The Modal Third Way

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Introduction

The Third Way is a cosmological argument for the existence of God which Aquinas says "is taken from possibility and necessity." It is surprising therefore that philosophers of religion have not shown much interest in applying modal logic to its analysis.[1] There are a couple of reasons. First, Aquinas does not always use the words 'possibility' and 'necessity' in the same way that they are used in modal logic. Second, cosmological arguments generally purport to build a bridge between some property of *this* world and a supreme being, making it unnecessary, it might be thought, to appeal to modalized features of *other* possible worlds.

Modal logic has of course been applied extensively to the analysis of ontological arguments. Ontological arguments purport to build a logical bridge between thought and a supreme being. Most ontological arguments proceed from the assumption that it is possible for God to exist. They then link this assumption with some rather 'strong' and controversial principles of modal logic in order to prove that God must exist in all possible worlds, from which it follows that God exists in the real world.[2] It might be possible, however, to prove the existence of God with the use of a weak and noncontroversial system of modal logic, and without having to subscribe to the idea that God exists in all possible worlds, if we root the proof with some plausible possibilistic principles about what might be true of the cosmos.

The Third Way is not valid per se. It also has some false premises. But it is forceful and insightful. Accordingly, I intend to do four things in this paper. First, I shall furnish a line by line commentary on the strengths and weaknesses of the Third Way itself. This commentary will lead us to the formulation of a new argument for the existence of God, the Modal Third Way, which is based on possibilistic transformations of some of the questionable ideas and inferences of Aquinas' original Third Way. Secondly, I shall demonstrate formally and informally that the Modal Third Way is valid argument. The formal demonstration will consist of a deduction in a first order modal logic which is based on the weak and metaphysically innocuous T-

system of modal logic of Robert Feys.[3] Thirdly, I shall attempt to show that the premises of the Modal Third Way are true, and thus that the argument is sound. Finally, I shall show that the Modal Third Way is immune to the criticisms of Hume and Kant against cosmological arguments for the existence of God.

Aquinas' Third Way

Aquinas states the Third Way as follows:

> The third way is taken from possibility and necessity and runs thus. We find in nature things that are possible to be and not possible to be, since they are found to be generated and corrupted. But it is impossible for these always to exist, for that which can not-be at some time is not. Therefore, if everything can not-be, then at one time there was nothing in existence. Now if this were true then even now there would be nothing in existence, because that which does not exist begins to exist only through something already existing. Therefore if at one time nothing was in existence, it would have been impossible for anything to have begun to exist; and thus now nothing would be in existence – which is absurd. Therefore, not all beings are merely possible, but there must exist something the existence of which is necessary. But every necessary thing has its necessity caused by another, or not. Now it is impossible to go on to infinity in necessary things which have their necessity caused by another, as has already been proved in regard to efficient causes. Therefore, we cannot but admit the existence of some being having of itself its own necessity, and not receiving it from another, but rather causing in others their necessity. This all men speak of as God.[4]

1. *The third way is taken from possibility and necessity and runs thus*. While it is clear that the words 'possibility' and 'necessity' signal that the Third Way is a modal argument, the modal features of this argument are frequently ignored in many discussions of it. One reason for this omission might be due to the glaring nonmodal invalidity of the argument. Another might be that Aquinas' use of 'possibility' and 'necessity' is not always identical with the twentieth century alethic use of modalities. Following Aristotle, Aquinas sometimes uses 'possible' to mean what we mean by 'contingent' and, as I shall explain below, he sometimes uses 'necessary' to mean 'neither generatable nor corruptible.'[5]

2. *We find in nature things that are possible to be and not possible to be, since they are found to be generate and corrupted*. The Third Way

appears to have an empirical component which would distinguish if form all ontological and purely a priori arguments. We observe that some things are generated, and thus come into existence; and also observe that some things are corrupted, and thus go out of existence. Consequently, we know that some things in nature are contingent, in the sense that it is possible for them to exist, because we observe them, and also possible for them not to exist, because we observe that they either pass into existence via generation or pass out of existence via corruption. It turns out, however, that these observations of the natural world are not really essential to the logic of the Third Way, save in the trivial sense that observation might be required for the purpose of justifiably believing that something presently exists. Modality, not experience, is what gives promise to the Third Way.

3. *But it is impossible for these always to exists, for that which can not-be at some time is not.* Aquinas could be saying one of two things here. He could be saying (i).

 (i) Necessarily, anything which can-not-be-at-some-time at some time is not:
   $\Box(x)(\Diamond(\exists t)\sim Rxt \supset (\exists t)\sim Rxt)$,

where 'Rxt' means 'x is realized at time t.'

   Or he could be saying (ii).

(ii) Anything which can-not-be-at-some-time, necessarily fails to exist at some time: $(x)(\Diamond(\exists t)\sim Rxt \supset \Box(\exists t)\sim Rxt)$.

(i) is false. It is true of course that things which are either generated or corrupted are things which can-not-be-at-some-time, simply because they do in fact fail to exist at some time. Things which are generated begin to exist at some time, and things which are corrupted cease to exist at some. Yet it fails to follow from this that things which can-not-be-at-some-time are things which in fact fail to exist at some time. They might fail to exist at some time in some possible world but always exist in the actual world. Matter-energy, for example, might in fact be eternal in the actual world, but either begin or cease to exist in some possible world.

   The case against (i) is really just a case against (i) sans the necessity operator. But (i) sans the necessity operator is entailed by (ii). So the reason against (i) is a reason against (ii). Since (i) is false per the last paragraph, (ii) is false as well.

   Despite these mistakes, Aquinas' reasoning in this phase of the argument is significant, for it strongly suggests that we replace the alethic concept of contingency with the new idea of *temporal contingency*, where something is temporally contingent if and only if it is possible to generate it or possible to corrupt it. Clearly it is true then that temporally contingent things possibly do not exist at some time: $(x) (Cx \supset \Diamond(\exists t)\sim Rxt)$, where 'Cx' means 'x is

temporally contingent'. And this truth will figure prominently in the Modal Third Way.

4. *Therefore, if everything can not-be, then at one time there was nothing in existence*. Aquinas appears initially to argue correctly that if, by reductio, *everything* were contingent, and could therefore be either generated or corrupted, like the things we observe in nature, and if everything which could be either generated or corrupted must fail to exist at some time (howsoever fallacious his inference thereunto), then everything must fail to exist at some time or other. But then he appears to commit one or both of two fallacies. He appears first to commit a fallacy of relational logic, that of assuming that if everything fails to exist at some time or other, then at some time everything fails to exist – a time when nothing existed. This would be like arguing that if everyone has a mother [true], then someone is the mother of everyone [false].

The second fallacy is the formal fallacy of inferring that one of the disjuncts of a disjunction follows from the disjunction alone. For even if there is a time when nothing exists, it need not be the case that there *was* a time when nothing existed. The contingents of nature might always have existed only to die out sometime in the future. Similarly, that something is either possibly generated or possibly corrupted does not entail that there *was* a time in some possible world where if failed to exist.

Inasmuch as relational logic was not explicitly developed until the late 19th century, it is not surprising that Aquinas would have committed the aforementioned fallacy of relational logic, especially if medieval latin failed to express the relevant distinction of the placement of quantifiers. It is a tad more surprising that he committed the disjunction fallacy. But fallacies and falsities notwithstanding, what Aquinas says here is fertile, for it suggests a weak modal truth that proves useful in demonstrating the existence of God, to wit: if everything *possibly* fails to exist at some time, then *possibly* there *was* a time when nothing existed: $(x)\Diamond(\exists t)\sim Rxt \supset \Diamond(\exists t)(x)\sim Pxt$, where 'Pxt' means 'x was realized at past time t.'

