A Refutation of Plantinga's Modal Ontological Argument – and why it even suggests a *disproof* of God

By Paul Almond, 28 February 2007

Note: 2 February 2012: I feel obliged to point out that, since writing this article I have become extremely dissatisfied with it. Firstly, the article now seems to me to be far too critical of S5, when S5 is fine as long as it is not expected to allow us to prove things based on our everyday intuitions of possibility, in the manner in which it is used in Plantinga's argument. Now, at no stage do I say that S5 is invalid when used appropriately – but the argument does seem somewhat more hostile to S5 than it should be. Secondly, the article seems to spend far too much text on showing a conflation between different ideas of possibility when, instead, there should be a lot more focus on where the possibility premise is supposed to come from if it is supposed to be a possibility premise of a kind that can be used with S5, and on the meta-argument surrounding the "proof" by which Alvin Plantinga seeks to demonstrate the rationality of belief in God, rather than the "proof" itself – which Alvin Plantinga clearly does *not* expect to work as a proof in its own right. None of this should be taken as meaning that I think Alvin Plantinga's argument has any redeeming features at all: in the language of Jeremy Bentham, it is "nonsense on stilts". Nevertheless, my explanation of *why* it is nonsense on stilts is somewhat flawed, and I would advise against using it in a debate. I will rewrite the article when I have time: I am somewhat busy now. In the meantime, I invite anyone who wishes to discuss the matter to email me.

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A Refutation of Plantinga's Modal Ontological Argument – and why it even suggests a *disproof* of God

By Paul Almond, 26 February 2007.

Introduction

Ontological arguments for the existence of God **[1]** are intended to prove God's existence without reference to empirical observation, but instead showing that the *existence* of God logically follows from the *definition* of God.

Ontological arguments have previously been proposed by many people, including Anselm and Descartes. There is a widely held view that ontological arguments fail. More recently, however, Alvin Plantinga has proposed the *modal ontological argument*. Many people think that the modal ontological argument actually works, or at least demonstrates that the concept of God is rational. For this reason, the modal ontological argument is often called the "victorious" ontological argument.

I do not take the modal ontological argument seriously. It does not prove that God exists and does not even suggest that the claim of God's existence is more rational than it might otherwise be. The modal ontological argument is deeply flawed. This article will explain why.

It is worse than this, however. The assumptions made by the modal ontological argument are more useful for constructing a *disproof* of God, and this can be done without encountering the technical problems that the modal ontological argument encounters. I will be deriving a rule called the *exile rule* and using it as the basis of such a disproof in this article. I will not claim that this really *is* a disproof of God, because it is based on Plantinga's assumptions and definitions rather than any that I wish to justify, but it should at least remove any remaining credibility from the modal ontological argument. Furthermore, as the concept of God as "necessary" is a common feature in ontological arguments, the "disproof" that I will provide could weaken other ontological arguments.

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business ones and "academic commitments". In the meantime, I invite anyone who wishes to discuss the matter to email me. I am aware that some readers will tell me that it is not flawed, as this has already happened, but it is.

The Modal Ontological Argument

The modal ontological argument is based on modal logic, in which it is expressed. A plain language version of the argument is as follows:

1. By definition a maximally great being is one that exists necessarily and necessarily is omniscient, omnipotent and perfectly good. (Premise)
2. Possibly a maximally great being exists. (Premise)
3. Therefore, possibly it is necessarily true that an omniscient, omnipotent and perfectly good being exists. (By 1 and 2)
4. Therefore, it is necessarily true that an omniscient, omnipotent and perfectly good being exists. (By 3 and Axiom S5)
5. Therefore, an omniscient, omnipotent and perfectly good being exists. (By 4 and since necessarily true propositions are true)

Some readers may be unfamiliar with modal logic terminology such as "exists necessarily". In modal logic, statements of possibility are generally regarded as relating to "possible worlds". Saying that something is "possible" means that there is a possible world in which it is the case. Saying that something is "necessary" means that it is the case in *all* possible worlds. Plantinga defines God as necessary. This does not mean that he is assuming that God really does necessarily exist based merely on his definition. The idea is that necessary existence is part of God's definition, so that for something to be called "God" it must exist in all possible worlds. God, then, either does not exist or he exists in all possible worlds.

The modal ontological argument relies on a rule known as *Axiom S5* in modal logic. Axiom S5 requires a proposition that, if true, can only be necessarily true, and which is possibly true, to be necessary. In other words, Axiom S5 states that if something's definition only allows it to be true or to exist necessarily, then if there is a possible world in which it is true or exists, it is true or exists in *all* possible worlds. Axiom S5 will be an important issue in this article.

Statement of the Proof with Reference to Possible Worlds

Here is a statement of the modal ontological argument with more explicit reference to possible worlds:

1. A necessary proposition is defined as one that, if true, is true in all possible worlds. (Premise)
2. God is defined as a maximally great being – meaning one that exists necessarily and is necessarily omniscient, omnipotent and perfectly good. (Premise)
3. Possibly God exists. (Premise)
4. There is a possible world in which God exists. (By 3)

5. Therefore, there is a possible world in which it is necessarily true that God exists. (By 2 and 4)
6. Therefore, it is necessarily true that God exists. (By 5 and Axiom S5)
7. Therefore, God exists. (By 6 and since necessarily true propositions are true)

Justification of Axiom S5 in Modal Logic

Axiom S5 in modal logic states that a proposition that is possibly necessary is necessary.

Here is the generally perceived justification for Axiom S5:

1. Consider some proposition G, the definition of which includes the requirement that G, if true, is true necessarily. This means that the definition of G requires G, if true, to be true in all possible worlds. We may think we can easily attack this by saying that it is an *assumption* that G is true in all possible worlds, but it is not. It is only part of the definition of G and it does not require G to be true. All it means is that if there is some truth that we call G then, for us to validly call it G, it must be true in all possible worlds.
2. Suppose the truth of G is possible. This means that there is a possible world in which G is true. G must be true necessarily in this world, according to the definition of G. The necessary truth of G requires G to be true in all possible worlds. Therefore, the truth of G in a possible world requires G to be true in all possible worlds.
3. We can now state Axiom S5: If some proposition G, such that G, if true, must be necessarily true, is possibly true (that is to say, G is true in a possible world), then G is necessarily true (that is to say, G is true in all possible worlds).

This can be related to the existence of an entity by making G a claim for the entity's existence, or we can perform a more specific version of the above reasoning, relating to the existence of an entity:

1. Consider some entity G, the definition of which includes the requirement that G, if it exists, exists necessarily. This means that the definition of G requires G, if it exists, to exist in all possible worlds. If something exists that we call G then, for us to validly call it G, it must exist in all possible worlds.
2. Suppose the existence of G is possible. This means that there is a possible world in which G exists. G must exist necessarily in this world, according to the definition of G. Necessary existence requires G to exist in all possible worlds. Therefore, the existence of G in a possible world requires G to exist in all possible worlds.
3. We can now state Axiom S5: If some entity G, such that G, if existent, must necessarily exist, possibly exists (that is to say, G exists in a possible world), then G necessarily exists (that is to say, G exists in all possible worlds).

Derivation of Anti-S5

Using the same sort of logic we can derive a rule that opposes Axiom S5, which I shall call *Anti-S5*:

1. Consider some proposition G, the definition of which includes the requirement that G, if true, is true necessarily. G, if true, must be true in all possible worlds. (Premise)
2. Possibly G is false. (Premise)
3. There is a possible world w_1 in which G is false. For G to be true in some other possible world w_2 the truth of G in w_2 must be necessary, meaning that G is true in all possible worlds, but this is inconsistent with G being false in w_1, but w_2 is any other possible world apart from w_1 (in which it has already been stated that G is false). Therefore, if G is false in a possible world, this requires G to be false in all possible worlds.
4. We can now state *Anti-S5*: If a proposition G, such that G, if true, must be necessarily true, possibly is false (that is to say, G is false in a possible world), then G is necessarily false (that is to say, G is false in all possible worlds).

and we can make a more specific version of this relating to the non-existence of an entity:

1. Consider some entity G, the definition of which includes the requirement that G, if it exists, exists necessarily. This means that the definition of G requires G, if it exists, to exist in all possible worlds. (Premise)
2. Possibly G does *not* exist. (Premise)
3. There is a possible world w_1 in which G does not exist. For G to exist in some other possible world w_2 the existence of G in w_2 must be necessary, meaning that G exists in all possible worlds, but this is inconsistent with the non-existence of G in w_1, but w_2 is any other possible world apart from w_1 (in which it has already been stated that G does not exist). Therefore, the *non-existence* of G in a possible world requires G *not* to exist in any possible world.
4. We can now state *Anti-S5*: If some entity G, such that if G exists then G exists necessarily, possibly does not exist (that is to say, G does not exist in a possible world), then G is necessarily non-existent (that is to say, G does not exist in any possible world).

