. In that world one would then be able to establish that there are no unicorns. Or, alternatively, suppose the intelligent agents in question are able to establish that the planet they live on is the only location in space-time that allows for life. Let us also suppose that their physics and technology are so advanced that they are able to scan their entire planet for there being unicorns. In that case they would be able to know that there are no unicorns. So it is not impossible to know that there are no unicorns. But then my principle doesn't apply. One may reply that, under the Cartesian view, these agents still don't *know* that unicorns do not exist. For, they cannot sufficiently rule out the possibility that the scanner they use is not broken, that they didn't forget to scan some part of space-time, and so on. I would say that this doesn't constitute a problem for the argument. For, there is still at least one possible world in which it is in fact known that unicorns do not exist. Take a possible world W_2 in which God exists and in which God is alone since God decided not to create anything.[253] In that world God, being the solitary personal first cause of that world, does know that unicorns do not exist. Thus, my metaphysical principle cannot be invoked to conclude that unicorns exist. Note that an appeal to W_2 suffices to refute all kinds of similar objections, such as the objection that, if my principle would hold, it would follow that Superman necessarily exists, or that there necessarily exists a flying teapot, or a spaghetti monster, etc. For, in W_2, God knows that Superman doesn't exist, and that there are no flying teapots, spaghetti monsters, etc. It is thus not impossible to know that Superman doesn't exist, and that there are no flying teapots, spaghetti monsters, etc. Further, note that the appeal to possible world W_2 (or, for that matter, *any* possible world in which God exists) also refutes the objection that my principle could be used to infer the existence of an *impersonal* first cause. For, indeed, in W_2 God, being the *personal* first cause, knows that there is no *impersonal* first cause. So, it is not impossible to know that there is not an impersonal first cause. And, moreover, an appeal to W_2 (or, again, any possible world in which God exists) also refutes the objection that my principle entails pantheism. For, in any possible world in which God exists, God knows that pantheism[254] is false. In fact my principle doesn't entail polytheism either. For, again, in every possible world in which God exists God, being the personal first cause of that world, obviously knows that polytheism is false. So it is not impossible to know that polytheism is false. Hence, to conclude, the modal-epistemic principle cannot be used to infer Superman, unicorns, flying teapots, spaghetti monsters, impersonal first causes, pantheism or polytheism.[255] Indeed, the principle can only be used to infer a *personal first cause*: God. But, as one may finally reply, couldn't we say that both the propositions 'God is perfectly good' and 'God is not perfectly good' are impossible to know? But then the principle entails that God is necessarily perfectly good *and* necessarily not perfectly good, which is absurd, forcing us to abandon the principle after all. Again, I would say that none of these propositions is necessarily unknowable. Take a possible world W_3 in which God exists

253 One might object that God, being the first cause, should create something. I reply that the example can be understood as the situation in which God does not create anything *external to God*. In that case God can still be said to produce its own internal thoughts, being mental objects, and therefore God would still be the first cause of W_2. Besides, we can also take as another example the possible situation in which God creates precisely one causally inert thing in W_2, not being a unicorn. In that case the objection has no force either.

254 Pantheism here understood as the worldview that there is no first cause because reality is assumed to be a single given 'holy', 'sacred' or even 'divine' uncaused whole of which everything that exists is a part.

255 Actually, since the propositions 'pantheism is true', 'there is an impersonal first cause' and 'polytheism is true' entail that God (understood as personal first cause) does not exist, it follows that these propositions are in fact necessarily unknowable as well. But then the proposed modal-epistemic principle in fact entails that pantheism and polytheism are false, and that an impersonal first cause does not exist. Indeed, precisely because my principle entails that God, personal first cause, exists, it also entails that the others are not true. Yet, one can also provide a *direct derivation* of the other claims. Take the claim that there is no impersonal first cause. This can be derived as follows. An impersonal first cause is not a person and hence not able to know that it is the impersonal first cause (since only persons can know things). Moreover, on the Cartesian view of knowledge, no person is able to know that there is an impersonal first cause, since there being an impersonal first cause is not something a person can establish by incorrigible empirical observation, a priori logical proof, immediate intuition or conclusive testimony. Hence it's impossible to know that there is an impersonal first cause. But then the main principle indeed implies that there is no impersonal first cause.

and in which God is perfectly good. In that world God knows that God is perfectly good. So, it is not impossible to know that God is perfectly good. The same reasoning holds for a possible world in which God is not perfectly good. But then it is not impossible to know that God is not perfectly good either, which concludes my refutation.

#6

Another objection would be to point out that the concept of 'God' might be logically self-contradictory, and if so, God doesn't exist. My response to this is that the concept of God, understood as *personal first cause*, that is, as uncaused being that is the direct or indirect cause of everything else, is in fact logically consistent. For, both 'person' and 'first cause' can plausibly be taken to be logically coherent concepts. Indeed, the concept of 'person' is an inherent part of our ordinary language, and the first cause argument I provided and defended in the previous two chapter's shows that the existence of a first cause follows logically from consistent premises, so that the concept 'first cause' cannot be incoherent either. Moreover, both concepts, as I would argue, do not have any mutually conflicting attributes. But then they are independent from each other, so that the combined concept of 'personal first cause' does not result in a logical contradiction either. Therefore, unless someone provides a good reason for believing that this combined concept is nevertheless inconsistent, we are justified to hold that the concept of God is coherent. Indeed, for the objection to have force one would at least have to suggest some sketch of an a priori proof that the concept of God is logically contradictory, which, I take it, cannot be done if we restrict our definition of God to personal first cause. Further, this definition clearly does not require God to be omniscient, omnipotent, omnipresent or omnibenevolent. Hence, we do not need to assume that, say, 'omniscient personal first cause' or 'omnipotent personal first cause' are logically coherent concepts. For all we know, these significantly more complex concepts might be incoherent. And if so, the modal-epistemic principle cannot be used to infer that there is an omniscient or omnipotent personal first cause.[256]

#7

Another objection might be that, *even if* the concept of God is logically consistent, so that there is no a priori logical proof for the claim that God doesn't exist, it might still be the case that it is not impossible to know that God doesn't exist. For, as the objection would go, there might be some omniscient being who knows everything, including the fact that God doesn't exist. To this objection my response is as follows. One cannot exclude God's existence by empirical incorrigible observation,[257] by immediate self-evident intuition or by conclusive testimony. Moreover, since the concept of God, that is, personal first cause, is logically coherent, one cannot exclude God's existence by a priori logical analysis either. But then, given that, on the Cartesian view of knowledge, a priori logical proof, empirical incorrigible experience,

256 See for example Whitcomb (forthcoming). Whitcomb argues that omniscience is impossible. From that he concludes that God does not exist. But this doesn't follow if we define God as personal first cause. For, if omniscience would be impossible, it would follow that God is a *non-omniscient* personal first cause.

