

PhD Research Project Plan
(abridged version)

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1. Introduction

The purpose of this document is to define the PhD research project and to form the basis for its steering and the assessment of the overall progress and success.

2. Provisional title

Causation with respect to coming into existence, mereological parthood and metaphysical modality: towards a combined formal theory that implies the existence of a first cause.

3. Research objective

The objective of this project is to develop a formal theory on causation, parthood and metaphysical modality that implies the existence of a first cause of everything besides itself. This first cause follows deductively from the premises constituting the theory, i.e. if the premises are true than the claim that there is a first cause is true as well. In addition the objective of this project is to demonstrate that a proper valid cosmological argument can only be obtained once the hidden background assumptions on the nature of causality, mereological parthood and metaphysical modality are carefully explicated and combined into a single integrated formal theory that is both plausible and proven to be consistent.

4. Research scope

The last decennia of the twentieth century were characterized by a revival of interest in the cosmological argument. Several new versions of the argument have been proposed in the literature. This project presents known and new objections against both the traditional and contemporary versions of the cosmological argument. Regarding the main traditional versions of the cosmological argument the project shows that there are cogent objections against the Kalam cosmological argument that do not apply to the Leibnizian argument

(i.e. objections that uncover the fact that the cause of the cosmos as inferred by the Kalam argument is not proven to be a first uncaused cause). Second, the project presents cogent objections against the Leibnizian argument that do not apply to the Thomistic argument (i.e. objections that show that the Leibnizian argument is based upon the implicit and in fact untenable premise that an infinite regress of causes requires a sufficient explanation which appeals to an object that is not part of the infinite regress). Third, the project shows that there are also cogent objections against the Thomistic argument (i.e. objections that refute the Thomistic demonstration of the premise that an infinite regress of causes is impossible). With respect to the contemporary versions the project presents objections against versions provided by amongst others Koons [11], Pruss [19] and Rasmussen [20].

The project spends much more time on discussing objections against the contemporary versions than on objections against the traditional versions of the cosmological argument. As a general approach the project contends that the invalidity of many invalid versions of the cosmological argument is a result of inadequate hidden background assumptions on the metaphysical nature of causation, parthood and metaphysical modality. Some versions of the cosmological argument assume for example that all metaphysically contingent objects are caused. This is problematic since the project shows that there are certain at least initially *prima facie* admissible assumptions on the nature of causation, parthood and contingency which are not excluded by these versions and from which it follows immediately that many contingent objects are uncaused¹. This result is not just a problem because it refutes cosmological arguments that are based on the assumption that every contingent object is caused, but also because it renders irrelevant any argument for the existence of a first cause which does not exclude those initially *prima facie* admissible assumptions. The irrelevance arises from the fact that under those *prima facie* allowable assumptions there exist in fact many contingent uncaused objects. Most of these many

¹ Take as an example the following two initially *prima facie* plausible premises: (1) the cause of the coming into existence of an 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. Further, imagine that somebody brings object A and B together to form a mereological composite C that has A and B as its parts. Now, premises (1) and (2) imply that the contingent ‘fusion’ object C does not have a cause. This is shown by contraposition. Assume that object C is caused and let object D be the cause of C. According to (2) the cause of B is a part of D. Thus object A is part of object D. This result clearly contradicts (1) since A is also a part of object C.

objects are also the cause of other objects and therefore would count as first causes. So, under those *prima facie* plausible assumptions there exist in fact a lot of rather trivial first causes. This first example thus shows that at least a certain degree of formalization of the notion of causation and its relationship to parthood and metaphysical modality is required to avoid counterintuitive claims or futile arguments for there being a first cause.

A second example concerns versions of the cosmological argument which are based upon an implicit conception of metaphysical modality that does not exclude the possibility of metaphysically necessarily caused objects, i.e. objects existing in every possible world and having a cause in every possible world². Under these circumstances a valid derivation of a metaphysically necessary object is not sufficient to conclude that this object is also a first cause. The reason is that this object might be a necessarily caused object. Versions of the cosmological argument that nevertheless do so are thus not valid. To be valid they must rule out the metaphysical possibility of the existence of necessarily caused objects.

As a third example, the project shows that some versions of the cosmological argument 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 possibility³. In these cases a balance of equally strong

² 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. Caused in the sense that in each possible world the unconstituted simples are collectively the sustaining or constitutive cause of the universe. To maintain his or her claim the constitutionalist must also 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 thesis is called mereological atomicity or mereological atomism.

³ 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 project research proposal. 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.

opposing arguments is arrived at and consequently judgment must be suspended⁴. 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. The project articulates and maintains a cogent conception of metaphysical modality that indeed excludes the metaphysical possibility of there being nothing at all. For that the project employs amongst others the axiom of Brouwer⁵ which states that if p holds, then p is possible in every possible world.

These three 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 required in order to obtain a proper valid version of the cosmological argument. To acquire a cogent version of the argument the project therefore uncovers and analyses the major implicit underlying assumptions on causation, parthood and metaphysical modality as presumed by the main untenable versions of the cosmological argument.

After that the project provides and justifies three metaphysical accounts. First, the project develops a proper account of causation with respect to ‘coming into existence’. Second, the project presents and argues for a proper account of the relation between causation and mereological parthood. Third, the project provides and justifies an account of the relation between causation and metaphysical modality. The second account is amongst others based upon the adoption of a principle that can be formulated in the following way: Everything that exists is caused by another object or is the cause of at least one other object⁶. 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. The project provides arguments for

⁴ The suspension of judgment as a result of the establishment of equally strong arguments at both sides is a case of ancient Pyrrhonian equipollence (*isostheneia*). Such a skeptical epoché surely needs to be avoided.