5. *Now if this were true then even now there would be nothing in existence, because that which does not exist begins to exist only through something already existing*. This implies that there must be a reason or cause for why things begin to exist. It is far from obvious that this is true, however; and it might be the case that some things just pop into existence for no good reason, as it were. But even those things which might have begun to exist unexplained *might* have had their beginning explained. Their beginning is *explicable* even if it is actually unexplained. Indeed, it is well-nigh absurd

to claim that some things are inexplicable, and that there does not exist at least one possible world where something (anything consistent) is explained, even if it is not explained in the actual world.[6] It must be the case that every possible predication is explicable: $\square(x)(\lozenge\Phi x \supset \lozenge(\exists y)(\Phi x \ \& \ Eyx))$, where '$\Phi$' is a place holder for any predicate whatsoever and 'Exy' means 'x explains'.[7] Once again, Aquinas was virtually correct, and for almost the right reasons.

6. *Therefore if at one time nothing was in existence, it would have been impossible for anything to have begun to exist; and thus now nothing would be in existence – which is absurd.* It is empirically absurd to claim that nothing presently exists. And if everything that begins to exist has an explanation, then the [possible] explanations for the existence of the generated things which we presently observe in nature will have to involve the agency of something which already exists and continues to exist at least until the time when what it explains begins to exist. In other words, in order to be able to explain the existence of something which begins to exist at time t through the agency of another, that other must exist before t and continue to exist at least until t. So if there were a time when nothing existed, there would be no agency at that time which could explain the existence of anything at any later moment.

It is difficult to know whether or not there is a reason or cause for why there is something rather than nothing. But whether there is or there is not such a cause, it still seems plausible to assume with Aquinas that explanations presuppose that there was not a time when nothing existed. Analogously, it is plausible to assume that it must the case that if something can be explained, then there was not a time when nothing existed: $\square[(\exists x)\lozenge(\exists y)Eyx \supset \sim(\exists t)(x)\sim Pxt]$.[8]

7. *Therefore, not all beings are merely possible, but there must exist something the existence of which is necessary.* It is now clear that in this sentence Aquinas is using the word 'possible' to mean 'temporally contingent' and the word 'necessary' to mean 'not temporally contingent' or what we will call 'temporally necessary.'[9] By definition, something is temporally necessary, then, just in case it is neither possible *in the modern modal sense* to generate it nor possible *in the modern modal sense* to corrupt it. A temporally necessary being is one therefore that neither begins nor ceases to exist in any possible world. Temporally necessary beings need not exist in all possible worlds, however.[10] Rather, they exist eternally in every possible world where they do exist. So let 'Tx' be short for 'x is temporally necessary'. The first thing that Aquinas attempts to show by the Third Way, using a reductio ad absurdum argument, is that there exists at

least one (temporally) necessary being: $(\exists x)Tx$.[11] Although the Third Way is not sound, it can be soundly transformed into an argument which does prove that a temporally necessary being exists, the Modal Third Way.

8. *But every necessary thing has its necessity caused by another, or not*. This statement is logically true if taken only at face value. It is clear, however, that Aquinas is implicitly assuming here that every thing, event and condition is caused. The Third Way requires a connection between (temporal) necessity and God, and causality is the proffered connection. Yet modern physics leads us to question whether universal causality holds of the actual world. Even so, it seems quite reasonable to assume that it holds of some possible world; and that whatever is uncaused in the actual world is caused in some possible world. Accordingly, we might try to replace Aquinas' Third Way dependency on actual causality with a similar dependency on possible causality, or on the related idea of explicability.[12] Given that God is the kind of being who is supposed to be unlimited and not dependent on anything, a modest first step in the direction forging a connection between temporal necessity and God would be to assume that things which are temporally necessary are possible unlimited: $(x)(Tx \supset \Diamond Wx)$, where 'Wx' means 'x is unlimited.' Then we might work on establishing a linkage between unlimitedness and explicability.

9. *Now it is impossible to go on to infinity in necessary things which have their necessity caused by another, as has already been proved in regard to efficient causes*. Aquinas' rejection of an infinity of causes (in the Second Way) begs the question. He notes that there is no first cause if there is a infinity of efficient causes. And then he argues that since the effect has occurred, and that there could not be an efficient cause without there being a first cause, which causes the intermediate cause, the ultimate cause, and the effect in turn, there must be a first efficient cause and, thus, no infinity of causes. The question begging occurs with the assumption that there must be a first cause of every effect. That could be not established without rejecting an infinity of causes.

   A better case might be made for a *possible* first cause. We could then link the idea of a possible first cause with the idea that in no possible world could a first cause which is unlimited be cause by anything else. In related words, we might say that the unlimited cannot be explained by anything else: $\sim \Diamond(\exists x)(\exists y)(Wx \,\&\, Eyx \,\&\, y \neq x)$.

10. *Therefore, we cannot but admit the existence of some being having of itself its own necessity, and not receiving it from another, but rather causing*

in others their necessity. If, as Aquinas argues, there is a first cause, and everything has a cause, then the first cause must be self-caused.[13] Conversely, if it is possible for something to cause itself, or "its own necessity," then such a being must be unlimited, "causing in others their necessity." That is, if something possible has within itself a reason for its own existence then it is unlimited: $(x)(\Diamond Exx \supset Wx)$. Transpositionally, a limited being cannot possible explain itself: $(x)(\sim Wx \supset \sim \Diamond Exx)$.

11. *This all men speak of as God.* If the uncaused cause of its own necessity must of necessity be unlimited, then, Aquinas concludes, it must be a supreme being; for that is part of what we mean by supremity. Moreover, since there can only be one supreme being, God must exist.

There are two critical thoughts here. The first is that whatever is unlimited is supreme: $(y)(Wy \supset Sy)$, where 'Sx' means 'x is supreme.' The other is that there is at most one supreme being, God. Aquinas never attempts to prove in any of the five ways that there is at most one supreme being, and that this is why the supreme being of his Third Way is what *all men speak of as God*. It makes sense to assume, however, that Aquinas and other scholastics would have conceived of a supreme being as a being who necessarily possesses every possible perfection, as a being than which none greater is possible.[14] Accordingly, if 'Sx' is equivalent to '$\sim \Diamond(\exists y)Gyx$ & $\sim\Diamond(\exists y)(x \neq y$ & $\sim Gxy)$' and 'Gxy' means 'x is greater than y', we will be able to prove the uniqueness of supremity: $\Box(x)(y)((Sx$ & $Sy) \supset x = y)$. The identification of God with the temporally necessary supreme being of the Model Third Way will then make all the more sense.

The Modal Third Way Argument

We can now state the entire The Modal Third Way argument succinctly as follows:

Premise 1. Every temporally contingent being possibly fails to exist at some time: $(x)(Cx \supset \Diamond(\exists t)\sim Rxt)$

Premise 2. If all things possibly fail to exist at some time then it is possible that all things fail to exist at some past time: $(x)\Diamond(\exists t)\sim Rxt \supset \Diamond(\exists t)(x)\sim Pxt$.

Premise 3. It is necessarily the case that possible truths are explicable: $\Box(x)(\Diamond\Theta x \supset \Diamond(\exists y)(\Theta x$ & $Eyx))$.

Premise 4. It is necessarily the case that something is explicable only if there was not a time when nothing existed: $\Box[(\exists x)\Diamond(\exists y)Eyx \supset \sim(\exists t)(x)\sim Pxt]$.

Premise 5.   Whatever is temporally necessary might be unlimited: $(x)(Tx \supset \Diamond Wx)$.

Premise 6.   Whatever might explain itself is unlimited: $(x)(\Diamond Exx \supset Wx)$.

Premise 7.   Nothing which is unlimited can be explained by anything else: $\sim \Diamond(\exists x)(\exists y)(Wx \ \& \ Eyx \ \& \ y \neq x)$.

Premise 8.   Everything which is unlimited is supreme: $(x)(Wx \supset Sx)$.

Premise 9.   Something is temporally necessary if and only if it is not temporally contingent: $(x)(Tx \equiv \sim Cx)$.

THEREFORE, there exists a supreme being: $(\exists x)Sx$.

Validity

The Modal Third Way can be demonstrated to be valid by either an informal chain of inferences or by means of a formal deduction.[15] Both use the reductio ad absurdums. First the informal chain.