257 An opponent of the argument might perhaps say that there is a possible world in which a being B exists that is able to empirically observe every single thing that exists. But then, assuming that B hasn't observed God, it would follow that B knows that God does not exist. Yet, I would respond that, if B is not the first cause, and thus not the ultimate origin or ground of the world, B cannot know with sufficient certainty that B has seen everything that exists. For, B cannot rule out that B missed observing something. And therefore B cannot know that God does not exist. Indeed, only a subject that is the ultimate origin or absolute ground of the world might 'oversee' reality and thus might know what exists and what doesn't. All other subjects are simply not in the epistemic position to have such 'oversight' and therefore cannot have that knowledge.

self-evident immediate intuition and certain conclusive testimony exhaust the ways by which any subject could *know* that God does not exist, it follows that it is indeed impossible to know that God does not exist. No agent can really eliminate the epistemic possibility that God exists. The belief that God does not exist thus always remains falsifiable. Hence, the second premise of the argument is properly warranted. In fact, it shows that there cannot be an omniscient being who knows that God does not exist! So, if an omniscient being exists, then it would have to know that God *does* exist.[258] An example would be God Himself *if* God is omniscient.

258 It thus follows that omniscience entails (bare) theism. For, if there is an omniscient being, then, since it is impossible to know that God doesn't exist, this being doesn't know that God doesn't exist. But then, since the being is omniscient, it is not true that God doesn't exist. So God exists, which concludes the derivation.

#8

Another objection might be that, on the Cartesian view of knowledge, there is no possible world in which that world's God knows that God exists. For, as the objection has it, even God could be hallucinating or dreaming or being deceived, so that even God's belief that God exists is falsifiable. In order to provide a proper response to this objection I first say a bit more about the Cartesian conception of knowledge. The Cartesian conception can be understood as being an internalistic account of epistemic foundationalism for which the collection of foundational beliefs is restricted, in its most limited form, to propositions known by logical proof, incorrigible experience or immediate self-evident intuition. But then, on the Cartesian view, radical skepticism doesn't destroy all candidate instances of knowledge. For, even under hyperbolic doubt, there are instances of proper incorrigible or self-evident beliefs, such as 'I exist', 'I'm having at this very moment the experience of seeing red', '1+1=2' or 'a=a'. So, the Cartesian view of knowledge does not require that everything we know must be discursively provable in an absolute sense.

On the other hand it is of course true, on the Cartesian view, that in many cases one is not justified to claim to know something. Yet, of all epistemic situations, the situation of *God believing that God exists*, is surely the most adequate, the most ideal, situation for which we would be justified to hold that the subject in question can be taken to be sufficiently certain about the proposition in question. Hence we are warranted to assert that in those possible worlds in which God exists, at least God can be said to know that God exists.

So, I think the objection can be refuted if we make use of the concept of ideal epistemic situation. There is no ideal epistemic situation in which some subject S is justified to hold that S has incorrigible access to the fact of there *not* being a God, whereas, there is in fact an ideal epistemic situation in which a subject S is justified to assert that S has certain access to the fact of there being a God, namely God in all possible worlds in which God exists. For, if W is a possible world in which God exists, then, in W, for God the belief that God exists can be taken to be self-evident or incorrigible, and thus a proper instance of

knowledge under the Cartesian view. After all, there is an epistemically quite relevant difference between a world's God asserting that God exists, and, say, John asserting that God does not exist. For, in the former case God has direct access to its own mental states, whereas, in the second case, John does not have direct access to God (or to God's mental states). Thus, while the former case, God asserting that God exists, is properly referred to as epistemic ideal, the second case is not epistemically ideal at all. Thus, on the Cartesian conception of knowledge, we are indeed sufficiently justified to hold that the former case is an adequate example of a foundational belief, whereas the second case isn't at all.

To put the point slightly differently, surely God, in those possible worlds in which God exist, knows that God exists. For, who else in that possible world could be in a better epistemic position regarding its very own existence than that possible world's God? So, it is definitely plausible to maintain that, if anyone, at least God knows that God exists. And for this we don't need God to be omniscient either. God is in fact a rather special being in the sense that God is the unconditional origin or ultimate ground of reality. And so, as being the absolute first cause of everything else that exists, God is in an ideal epistemic situation with respect to God's own identity. God's belief that God exists is therefore sufficiently incorrigible or basic. Indeed, God's belief that God exists is surely not less warranted than John's belief that John exists, or Mary's belief that Mary exists. So God's belief that God exists counts as knowledge, even under the Cartesian view.[259]

#9

Opponents of the argument might want to say that the argument's appeal to the Cartesian conception of knowledge remains problematic. Now, as I argued above, it is certainly not the case that skepticism precludes Cartesian knowledge. For, as mentioned, the Cartesian conception does not require that everything known is absolutely provable. Take the claim that I exist. This is an instance of Cartesian knowledge, but not absolutely provable. Or take the claim that I have now such and such experiences. This is an instance of Cartesian knowledge as well, but again, not absolutely provable. Still, one might want to object that the first premise of the argument, the modal-epistemic principle, cannot be known to be true if we adopt the Cartesian view of knowledge. For, as the objection has it, the truth of this principle cannot be established by logical proof, incorrigible observation, self-evident intuition or conclusive testimony. However, this further objection doesn't succeed either. For, I'm definitely not claiming *to know* that the main principle is true. I'm only claiming that this principle is sufficiently plausible or reasonable to accept, so that we are justified to employ it as a premise in a reasonable (but not necessarily conclusive) argument for God's existence. Nevertheless, one might want to propose yet another, related, objection. This objection