Anti-S5 can be used in a disproof of God's existence as follows:

1. By definition a maximally great being is one that exists necessarily and necessarily is omniscient, omnipotent and perfectly good. (Premise)
2. Possibly a maximally great being does *not* exist. (Premise)
3. Therefore, possibly an omniscient, omnipotent and perfectly good being that, if it exists, exists necessarily, does *not* exist. (By 1 and 2)
4. Therefore, it is necessarily true that an omniscient, omnipotent and perfectly good being does *not* exist. (By 3 and Anti-S5)
5. Therefore, an omniscient, omnipotent and perfectly good being does not exist. (By 4 and since necessarily true propositions are true)

I do not suggest this as a serious disproof of God's existence and it was not the disproof to which I referred in the introduction: this is as invalid as Plantinga's proof.

Summary of Axiom S5 and Anti-S5

Axiom S5

- Axiom S5 requires a proposition that can only be true necessarily and which is possibly true actually to be necessarily true (that is to say, to be true in all possible worlds).
- In terms of entity existence, Axiom S5 requires an entity defined as existing necessarily and which possibly exists actually to exist necessarily (that is to say, to exist in all possible worlds).

Anti-S5

- Anti-S5 requires a proposition that can only be true necessarily and which is possibly false actually to be necessarily false (that is to say, to be false in all possible worlds).
- In terms of entity non-existence, Anti-S5 requires an entity defined as existing necessarily and which possibly does *not* exist actually to be necessarily non-existent (that is to say, to be non-existent in all possible worlds.

Axiom S5 and Anti-S5

Axiom S5 and Anti-S5 force possibly true or false propositions defined as necessary to be true or false in all possible worlds

or, in terms of entity existence and non-existence:

Axiom S5 and Anti-S5 force possibly existent or non-existent entities defined as necessary entities actually to exist or not exist in all possible worlds.

Contradiction Between Axiom S5 and Anti-S5

Axiom S5 and Anti-S5 can contradict each other.

I am not claiming the above reasoning to justify Anti-S5 as valid: it is just as invalid as the reasoning used to justify Axiom S5. What it does show is that which of the available possibility premises we start with – "Possibly G is true" (or "Possibly G exists") or "Possibly G is false" (or "Possibly G does not exist") determines the outcome of the proof:

- If we start with the premise that possibly G is true (or possibly G exists), we prove that necessarily G is true (or necessarily G exists)
- If we start with the premise that possibly G is *false* (or possibly G does *not* exist) then we prove that necessarily G is *false* (or necessarily G does *not* exist).

A Way Axiom S5 or Anti-S5 *Could* Be Valid

There is a way in which an argument like this could be valid:

If, in the reasoning behind Axiom S5, when making the "Possibly G is true" (or "Possibly G exists") premise we also assert the premise "It is impossible that G is false" (or "It is impossible that G does not exist") then no contradiction occurs and the logic is valid. It should be noted, however, that the demonstration of G's actual necessity here is trivial. The premise "It is impossible that G is false" (or "It is impossible that G does not exist") is equivalent to the premise "G is necessary": the argument assumes its own conclusion as a premise, making the possibility premise, and the rest of the argument, redundant. This seems to be the sort of point made by Richard Gale when he says that a claim of possible necessity is really just a claim of necessity **[2]**.

Similarly, if, in the reasoning behind Anti-S5, when making the "Possibly G is false" (or "Possibly G does not exist") premise we also assert the premise "It is impossible that G is true" (or "It is impossible that G exists") then no contradiction occurs and the logic is valid. It should be noted, however, that the demonstration of G's actually necessary falseness or non-existence is similarly trivial.

Axioms S5 and Anti S5 are both useless. Each can only be validly asserted when we already *know* that the truth of the proposition, or the existence of the entity, in question is necessary. For all practical purposes, this means that Axiom S5 is invalid (as is Anti-S5). That, however, is a bit simplistic: there *are* some ways in which Axiom S5 could be valid, but they result in versions of Axiom S5 so trivial or distant from our concept of possibility that they are useless for resolving philosophical issues like this. I will be discussing this later in this article.

A Simple View of the Situation: Modal Ontological Noughts and Crosses

The above reasoning gives a view of things that is more complicated than needed for a basic understanding, because it needs to be stated well enough to withstand objections. We can view what is going on in the simpler terms of "noughts and crosses" (or "tic-tac-toe" to Americans). I will make the following part of the discussion about the existence of some entity G, rather than about the truth of some proposition G, as this is what we are dealing with in Plantinga's modal ontological argument.

Let us imagine some entity G, the definition of which only allows it to exist necessarily, and that all the possible worlds are set out before us as an array of boxes – each box corresponding to a possible world. If G exists in a possible world we will put an "X" in that box. If G does not exist in a possible world we will put a "O" in that box.

Initially, we do not take a position about possible worlds, if any, G exists and in which, if any, G does not exist, so we do not have any "X"s or "0"s in the array.

The possibility premise "Possibly G exists" can also be understood as "There is a possible world in which G exists". If we accept this possibility premise then we can put an "X" in one of the boxes in the array. G, however can only exist necessarily, so if that "X" we just wrote in the box is to represent G existing consistently with its definition (and if it does not we cannot validly say that it corresponds to G) then we must write "X"s in all the other boxes. This gives the idea that the *possibility* of G necessarily existing leads to G necessarily existing.

Instead of asserting the above possibility premise, however, we could assert the possibility premise "Possibly G does *not* exist" meaning "There is a possible world in which G does *not* exist". If we accept this possibility premise then we can put an "O" in one of the boxes in the array. As was shown above, an "X" can only be put into one of the boxes if it is going to be put into all of the boxes, and with this "O" here this is no longer possible, so all the other boxes must also have "O" in them.

An "X" in a box – representing the possibility that G exists – means that the rules for placing "X"s require *all* the boxes to contain "X"s, but a "O" in a box – representing the possibility that G does not exist – means that the rules for placing "X"s require all the boxes to contain "O"s. *The rule for placing "X"s implies the same rule for "O"s.*

The boxes cannot all contain "X"s and all contain "O"s, so it must be one or the other, but the only way it can be all "X"s or "O"s is if a decision is made not to place either one – equivalent to rejecting the possibility that G exists or that G does not exist.

If we want to place both an "X" and a "O" into boxes initially – equivalent to the assertion that possibly G exists and possibly G does not exist – then a logical contradiction results.

Dealing with the Contradiction

If Axiom S5 is contradictory then this suggests that merely discussing the possibility of entities that can only exist necessarily leads to contradiction. There does not seem to be anything obviously inherently self-contradictory about entities that can only exist necessarily: if there were then Plantinga's modal ontological argument would not seem persuasive to as many people. The idea of possibility is a very basic one to us and it seems strange to have to accept the logical coherency and consistency of something (if not its plausibility) while not being able to discuss whether or not it exists unless we have total certainty. We need a way of making sense of this.

Contradiction is not an unusual feature of discussions of possible worlds: the whole idea of possible worlds involves contradiction. I will now discuss two different types of possibility – empirical and logical possibility – and the contradictions that arise.

Empirical Possibility

I will use this term to describe possibility relating to empirical, or *a posteriori*, truths. An empirical truth is one empirically observed to be true, rather than following from logic alone.

Here are three examples of situations of empirical possibility:

- Possibly space aliens exist.
- Possibly space aliens do *not* exist.

- Possibly the favourite will win the 2:40 horse race.
- Possibly the favourite will *not* win the 2:40 horse race.

- Possibly there is life on Earth.
- Possibly there is *no* life on Earth.

The first of these, the space aliens example, asserts that there is a possible world in which space aliens exist and one in which they do not exist. If we are not sure whether aliens exist or not then we might view such assertions of possibility as representing uncertainty.

The second situation is slightly different in that is about horse racing results in the future. It can still, however, be related to different possible worlds in which the horse race will have different results. We could still view the assertions of possibility here as representing uncertainty.

The third situation, about life on earth, is slightly different in that one of the possibilities – that there is no life on Earth – clearly describes a possibility, or relates to a possible world, which is inconsistent with the "actual" world, so consideration of such possibilities is more about the *conceivability* of alternatives, or describe them, than it is about candidates for the actual world. Modal logic does not in itself prohibit discussion of possibilities of this type, though people may disagree about the validity of such discussion. We can debate about what it means to say that something is "conceivable". A literal view would be that it must be something that can be conceived by us – that can be represented in human minds. We could ask, however, "*Whose* mind?" I think it is more general than this and that the idea that something "can be conceived" is that it can somehow be meaningfully expressed or consistently described. Presumably, this would be a prerequisite for representing it or describing it in a correctly functioning mind. Exactly what it means to say that something is "conceivable" is not going to be a big issue in this article: the article can work with whatever most readers think it means. Although there is a difference between possibility based on uncertainty about the actual world and possibility based on what is conceivable, for most of this article I will be dealing with both of these similarly. The distinction will be more relevant later, when I am discussing something called the *exile rule*. It should be noted that of these two views of possibility – the conceivability of things and uncertainty – the conceivability of things is the more generally used view in modal logic.