Assume for the reductio that (1): A temporally necessary being does not exists. This is equivalent by Premise 9 to saying that (2): Everything is temporally is contingent. (2) and Premise 1 entail that (3): Everything possibly fails to exist at some time. And (3) implies with Premise 2 that (4): It is possible that there was a time when nothing existed. On the other hand, since it is necessarily the case that something is possibly true, it follows by Premise 3 that (5): It is necessarily the case that something is explicable. Yet (5) and Premise 4 imply that (6): It is necessarily the case that there was not a time when nothing existed. Since (6) contradicts (4) a temporally necessary being exists. Call this being 'G'.

Now from it follows Premise 5 and the existence of G that (7): Possibly G is unlimited. Premise 3 then implies that if G were possibly unlimited, its unlimitedness would be explicable, that is, that (8): If possibly G is unlimited, then possibly something explains it. (7) and (8) imply (9): It is possible that something explains the unlimitedness of G.

Assume for another reductio that (12): G is not supreme. From (12) and Premise 8 we have (13): G is not unlimited. And from (13) and Premise 6 we get (14): It is not possible for G to explain itself. Yet Premise 7 implies (15): If it is not possible for G to explain itself, then it is not possible for G to explain the unlimitedness of G. This is because nothing else can explain the unlimitedness of an unlimited being, and anything which explains its own unlimitedness must also explain itself.[16] (14) and (15) imply (16): It is not possible for G to explain the unlimitedness of G. But Premise 7 also entails (17): It is not possible for anything other than G to explain the unlimitness of

G. And (16) and (17) together imply (18): It is not possible that something explains the unlimitedness of G. Since (18) contradicts (9) we must conclude that the reductio assumption (12) is false, and thus that G is supreme.

For the formal demonstration of the validity of the Modal Third Way I shall use a natural deduction system of modal logic which consists of a first order base logic together with the following modal inference rules:

For every substitution instance of 'ϕ' and 'Ψ'
NE (necessity elimination) $\Box\phi/\phi$
MMP (modal modus ponens) $\Box(\phi \supset \Psi), \Box\phi/\Box\Psi$
NI (necessity introduction) If 'ϕ' is a theorem then '$\Box\phi$' is a theorem
ME (modal equivalence) '$\Diamond\phi$' for '$\sim \Box \sim \phi$' and '$\Box\phi$' for '$\sim \Diamond \sim \phi$'

I shall call this modal logic 'QT'. The base logic I use consists of the truth functional, quantificational, and identity rules of inference of Gustason's and Ulrich's *Elementary Symbolic Logic* plus the derived rule of Indirect Proof, although any first order base logic will suffice. I call the base logic 'Q'.[17]

	The deduction	
1.	(x)Cx ⊃ ◊(∃t)∼Rxt)	Premise
2.	(x)◊(∃t)∼Rxt ⊃ ◊(∃t) (x)∼Pxt	Premise
3.	□(x)(◊Θx ⊃ ◊(∃y)(Θx & Eyx))	Premise
4.	□[(∃x)◊(∃y)∃yx ⊃ ∼(∃t)(x)∼Pxt]	Premise
5.	(x)(Tx ⊃ ◊Wx)	Premise
6.	(x)(◊Exx ⊃ Wx)	Premise
7.	∼ ◊(∃x)(∃y)(Wx & Eyx & y ≠ x)	Premise
8.	(x)(Wx ⊃ Sx)	Premise
9.	(x)(Tx ≡ ∼Cx)	Premise
→ 10.	(x)Cx	AIP
11.	(x)(Cx ⊃ ◊(∃t)∼Rxt) ⊃ [(x)Cx ⊃ (x)◊(∃t)∼Rxt]	Q Theorem
12.	(x)Cx ⊃ (x)◊(∃t)∼Rxt	1, 11 MP
13.	(x)◊(∃t)∼Rxt	10, 12 MP
14.	(x)(◊Θx ⊃ ◊(∃y)(Θx & Eyx)) ⊃ ((∃x)(◊Θx ⊃ (∃x)◊(∃y)(Θx & Eyx))	Q Theorem
15.	□{(x)(◊Θx ⊃ ◊(∃y)(Θx & Eyx)) ⊃ ((∃x)◊Θx ⊃ (∃x)◊(∃y)(Θx & Eyx))}	14, Nl
16.	□((∃x)◊Θx ⊃ (∃x)◊(∃y)(Θx & Eyx))	3, 15 MMP
17.	□((∃x)◊ℨx ⊃ (∃x)◊(∃y)(ℨx & Eyx))	sub.inst. 16, ℨ a tautology
18.	□((∃x)◊ℨx ⊃ (∃x)◊(∃y)(ℨx & Eyx)) ⊃ □(∃x)◊(∃y)Eyx	QT Theorem
19.	□(∃x)◊(∃y)Eyx	17, 18 MP
20.	□ ∼(∃t)(x)∼Pxt	4, 19 MMP
21.	∼ ◊(∃t)(x)∼Pxt	20, ME
22.	◊(∃t)(x)∼Pxt	2, 13 MP

The deduction

23.	$\sim$(x)Cx	I P
24.	[(x)(Tx $\equiv$ $\sim$Cx) & $\sim$(x)Cx] $\supset$ ($\exists$x)Tx	Q Theorem
25.	(x)(Tx $\equiv$ $\sim$Cx) & $\sim$(x)Cx	9, 23 Conj.
26.	($\exists$x)Tx	24, 25 MP
27.	$\sim$($\exists$x)Sx	AIP
28.	(x)$\sim$Sx	27 QN
29.	Tv	26 EI
30.	$\sim$Sv	28, UI
31.	$\Diamond$Evv $\supset$ Wv	6, UI
32.	Wv $\supset$ Sv	8, UI
33.	$\sim$Wv	30, 32 MT
34.	$\sim \Diamond$Evv	31, 33 MT
35.	$\sim$Evv $\supset$ $\sim$($\exists$y)(Wv & Eyv & y = v)	Q Theorem
36.	$\Box$[$\sim$Evv $\supset$ $\sim$($\exists$y)(Wv & Eyv & y = v)]	35 NI
37.	$\Box$ $\sim$Evv	34 ME
38.	$\Box$ $\sim$($\exists$y)(Wv & Eyv & y = v)	36, 37 MMP
39.	$\Box$ $\sim$($\exists$x)($\exists$y)(Wx & Eyx & y $\neq$ x)	7 ME
40.	$\sim$($\exists$x)($\exists$y)(Wx & Eyx & y $\neq$ x) $\supset$ $\sim$($\exists$y)(Wv & Eyv & y $\neq$ v)	Q Theorem
41.	$\Box$[$\sim$($\exists$x)($\exists$y)(Wx & Eyx & y $\neq$ x) $\supset$ $\sim$($\exists$y)(Wv & Eyv & y $\neq$ v)]	40 NI
42.	$\Box$ $\sim$($\exists$y)(Wv & Eyv & y $\neq$ v)	39, 41 MMP
43.	[$\sim$($\exists$y)(Wv & Eyv & y = v) & $\sim$($\exists$y)(Wv & Eyv & y $\neq$ v)] $\supset$ $\sim$($\exists$y)(Wv & Eyv)	Q Theorem
44.	$\Box$ $\sim$($\exists$y)(Wv & Eyv & y = v) & $\Box$ $\sim$($\exists$y)(Wv & Eyv & y $\neq$ v)	38, 42 Conj.
45.	[$\Box$ $\sim$($\exists$y)(Wv & Eyv & y = v) & $\Box$ $\sim$($\exists$y)(Wv & Eyv & y $\neq$ v)] $\supset$ $\Box$[$\sim$($\exists$y)(Wv & Eyv & y = v) & $\sim$($\exists$y)(Wv & Eyv & y $\neq$ v)]	QT Theorem
46.	$\Box$[$\sim$($\exists$y)(Wv & Eyv & y = v) & $\sim$($\exists$y)(Wv & Eyv & y $\neq$ v)]	44, 45 MP
47.	$\Box${[$\sim$($\exists$y)(Wv & Eyv & y = v) & $\sim$($\exists$y)(Wv & Eyv & y $\neq$ v)] $\supset$ $\sim$($\exists$y)(Wv & Eyv)}	43 NI
48.	$\Box$ $\sim$($\exists$y)(Wv & Eyv)	46, 47 MMP
49.	$\sim \Diamond$($\exists$y)(Wv & Eyv)	48 ME
50.	$\Box$(x)($\Diamond$Wx $\supset$ $\Diamond$($\exists$y)(Wx & Eyx))	sub. inst. 3
51.	(x)($\Diamond$Wx $\supset$ $\Diamond$($\exists$y)(Wx & Eyx))	50 NE
52.	$\Diamond$Wv $\supset$ $\Diamond$($\exists$y)(Wv & Eyv)	51 UI
53.	Tv $\supset$ $\Diamond$Wv	5, UI
54.	$\Diamond$Wv	53, 29 MP
55.	$\Diamond$($\exists$y)(Wv & Eyv)	52, 54 MP
56.	$\Diamond$($\exists$y)(Wv & Eyv) & $\sim \Diamond$($\exists$y)(Wv & Eyv)	55, 49 Conj
57.	($\exists$x)Sx	IP