259 Under the Cartesian conception of knowledge God might be the *only* being that knows that God exists. On the other hand there might be possible worlds in which God exists and in which God is able to bring certain subjects in such an epistemic condition (for example by direct revelation) that they also come to know that God exists. Perhaps God is the only being that is able to bring other subjects in such a condition. Now, I would argue that direct revelation is indeed metaphysically possible. A subject S unequal to God can come to know that God exists by direct revelation from God towards S. This would be an instance of incorrigible experience and therefore an example of Cartesian knowledge. But then the first premise of my argument cannot be used to infer the absurd worldview that I am God, such as for example solipsism would have it. For, the proposition 'I am not God' is not unknowable if we allow for direct revelation, and thus it does not follow that 'I am God' is true. Yet, I take it that 'I am not God' is surely knowable even without assuming the metaphysical possibility of direct revelation. For, we can of course plausibly assert that for me the proposition 'I did not invent the universe' is an incorrigible true belief. Indeed, solipsism is absurd.

proceeds as follows. The argument is based on the Cartesian conception of knowledge. Although this conception indeed allows for instances of knowledge, it is also the case that the Cartesian conception is one of many feasible conceptions of knowledge. And, since no reason is given to adopt the Cartesian view instead of one of these others, the whole argument is problematic after all. Does this objection hold? Now, surely, there are many accounts of knowledge, many views on what it means for a subject to know a proposition. But, as I respond, that doesn't imply that we do have to defend the Cartesian conception of knowledge against other alternative notions of knowledge. After all, the argument's premises are *about* Cartesian instances of knowledge, so we do not have to be Cartesians ourselves in order to accept them. In other words, we do not have to commit ourselves to the idea that the Cartesian conception of knowledge is the most adequate in order to claim that certain properties of this conception are plausibly true, such as those expressed by the two premises of the argument. Consider as an example the following analogy. We do not have to embrace the classic conception of beauty over others in order to accept certain assertions *about* this classic conception. By parallel reasoning, we don't have to embrace the Cartesian view of knowledge in order to accept premises about it. Indeed, someone who does not accept the Cartesian notion of knowledge might reason as follows: 'I do not embrace the Cartesian conception of knowledge. I prefer another view on knowledge. Yet, I accept that, *if* some proposition is unknowable under the Cartesian conception, *then* that proposition is necessarily false'. Thus, for believing a (conditional) claim *about* the Cartesian conception one doesn't have to embrace that conception *itself*. We can put this point also as follows. It is sufficient to affirm, from the *third person point of view*, that reality in itself is intelligible, that is to say, that each possible truth is known in the Cartesian sense in some possible world by some human or non-human subject, without having to become, from the *first person point of view*, Cartesian epistemologists ourselves. Indeed, on *meta-level* we can plausibly accept the intrinsic intelligibility of reality without having to embrace ourselves on *object-level* a Cartesian epistemology.[260]

#10

Finally, opponents of the argument could try to refute the modal-epistemic principle upon which the argument is based by proposing cogent examples of *possibly true* propositions that are nevertheless *unknowable*. Take the claim that there is a diamond buried under thousand feet of granite that no one will ever find. Is this a proper counterexample to the principle? I would say it is not. For, there are many possible worlds in which it is in fact known that the diamond buried under thousand feet of granite exists. One could think of a possible world in which a human being, or perhaps some extraterrestrial intelligent being, discovers the diamond by using advanced technical equipment. One might respond that this will not do since the fact that no one will ever find the diamond is part of the claim's state of affairs.

260 If we denote 'Proposition *p* is possibly knowable in a Cartesian sense' by CK(*p*) then the first premise of my argument can be rendered as 'For all *p*, if *p* is possibly true then CK(p)', while the second premise in that case becomes: 'not CK(God does not exist)'. These premises can be accepted by Cartesians and non-Cartesians. The premises entail that God necessarily exists, and this result does not refer to CK anymore.

However, in that case I reply that the proposed state of affairs is not possible, since, as I pointed out, for *any* diamond buried under thousand feet of granite there will always be some possible world in which *that* specific diamond is discovered after all. Take as another suggested counterexample the claim that, due to the Heisenberg uncertainty principle of quantum mechanics, it is not possible to know the position and momentum of a particle simultaneously, yet particles *do* have a position and momentum. This counterexample also fails since there are metaphysically possible worlds in which quantum mechanics does not hold. Consider for example a classical Newtonian possible world W. In world W the position and momentum of all particles can be known.[261] Let us consider another counterexample. Put a single die in a sealed opaque container and shake it. Now shake it again. It is impossible to know that after the first shake the number one was rolled, therefore the number one was not rolled. Similarly the number two was not rolled, etc. Hence, we can conclude that no face was rolled, which is absurd. Now, this alleged counterexample is inadequate as well. For, again, the modal-epistemic principle is not saying that everything that is true in our world can in fact be known in our world. Of course not, that would be unfounded. The principle has it instead that everything that is unknown in *all* logically possible worlds must be false. And the 'dice'-example is not a counter example to this assertion. Indeed, it is quite easy to construct a logically possible world in which it is in fact known by some subject that after the first shake the number one was rolled. Take for example a possible world in which there is some extraterrestrial species that observes every event on earth (perhaps without us knowing it, although this is not relevant for the construction) and that is able to see through walls and other closed surfaces. Such a world is logically possible, and therefore the proposition that the number one was rolled is not unknowable. Thus, this example doesn't refute the principle either.