The above pairs of assertions of possibility relate to possible worlds that are empirically inconsistent with each other. It is not possible for space aliens to exist and not exist, for the favourite to win the race and lose it or for there to be life on Earth and no life on Earth. We accept these inconsistencies when making such assertions of possibility: we distinguish between claims that propositions are true and claims that propositions are possibly true. When we relate this to possible worlds we accept inconsistencies like this between them because they are different *possible* worlds rather than the actual world.

There is inconsistency here, but only weak inconsistency: in fact, some readers may think "inconsistency" too strong a term. It is empirical or a posteriori inconsistency, that is to say, inconsistency between different empirical or a posteriori propositions. There is no *logical* inconsistency involved as all these possible worlds at least appear consistent with what we regard as logic. The inconsistency here is not of the same type as we have when we say "2+2=4 and 2+2=5".

Any discussion of possibility must at least accept empirical inconsistency and any discussion of possibility with regard to possible worlds must at least accept empirical inconsistency between possible worlds.

Logical Possibility

I will use this term for possibility relating to *a priori* or logical truths. A logical truth is one following from logic rather than empirical observation.

If we have different possibilities for a logical truth then the corresponding different possible worlds are logically inconsistent.

Here are three examples of situations of logical possibility:

- Possibly the square root of 19,876 is 445.826199319869491224856783914 07.
- Possibly the square root of 19,876 is *not* 445.826199319869491224856783914 07.
- If a computer is generating a sequence of pseudo-random numbers, each between 1 and 10 inclusive, then possibly the next number generated will be "7".
- If a computer is generating a sequence of pseudo-random numbers, each between 1 and 10 inclusive, then possibly the next number generated will *not* be "7".

- Possibly Thomas Hales's proof of Kepler's sphere packing conjecture is valid.
- Possibly Thomas Hales's proof of Kepler's sphere packing conjecture is *not* valid.

Discussion of logical possibility may seem invalid. Let us take the first case, of the square root of 19,876. Some readers would maintain that it is either 445.826199319869491224856783914 07 or it is not. Only one of these possibilities is logically valid, and we could settle the issue easily with a calculator. Right now, though, unless you can do mental arithmetic very easily, or have already used a calculator, you probably do not know whether the number that I gave is the correct value for the square root or not. Regardless of the fact that one of these situations seems, according to our logic impossible, you do not know *which* one and can only discuss this situation using the language of possibility! Mathematical issues like this are a matter of *logical*, rather than empirical, possibility. We can consider whether or not we should admit possible worlds that are logically, as well as empirically, inconsistent with each other and, if we do that, we have the issue of whether we should accept both possible worlds even after we know what the answer is in the actual world.

The second example is about the next pseudo-random number we expect a computer program to generate. The sequence of numbers is determined purely by the program and its starting "seed" value, and the next number must have a certain value: it was already decided when the first number was generated. Despite this, if we have not seen the sequence before, and do not know what the algorithm is, or we know the algorithm but have not had time to work out what the next number will be, then the next number is unknown to us. For practical purposes, it is therefore possible that the next number will be "7".

The third example is one about which, at the time of writing, there is actual recognition of some real, if small, uncertainty by mathematicians. Kepler's sphere packing conjecture is an old

proposition in geometry which people tried to prove for a long time. Thomas Hales has suggested a proof and the reviewers of his paper have said that they are 99% sure that it is correct. It appears that the reviewers, at the time of writing, accept the possibility that the proof is valid and the possibility that it is not – at least in the informal sense of the word "possibility".

Where does all this leave logical possibility? It may seem that discussion of logical possibility is incoherent, because by definition it describes situations that are incompatible with logic as we know it. It is not so easy to discard, however. Few people would probably dispute that saying that the next number from a pseudo-random number generator will "possibly" be "7" means *something*, at least informally.

If we denied discussion of any sort of possibility for logically inconsistent situations we would find it impossible to discuss some real-life situations about which our knowledge is limited. For example, you may be invited to bet on the output of a pseudo-random number generator. To consider the merits of the bet you could extend the concept of logical possibility for the output of the pseudo-random number generator to one of logical probability. If you considered logical possibility meaningless, does this mean that you could not evaluate the merits of such a bet? I think that most people who take such a position, if offered such a bet, would evaluate the merits of the bet anyway, which would require thinking at least in quasi-possibilistic and quasi-probabilistic terms.

One way of dealing with this could be to say that there are two senses for the word "possibility": a "formal" or "modal" sense, relating to the disposition of possible worlds, and an "informal" sense, relating to the (informal) possibility that the entire set of possible worlds has various characteristics. If we insist on a distinction between formal and informal possibility then we are asserting that some concept of possibility (the informal one) can work outside modal logic, so why do we even need modal logic and formal possibility? If we can take refuge in "informal" possibility as needed then why is it not valid for *everything*, and if it is why not just abandon formal possibility? This, however, would remove the distinction between informal and formal possibility and, when some philosophers have inevitably made informal probability more rigorous, leave us with "informal" possibility as the new *formal* possibility, once more prompting us to declare an extra, *more* informal possibility, and it should be clear where things would be going next…

This is good reason for thinking that it makes no sense to distinguish between informal and formal (or modal) possibility and that situations of apparent logical possibility should be considered to be situations of actual (i.e. formal or modal) logical possibility. This would mean accepting that some possible worlds will be logically inconsistent with each other and with the actual world. This does not mean, however, that we are accepting logical contradiction in mathematics. It is one thing to state that there are two possible worlds which are contradictory with each other and another to state that logical arguments in both of these worlds can be valid *here* in the *actual* world or that statements made *about* these possible worlds could be allowed to be invalid *here*.

Mathematical empiricism, proposed by John Stuart Mill and later, in a different form, by Willard Van Orman Quine and Hilary Putman, would also suggest that logical possibility and logically inconsistent possible worlds should be accepted because it denies that a priori mathematical knowledge exists. This would mean that there is no profound difference between logical and

empirical possibility. Further, the sort of discussion of logical possibility which has just been given might be considered to support mathematical empiricism.

Where this Leaves Axiom S5

As shown previously, if we accept the possibility that some proposition G is true and the possibility that it is false, and the definition of G only allows G to be necessarily true, then there is a contradiction as both Axiom S5 and Anti-S5 follow. This contradiction means that discussions of the possibility of necessarily true propositions being true, or necessarily existing objects existing, are not discussions of empirical possibility: they are discussions of *logical* possibility.

If the possibility of a proposition being true or false is a logical possibility, and if we admit logical possibility in modal logic, then any logical implications of the proposition being true are only true in possible worlds in which the proposition is true and any implications of the proposition being false are only true in possible worlds in which the proposition is false. It is incorrect to try to "overlap" the possible worlds by demanding consistency between them after we have accepted a situation of logical possibility.

If we accept that situations of logical possibility correspond to logically inconsistent worlds then this resolves the issue of the contradiction between Axiom S5 and Anti-S5.

Given a proposition G which, if true, is necessarily true, then if there is the possibility that G is true and the possibility that G is false we can say:

- There is a possible world w_1 in which G is true and in which G is true in all possible worlds (because G can only be true necessarily).
- There is a possible world w_2 in which G is false and in which there are different, logically contradicting, possible worlds in which G is true and G is false.

(Some readers will notice that, if we regard possibility as corresponding to uncertainty – so that possible worlds are what we think may be the actual world, then there is a complication with there being a possible world in which G is true in w_2. I will be discussing this later in my consideration of the exile rule.)

We could also express this in terms of the existence or otherwise of some entity, G:

Given an entity G which, if it exists, necessarily exists, then if there is the possibility that G exists and the possibility that G does not exist we can say:

- There is a possible world w_1 in which G exists and in which G exists in all possible worlds (because G can only exist necessarily).
- There is a possible world w_2 in which G does not exist and in which there are different, logically contradicting, possible worlds in which G exists and G does not exist.

What we have done here is abandon the entire fallacy on which Axiom S5 and Plantinga's modal ontological argument are based and the same fallacy that allowed me to derive the equally flawed

Anti-S5. This is the *fallacy of consistency between different, logically inconsistent, possible worlds about the disposition of possible worlds*. Axiom S5, and therefore Planting's modal ontological argument, assume that there is a single collection of possible worlds, independent of any single possible world, which is shared between all possible worlds.