$\Box$

As suggested above, we can prove the uniqueness of supremity by forging the equivalence of the idea of *supremity* with the idea of *that than which none greater is possible*. So let 'Sx' be short for '$\sim \Diamond$($\exists$y)Gyx & $\sim \Diamond$($\exists$y)(x $\neq$ y & $\sim$Gxy)'.[18] We need to prove that '$\Box$(x)(y)((Sx & Sy) $\supset$ x = y)' is

true, or equivalently, '$\Box(x)(z)\{[(\sim \Diamond(\exists y)Gyx\ \&\ \sim \Diamond(\exists y)(x \neq y\ \&\ \sim Gxy))\ \&$
$(\sim \Diamond(\exists y)Gyz\ \&\ \sim \Diamond(\exists y)(z \neq y\ \&\ \sim Gzy))] \supset x = z\}$ is true'.

Uniqueness proof		
1.	$[(\sim \Diamond(\exists y)Gyu\ \&\ (\sim \Diamond(\exists y)(u \neq y\ \&\ \sim Guy))\ \&\ (\sim \Diamond(\exists y)$ $Gyv\ \&\ (\sim \Diamond(\exists y)(v \neq y\ \&\ \sim Gvy))]$	Assumption
2.	$\sim \Diamond(\exists y)Gyv$	1, simp, com.
3.	$\Box \sim \Diamond(\exists y)Gyv$	2, ME
4.	$\sim(\exists y)Gyv$	3, NE
5.	$(y)\sim Gyv$	4, QN
6.	$\sim Guv$	5, UI
7.	$\sim \Diamond(\exists y)(u \neq y\ \&\ \sim Guy)$	1, com. simp.
8.	$\Box \sim(\exists y)(u \neq y\ \&\ \sim Guy)$	7, ME
9.	$\sim(\exists y)(u \neq y\ \&\ \sim Guy)$	8, NE
10.	$(y)\sim(u \neq y\ \&\ \sim Guy)$	9, QN
11.	$\sim(u \neq v\ \&\ \sim Guv)$	10, UI
12.	$(\sim u \neq v \lor \sim\sim Guv)$	11, DeM
13.	$(u = v \lor Guv)$	12, DN
14.	$u = v$	6, 13, com, DS
15.	$[(\sim \Diamond(\exists y)Gyu\ \&\ \sim \Diamond(\exists y)(u \neq y\ \&\ \sim Guy))\ \&\ (\sim \Diamond(\exists y)Gyv$ $\&\ \sim \Diamond(\exists y)(v \neq y\ \&\ \sim Gvy))] \supset u = v$	CP
16.	$(x)(z)\{[(\sim \Diamond(\exists y)Gyx\ \&\ \sim \Diamond(\exists y)(x \neq y\ \&\ \sim Gxy))\ \&$ $(\sim \Diamond(\exists y)Gyz\ \&\ \sim \Diamond(\exists y)(z \neq y\ \&\ \sim Gzy))] \supset x = z\}$	15, UG twice
17.	$\Box(x)(z)\{[(\sim \Diamond(\exists y)Gyx\ \&\ \sim \Diamond(\exists y)(x \neq y\ \&\ \sim Guy))\ \&$ $\sim \Diamond(\exists y)Gyz\ \&\ \sim \Diamond(\exists y)(z \neq y\ \&\ \sim Gzy))] \supset x = z\}$	Theoremhood of 16, NI

This proof shows that '$\Box(x)(y)((Sx\ \&\ Sy) \supset x = y)$' is true because it is a logically true theorem of QT.[19]

Soundness

An argument is only as good as its premises are true. Most, perhaps all, of the premises of the Modal Third Way have the feel of being self-evidently true, and therefore not in need of further justification. We should be leery, however, of any claims to self-evidence in philosophy, since they often result from narrowness of mind or lack of imagination. This does not preclude analysis as a mode of philosophical justification, however. Indeed, all of the premises of the Modal Third Way are either analytically true or metaphysically weak modal principles of possibility which are knowable by the natural light of reason.

What reasons might we have for saying that something is possible? Consistency might suffice. Not that possibility means exactly the same thing as consistency. Rather, consistency provides a good reason for believing that something is possible, in the absence of any plausible reasons for believing

that it is impossible. It will therefore be rational to believe '(p ⊃ ◊q)' if we can show or have reason to believe that 'q' is consistent with 'p'. And we will have reason to believe that 'q' is consistent with 'p' if we do not have reason to believe that 'q' is inconsistent with 'p'.[20] I refer to this as the *consistency criterion of possibility*.

The consistency criterion of possibility makes it rational to believe that Premise 1 true, since there is no reason to believe that failing to exist at some time is inconsistent with being temporally contingent. Indeed, the very idea of possibly being either generated or corrupted is built into the very idea of being temporally contingent, making Premise 1 analytically true.

The consistency criterion of possibility also makes it rational to believe that Premise 2 is true, because we have no reason to believe that the idea of everything failing to exist at the same time in the past is inconsistent with the idea of everything failing to exist at some time or other; and if there is no reason to believe that everything failing to exist at the same time in the past is inconsistent with the idea of everything failing to exist at some time or other, then there can not be a reason to believe that everything failing to exist at the same time in the past is inconsistent with the idea of everything possibly failing to exist at some time or other.

Similarly, the consistency criterion of possibility makes it rational to believe that Premise 3 is true, because there is nothing prima facie inconsistent about the idea of explaining what is possibly true in some possible world, even if in fact what is possibly true happens not to have an explanation in the actual world. Nevertheless, both William Rowe and Graham Oppy have argued against close cousins of Premise 3, Rowe against James Ross' Principle of Hetero-Explicability, and Oppy against the idea that universe itself must be explicable. If either of their arguments pass muster, Premise 3 is in jeopardy by analogy; and so it behooves us to examine their arguments carefully.

Rowe begins by defining the idea of a positive, continent state of affairs. X is *a positive, contingent state of affairs* if and only if from the fact that X obtains it follows that at least one contingent being exists.[21] Rowe cites two examples of a positive, contingent state of affairs: (1) that there are elephants, and (2) that God knows that there are elephants.

He then assumes that there exists at least one positive, contingent state of affairs, say t. Now the Principle of Hetero-Explicability insures that every state of affairs *might* have an explanation. Rowe maintains, however, that no positive, contingent state of affairs *can* account for t, for that, he says, would be like arguing in a circle.

Rowe appears to believe correctly that it never makes sense to explain *why* there are any X's at all by simply saying that there are X's. Nor does it seem

reasonable, he says, to try to explain why there are *positive* states of affairs, those with existential import, by appealing to negative states of affairs, those without existential import. Rowe's intermediate conclusion, therefore, is that no contingent state of affairs can account for t. What about the possibility of accounting for t by appealing to a necessary state of affairs? Rowe's argues against this possibility on the grounds that if t were explained by a necessary state of affairs, t would have to be a necessary state of affairs itself, which, by definition, it is not. (This is akin to arguing that q is necessary if p entails q and p is necessary.) Rowe's final conclusion is that t cannot be explained.