Perhaps another kind of counterexample could help to refute the principle. Suppose that John considers the following proposition: 'God understands my atheism'. Now, as John could argue: 'There is a possible world in which God exists, in which I am an atheist, and in which it is also true that God understands my atheism'. So, as John concludes, the proposition 'God understands my atheism' is possibly true. Yet, this proposition is surely unknowable. For, knowledge entails belief, and, no atheist can believe that God exists. Is this a convincing counterexample to the modal-epistemic principle? I would respond that, surely, no rational agent S can believe that God understands S's atheism. For, indeed, this belief would entail that God exists, which contradicts S's atheism. The proposition is thus an example of a principle that is a priori impossible to believe by any rational agent.[262] Now, I take it that, in our formulation of the principle, we may reasonably preclude this sort of *logically* unbelievable propositions. In other words, we may reasonably restrict the scope of the principle to propositions *p* for which there is an agent in some possible world that could *rationally* believe *p*. As a similar

261 One might reply that the following conjunction still counts as a counterexample: 'Quantum mechanics is true and elementary particle E has position P and momentum M'. For, as one might say, this conjunction is necessarily unknowable, yet possibly true. I respond that this conjunction is not necessarily unknowable. For, take a possible world in which quantum mechanics is true and in which there exists an observer O that knows that quantum mechanics is true and that is able to observe E directly without having to rely on light waves. In that case O knows the aforementioned conjunction. But then this conjunction is not unknowable. Moreover, the conjunction is not a c-proposition, so that it is not a problem for the alternative rendering of my argument. Further on I introduce the notion of c-proposition and also present the alternative rendering.

262 The proposition in question is a performative contradiction that cannot be rationally believed.

alleged counterexample, take the proposition 'I do not exist'. One might argue that this proposition is possibly true. In fact, it was actually true at some time. Yet, that proposition cannot be known, since no one can know that he or she does not exist. I respond again that, of course, no rational agent S can reasonably believe that S does not exist. But then, given the aforementioned reasonable restriction of the principle's scope, that is, the restriction of the principle to propositions *p* that are possibly rationally believable, this second counterexample is inadequate as well.

As a last resort one may try to appeal to more 'construed' counterexamples, such as:

1 This proposition is unknown by anyone,
2 *p* and nobody knows *p,*
3 There are no subjects,
4 There are no known propositions.

These alleged counterexamples are artificial. Take the first two. Why should we accept these self-referential or meta-propositions as convincing defeaters of the main principle? After all, I would argue that self-referential or meta-propositions easily lead to logical difficulties and should therefore be avoided. In addition, why should we believe that the third and fourth proposition are relevant for the question of whether the modal-epistemic principle holds? I answer that we should not since it seems more than reasonable to limit the modal-epistemic principle to possible worlds *in which at least some proposition is, or can be, known*. After all, there is no point at all in considering possible worlds that do not allow for knowledge. Indeed, if we exclude such possible worlds from the scope of the principle, then the principle does not become any less plausibly true. For, if a proposition *p* is *unknowable* in all possible worlds *that allow for knowledge*, then that proposition *p* is by definition also unknowable in all possible worlds *simpliciter*, and vice versa, if some proposition *p* is unknowable in all possible worlds simpliciter, then proposition *p* is of course also unknowable in those possible worlds that allow for knowledge. So, in short, the above four alleged counterexamples are in fact nothing more than merely 'loophole' cases. We can easily avoid them by adopting a slightly alternative rendering of the main modal-epistemic principle. For that I need to introduce three supplementary definitions.

First, let a *c-state* be a concrete state of affairs of one or more concrete particulars, having each zero or more concrete properties, and all standing to each other in zero, one or more relationships. Second, let a *c-proposition* be a proposition that either affirms or denies there being a c-state, such as for example the propositions 'Peter's car is blue', 'Eva is a friend of Ed', 'There are no horses', 'There are people', 'God exists' and 'God does not exist'. Third, let a K-world be a possible world in which at least something is known. Now, only subjects (i.e., agents)

263 Indeed, since propositions are, plausibly, not concrete objects, (1) and (2) do not refer to concrete states of affairs, and are therefore not c-propositions. However, suppose one would like to argue that propositions are concrete objects. Would it then follow that (1) and (2) are c-propositions? Now, (1) might in that case perhaps be understood as a c-proposition. Yet, (1) is self-referential and could on that ground be excluded from the scope of the modal-epistemic principle. Proposition (2) on the other hand would also in that case not count as a c-proposition. For, 'p, but nobody knows p' would be a c-proposition only if it either affirms or denies there being some c-state. But, what would be the c-state affirmed or denied by 'p, but nobody knows p'? It seems to me that there is no single c-state X such that 'p, but nobody knows p' either affirms X or denies X. Perhaps one might reply that 'p, but nobody knows p' both affirms the c-state expressed by 'p' and denies the c-state expressed by 'There is somebody that knows p'. Yet, this is not the same as either affirming or denying a *single* given c-state, which is what a c-proposition is by definition required to do.

264 Of course (3) cannot be true in a K-world. Proposition (4) cannot be true in a K-world either, since, as mentioned, each subject knows at least one proposition. Thus each K-world contains known propositions.

can know things, thus a K-world is a world that contains one or more subjects. And, vice versa, a world that contains at least one subject is also a K-world. For, every subject S at least knows that S exists. Besides, according to the negative introspection axiom of S5 epistemic modal logic, if a subject S does not know *p*, then S knows that S does not know *p*. So, indeed, every subject knows at least something.

Given these definitions, the modal-epistemic principle can be rendered in the following way: 'If *p* is a c-proposition that is true in at least one K-world, then there is a possible world in which *p* is known'. I would say that this principle is similar to the original one, except that it is more modest. For, it only applies to *c-propositions*, and its antecedent now requires that there must be *a K-world* in which *p* is true. Moreover, it seems more plausible than the original rendering. For the proposition *p* in the antecedent is quite basic in the sense that it is about concrete particulars. Besides, it is now required as well that *p* is true in a possible world that contains subjects that are able to know propositions. So, in a sense, proposition *p* is 'closer to' the logical possibility of there being a subject that in fact knows *p*. Further, it follows that the aforementioned four alleged counterexamples do indeed not refute the proposed alternative rendering of the principle. For, (1) and (2) are not c-propositions,[263] and the other two, (3) and (4), cannot be true in a K-world.[264] [265]

Now, let *p* be the c-proposition that God does not exist. As I argued before, there is no possible world in which *p* is known. Hence it follows that there is no K-world in which *p* is true. But then the principle entails that God exists in all K-worlds, including ours (since our world is obviously a K-world).[266] From this we see that the alternative rendering of the principle comes with a price. It no longer follows that God is a necessary being. After all, for all we know there might be one or more *non*-K-worlds, and in those worlds God (being a subject) does not exist. Nevertheless, it follows that God exists in our actual world, either necessarily or contingently. And this is surely sufficient to support theism.