This view of logically inconsistent possible worlds may appear to be some weird cosmological theory, in which I am claiming that each world has a collection of possible worlds "inside it". It would be easy to form such a view because of the way language expresses situations like this when we say things like "There is a possible world *in* which there is a possible world…". Furthermore, if we wanted to represent possible worlds graphically it would be convenient to use a Venn diagram like approach in which each possible world is a circle and any possible worlds that exist in that possible world are circles inside it. We need to be careful with language and representations like this, however. It is not proposed that the actual world "contains" possible worlds that "contain" other possible worlds. This kind of view would seem to be relevant only if we adopted David Lewis's view of *modal realism*, on which I have taken no position (nor will I) in this article **[3]** – and most advocates of modal realism would still find it absurd. When we say that there are different dispositions of possible worlds in different possible worlds we simply mean that the truth or falsity of propositions can be different in different logically inconsistent possible worlds and some of these propositions will be about the existence of possible worlds, so the truth of these varies between possible worlds. When we say "In a possible world there is a possible world such that…" all we mean is "In a possible world *it is true that* there exists a possible world such that…" The existence or otherwise of possible worlds can be asserted by logical statements, some of which are true and some of which are not, and if we accept logical contradiction between possible worlds then we must accept that the truth or falsity of such statements varies between possible worlds in which they are asserted.

This idea of logically inconsistent possible worlds in which the possible worlds that exist can be different may appear strange. Many people would expect the relationships between worlds to be two-way so, for example, if we say:

There is a possible world w_A. In w_A there is a possible world w_B.

it may seem natural to say:

In w_B there is a possible world w_A.

but this is not necessarily the case. If w_B is logically inconsistent with w_A then in w_B it may not be true that w_A exists. This means that if we allow logically inconsistent possible worlds then we can accept possible worlds in which our world is not a possible world. An extreme example of this would be if we imagine some possible world in which modal logic in any form is inconsistent and in which there are *no* possible worlds. Although strange, this should seem no worse than accepting logically worlds in which different logical propositions are true because *that is all it is*.

I am not expecting anyone to accept the idea of logically inconsistent possible worlds. The refutation of Plantinga's modal ontological argument is not dependent on this. The derivation of

Anti-S5, however, showed Axiom S5 to cause contradictions. Ignoring a contradictory situation, here, in the actual world is invalid.

If we reject logically inconsistent possible worlds then we should reject logical possibilities, at least in modal logic terms, and we should accept that description of "possibly necessary" propositions or entities is incoherent, unless we have some other solution. There are various ways in which we could try to deal with this, none of which rescue any meaningful version of Axiom S5 or Plantinga's modal ontological argument, and they are as follows:

One obvious approach is simply to assert the possibility premise we want without any justification at all – not even a justification based on uncertainty or the conceivability of things. In the context of Plantinga's argument, for example, we could arbitrarily choose to assert the possibility that God exists and arbitrarily choose not to assert the opposing possibility premise ("Possibly God does *not* exist"). Axiom S5 can still work consistently here, but it is not telling us anything useful: everything is based on an arbitrary assumption. Furthermore, if the opposing possibility premise happens to be true then a contradiction occurs, so to assume that our argument is valid we are also arbitrarily assuming this premise to be invalid, meaning that, with regard to the modal ontological argument, we have really assumed that God is necessary before we need to use Axiom S5 or the modal ontological argument.

Another approach is to base the justification for the possibility premise on uncertainty or on what can be conceived. Plantinga, and some people's reasoning used to justify Axiom S5, assumes that if something is "possible" then there must be a possible world in which it occurs. The problem is that we have two opposing possibility premises, each demanding a possible world which logically contradicts the other. In Plantinga's proof it is presumed that the "God possibly exists" possibility premise is true based on lack of certainty or on the conceivability of something, but this reasoning would also require the "God possibly does not exist" proposition to be true based on similar lack of certainty or the conceivability of it. If we are to avoid contradiction we cannot have *both* of these possibility premises being true. Therefore we must accept that only one of the possibility premises is true. The possibility premise that is true, by Anti-S5 or Axiom S5, dictates what happens in all possible worlds. An important point emerges from this, however. It is required by such a view that it does *not* follow from our uncertainty about whether something is possible or not, or from the conceivability of it, that the relevant possibility premise in modal logic is true. We do not know *which* of the contradictory possibility premises happens to be true and one of them must be false without our knowledge.

Let us consider what this means:

We have some proposition G which, if true, is necessarily true. We do not know if G is true or not, so we have these possibility premises:

"Possibly G is true." – If this is true then Axiom S5 precludes the possibility premise below.

"Possibly G is false." – If this is true then Anti-S5 precludes the possibility premise above.

We do not know which is the correct possibility premise, so we must say that possibly the first possibility premise is true and possibly the second one is true, but the type of "possibility" that we are talking about now is a type of "possibility" that relates to *all* possible worlds. We are talking about the "possibility" that G is true in all possible worlds and the "possibility" that G is false in all possible worlds. The statement of a possibility of this kind does not imply the existence of a possible world (it cannot since it would result in contradiction) and so must be outside the scope of modal logic. To avoid contradiction then, if we reject the idea of logical possibility in modal logic and logically inconsistent worlds, we must regard the "possibility" of each of these possibility premises being true as an "informal" possibility – that is to say, one outside the scope of modal logic.

That is to say:

"There is the informal possibility that (formally or modally) possibly G is true or that possibly G is false"

and there is no way round this: if we have uncertainty about whether or not all worlds have some characteristic, or if there is the conceivability of different mutually exclusive characteristics that all worlds can have – and this is required with necessarily true propositions – then we cannot validly say that possible worlds exist for each such possibility because we are introducing a possibility outside the scope of modal logic.

This does allow a limited, trivial validity for Axiom S5. If it happens to be the case that the possibility premise "Possibly G is true" is the correct one then Axiom S5 can be asserted and we can say that G is necessary. We can, however, say the same thing about Anti-S5 – if the possibility premise "Possibly G is false" is the correct one. This is now trivial because we are admitting a level of "informal possibility" outside the scope of modal logic, so we cannot say that our uncertainty about the truth or otherwise of a proposition, or the existence or otherwise of an entity, must correspond to a statement about the existence of possible worlds: it could simply relate to an informal possibility, as specifically appears to be the case when we start to consider possible necessity.

If we admit this level of informal possibility – and my own preference would just be to "bite the bullet" and admit logically inconsistent worlds instead – then it actually means that the modal logic idea of "possibility" is something other than what we think of as "possibility". In this sense, Plantinga's modal argument would wrongly persuade people by taking a possibility that can only be considered outside the scope of modal logic as an informal possibility that relates to the entire set of possible worlds and treating it as though it must be dealt with inside modal logic and relate to a possible world.

In this way, then, Axiom S5 can be saved, but at the expense of making whatever is referred to by its statements of "possibility" different from what we associate with uncertainty or the conceivability of something. Given that we have accepted some informal idea of possibility, the "possibility" being described in Axiom S5 is not necessarily the possibility associated with our state of knowledge about the truth or otherwise of a proposition (or the existence or otherwise of some entity) or the conceivability of different things and this makes this a trivial version of Axiom

S5 that seems to serve no useful purpose: it cannot be applied to situations where we think something may or may not exist or where there is the conceivability of something existing and not existing. A similarly trivial version of Anti-S5 also applies by the same logic – which should indicate how useless this trivial version of Axiom S5 really is.

This kind of way of saving Axiom S5 could also apply if we reject logically inconsistent worlds *and* informal possibility. Let us assume that the possibility that G is true is not being arbitrarily assumed and not simply following from uncertainty or the conceivability of things, but instead that it follows logically from "something else". I have no idea of what this "something else" could be. If the reasoning by which the possibility premise follows from this "something else" is correct, and does not result in inconsistency, then we could indeed assert Axiom S5, but this could only be done if the possibility of G being true were actually required by "something else" in a way that we could be sure was free of contradiction – that is to say, that it would be important that the possibility of G being true was not required by "something else" as well. The problem with this form of Axiom S5 is that it specifically requires that the possibility premises are obtained from something other than our lack of knowledge about whether or not propositions are true or entities exist or the conceivability of things: if the possibility premises are obtained from uncertainty or the conceivability of different situations then the situation described previously applies. This removes the concept of "possibility" so far from our understanding of what it means that, without some clarification of what is meant by such possibility, all modal logic is made meaningless. This version of Axiom S5 is trivial and, as in the previous case, a similarly trivial version of Anti-S5 is also supported by this logic, again showing how useless this version of Axiom S5 is.