COMMENT. Rowe's argument for the inexplicability of t is certainly valid. But I do not believed that it is sound. The first premise is false. Rowe says that no positive, contingent state of affairs *can* account for t. Yet his circularity worry merely rules out that any positive, contingent state of affairs *does* account for t, not that any can. This idea can be better explained in terms of possible worlds talk. Let α be the actual world. Assume with Rowe that there are positive, contingent states of affairs. This is the same as saying that t is a constituent of α. Now it is surely true that there is no positive, contingent state of affairs of α that explains t. But it is not necessarily true that there is no positive, contingent state of affairs of some *other* possible world β that explains t. Possible worlds talk requires us to anchor our ontologies to possible worlds, without assuming that each possible world has the same ontology. So to assume that *there are* positive, contingent states of affairs is to assume that positive contingent states of affairs are constitutive of α. And there is nothing circular about claiming that we can explain in some possible world β why there are positive, contingent states of affairs of α.

Rowe might counter this rejoinder by generalizing to across all possible worlds Accordingly, let t* say that in some possible world there are positive, contingent states of affairs. Perhaps t* is inexplicable. But if so, why? t* will be true if and only if there are positive, contingent, states of affair constitutive of some possible world γ. It is true, of course, that no positive, constitute state of affairs of γ does or even could explain why there are positive, contingent states of affairs constitutive of γ. But it does not follow that this fact of γ is not explained by some positive, contingent state of affairs of some *other* possible world.

Graham Oppy argues that there cannot be a possible explanation of the fact that the universe actually exists if in fact there is no explanation of the fact that the universe exists.

> If the actually world has no explanation, then it is necessarily the case that the actual world has no explanation – that is, this is a world-indexed fact about the actual world.[22]

Oppy's arguments pivots on the idea of a world-indexed fact. A world-indexed fact is one that ascribes a world referring property. For example the fact *that Socrates is snub-nosed in the actual world* ascribes the property of being snub-nosed in the actual world to Socrates. Similarly, the fact *that Hamlet is melancholic in the fictional world of Shakespeare's Hamlet* ascribes the property of being melancholic in the fictional world of Shakespeare's *Hamlet* to prince Hamlet. On the other hand, the fact *that the USA is north of the equator* is not world indexed because the property of being north of the equator does not refer to any world.

It is true of the actual world that the USA is north of the equator. There are possible worlds, of course, where the USA is *not* north of the equator. It is not *necessarily* true then that the USA is north of the equator. Now consider the property of being north of the equator in the actual world. It is a world-indexed property which is true as well of the USA. So the fact *that the USA is north of the equator in the actual world* is a world-indexed fact. Moreover, it is also a fact of every possible world ∂ (where the USA exists) *that the USA is north of the equator in the actual world*. In other words, it is necessarily the case that the USA has the property of being north of the equator in the actual world (true in every possible world where the USA exists.) So there is a profound difference between saying that it is necessarily the case that the USA is north of the equator, and saying that the USA is north of the equator in the actual world. The former is false, the latter true.

Compare this analysis with what Oppy says about explanations. Oppy says that it is necessarily the case that the actual world has no explanation if it in fact has no explanation. He would be correct, of course, were it the case that having an explanation is a world-indexed property, and wrong otherwise. But the property of having an explanation does not refer to any world, and is not therefore a world-indexed property. Derivitately, the putative fact *that the actual world does not have an explanation* is not a world-indexed fact, and we have no reason to believe thereby that it is necessarily the case that the actual world has no explanation.

Oppy's mistake appears to rest on the conflation of the nonworld-indexed property of having an explanation with the world-indexed property of having an explanation *in the actual world*. If it is true in the actual world that the existence of the actual world has no explanation in the actual world, then it is true in every possible world that the existence of the actual world has no explanation *in the actual world*. But the corresponding conditional sans *"in the actual world"* is false.

Having shown that the respective critiques of Rowe and Oppy fail, and not knowing of other plausible reasons for saying that it is inconsistent to explain

possible truth, we may conclude by the consistency criterion of possibility that it is rational to believe that Premise 3 is true. So let us turn to Premise 4.

Premise 4 does not lend itself to justification via the consistency criterion for possibility. There are two ways that Premise 4 might be justified, however. The first rests on the idea that explicablity is a dispositional property, and the second on the temporal similarity between mutually accessible possible worlds.

Explicability is a dispositional property. Many dispositional properties hold of something only if the corresponding occurrent property holds of something as well. Consider a few obvious examples. A war is winnable only if some wars are won. A musical score is playable only if some musical scores and played. A philosophy text is readable only if some philosophy texts are read. These and other instances of *accomplishment* dispositions seem to presuppose that there are actual satisfactions of the corresponding occurrent property. It would hardly make any sense to say of something that it is readable unless something is or has been read. Or what would it possibly mean to say of a war that it is winnable if there had never been a case of a won war. These are cases where the occurrent property defines the standard or paradigm of meaning and where the corresponding dispositional property is parasitic. We might be tempted to infer by analogy that something is explicable only if something is explained.

But not all dispositional properties are like accomplishment dispositions. There are dispositions (tendencies) of nature. A lump of sugar is soluble in hot water. This does not entail that some lump of sugar actually has dissolved, is dissolving, or will dissolve in hot water. When we say that sugar is soluble in hot water what we mean is that both the sugar and hot water posses specific law-like structures which causes the sugar to dissolve if it is placed in the hot water. There are certain laws of nature about the structure of sugar and hot water that together imply that if certain initial conditions are satisfied – the sugar is placed in hot water – then the sugar will dissolve.[23]

But if there are laws and structures of nature then there mist be something in nature that is structured and law-like. The alternative would be a world with an ontology comprised of uninstantiated laws and structures plus a collection of totally chaotic natural objects, events and processes. It would be a world of platonic forms which do not even partially apply to nature. It is difficult to imagine that we could know anything about such a world; and perhaps even more difficult to understand what it would mean to refer to an uninstantiated form in the absence of at least some instantiated forms. This would be like trying to understand what a decoy duck is without there ever having been any real ducks.

If some things are structured and lawlike, then not only must it be possible to explain something, there must in fact be a complete explanation for something. To completely explain something means to infer a description of it from a universal law together will some singular statements that describe a set of initial conditions. Now if there is a world at all which is structured and law-like, then there must be a set of initial conditions $\underline{A}$ of that world which hold at some point in time and which are related by law to some other condition $\underline{B}$ of that world which holds at some point in time, for that is precisely what it means to say that the world is structured and law-like. There is a complete explanation then of the condition $\underline{B}$ of the world in terms of the initial condition $\underline{B}$ of the world in term of the initial conditions $\underline{A}$ and the law-like structures of the world, if the world is structured and law-like.

If something is completely explained then it must be in terms something that already exists. It would not be possible to completely explain something which exists at one moment in time exclusively in terms of things which only exist at later moments of time. If there was a time when nothing existed then whatever exists must begin to exist unexplained. Now if something begins to exist unexplained then it cannot be completely explained, for a description of its beginning to exist must be included in the description of what it is. So if there was time when nothing existed then nothing can be completely explained.

To recapitulate: If something is explicable, then something of the world is structured and lawlike. If something of the world is structured and law-like, there is a complete explanation of something. If there is a complete explanation of something then there was not a time when nothing existed. Therefore, if something is explicable, then there was not a time when nothing existed. This completes the first of our two ways to prove Premise 4.

The second way that to show that Premise 4 is true is this. Consider the cousin 4* of Premise 4:

4.*   It is necessarily the case that if something *is explained* then it is not the case that there was time when nothing existed.

The symbolic rendition of 4* is: $\Box(x)((\exists y)Eyx \supset {\sim}(\exists t)(z){\sim}Pzt)$.