265 As another alleged counterexample one may point at the *Big Fact*, that is, the conjunction of all truths, and argue that the Big Fact is true in all possible worlds, yet unknowable since omniscience is impossible. However, by appealing to the alternatively rendered modal-epistemic principle we can refute this alleged counterexample without having to argue that omniscience is possible. For, the Big Fact is not a c-state. Another objection one may want to propose is that the first premise, that is, the claim that all possible truths are knowable, is *itself* unknowable, and therefore, if true, necessary false. However, I would argue that, plausibly, it is not metaphysically unknowable that all possible truths are knowable. For, God, if God exists, is the ultimate origin and ground of reality itself. But then it is conceivable that there is a possible world in which God, the absolute source of being, in fact knows the essence of being, and thus could know that being is intelligible, i.e. that all possible truths are in fact knowable. Besides, the first premise is not a c-proposition, so this objection does not impose a problem for the alternative rendering of my argument.

266 This consequence should perhaps not surprise us for a different reason as well. For, if there are conscious subjects, then, given the rather deep problems of 'eliminative', 'reductive' and 'emergence' explanations of consciousness, there does not seem to be a cogent naturalistic answer to what David J. Chalmers has coined the 'hard problem of consciousness' (Chalmers 1995). But then, the only sufficiently tenable explanation of the phenomenon of consciousness seems to be a personal one, and plausibly theistic. This line of reasoning is referred to as *the argument from consciousness*. See Moreland (2009) for a full and detailed account.

Samenvatting

Veel filosofen hebben de werkelijkheid herleid tot een *eerste beginsel*. Presocraten zoals Anaximander noemen de absolute oorsprong van de wereld 'het apeiron', Plato en de neo-platonisten spreken over 'het ene', en Aristoteles heeft het over de 'arche geneseos'. Monotheïsten spreken over God en Duitse idealisten zoals Fichte, Schelling en Hegel noemen de grond van de wereld 'het absolute', terwijl vitalisten zoals Schopenhauer de oerbron aanduiden als 'de wil'. Zij allen menen dus dat er in laatste instantie 'iets' moet zijn waarin de wereld gegrond is, 'iets' waarop alles wat bestaat uiteindelijk teruggaat.

Nu is het voor ons mensen inderdaad lastig, ik zou haast zeggen onmogelijk, om ons een wereld zonder ultieme grond voor te stellen. Wij kunnen haast niet anders dan denken dat de wereld teruggaat op een laatste drager, welke het antwoord vormt op de vraag waarom er überhaupt iets is en niet veeleer niets. Een wereld waarin alles wat bestaat voor haar bestaan afhankelijk is van weer iets anders betreft namelijk een grondeloze in 'het niets' wegzinkende menigvuldigheid van louter contingenties, hetgeen voor ons intuïtief absurd lijkt. Daarom zijn wij prima facie gerechtvaardigd om te denken dat er een oorsprong van de wereld is, een 'metaphysical ultimate'. Er moet ten slotte een onvoorwaardelijke grond van alles zijn, ook al hebben wij op voorhand geen idee wat de aard van deze grond is.

Sinds Plato zijn er bovendien verschillende *kosmologische argumenten* ontwikkeld voor het bestaan van een eerste oorzaak van de wereld, of preciezer, van een onveroorzaakte entiteit dat geldt als de directe of indirecte oorzaak van alle andere entiteiten. En als zo'n entiteit bestaat dan moet zij ook uniek zijn omdat geen twee entiteiten elkaars directe of indirecte oorzaak kunnen zijn. In een kosmologisch argument wordt het bestaan van een unieke eerste oorzaak, een wereldgrond, deductief afgeleid uit het empirische feit dat er contingente of veroorzaakte dingen bestaan. Bekende voorbeelden zijn, naast Plato die een kosmologisch argument presenteert in zijn *De Wetten*, Aristoteles' argument voor een eerste onbewogen beweger in zijn *Physica* en *Metaphysica*, de tweede weg van 'de vijf wegen' van Thomas van Aquino in zijn *Summa Theologiæ* en Leibniz' argument in o.a. zijn *Monadologie* voor het bestaan van een wezen dat geldt als de noodzakelijk bestaande oorzaak van de kosmos als contingent geheel. Na Kant verslapte in de negentiende eeuw de aandacht voor kosmologische argumenten. De laatste decennia is er echter sprake van een heuse renaissance van

deze argumenten. De hernieuwde belangstelling ervoor kan mede verklaard worden door de ineenstorting van het *verificationisme* in de tweede helft van de vorige eeuw en de hiermee gepaard gaande enorme herleving van de metafysica. Verschillende nieuwe versies van het kosmologisch argument, ongevoelig voor Kants en andere klassieke bezwaren, zijn inmiddels in de wijsgerige literatuur voorhanden. Deze hedendaagse argumenten maken volop gebruik van twintigste-eeuwse ontwikkelingen, zoals de *mogelijke werelden semantiek* voor de modale logica en de *formele mereologie*.