There are, then, these ways of approaching the contradiction between Axiom S5 and Anti-S5:

- We can arbitrarily assert one possibility premise and not the opposing one *for no reason at all*, giving trivial versions of Axiom S5 and Anti-S5 which support anything we like – based on unjustified possibility premises. It also includes the "hidden" premise that the opposing possibility premise is invalid – making use of Axiom S5 redundant anyway.
- We can accept logically inconsistent possible worlds, allowing our argument here, in the actual world, to remain consistent, but meaning that Axiom S5, Anti-S5 and Plantinga's modal ontological argument are no longer valid.
- We can reject both logically inconsistent possible worlds and informal possibility, but this means we must declare any discussion of possibilities which refer to logically inconsistent possible worlds as invalid. As the possible truth of a necessarily true proposition or the possible existence of a necessarily existing entity are clearly such possibilities (from the derivation of Anti-S5) then both are invalid. Axiom S5 and Plantinga's modal ontological argument would then be incoherent, as would be Anti-S5.
- We can reject logically inconsistent worlds while accepting some "informal" idea of possibility outside modal logic, allowing issues of possibility regarding attributes of the entire set of possible worlds, which cause contradiction if expressed in modal logic, to be described outside modal logic. This can give validity to trivial versions of Axiom S5 *and* Anti-S5 which are useless for resolving meaningful issues because not all of possibility is within the scope of modal logic.
- We can reject logically inconsistent worlds and "informal" possibility outside modal logic, instead asserting that any possibility premises, when asserted, are asserted due to being

logically required by "something else" apart from lack of knowledge, allowing assertion of one possibility premise and not the other. This makes the type of "possibility" being discussed something different from the sort of "possibility" that we associate with lack of knowledge or conceivability of things and makes Axiom S5 and modal logic, whatever they are now supposed to be, useless for such issues.

The Possibility Premise and Plantinga's Argument

Given the dependence of Plantinga's modal ontological argument on Axiom S5, then what I have already said about Axiom S5 should have shown the argument to be a fallacy. Some additional discussion of the modal ontological argument specifically, and its possibility premise, will, however, be helpful.

The argument against the modal ontological argument has been based on the derivation of Anti-S5. If Axiom S5 tells us that God's necessary existence is implied by the possibility of God existing necessarily, then Anti-S5 tells us that God's necessary non-existence is implied by the possibility of God *not* necessarily existing. Both possibility premises cause the contradiction at the centre of this article.

Advocates of the modal ontological argument could question this by saying that it appears to introduce a second possibility premise – the possibility of God's *non-existence* – and that the argument proposed by Plantinga contains no such premise, but I have just discussed all that.

The important question is this:

"Where does Plantinga get his possibility premise?"

Plantinga is clearly suggesting that it comes from being open-minded – that if we do not have a disproof of God's existence then we should at least accept the *possibility* that God exists on account of uncertainty – not knowing if God exists or not – or the conceivability of God. This can seem a powerful argument to many people who like to feel that they are open-minded. The argument then goes on to show that, once we have at least accepted God's possibility, then God's necessity, and therefore existence, is inescapable.

Is the possibility premise really supposed to come from an admission that we do not know whether or not something exists or from the conceivability of it existing?

If the approach being adopted is that, if we cannot say with certainty whether a proposition is true or false, then we must assume that possibly the proposition is true, then for any proposition asserted as possibly true or any entity asserted as possibly existent, for this reason, the possibility that the proposition is false or the possibility that the entity does not exist is also implied. The only way for it not to be implied would be if it were known to be impossible for the proposition to be false or for the entity not to exist – meaning that we would not need to assert merely the possible truth of the proposition or the possible existence of the entity: we would already know enough to assert the truth of the proposition or the existence of the entity without further argument.

If the approach being adopted is that a proposition is possibly true (or an entity possibly exists) if it is conceivable that this is the case, then it follows that, if it is conceivable that a proposition is false (or an entity does not exist) then the possibility of this is also implied. For it not to be implied it would have to be inconceivable that it is the case, meaning that we should already know enough to assert the truth of the proposition or the existence of the entity without further argument.

Plantinga cannot legitimately disagree by taking refuge in informal possibility, outside the scope of modal logic, and suggesting that not knowing that the non-existence of God is impossible, or the non-existence of God being conceivable, does not guarantee that it is possible and is inadequate cause to demand a possible world for it: this is the only reasonable justification for his own possibility premise. If propositions do not have to correspond to possible worlds merely because we do not know they are impossible or because of what is conceivable then the possibility premise of the modal ontological argument does not follow from informal acceptance that God's existence is possible.

Most people's understanding of the statement that something's existence is "possible" is that *we don't know* or that *it is conceivable that it is the case*. It is a concept like this that is clearly supposed to encourage us to accept the possibility premise. If we accept the possibility premise the argument is supposed to show us that God exists and if we reject it we can be accused of being close-minded for discounting a possibility and claiming certainty where (allegedly) there is none or for refusing to admit that something is conceivable when it is. If failure to have certainty about a premise, or the conceivability of something, should cause us to assert a possibility premise then, in the absence of certainty about the existence or non-existence of God, or if the non-existence of God is conceivable, we should assert possibility premises for *both* existence and non-existence. Many people will have assumed that the possibility premise is equivalent to this, but it is not: the meaning of the possibility premise is more specific in modal logic. It assumes the existence of a possible world in which God exists, but not one in which God does not exist and is therefore one-sided. The translation of "we don't know" from our informal view of possibility into modal logic possibility premises would actually result in two premises and God's existence and non-existence are both conceivable this also implies two possibility premises.

If, then, Plantinga's possibility premise comes from not knowing or the conceivability of things then the situation that Plantinga has set up is biased. Of course, Plantinga could have got his possibility premise from somewhere else. If so he should tell us where he got it so that we can be sure that the "God possibly exists" premise has not been selectively included while the "God possibly does not exist" premise is selectively eliminated. If the possibility premise does not come from our lack of knowledge or the conceivability of things then it is likely that the sort of "possibility" being considered here is far removed from what people think of as possibility.

This one-sided selection of possibility premises is relevant to the whole situation because, if we do not admit logical possibility and logically inconsistent possible worlds, all that Plantinga's argument really shows is that the possibility of existence and the possibility of non-existence, in modal logic terms, are contradictory.

The obvious ways of resolving the contradiction between Axiom S5 and Anti-S5 can now be considered for Plantinga's argument specifically:

- We can arbitrarily assert the possibility of God's existence and not the possibility of God's non-existence *for no reason at all*, giving a trivial proof based on an unjustified possibility premise. It also includes the "hidden" premise that God does not exist – as if this possibility premise were true it would contradict the rest of the argument. This makes the rest of the argument redundant anyway.
- We can accept logically inconsistent possible worlds, allowing our argument here, in the actual world, to remain consistent, but meaning that Axiom S5, Anti-S5 and Plantinga's modal ontological argument are no longer valid. God can exist necessarily and can be non-existent in different possible worlds. In a world in which God exists necessarily then God exists in all possible worlds and in a world in which God does not exist then there can be possible worlds in which God exists and possible worlds in which God does not exist: consistency between possible worlds about the existence of possible worlds is abandoned.
- We can reject both logically inconsistent possible worlds and informal possibility, but this means we must declare any discussion of possibilities which refer to logically inconsistent possible worlds as invalid. As the possible truth of a necessarily true proposition or the possible existence of a necessarily existing entity are such possibilities (from the derivation of Anti-S5) then both are invalid. The possibility premise stated in Plantinga's modal ontological argument would now be incoherent, as would Axiom S5 which is used by it.
- We can reject logically inconsistent worlds while accepting some "informal" idea of possibility outside modal logic, allowing issues of possibility regarding attributes of the entire set of possible worlds, which cause contradiction if expressed in modal logic, to be described outside modal logic. This removes the need for the existence of a possible world to follow from the possibility premise as it is now outside the scope of modal logic.
- We can reject logically inconsistent worlds and "informal" possibility outside modal logic, instead asserting that any possibility premises, when asserted, are asserted due to being logically required by "something else" apart from lack of knowledge or the conceivability of things, allowing assertion of the possibility of God's existence, but not the possibility of God's non-existence. The modal ontological argument as it stands lacks any such justification for its assertion of the possibility of God and its failure to assert the possibility of God's non-existence. It is also difficult to imagine how such a justification could be added to the argument as the argument is clearly intended to relate to our concept of "possibility".

What *can* be deduced from possible necessity?

The argument given so far should have disposed of Axiom S5, and my own rule Anti-S5 (which was never intended to have any survivability anyway). This means that we can no longer say that "possibly necessary" equates to "necessary", so what can we say about possible necessity?

If we accept logically inconsistent possible worlds, the reasoning I have given leaves us with this situation:

Given a proposition G which, if true, can only be necessarily true, then if there is the possibility that G is true and the possibility that G is false we can say that:

- There is a possible world w_1 in which G is true and in which G is true in all possible worlds (because G can only be true necessarily).
- There is a possible world w_2 in which G is false and in which there are different, logically contradicting, possible worlds of type w_3 in which G is true and of type w_4 in which G is false.

We need to consider the implications of this. There are two things that we should remember:

1. The whole logic that produces this argument, if valid, is a valid use of logic in the actual world.
2. The actual world is one of the possible worlds, so it is a world like w_1 or w_2.