Premise 4 and 4* differ. Premise 4 says that in order for something to be explicable, the *actual world* must be temporally infinite.[24] 4* merely says that in order for something to be explicable some *possible world* must be temporally infinite. Indeed, every possible world where something is explained is temporally infinite. So intuitively, 4* certainly seems to be true.

Let us assume that object x of world β is identical to object y of world γ only if β and γ are temporally similar in the sense that both are either temporally finite or temporally infinite. This is because the identity of some-

thing must be linked to its causal history, and its causal history must involve time. If time is finite in β and infinite in γ then the ontologies of β and γ are necessarily different – no object of γ is identical to an object of β. Given this assumption about time and transworld identity, which seems reasonable, we an then justify Premise 4 as follows:

> Suppose that there is something x in world β which is explicable in β. This means that there is some possible world γ where x is explained. [To be *explicable* in β is not the same thing as being explained in β.] But the by 4* γ must be infinite. Now if γ is infinite, then β must be infinite; otherwise, x would not exist in γ, and if x did not exist in γ then x would not be explained in γ. It then follows from the infinitude of β that '$\sim(\exists t)(x)\sim Pxt$' is true in β.

This completes the second way to prove Premise 4.

Given these two proofs and no proofs to the contrary, we can conclude that it is rational to believe that Premise 4 is true.

Premise 5 is justified by the consistency criterion of possibility. Since there does not appear to be any plausible reason for believing that it is impossible for something to be unlimited if it is temporally necessary, we can confidently hold that it is possible for something to be unlimited if it is temporally necessary.

The consistency criterion of possibility will not work on Premise 6, since its consequent is assertoric rather than alethic. Premise 6 does seem plausible, however, especially if it is stated transpositionally: anything which is limited cannot explain itself: $(x)(\sim Wx \supset \sim \Diamond \exists xx)$. Yet someone might object and contend that some limited things *might* explain themselves, even if they do not: $(\exists x)(\sim Wx \ \& \ \Diamond Exx)$. The only way to counter this objection would be to show that something might explain itself only if it already possesses certain characteristics which entail unlimitedness. This is similar to the first of the two ways to certify Premise 4. It involves treating the possibility of self-explanation as the dispositional property of self-explicability; and then it explicates dispositional properties structurally.

Another possible way to justify Premise 6 is this. Suppose '$\Diamond Evv$' holds in world α. We must show that 'Wv' holds in α. Since '$\Diamond Evv$' holds in world α, v exists in α and 'Evv' holds in some possible world β. But 'Evv' will hold in β only if 'Wv' holds in β. I am assuming here that it must be the case that a thing is unlimited if it *does* explain itself: $\Box(x)(Exx \supset Wx)$. Now something can be unlimited only if its essence is to be unlimited. But if the essence of something is to be unlimited then it is unlimited in every possible world where it exists. Therefore 'Wv' holds in α. It is rational then to believe that Premise 6 is true.

Premise 7 says that nothing which is unlimited can be explained by anything else: $\sim \Diamond(\exists x)(\exists y)(Wx \,\&\, Eyx \,\&\, y \neq x)$. This is equivalent to saying that an unlimited being can only be explained by itself: $\Box(x)(y)((Wx \,\&\, Eyx) \supset x = y)$. It is not to say, however, that unlimited beings are necessarily self-explained: $(x)(Wx \supset \Box Exx)$; but merely that it must be the case that an unlimited being is explained only if it is self-explained. How might Premise 7 be justified?

Suppose x is unlimited. Then x does not depend on anything else y for either its existence or for any property it has. But if x does not depend on anything else y for either its existence or for any property it has then nothing else y can either explain why x exists or why it has the properties it has. In other words: $\Box(x)(y)(Wx \supset (y \neq x \supset \sim Eyx))$. But this is clearly equivalent to $\Box(x)(y)((Wx \,\&\, Eyx) \supset x = y)$, which in turn is equivalent to Premise 7.

Premise 8 says that the unlimited is supreme. It is analytically true. For to say that something is unlimited is to say that it does not depend on anything else for either its existence or for any property it has. But if a being is not dependent on any other being for its existence or properties, then no other being can prevent it from having any possible perfection. An unlimited being is therefore one whose essence is to posses the possible perfections it does possess. And if it failed to posses any possible perfection it would be limited to the extent of not possessing that perfection, and therefore not really unlimited. Now omnipotence, omniscience, omnibenevolence, freedom and eternality are possible perfections which are characteristics of a supreme being, and any being whose essence is to posses these superlatives will be supreme. Consequently, a being will be supreme if it is unlimited.

Premise 9 says that something is temporally necessary if and only if it is not temporally contingent. This too is analytically true. Indeed, we could easily have defined 'temporal necessary' as 'not temporally contingent' or vice versa. The important point is simply that temporal contingency is conceived as generatable or corruptible, and temporal necessity as neither.

Objection (Hume)

The Modal Third Way is an a *priori demonstration* of the existence of God. David Hume argues in Part IX of the *Dialogues Concerning Natural Religion* that it is not possible to give an a priori demonstration of anything.

> I shall begin be observing that there is an evident absurdity in pretending to demonstrate a matter of fact, or to prove it by any argument a *priori*. Nothing is demonstrable unless the contrary implies a contradiction. Nothing that is distinctly conceivable implies a contradiction.

> Whatever we conceive as existent, we can also conceive as non-existent. There is no being, therefore, whose non-existence implies a contradiction. Consequently there is no being whose existence is demonstrable. I propose this argument as entirely decisive, and am willing to rest the whole controversy upon it.[25]

If Hume were correct the Modal Third Way would be unsound. It therefore behooves us to examine his argument very carefully, premise by premise. It can be reconstructed as follows.

D1. If an existential proposition can be conceived to be true then its negation can be conceived to be true. ("Whatever we conceive as existent, we can also conceive as non-existent.")

D2. If the negation of an existential proposition can be conceived to be true, then that negation does not imply a contradiction. (Contradictions cannot be conceived to be true. – *Implicit in Hume's writings*)

D3. If the negation of an existential proposition does not imply a contradiction, then that proposition is not a priori demonstrable. ("Nothing is demonstrable unless the contrary implies a contradiction.")

D4. If an existential proposition is a priori demonstrable, then it can be conceived to be true. (Whatever is demonstrable can be conceived to be true. – *Implicit in Hume's writings*)

THEREFORE, no existential proposition is a priori demonstrable.

Let us grant Hume D1, D2 and D4, if only for the sake of argument.[26] We must argue against D3, however.

Something is a priori demonstrable if and only if it can be shown to be true independently of any particular experience. (But it need not be totally independent of the fact that there are experiences.) For the empiricist Hume this amounts to saying that everything which can be shown to be true a *priori* is analytic, and therefore that there are no synthetic truths which are a *priori* justifiable.[27]

What then are Hume's reasons for saying that nothing is a priori demonstrable unless its contrary implies a contradiction, or equivalently that no synthetic truths are a *priori* justifiable? Although Hume himself never explicitly argues this point, he might well have argued qua empiricist as follows:

> Every truth expresses either a matter of fact or a relation among ideas. No truth which expresses a matter of fact is a priori justifiable; and no truth which expresses a relation among ideas is synthetic. Therefore, no synthetic truth is a priori justifiable.

This argument is valid. Yet its soundness is in question, because its second premise expresses nothing more than a rock bottom empirical dogma or

article of faith. The empiricist, Hume included, dogmatically restricts the class of matters of fact to include only a *posteriori* truths. This is hardly an appropriate way in which to rest ones case against any *proof* for the existence of God.

In the *Inquiry*, however, Hume implicitly argues thus:

> Every truth which expresses a matter of fact is based on cause and effect. No truth which is based on cause and effect can be justified a priori. Therefore, no truth which expresses a matter of fact can be justified a priori.