In het eerste gedeelte van mijn dissertatie analyseer ik zowel klassieke als hedendaagse kosmologische argumenten. Nu is uiteraard geen enkel kosmologisch argument voor het bestaan van een noodzakelijk bestaand wezen houdbaar indien *de lege wereld* ook een mogelijke wereld is. Daarom geef ik eerst een nieuw a priori argument voor de these dat de lege wereld, 'het totale niets', geen mogelijke wereld kan zijn. Dit a priori argument is gebaseerd op het axioma van Brouwer dat stelt dat alle mogelijke standen van zaken ook *noodzakelijk* mogelijk zijn. Hieruit volgt inderdaad dat de lege wereld, een wereld zonder entiteiten, onmogelijk is indien we aannemen dat al het mogelijke causaal veroorzaakbaar is en bovendien dat er in elk geval één mogelijke stand van zaken is.

Mijn analyse van klassieke kosmologische argumenten richt zich op twee exemplarische klassieke argumenten, namelijk het Thomistische en het Leibniziaanse argument. Ik laat zien dat beide argumenten in hun klassieke vorm problematisch zijn. Vervolgens onderzoek ik de hedendaagse kosmologische argumenten van R. Koons (1997), R. Gale en A. Pruss (1999) en J. Rasmussen (2010). Het argument van Koons is gebaseerd op het beginsel dat we van een gegeven *volkomen* contingente stand van zaken mogen zeggen dat zij veroorzaakt is, tenzij we een goede reden hebben om in de desbetreffende situatie te denken dat zij niet veroorzaakt is. De conclusie van Koons' argument luidt dat er een noodzakelijke oorzaak is van de mereologische som van alle volkomen contingente feiten. Ik laat zien dat geen van de bekende objecties tegen dit argument effectief is. Dit geldt niet alleen voor de klassieke Humeaanse, Kantiaanse en Russelliaanse objecties, maar ook voor de objecties die Koons zelf noemt en voor de hedendaagse objecties van J. Ross en G. Oppy (1999). Wel toon ik aan dat Koons' argument problematisch is als een deductief argument voor het bestaan van een eerste oorzaak, namelijk een *onveroorzaakte* entiteit dat de oorzaak is van *alles* buiten zichzelf.

Het argument van R. Gale en A. Pruss vertrekt vanuit het principe dat iedere ware contingente propositie *mogelijk* een verklaring heeft. Het argument concludeert dat er een noodzakelijk wezen bestaat dat vrij en intentioneel de conjunctie voortbracht van alle ware contingente proposities. Ik laat zien dat alle klassieke Humeaanse, Kantiaanse en Russelliaanse objecties tegen dit argument falen, en dat precies

hetzelfde geldt voor de hedendaagse objecties van G. Oppy (2000), K. Davey en R. Clifton (2001) en M.J. Almeida en N.D. Judisch (2002). Daarnaast toon ik echter aan dat hun argument niet onproblematisch is als argument voor het bestaan van een eerste oorzaak. De premissen impliceren namelijk niet dat het noodzakelijk bestaande wezen zelf onveroorzaakt is.

Rasmussens argument vertrekt vanuit de premisse dat normaal gesproken contingente standen van zaken mogelijk causaal verklaarbaar zijn en dat een zogenaamde *maximaal* contingente stand van zaken hierop geen uitzondering is. De conclusie van het argument is dat er een noodzakelijk wezen moet bestaan dat mogelijk causaal werkzaam is. Ik laat zien dat alle bekende objecties tegen dit argument onhoudbaar zijn. Wel toon ik aan dat Rasmussens argument problematisch is als argument voor het bestaan van een eerste oorzaak. Rasmussen heeft ook een drietal alternatieve redeneerpaden ontwikkeld om tot zijn conclusie te komen. Ik betoog dat het derde pad na modificaties succesvol impliceert dat er een mogelijk causaal werkzaam noodzakelijk wezen bestaat, maar dat ook hier niet besloten kan worden tot het bestaan van een eerste oorzaak van de werkelijkheid.

Hoewel de argumenten van Koons, Gale en Pruss en Rasmussen dus succesvol zijn in het beargumenteren dat er een noodzakelijke (zelfs bewuste en vrije) entiteit bestaat die kan gelden als oorzaak van de kosmos, volgt niet dat zij ook impliceren dat dit noodzakelijke wezen geldt als de *eerste oorzaak* van de werkelijkheid. In het tweede gedeelte van mijn dissertatie ontwikkel ik een nieuw argument voor het bestaan van een eerste oorzaak. Het argument is dat mereologisch *atomisme*, de these dat alles wat bestaat in laatste instantie uit fundamentele enkelvoudige bouwstenen bestaat, en *causalisme*, de these dat alles wat bestaat participeert in het causale weefsel van de werkelijkheid, dus veroorzaakt en/of oorzaak is, gezamenlijk impliceren dat er een eerste oorzaak van de wereld moet zijn. Beide thesen, atomisme en causalisme, zijn goed verdedigbaar. In mijn dissertatie geef ik een verdediging van beide thesen. Hiertoe werk ik ondermeer een nieuw a priori argument uit voor atomisme. Bovendien geef ik een verdediging van enkele aanvullende, ondersteunende, premissen waarvan mijn nieuwe argument voor het bestaan van een eerste oorzaak eveneens gebruikmaakt, zoals dat oorzaak en gevolg mereologisch disjunct zijn, dat de som van de leden van een bepaald door mij nader gedefinieerd type natuurlijke soorten een object vormen, en dat ieder veroorzaakt object een veroorzaakt strikt deel bevat.

De argumentatie zelf verloopt heel kort gezegd globaal als volgt. Neem de som van alle veroorzaakte atomen. Deze som is zelf geen oorzaak omdat er anders veroorzaakte atomen buiten deze som zouden moeten bestaan, wat onmogelijk is. Maar dan volgt vanwege causalisme dat deze som veroorzaakt moet zijn. Nu kan de oorzaak van deze som zelf niet

veroorzaakt zijn omdat anders de oorzaak van genoemde som uit één of meerdere veroorzaakte atomen zou bestaan, zodat de som en haar oorzaak elkaar zouden overlappen, wat eveneens onmogelijk is. Kortom, de oorzaak van de som van alle veroorzaakte atomen is onveroorzaakt en is daarom de eerste oorzaak van de wereld.