If we accept the premises that possibly G is true and possibly G is false then the actual world cannot be a world like w_1, because in this world G is not false in any possible worlds. The actual world must therefore be a world like w_2, yet in this world G is false. This means that *in the actual world G is false*.

The Exile Rule

The above reasoning leads us to a conclusion that could be devastating for Plantinga's modal ontological argument – and much worse than a mere refutation. I will make a rule of it and call it "the exile rule". The exile rule can be stated as follows:

Given a proposition G which, if true, is necessarily true, if possibly G is true and possibly G is false, then G is false in the actual world.

and a more specific version relating to the existence or non-existence of some entity, G. would be as follows:

Given an entity G which, according to its definition, if it exists, exists necessarily, if possibly G exists and possibly G does not exist, then G does not exist in the actual world.

This object-existence version of the exile rule can be seen to follow from the general version simply by making the existence of the entity a proposition or we could justify it as follows:

Given an entity G which, if it exists, necessarily exists, then if possibly G exists and possibly G does not exist we can say:

- There is a possible world w_1 in which G exists and in which G exists in all possible worlds (because G can only exist necessarily).
- There is a possible world w_2 in which G does not exist and in which there are different, logically contradicting, possible worlds of type w_3 in which G exists and of type w_4 in which G does not exist.

and, because we assert the premises that possibly G exists and possibly G does not exist, the actual world cannot be like w_1, so G does not exist in the actual world.

I have called this "the exile rule" because it banishes possibly necessary propositions and entities from the actual world, only allowing them to be true, or to exist, in possible worlds.

It is not necessary to accept the exile rule, but it does appear to follow from accepting that statements of logical possibility are meaningful, together with the need to accept logically inconsistent possible worlds that it implies. The alternative would have to be from among those already discussed, such as declaring statements of logical possibility and logically inconsistent possible worlds invalid and making the term "possibly necessary" incoherent or seeking refuge in informal possibility.

Complications of the Exile Rule

One criticism of the exile rule could be as follows:

It starts off with the possibility premise that possibly G is true (or possibly G exists) and goes on to show that G can be true (or can exist) only in other possible worlds, but not the actual world. Surely, at this stage, we *know* that G cannot be true (or cannot exist), so does this not mean that there cannot be any possible worlds in which G is true (or in which G exists)? How can we even say that there are these other possible worlds when we know that it is impossible for any of them to be a candidate for the actual world? Does this not mean that the possibility premise that possibly G is true or possibly G exists has now somehow changed? Does this not make the argument flawed?

To state this more simply:

Does the argument to justify the exile rule not start with the assumption that possibly G is true (or possibly G exists) and possibly G is false (or possibly G does not exist) and proceed to show that it is impossible for G to be true (or for G to exist)?

To consider this we must differentiate between viewing possibility as the conceivability of different things and viewing it as uncertainty.

The Exile Rule and Possibility as Conceivability

"Conceivability" seems to be a common idea in ontological arguments. I do not think it is so much about human brains and their powers of conception specifically but somehow about the "admissibility", "coherency" or "capability of being expressed" of some description of an aspect of the world. Essentially, something is viewed as "possible" if the claim can be encoded in some way – one such way being as arrangements of neurons in human brains.

With this sort of possibility the exile rule appears to be valid without any complications because it is not required that all possible worlds are candidates for our world and saying that there are possible worlds in which G is true or G exists, while being sure that G is false, does not cause any problem: it merely means that there is the conceivability of things in contradiction with the actual world. We can therefore know that God does not exist, while accepting w_3 as a conceivable possible world, although we know that w_3 is not a candidate for the actual world.

The Exile Rule and Possibility as Uncertainty

If we view possibility in terms of uncertainty then there are complications. All statements of possibility must be about uncertainty: if we say that something is possible we mean that it may be the case for the actual world or it may not be the case for the actual world and we do not know if it is or not. If we do know, there is certainty rather than possibility. In this view of possibility all possible worlds are candidates for the real world. There cannot be a possible world that we know not to be a candidate for the real world.

Earlier in the article I described the situation that results when we accept logically inconsistent worlds as being like this:

- There is a possible world w_1 in which G is true and in which G is true in all possible worlds (because G can only be true necessarily).
- There is a possible world w_2 in which G is false and in which there are different, logically contradicting, possible worlds of type w_3 in which G is true and of type w_4 in which G is false.

but clearly there cannot really be a possible world in w_2 in which G is true: we know that G is *false* in w_2. The same applies for the object existence version of this.

In this situation, it appears at first that when we follow the exile rule through then the possibility of G being true or existing does have to be abandoned. When we realize that the actual world cannot be a world like w_1 in which G exists, it seems that we know that the truth or existence of G is impossible. We must therefore discard the possibility premise that possibly G is true (or possibly G exists). If this seems suspicious, when we base possibility on uncertainty, it is actually *required* that we discard possibility premises, and therefore alter our statements about the existence of possible worlds, when we get certainty.

As an example, if we have two boxes, just one of which contains a cat, and we choose one of them without knowing which box contains the cat, then the uncertainty about whether or not the chosen box contains the cat must lead to empirically inconsistent possible worlds in which it contains a cat and does not contain a cat. When we look in the chosen box, however, we have certainty about what is in it. If we see that it is the box containing the cat, for example, any possible worlds in which this box does not contain the cat must now be discarded. If then, we base the existence of possible worlds of uncertainty, possibility premises and possible worlds must be discarded when we find things out.

The justification for the exile rule could be considered no different from any other way of finding something out. Starting with the premises that possibly G is true (or possibly G exists) and possibly G is false (or possibly G exists), we can consider running through the argument as "finding out" that G cannot exist in the actual world and it must therefore be a world like w_2, however we also know that possible worlds like w_3 in w_2 must be rejected as candidates for the actual world. There are two obvious ways of looking at this:

- In a world like w_2 there are other possible worlds and one of these possible worlds must be the actual world – that is to say, we do not just stop at w_2, but must accept that one of the types of possible worlds that there are in w_2 as the actual world. It clearly cannot be a possible world in which G is true (or G exists) because we know that G is false (or does not exist), so the actual world must be a world of type w_4 in which even the possibility of G being true (or G existing) must be rejected.
- We asserted a possibility premise that possibly G is true (or possibly G exists) as true in a world like w_2, but given that we now realize that this cannot be the case given that G is false (or does not exist) in w_2 we should discard this possibility premise, so the actual world must be a world of type w_2 where we have removed a possibility premise as a result of finding something out.

and it appears that neither of these change the situation: G is false (or G does not exist) in the actual world.

There is, however, a problem that we cannot ignore here. We started with a possibility premise that possibly G is true (or possibly G exists) and, after following a logical argument through, we discarded this possibility premise because it caused problems when we asserted it with the possibility premise that possibly G is false (or possibly G does not exist). If we can discard possibility premises like this, however, how can we say that the possibility premise that possibly G is false (or possibly G exists) is really correct? We could use it as the justification for discarding the possibly of G being true (or of G existing), only later to find out that really we would never have asserted the possibility of G being false (or of G not existing) if we had known more at the time. Both ways of looking at the situation that I gave above used the idea that if we can assert the possibility of G being false (or of G not existing) then the actual world must be a world like w_2, but the actual world could simply be a world like w_1 and we may just not have realized yet.

If we are allowed to discard possibility premises then someone could try to use this to save Plantinga's modal ontological argument. Earlier in the article I demonstrated the contradiction between Axiom S5 and Anti-S5, but an advocate of the modal ontological argument could claim that the ontological argument shows that we need to discard the possibility premise that possibly God does not exist because going through the logic of the modal ontological argument could be considered as *finding out* that the possibility premise that possibly God does not exist should be discarded. If possibility premises are not written in stone, but can be discarded later, then how can I insist that the possibility of God not existing can lead to Anti-S5 and cause the contradiction with Axiom S5, when the possibility premise that supports Anti-S5 could vanish at any time? This would not rescue the modal ontological argument because it could also be said that Plantinga's possibility premise should be discarded when we realize that it cannot be maintained with Anti-S5. If we can discard possibility premises to prevent contradiction then there is nothing here to tell us *which* possibility premise to discard. More generally, if the validity of the modal ontological argument relies on the idea that possibility premises can be discarded when we find things out then it is invalid because it is itself based on a possibility premise. This does not rescue the modal ontological argument, but we do have a mess here.

This mess is caused by the fact that, when we regard possibility as corresponding to uncertainty and statements of possibility as relating to possible worlds which must be candidates for the actual

world, then possibility premises can be changed. We cannot simply say that discarding possibility premises like this is invalid: the mere act of finding anything out must involve discarding possibility premises. At one extreme we can imagine a being who knows nothing about the world and is incapable of asserting any fact about the actual world. Such a being would have nothing except possibility premises. At the other extreme, an omniscient being would have no uncertainty and *no* possibility premises, unless he/she/it happened to state things as "possibilities" that he/she/it knew to be true anyway (e.g. such a being could know that the sky is blue while stating, validly but in a trivial way "Possibly the sky is blue.").