⁵ A reference to this axiom is found in the online Stanford Encyclopedia of Philosophy under ‘modal logic’.

⁶ This principle is 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.

this principle. Note that this principle implies that mereological universalism is untenable since according to the principle the mereological sum of all existing objects is not itself an object⁷. The project presents independent reasons for not accepting mereological universalism. One of those reasons is a kind of ‘queerness argument’. Some sums are simply ‘too queer’ to count as genuine objects. The project constructs specific examples of such rare or queer sums. The second account is also based upon a proper defense of mereological atomicity, i.e. the thesis that each object is either a simple or ultimately composed of two or more simples. According to this thesis every object consists of basic (indivisible) building blocks. The project develops an argument for mereological atomism that is derived from the argument of Aquinas for the metaphysical impossibility of an infinite regress of simultaneous sustaining causes.

As part of the third earlier mentioned account the project raises the metaphysical question about what features of reality make metaphysical modal propositions true. To answer this question the project proposes and justifies a number of truth conditions for metaphysical modal propositions. Metaphysical modal propositions are amongst others propositions about the metaphysical necessity, possibility or impossibility of a specific state of affairs, such as the existence of some (concrete or abstract) particular, a specific particular having some property or the obtainment of some relationship between two specific particulars. A claim such as ‘there is not nothing’ is however also a metaphysical modal proposition.

Based upon the aforementioned three accounts, the project develops a combined formal theory on causation, parthood and metaphysical modality that is both plausible and consistent. Then the project demonstrates that the theory arrived at deductively implies the existence of a first cause of everything besides itself. The research project concludes with showing that the renewed cosmological argument thus obtained is not vulnerable to the aforementioned (and other possible) objections. Finally the project discusses the relevance and significance of the obtained results for the contemporary discussion on the reasonableness of (bare or mere) theism.

⁷ 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.

5. Research context

The project fits within the research area of theoretical (systematic) philosophy. Its subject matter is metaphysics, more specifically formal ontology. The project is part of a broader program that deals with various issues having to do with the intellectual respectability of (bare or mere) theism. The project is connected to the broader project of natural theology.

6. Research significance

The project aims to show that a convincing cosmological argument can only be obtained once the implicit background assumptions on the nature of causality, parthood and metaphysical modality are explicated and combined into a coherent formal first order theory. By doing this the project counts as a relevant contribution to the current intellectual discussion of the rationality of (bare or mere) theism. The second part of the twentieth century witnessed a huge revival of this discussion in particular, and a great renaissance of metaphysics in general.

7. Research method

The project will use the methods of analytical philosophy. The emphasis is on the clarity of the used concepts and the logical validity of the provided arguments. Methods utilized by the project include, but are not necessarily 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’. If needed this research project will also utilize modern axiomatic proof theory in order to investigate the logical consistency of specific formal first order theories combining causation and parthood. This could involve the usage of open source software for automated theorem proving.

8. Provisional table of contents of the PhD thesis

Abstract

1. Introduction

2. Traditional cosmological arguments
 3. Contemporary cosmological arguments
 4. Causation with respect to ‘coming into existence’
 5. Causation and mereological parthood
 6. Causation and metaphysical modality
 7. A combined formal theory
 8. The principle of sufficient reason
 9. The possibility of total nothingness
 10. A renewed cosmological argument
 11. Objections against the renewed argument
 12. Conclusions
- Appendices
- Bibliography

9. Provisional content of the chapters of the PhD thesis

1. Introduction
 - Describe the research objective, scope, context and significance
 - Describe the research method(s) used
2. Describe the traditional cosmological arguments: Thomistic, Leibnizian and Kalam
 - Discuss only the main objections to the Kalam cosmological argument
 - Discuss only the main objections to the paradigmatic Thomistic argument
 - Discuss only the main objections to the paradigmatic Leibnizian argument
3. Describe the contemporary cosmological arguments (e.g. Koons, Pruss, Rasmussen)
 - Discuss objections to the contemporary arguments (in literature and new)
4. Develop an account of causation for the context of ‘coming into existence’
5. Develop an account of the relation between causation and mereological parthood
6. Develop an account of the relation between causation and metaphysical modality
7. Combine (4)-(6) into a formal theory based upon first order predicate logic
8. Discuss which versions of the PSR are acceptable to be utilized in derivations⁸

⁸ Most traditional and contemporary versions of the cosmological argument are based upon some specific variation of Leibniz’ Principle of Sufficient Reason (PSR). Since not all of these variations are valid it is

9. Discuss the question whether ‘total nothingness’ is a metaphysical possibility
10. Develop a renewed version of the cosmological argument based upon (7)-(9)
11. Show that this version is not vulnerable to the objections raised in (2) and (3)
 - Identify and counter other possible objections to the renewed version
12. Conclusions
 - Summarize the obtained result(s)
 - Discuss the implications of the obtained result(s) for the reasonableness of theism
 - Comment on further work

10. Provisional deliverables

1. A literature study on (2) and (3) intended as reference material for the project
2. A paper on (4)-(7) intended for a conference and/or peer-reviewed journal
3. A paper on (9) intended for a conference and/or peer-reviewed journal
4. A paper on (10) and (11) intended for a conference and/or peer-reviewed journal
5. The PhD thesis (composed of all twelve above mentioned chapters)

11. Provisional bibliography

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important to ensure that the renewed version of the cosmological argument as developed in this project is not grounded in an invalid variation of the PSR. Chapter 8 is required to ensure that this is indeed the case.

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