In mijn dissertatie bespreek ik een groot aantal denkbare objecties tegen mijn nieuwe argument voor het bestaan van een eerste oorzaak, waaronder alle besproken objecties tegen de klassieke argumenten en tegen de hedendaagse argumenten van Koons, Gale en Pruss en Rasmussen. Ik laat zien dat geen van deze objecties een vruchtbare objectie tegen mijn argument oplevert. Wel wijs ik op een spanning die aangewezen kan worden tussen enerzijds de *generieke* natuur van het metafysische raamwerk waarin het argument geformuleerd is en anderzijds de *specifieke* verdediging van bepaalde premissen van het argument. Ik betoog dat deze spanning niet van dien aard is dat het argument aan kracht verliest. Ook toon ik aan dat het argument niet op gespannen voet staat met theïsme. Er volgt namelijk niet, zoals ik uiteenzet, dat de afgeleide eerste oorzaak niet God kan zijn.

Vervolgens laat ik zien hoe we tot een *rationele cumulatieve casus* voor theïsme kunnen komen door mijn argument voor het bestaan van een eerste oorzaak te combineren met de argumenten van Koons, Gale en Pruss en Rasmussen. De casus vangt aan met genoemd nieuw argument voor het bestaan van een eerste oorzaak om allereerst te concluderen dat er een eerste oorzaak van de wereld is. Vervolgens worden de argumenten van Koons en Rasmussen ingezet om te betogen dat deze eerste oorzaak een noodzakelijk bestaande entiteit is. Daarna wordt een beroep gedaan op het argument van Gale en Pruss om te concluderen dat de noodzakelijk bestaande eerste oorzaak van de wereld in feite een bewust en vrij wezen is. Zo bereiken we de conclusie dat er een noodzakelijk bestaand en bewust en vrij wezen bestaat dat geldt als de eerste oorzaak van de werkelijkheid. En een dergelijk uniek wezen kan met recht God genoemd worden. We zien dus dat het nieuwe argument voor het bestaan van een eerste oorzaak van de wereld cruciaal is om tot een casus voor theïsme te komen. Alleen wanneer we de argumenten van Koons, Gale en Pruss en Rasmussen met dit nieuwe argument combineren kunnen we immers het bestaan afleiden van een wezen waaraan we met recht de naam 'God' kunnen geven. Want wat is God als God niet in ieder geval ook geldt als de *eerste oorzaak* van de werkelijkheid, als de ultieme zijnsgrond van al wat is?

Tot slot van mijn dissertatie presenteer ik nog een drietal aanvullende argumenten voor de claim dat de eerste oorzaak van de wereld inderdaad geen levenloos ding is, maar een immaterieel bewustzijn, geen 'iets' maar een iemand. De eerste twee aanvullende argumenten vereisen een beroep op mijn nieuwe argument voor het bestaan van een eerste oorzaak. Zij gaan namelijk al uit van het bestaan van een eerste

oorzaak en laten vervolgens zien dat deze oorzaak een immaterieel bewustzijn is, dus een subject in plaats van een object. Mijn derde argument heeft een dergelijk beroep op het bestaan van een eerste oorzaak niet nodig omdat zij *rechtstreeks* het bestaan afleidt van een immaterieel bewust wezen dat de eerste oorzaak van de wereld is. De drie aanvullende argumenten kunnen aan genoemde cumulatieve casus worden toegevoegd om haar zo nog verder te versterken.

Het eerste argument ontleen ik aan D. Georgoudis en vertrekt vanuit de klassieke idee van een hechte parallellie tussen denken en zijn, tussen de *kenorde* en de *zijnsorde* van de werkelijkheid, tussen enerzijds kennis over de wereld en anderzijds de wereld zelf. Indien kennis over de wereld in laatste instantie geen kwestie is van louter formele mechanische ontdekking, maar van innerlijke begripsvorming, van het subjectief vertrouwd raken met oftewel het persoonlijk verstaan van de wereld, dan is het redelijk om te veronderstellen dat de grond van de wereld zelf evenmin een formele mechanische natuur heeft, maar in plaats daarvan ten diepste eveneens een subjectkarakter heeft.

Het tweede argument is *axiologisch* van aard. Het is verdedigbaar dat de eerste oorzaak, het eerste beginsel van alles, een waardigheid heeft die in elk geval niet lager is dan de waardigheid van alles wat direct of indirect uit haar is voortgekomen, zoals ieder mens. Maar dan, precies omdat ieder menselijk subject een waardigheid heeft die boven die van levenloze objecten uitgaat, volgt uit de *transitiviteit* van de waardigheidsrelatie, samen met de premisse dat alles wat bestaat ofwel een subject ofwel een object is, dat de ultieme ontstaansoorzaak van de wereld geen levenloos ding is. De oorsprong van de wereld moet daarom, net zoals ieder mens, subjectkarakter bezitten. Zij is dus geen object, maar een subject. De eerste oorzaak van de wereld is geen iets, maar een iemand.

Het derde argument is een *modaal-epistemisch* argument en bestaat uit twee premissen. De eerste premisse stelt dat een propositie die in geen enkele mogelijke wereld door geen enkel mogelijk subject, menselijk of niet, gekend kan worden noodzakelijk onwaar is. Of anders gezegd: wat mogelijk waar is, is ook kenbaar. Deze premisse lijkt niet onredelijk. Immers, indien een propositie *p* mogelijk waar is, dus waar in één of meerdere mogelijke werelden, dan lijkt er inderdaad een mogelijke wereld voorstelbaar waarin één of ander subject, menselijk of niet, ook daadwerkelijk kan weten dat *p* waar is. Kortom, als geen enkel mogelijk subject, in geen enkele mogelijke wereld, dus niet in de actuele wereld, noch in gelijksoortige werelden, noch iets andere werelden, noch in radicaal afwijkende werelden, kan weten dat *p* waar is, dan is dat omdat *p* zelf eenvoudigweg niet waar kan zijn. De intuïtie achter de eerste premisse is de these dat de wereld uiteindelijk intelligibel is. De wereld heeft ten diepste een *logos-matige* structuur. En deze vooronderstelling lijkt inderdaad een essentiële aanname voor het beoefenen van

theoretische- en metafysica. Waarom zouden we ons immers overgeven aan een zoektocht naar de oorsprong van de wereld indien we het niet op zijn minst aannemelijk zouden vinden dat de werkelijkheid voor ons of voor andere mogelijke intelligenties in beginsel kenbaar is, dat de wereld een logische structuur heeft die uiteindelijk doorgrond kan worden? In mijn dissertatie geef ik een aantal aanvullende redenen voor de plausibiliteit van de eerste premisse.