This is what causes this situation. Plantinga's modal ontological argument and the justification for the exile rule treat statements of possibility as objectively true statements. A statement of possibility is regarded as saying something about reality, but when we regard possibility as corresponding to uncertainty, a statement of possibility is a personal statement dependent on what an observer knows. This is why philosophical arguments can require possibility premises to be withdrawn: the arguments themselves generate knowledge for an observer reading them, which in turn can require editing of the possibility premises on which the arguments themselves are based.

This means that, when we accept logically inconsistent worlds, the exile rule should not be considered valid when we regard possibility as corresponding to uncertainty, though if this is the case neither does possibility as uncertainty allow validity for Plantinga's argument.

We can go further though:

When we regard possibility as corresponding to what can be conceived, two observers who are both making the correct judgements about what can and cannot be conceived should agree about what possible worlds there are. There appears to be an objective idea of what "necessary" means: something is necessary if it is true (or if it exists) in all possible worlds.

When we regard possibility as corresponding to uncertainty we have problems with the idea of "necessity". The definition is the same: something is necessary if it exists in all possible worlds. The problem is that that set of possible worlds depends on what the observer knows. This means that the requirements for necessity vary between observers and that a claim of necessary existence as an attribute of a thing is incoherent or (as will be shown shortly) trivial.

Considering this in more detail:

Let us imagine that, instead of an infinity of possible worlds, we just have five possible worlds which can be conceived: w_1, w_2, w_3, w_4 and w_5. G is some proposition which is supposed to be necessary.

One observer, O_1, knows nothing at all. Therefore, to O_1, any possible world that can be conceived is a possible world from the point of view of uncertainty. To O_1, w_1, w_2, w_3, w_4 and w_5 are all candidates for the actual world. To O_1, a claim that G is "necessarily true" is a claim that G is true in w_1, w_2, w_3, w_4, and w_5.

Let us imagine another observer, O_2, who knows more than O_1. O_2 knows that worlds w_4 and w_5 cannot be candidates for the actual world and that only w_1, w_2 and w_3 could be the actual world. To O_2, a claim that G is "necessarily true" is a claim that G is true in w_1, w_2, and w_3.

We can imagine another observer, O_3, who knows that only w_2 and w_3 are candidates for the actual world, and to O_3 a claim that G is "necessarily true" is a claim that G is true in w_2 and w_3.

We can imagine another observer, O_4, who knows that w_3 is the actual world. To O_4 a claim that G is "necessarily true" is merely a claim that G is true in w_3.

What does it mean, then, to say that G is "necessarily true"? We could use the viewpoint of O_1, who knows nothing. To O_1, however, a world is possible if it can be conceived, so to O_1, G is "necessarily true" if it is true in all conceivable worlds. We have therefore adopted a special-case view of possibility based on uncertainty which is indistinguishable from possibility based on the conceivability of things. It should be noted that the exile rule should be valid for such a special case, based on what has already been said. What if we use the viewpoint of O_4, who has complete knowledge? O_4 knows that w_3 is the actual world. To O_4 any proposition is either true in w_3 or false in w_3: there is no room for any uncertainty. As far as O_4 is concerned, if G is "necessarily" true then it is true in all possible worlds, but w_3 is the only possible world, so G is "necessarily true" if it is true in w_3. If G is false in w_3 then G is false in all possible worlds, so G is *necessarily* false. O_4 can say this about any proposition: if it is true in the actual world (which is w_3) then it is necessarily true and if it is false in the actual world then it is necessarily false. To O_4 then, all propositions, if true, are necessarily true and all propositions, if false, are necessarily false. This makes a claim of necessity trivial.

This should have shown that, if we regard possibility as corresponding to uncertainty, then it is meaningless to include "necessary truthfulness" in the statement of a proposition or "necessary existence" in the definition of an entity. What "possibility" means depends on the point of view that we take. If we take the point of view of an observer who knows nothing then we are just regarding possibility as corresponding to what is conceivable. If we take the point of view an observer who knows everything then every proposition, if true, is necessarily true, and if false, is necessarily false and every entity, if it exists, necessarily exists, and if it does not exist, necessarily does not exist. In between these two extremes are many different views of possibility, each corresponding to a different set of possible worlds for a different observer. "Necessity" therefore is an incoherent or trivial concept.

We could go further and ask what it means to say that "possibly" something is necessarily the case. We could say that something is necessary *to us* if it is the case in every possible world that we accept, but as we learn more, our position about which possible worlds are accepted will change. We could say that something is necessary to us if it is the case in every possible world that there is *now*, but this makes the idea of possible necessity pointless. If we know something is the case in every possible world that we accept now then we know that it is necessary and we have no need to describe it as possibly necessary: there is no uncertainty. We could claim that we do not know if something is the case in all the possible worlds that we accept, but if we accept logically inconsistent worlds then I have already shown that this claim of not knowing is equivalent to accepting possible worlds in which it is not the case, making such a claim inconsistent. We could

claim that something is possibly necessary if we may find out later that it is necessary, but this means that it becomes necessary when we find out more and reduce our set of possible worlds. When the set of possible worlds is reduced enough there is only one possible world and anything that is the case in that world is necessarily the case (and if the set of possible worlds is reduced to some lesser degree then it is arbitrary). By this standard, *any* possibility premise would be claiming possible necessity.

Discussion of necessity and possible necessity, therefore, is incoherent or trivial when viewing possibility as uncertainty.

We should not expect a philosophical argument based on premises of possible necessity to work with possibility based on uncertainty. Something is necessary if it is the case in all possible worlds, but the set of possible worlds, and therefore the requirement for necessity itself changes as the argument progresses and generates information. The requirements for necessity, and therefore the definition of the necessary proposition or entity itself, therefore change as the argument progresses.

Ultimately, philosophical arguments based on possible necessity like this are incoherent anyway, when possibility is viewed as uncertainty, because they use a concept of "necessity" which relates to an arbitrary set of possible worlds.

Does the exile rule preclude mathematical truth?

Some readers may object to the exile rule on the basis that it may seem to preclude mathematical truth. Such an objection may suggest that mathematical truths, as they are logically required, cannot be regarded as possibly true as they must clearly be necessarily true.

The problem with this objection is that it ignores the fact that the exile rule only becomes applicable in the first place when we accept logically inconsistent worlds, and logically inconsistent worlds can have different mathematics. This means there is no reason why mathematical truths should be necessarily true and the exile rule should not affect them.

Having logically inconsistent worlds actually makes it difficult for *anything* to be necessarily true: this even applies to any validity that we think the idea of logically inconsistent possible worlds itself may have. We could therefore consider the exile rule as telling us something that is an obvious implication of having logically inconsistent possible worlds.

Implications for Plantinga's Modal Ontological Argument

It will probably be clear what the implications of what I have said so far are for the modal ontological argument. Here they are:

Plantinga's modal ontological argument is refuted.

Plantinga's modal ontological argument relies on Axiom S5 in modal logic. As Axiom S5 is invalid (or so trivial or incoherent as to be useless) then Plantinga's argument is invalid. The reason for the argument being invalid depends on how you regard statements of logical possibility, the validity of

logically inconsistent possible worlds, the relevance and coherence of "informal" possibility and the justification for the possibility premise, as has previously been discussed.

The assumptions in the modal ontological argument are more useful for proving God's *non*-existence.

If we accept that Plantinga's modal argument is wrong, rather than incoherent, and that statements of logical possibility, and therefore statements about logically inconsistent worlds, are valid then the situation gets worse than a mere refutation. This is how:

According to the exile rule given previously:

Given an entity G which, according to its definition, if it exists, can only necessarily exist, if possibly G exists and possibly G does not exist, then G does not exist in the actual world.

Plantinga's argument clearly considers God to be such a necessarily existent entity. This seems to suggest that if we accept that statements of logical possibility, and therefore statements about logical inconsistent worlds, are valid, together with the following premises:

- God's definition requires God, if existent, to exist necessarily.
- Possibly God exists.
- Possibly God does not exist.

then God cannot exist in the actual world – meaning that *God does not exist*.

A consideration of Plantinga's modal ontological argument suggests a *disproof* of God's existence, rather than a proof. This does not mean that *I* am claiming a disproof of God. After all, I have not asserted the possibility premise of the argument. Nor have I defined God as a necessary being, but Plantinga has. While I am not claiming to have disproved God, I think Plantinga should perhaps accept some of the credit for such an accomplishment, should it be offered to him.