Hume gives considerable attention to showing that our knowledge of cause and effect is based on our habit of associating one experience with another, and thus that every truth which is based on cause and effect must be justified a posteriori. But he give precious little attention to showing that every truth which expresses a matter of fact *is based* on cause and effect; and it is the latter proposition which, in my opinion, is the weak link in the above argument. The only thing he says about this seems to be in Sect. IV, Part I of the *Inquiry*:

> All reasoning concerning matters of fact seems to be funded on the relation of *Cause and Effect*. By means of that relation alone can we go beyond the evidence of our memory and senses. If you were to ask a man, why he believes any matter of fact, which is absent; for instance, that his friend is in the country, or in France; he would give you a reason; and this reason would be some other fact; a letter received from him, or the knowledge of his former resolutions and promises. A man finding a watch or any other machine in a desert island, would conclude that there had once been men in that island. All our reasoning concerning fact are of the same nature. And here it is constantly supposed that there is a connection between the present fact and that which is inferred from it. Were there nothing to bind them together, the inference would be entirely precarious. The hearing of an articulate voice and rational discourse in the dark assures us of the presence of some person: Why? Because these are the effects of the human make and fabric, and closely connected with it. If we anatomize all the other reasonings of this nature, we shall find that they are founded on the relation of cause and effect, and that this relation is either near or remote, direct or collateral. Heart and light are collateral effects of fire, and the one effect may justly be inferred from the other.[28]

Hume is correct to conclude, I surmise, that all reasoning which is *like* the reasoning about the matters of fact of the examples in this passage is based on cause and effect. All of these examples involve inferring the occurrence

an unexperienced effect from the occurrence of an experienced cause, or the occurrence an unexperienced cause from the occurrence of an experienced effect. But it would be a hasty generalization to conclude that *all* reasoning concerning matter of fact, including those which are *unlike* the examples of this passage, are based on cause and effect. Mathematical facts are not necessarily based on cause and effect. The theoretical facts of quantum physics are not necessarily based on cause and effect. Nor are the facts of Kantian transcendental metaphysics.

Hume might reply by saying first that mathematical "facts" are not really facts in the proper sense of the word. Mathematics, he would argue, is ontologically and factually empty, and merely a reflection of our linguistic conventions. And if we insist on applying the word "fact" to mathematical truth, then Hume would probably say that he means the facts of *the world* when he claims that all matters of fact are based on cause and effect.

So let us also agree for the sake argument to exclude so-called mathematical facts from the extension of "matters of fact," as well all so-called facts which are based on either the conventions or presuppositions of either language, cognition or the possibility of experience. By a matter of fact Hume seems to mean a substantive truth of *the world* which is either about some objects of the world or the world itself. He cites *that the sun will rise tomorrow* as an example [*Inquiry*, p. 40]. Hume contends that all reasoning about such matters of fact which goes beyond the evidence of our senses is founded on cause and effect. But why should we believe that this is true?

Hume's empiricism entails that there are two kinds of truth: those that express matters of fact, and those that express relations of ideas. Of what sort is the proposition *that all reasoning about matters of fact which goes beyond the evidence of our senses is founded on cause and effect?* Inasmuch as the proposition *that all reasoning about matters of fact which goes beyond the evidence of our senses is founded on cause and effect* can easily be conceived as false, it can hardly be considered by Hume's own standards as a proposition which merely expresses a relation of ideas. It must therefore be a proposition that expresses a matter of fact which is a posteriori justifiable.

But the so-called matter of fact *that all reasoning about matters of fact which goes beyond the evidence of our senses is founded on cause and effect* is not something that we observe with the aid of our senses. So if it is true that all reasoning about matter of fact which goes beyond the evidence of our senses is founded on cause and effect then that very proposition itself must be reasoned to by cause and effect, since it expresses a matter of fact which goes beyond the evidence of our senses or memory. We need to examine this reasoning closely.

Assume for the sake of argument that Hume is correct when he says that all reasoning which is founded on cause and effect is a posteriori, grounded in experience, for no other reason than that cause and effect for Hume is nothing more a relation that we predicate of things which we experience as always associated with each other.[29] That would imply, then, that the proposition that all reasoning which goes beyond the evidence of our senses is founded on cause and effect is true only if either every instance of reasoning which goes beyond the evidence of our senses or memory is always associated with reasoning which is founded on cause and effect, or derived from something that entails that they instance of reasoning which goes beyond the evidence of our senses or memory is always associated with reasoning which is founded on cause and effect.

Suppose that *a* having P is a putative matter of fact that goes beyond the evidence of our senses or memory. If Hume's theory of justification is correct, in order to justify the proposition that *a* has P we must infer it from a conjunctive proposition which does *not* go beyond the evidence of our senses or memory and which says that something x has property S and that x having S causes *a* to have P.

Hume maintains that causal propositions can only be justified by *observing* that instances of the cause are constantly conjoined with instances of the effect. This means that the particular causal proposition that something x having S causes *a* to have P can only be justified by *observing* that instances of S are constantly conjoined with instances of P.

So if *by hypothesis* the particular putative matter fact of *a* having P goes beyond the evidence of our senses or memory, then the particular causal proposition that something x having S causes *a* to have P will only be justi-fied by observing that instances of having S are constantly conjoined with instances of having P other than *a*. And this presupposes that these other instances of having P which do not go beyond the evidence of our senses or memory are *similar* to *a* having P. But if *a* having P goes beyond the evidence of our senses or memory, so must the alleged matter of fact that *a* has P is *similar* to all of those observed instances of having P which enter into the Humean justification of the causal proposition that something x having S causes *a* have P. If Hume's theory about the justification of propositions that express matters of fact which go beyond the evidence of our senses or memory is correct, then the proposition that *a* has P is *similar* to all of those observed instances of having P which enter into the Humean justification of the causal proposition that something x having S causes *a* to have P would have to be justified by inferring it from a new conjunctive proposition which does *not* go beyond the evidence of our senses or memory and which says that something y has S_1 and that y having S_1 causes the similarity of *a* having P to

all of those observed instances of having P which enter into the Humean justi-fication of the causal proposition that something x having S causes *a* to have P. But then the causal proposition that something y has S_1 and that y having S_1 causes the similarity of *a* having P to all of those observed instances of having P which enter into the Humean justification of the causal proposition that something x having S causes *a* to have P would have to be justified, according to Hume's theory, by observing that all instances of something y having S_1 are constantly conjoined with all of those observed instances of being similar of all of those observed instances of having P which enter into the Humean justification of the causal proposition that something x having S causes *a* to have P. And this presupposes the similarity of the similarity of *a* having P to all of those observed instances of having P which enter into the Humean justification of the causal proposition that something x having S causes *a* to have P ... which presupposes the similarity of the similarity of the similarity of *a* having P to all of those observed instances of having P which enter into the Humean justification of the causal proposition that something x having S causes *a* to have P ... *ad infinitum*.

The upshot here is that Hume's theory in support of the proposition that no truth which expresses a matter of fact can be justified a priori is either snared by an infinite regress or unable to account for the justification of any proposition that expresses a matter of fact that goes beyond experience and memory. Hume's theory even fails to account for the very examples he gives of where it is justifiable to assert a matter of fact which goes beyond the senses or memory.

Finally, if Hume's sweeping rejection of any a priori justification of a synthetic proposition fails, then his argument for claiming that nothing is a priori demonstrable unless its contrary implies a contradiction also fails; and if his argument for the latter fails, then his argument for the proposition "No existential proposition is a priori demonstrable" fails as well, as does any Humean case against the Modal Third Way.

Objections (Kant)

In the *Critique of Pure Reason* Immanuel Kant expresses initial sympathy with some cosmological arguments for the existence of God, for such argu-ments, Kant believes, begin in experience, unlike ontological arguments, which are purely a priori and speculative. There is also, Kant believes, a natural tendency of Reason to seek *complete* answers; and cosmological argu-ments are expressions of unity and completeness insofar as they arrive at a supreme being as something which is either not contingent, a first cause, or as an ultimate explanation.