De tweede premisse luidt dat het onmogelijk is te weten dat God niet bestaat. Ook dit lijkt geen onredelijke premisse. God wordt begrepen als een subject dat eerste oorzaak is. Dat het inderdaad metafysisch onmogelijk is om te weten dat God niet bestaat volgt uit de volgende redenering. Er zijn vier kandidaten voor de wijze waarop iemand zou kunnen weten dat God niet bestaat. De eerste is te laten zien dat het begrip God contradictoir is. Er is echter op geen enkele wijze een logische tegenspraak af te leiden uit de idee van een persoonlijke eerste oorzaak. De tweede is het hebben van de intuïtie dat God niet bestaat. Echter, de uitspraak dat God niet bestaat is zeker niet zelfevident. De derde manier is niet-corrigeerbare empirische ervaring. Dit is echter ook niet mogelijk omdat we middels empirische ervaring, hoe dwingend en verstrekkend ook, nooit kunnen uitsluiten dat God bestaat. De vierde manier betreft een onfeilbare getuigenis. Echter, geen enkele getuige, hoe betrouwbaar ook, kan iemand in een zekere positie brengen ten aanzien van het niet bestaan van God. Kortom, het is inderdaad onmogelijk om te weten dat God niet bestaat.

Uit beide premissen, dus enerzijds ‘alles wat mogelijk waar is, is mogelijk kenbaar’, en anderzijds ‘Het is onmogelijk te weten dat God niet bestaat’, volgt deductief de conclusie dat God bestaat in alle mogelijke werelden. God bestaat dus metafysisch noodzakelijk.

Aan het eind van mijn dissertatie bespreek ik vele objecties tegen dit argument en laat ik zien dat geen van deze objecties standhoudt. Ik noem er twee. Men kan tegenwerpen dat het ook onmogelijk is te weten dat God bestaat. Maar dan volgt uit de eerste premisse van mijn argument dat het noodzakelijk onwaar is dat God bestaat, zodat het argument faalt. Het is echter niet onmogelijk te weten dat God bestaat. Neem immers een mogelijke wereld waarin God bestaat. In deze wereld bestaat er wel degelijk een subject dat weet dat God bestaat, namelijk God zelf. Het is dus niet onmogelijk te weten dat God bestaat.

Volgens een tweede objectie faalt het argument omdat, indien het argument correct zou zijn, eveneens zou volgen dat bijvoorbeeld eenhoorns, Superman, het vliegende spaghettimonster of vliegende theepotten noodzakelijk bestaan, wat absurd is. Neem het vliegende spaghettimonster. Het is, aldus de objectie, ook onmogelijk te weten dat dit monster niet bestaat. Geen enkel kennissubject kan namelijk uitsluiten dat er zich niet toch ergens een vliegend spaghettimonster

bevindt. Maar dan volgt direct uit de eerste premisse van het argument dat het vliegende spaghettimonster noodzakelijk bestaat, wat zoals gezegd absurd is. Echter, het is helemaal niet onmogelijk te weten dat het vliegende spaghettimonster niet bestaat. Beschouw namelijk een mogelijke wereld waarin God bestaat en waarin God besluit niets te scheppen, of waarin God besluit exact één causaal inert object te scheppen ongelijk aan een vliegend spaghettimonster. In deze mogelijke wereld is er wel degelijk een subject dat weet dat het vliegende spaghettimonster niet bestaat, namelijk God zelf. Het is dus helemaal niet onmogelijk om te weten dat het vliegende spaghettimonster niet bestaat. En daarom faalt ook deze tweede objectie. Hetzelfde geldt natuurlijk voor analoge objecties gebaseerd op de vermeende onkenbaarheid van het niet bestaan van eenhoorns, Superman, vliegende theepotten, enzovoort.

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Curriculum Vitæ

Emanuel Rutten was born in Loosdrecht, the Netherlands on April 13th 1973. He completed his secondary education at the Comenius College in Hilversum in 1992. In the same year he started to study Mathematics at the University of Twente in Enschede, were he received his propaedeutic diploma in 1993. After that he moved to Delft to continue his study of Mathematics at Delft University of Technology. He then obtained a propaedeutic diploma in Economics in 1994 at the University of Amsterdam, a Master of Science in Mathematics in 1997 at Delft University of Technology, and a Master of Arts in Philosophy in 2010 at VU University Amsterdam. Both Master degrees received the distinction cum laude. Early 2010 he started his doctorate in philosophy at VU University Amsterdam leading up to this dissertation. Emanuel works mainly in systematic philosophy. His areas of specialization are metaphysics and epistemology. But he is also active in aesthetics on the notions of the sublime and the sacred. Emanuel lives in the centre of Amsterdam and has a daughter, named Abigaïl.

Ever since Plato, philosophers have developed rational arguments for the existence of God. In the last decades the philosophical interest in these arguments has grown again significantly. In this book cosmological arguments are investigated. A cosmological argument derives the existence of God from the fact that there exist caused things. In the first part of this book the author argues that these arguments show that it is plausible that the cosmos was brought about by a necessarily existing conscious, free being. However, as is shown as well, it does not follow that this being is also the *first* cause of *the whole of* reality, something typically said of God. In the second part of the book a new argument for the existence of a first cause is presented, based on the premises of atomism and causalism. Subsequently, the author proposes a new modal-epistemic argument for the existence of a conscious, free being who is the first cause of reality. Objections to both new arguments are evaluated and refuted. The book concludes with the observation that these arguments can be combined with cosmological arguments in order to arrive at a renewed case for theism.

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