There is a situation in which the exile rule should not be considered valid. If possibility is viewed as corresponding to uncertainty, so that all possible worlds are candidates for the actual world, then the reasoning used to justify the exile rule fails because the validity of possibility premises is observer dependent rather then objectively true and therefore any arguments attempting to demonstrate the existence or non-existence of things from possibility premises are invalid as the premises on which they are based could change later. This does not help the modal ontological argument. The exile rule would only be relevant when logically inconsistent worlds have been accepted and this would make Axiom S5 and Anti-S5 no longer valid anyway. If we reject logically inconsistent worlds then the contradiction between Axiom S5 and Anti-S5, and the fact that any resolution of it will be arbitrary, would still destroy Plantinga's argument.

If we accept logically inconsistent worlds and take the view that possibility is based on uncertainty, although the reasoning behind the exile rule fails, Plantinga's definition of God has serious problems. Our consideration of the exile rule demonstrated the arbitrary nature of the set of possible worlds in such a view of uncertainty and this makes any necessity possessed by an entity

trivial (in the sense that everything is defined as necessary) or incoherent. Given that Plantinga appears to consider necessity an important feature of God this appears to make that part of God's definition dealing with necessity trivial or incoherent.

This is potentially devastating for the modal ontological argument. If we view possibility as corresponding to what is conceivable (or in some other way that makes possibility premises objectively true), and this is how possibility is generally viewed in modal logic, then the exile rule appears to demonstrate God's non-existence. If we view possibility as corresponding to uncertainty then, although the exile rule fails, that part of Plantinga's definition of God dealing with necessity is reduced to triviality or incoherence in the same way – and the modal ontological argument remains invalid anyway.

Plantinga admits that his premises are contentious, but the logic of the argument itself is considered by many people to be technically valid. While Plantinga himself says that he does not think that ontological arguments are the best way to demonstrate the existence of God, and he admits that the argument is unlikely to persuade a sceptic, he does suggest that his argument at least makes the idea of God's existence *rational*. I disagree. Plantinga's modal ontological argument does not merely have contentious premises: the whole argument is deeply flawed. At worst, if we think that God should exist necessarily, or that this concept may have significance with regard to God, then we should take the exile rule into account and regard this whole mess as making the God concept less rational and *reducing* the probability of God's existence. This is not the ideal result of a proof of God.

Plantinga could reply by producing some technical objection to this argument. Of course, if I knew of any such objection I would have already considered it here. What else could Plantinga say to refute what looks like a disproof of God? Here are some ideas:

- Plantinga could argue that this is not a disproof of God because God does not have to be a necessary being. Such an answer should sound hollow at this stage. God as a necessary being seemed fine to Plantinga when it was considered helpful in *proving* his/her/its existence. Further, the idea of God as necessary was alleged to follow from other characteristics of God. Maybe the definition of God as a necessary being is flawed, but it would seem strange to take that position *now* when confronted by its use in a *disproof*.
- Plantinga could argue that, just because it may *seem* that possibly God exists and possibly God does not exist, this does not imply that God's non-existence is possible and that, according to the exile rule, the actual world can only be a world in which God does not exist. Instead, it could be argued, it may just *seem* to be such a world. God's non-existence may be impossible without our knowledge. This should also be unpersuasive. Regardless of the merits of arguing that, because something can be conceived, a possible world must correspond to it, this appears to be what was being suggested by the assertion of the possibility premise in Plantinga's own argument (Possibility is usually understood in these terms and if we understand it in terms of uncertainty the modal ontological argument remains invalid and the requirement that God is "necessary" becomes trivial or incoherent anyway).
- Plantinga could argue that the concept of logically inconsistent possible worlds is invalid. Short of finding some technical error in this article, this is probably the only answer he

could have. It does have more merit than the other answers because an issue like this would at least have some controversy. I will point out, however, that Plantinga's own introduction of "possibly necessary" entities which are incoherent when defined within a modal logic which does not allow logically inconsistent worlds seems to be inviting them. An alternative to logically inconsistent worlds could be to assert some idea of "informal" possibility outside modal logic, but if possibility can be understood outside modal logic we should ask what the point of modal logic and possible worlds is anyway. Furthermore, it could be argued that this is worse than admitting logically inconsistent possible worlds which at least tries to formalize all statements about possibility. Another alternative could be to reject logically inconsistent worlds and informal possibility and simply accept that it is incoherent to state the possible existence of a necessary entity. In the absence of any knowledge of the certain existence of a necessary entity, this in itself would seem to suggest that God, as defined by Plantinga, cannot exist (or at least there cannot be the possibility of his existence, which admittedly some advocates of the modal ontological argument will say is a different thing). Even if these alternatives were used to defeat the exile rule, the modal ontological argument would remain invalid.

It is interesting to think about how, if the actual world happened to be one of the possible worlds in which God exists (assuming we accept such a possibility), things would be different so that the exile rule would be invalid. What experience would we have that would lead us not to assert the exile rule? The exile rule comes from an assertion of the possibility of God's non-existence. Therefore, in such a world, the non-existence of God should be inconceivable. If God's non-existence is conceivable then, according to the exile rule (assuming our view of possibility allows us to apply it) our world cannot be one of the possible worlds in which God exists.

Conclusion

This article has shown that Plantinga's modal ontological argument is invalid and does not prove the existence of God.

The argument fails in its reliance on Axiom S5 of modal logic because, depending on the view of possibility which is taken, Axiom S5 is incorrect, incoherent or trivial.

The defect in the modal ontological argument is easily shown by using similar assumptions to derive *Anti-S5* – an opposing rule to Axiom S5. Anti-S5 requires a necessarily existing entity that possibly does not exist to be non-existent in all possible worlds. Anti-S5 and Axiom S5 cause a contradiction.

The obvious ways of resolving this contradiction are as follows:

- We can arbitrarily assert the possibility of God's existence and not the possibility of God's non-existence *for no reason at all*, giving a trivial proof based on an unjustified possibility premise. It also includes the "hidden" premise that God does not exist – as if this possibility premise were true it would contradict the rest of the argument. This makes the rest of the argument redundant anyway.

- We can accept logically inconsistent possible worlds, allowing our argument here, in the actual world, to remain consistent, but meaning that Axiom S5, Anti-S5 and Plantinga's modal ontological argument are no longer valid. God can exist necessarily and necessarily does not exist in different possible worlds. In a world in which God exists necessarily then God exists in all possible worlds and in a world in which God necessarily does not exist then there can be possible worlds in which God exists and possible worlds in which God does not exist: consistency between possible worlds about the existence of possible worlds is abandoned.
- We can reject both logically inconsistent possible worlds and informal possibility, but this means we must declare any discussion of possibilities which refer to logically inconsistent possible worlds as invalid. As the possible truth of a necessarily true proposition or the possible existence of a necessarily existing entity are clearly such possibilities (from the derivation of Anti-S5) then both are invalid. The possibility premise stated in Plantinga's modal ontological argument would now be incoherent, as would Axiom S5 which is used by it.
- We can reject logically inconsistent worlds while accepting some "informal" idea of possibility outside modal logic, allowing issues of possibility regarding attributes of the entire set of possible worlds, which cause contradiction if expressed in modal logic, to be described outside modal logic. This removes the need for the existence of a possible world to follow from the possibility premise as it is now outside the scope of modal logic.
- We can reject logically inconsistent worlds and "informal" possibility outside modal logic, instead asserting that any possibility premises, when asserted, are asserted due to being logically required by "something else" apart from lack of knowledge or the conceivability of things, allowing assertion of the possibility of God's existence, but not the possibility of God's non-existence. The modal ontological argument as it stands lacks any such justification for its assertion of the possibility of God and its failure to assert the possibility of God's non-existence. It is also difficult to imagine how such a justification could be added to the argument as the argument is clearly intended to relate to our concept of "possibility".

None of these rescue Plantinga's argument.

It is worse than this, however. If we accept the idea of logical possibility and logically inconsistent worlds (and the modal ontological argument seems to push us in this direction anyway) then we can derive a rule called the *exile rule*, which in the form relating to the non-existence of an entity is as follows:

Given an entity G which, according to its definition, if it exists, exists necessarily, if possibly G exists and possibly G does not exist, then G does not exist in the actual world.

This means that, if we regard necessity as being part of God's definition, and regard it as possible that God exists and possible that God does not exist, then we can actually say that God does not exist in the actual world. There is an exception to this: if we view possibility in terms of uncertainty (and viewing it in terms of what is conceivable is more common in modal logic) then the justification for the exile rule is invalid, but this does not help the modal ontological argument and that part of God's definition dealing with necessity appears to become trivial or incoherent.

I am not proposing this as an absolute disproof of God, but it does seem to be suggested by Plantinga's assumptions. It should therefore be considered as seriously weakening any claim that the modal argument increases the rationality of the God concept.

Some people refer to the modal ontological argument as the "victorious" ontological argument, due to their perception that it at least makes the concept of God rational. It should be called the *Kamikaze* ontological argument, because it appears to go down in flames and gets precariously close to taking the concept of God with it.

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