Yet Kant also believes that cosmological arguments are a source of many dialectical illusions. He focuses his attention on only one of many cosmological arguments that have occurred in the philosophical literature, the argument *a contingentia mundi*, which he attributes to Leibniz; but he strongly suggests that the dialectical illusions of the *contingentia mundi* argument are characteristic of all cosmological arguments. If he is correct, and if the Modal Third Way is cosmological in the relevant kantian sense, then it too should harbor dialectical illusions.

Kant sketches the *a contingentia mundi* argument as follows:

> If anything exists, an absolutely necessary being must also exist. Now I, at least, exist. Therefore an absolutely necessary being exists ... [But a] necessary being can be determined in one way only, that is, by one out of each possible pair of opposed predicates. It must therefore be *completely* determined through its own concept. Now there is only one possible concept which determines a thing completely a *priori*, namely, the concept of the *ens realissimum*. The concept of the *ens realissimum* is therefore the only concept through which a necessary being can be thought. In other words, a supreme being necessarily exists.[30]

It will be convenient to divide this argument into two stages. The first stage purports to prove that a necessary being exists; and the second stage purports to prove that this necessary being is supreme, the so called *ens realissimum*. Now even thought the *a contingentia mundi* argument is about an *absolutely* necessary being and the Modal Third Way is about a *temporally* necessary being, the Modal Third Way argument is procedurally similar to the *a contingentia mundi* argument: first, both purport to prove that a necessary being exists; and second, both purport to prove that this necessary being is supreme. Faults with the Modal Third Way might then be thought to parallel faults with the *a contingentia mundi* argument.

Kant thinks that the first stage of the *a contingentia mundi* argument is faulty, essentially because implicitly it involves two unjustifiable assumptions: (1) that everything contingent has a cause, and (2) that the chain of causal connections cannot be infinite.[31] He thinks that the second stage is faulty because it has a conclusion which validly converts, assuming at most one supreme being, to the proposition that every supreme being exists necessarily, reducing the *a contingentia mundi* argument thereby to a flawed ontological argument.[32]

The Modal Third Way is immune to these first stage objections. First, it does not assume that everything (or everything contingent) has a cause (explanation). The closest the Modal Third Way comes to this is in assuming that possible truths are *explicable*, or equivalently, that everything *possibly*

has a cause. Not even Kant, I surmise, would want to object to this. Knowing that something *possible* has a certain property does not require specific experiences, but merely an understanding of what the thing in question is. Second, while the Modal Third Way shows that God exists as a temporally necessary being, it does not prove that God is the First Cause of the universe, or even that the universe has a first cause, or that there cannot be an infinite chain of causal connections. All three are independent of the premises and conclusion of the Modal Third Way.

Kant claims that the *a contingentia mundi* argument reduces to the ontological argument. He is wrong. All that he really shows by the conversion argument is that the conclusion of the *a contingentia mundi* argument entails the conclusion of some ontological argument, perhaps even the conclusion of every ontological argument. But there is nothing logically wrong with that, for the conclusion of a sound argument might be identical to the conclusion of an unsound argument. We could of course use the principles of the Modal Third Way to show that every temporally necessary being is supreme; and presumable we could couple this with the uniqueness of supremity proof to show that every supreme being is temporally necessary. But this would not demonstrate that there is anything wrong with the Modal Third Way, if perchance the proposition that every supreme being is temporally necessary happened to be the conclusion of a some bad argument.

Conclusion

I have argued that Aquinas' original Third Way can be modally transformed into an arguably sound demonstration of the existence of a temporally necessary being who is supreme. The theist understandably might take some measure of comfort from this argument by interpreting the temporally necessary supreme being as God. One should be cautious, however, about reading too much into the Modal Third Way. The god of this proof is one that need not exist in every possible world. Worse, the theistic victory will be pyrrhic if it turns out that the universe is uncaused and unexplained. The supreme being of the Modal Third Way could also be the god of deism, the god of pantheism, or even a demiurge.

Notes

1. Brian Leftow has applied modal logic to the formulation of a cosmological argument, but not specifically to the Third Way, in 'A modal cosmological argument', *Philosophy of Religion* 24 (1988): 159–188.

2. Most use the system S5 or its quantified extension QS5. Both are controversial, however. Both assert '◊□Φ ⊃ □Φ.' QS5 asserts the Barcan Formula, and it also entails that the same individuals exist in all possible worlds within the equivalence classes defined by the accessibility relation.

3. Robert Feys: *Modal Logics*, ed. by Joseph Dopp (E. Nauwelaerts, Louvain, and Gauthier-Villars, Paris). This T-logic of Feys is explained in section 2 of the present paper.

4. Thomas Aquinas, Summa Theologica q. 3, art. 3

5. 'Possibly p' sometimes appears to entail 'possibly not p' in the writings of Aristotle and Aquinas. However, in modern philosophy and modal logic 'possibly p' can be consistent with 'not possibly not p', and 'contingent p' is the synonym of 'possibly p and possible not p'. Unless otherwise noted, in this paper I shall always use the word 'possibility' in the modern modal sense.

6. A detailed argument for this proposition is developed in section 2 of this paper.

7. The idea that every possible predication is explicable is similar to James F. Ross' Principle E of his *Philosophical Theology* (Hackett, 1980).

8. Interestingly, it follows from '□[∃x) ◊(∃y)(Eyx ⊃ ∼(∃t)(x)∼Pxt]' and '□(x)(◊Θx ⊃ ◊(∃y)(Φx & Eyx))' that if something is true, and hence, possibly true, that in fact there was not a time when nothing existed.

9. Patterson Brown makes the same point in 'St Thomas' doctrine on necessary being', *Philosophical Review* 73 (1964): 76–90.

10. Temporally necessary beings should be distinguished from logically necessary beings, which exist in all possible worlds, at least up to a accessibility. Temporally necessary beings do not have to be logically necessary, and logically necessary beings do not have to be temporally necessary; but there is nothing to preclude the possibility that a being is both temporally necessary and logically necessary.

11. What he actually attempts to show is that the proposition that everything is (temporally) contingent leads to a contradiction.

12. I am not implying or suggesting here that possibilia exist as causes.

13. Clearly, if we reject the possibility of self-causality, then either there is not a first cause or something fails to have a cause.

14. Even though Aquinas is critical of Anselm's ontological argument he would have agreed that God is a being than which none greater can be conceived (is possible).

15. Unavoidable logical gaps in the informal chain are avoided in the formal deduction. Readers who do not have a penchant for formal reasoning can pass over the formal deduction without losing a sense of why the the Modal Third Way is valid.

16. The formal deduction makes this reasoning more vivid.

17. The rules of Q are: Conjunction (Conj), Addition (Add), Simplification (Simp), Disjunctive Syllogism (DS), Excluded Middle Introduction(E-M I), Modus Ponens (MP), Modus Tollens (MT), Hypothetical Syllogism (HS), Constructive Dilemma (CD), Commutation (Com), Distribution (Dist), Association (Assoc) Double Negation (DN), DeMorgan (DeM), Transposition (Trans), Exportation (Exp), Equivalence (Equiv), Existential Instantiation (EI), Existential Generalization (EG), Universal Instantiation (UL), Universal Generalization (UG), Quantifier Negation (QN), Identity Introduction (II), Identity Elimination (IE), Conditional Proof (CP) and Indirect Proof (IP).

18. We could also achieve the desired end by adopting '(x)(Sx ≡ ∼ ◊(∃y)Gyx & ∼ ◊(∃y)(x ≠ y & ∼Gxy))' as an additional premise.

19. The truth of a theorem of a logic is a function of the completeness of that logic. For a completeness proof of QT see G. E. Hughes and M.J. Cresswell, *An Introduction to Modal Logic* (London: Methuen and Co., 1968), Chapter 9.

20. In this discussion 'not having reason to believe' means 'failed to prove, discover, construct or imagine a reason to the contrary.' It presupposes that at least one rational agent has attempted to prove, discover, construct or imagine a plausible reason to the contrary, but that no rational agent has succeeded in proving, discovering, constructing or imagining a plausible reason to the contrary. We will have reason to believe that 'p' is consistent even if 'p' in fact is inconsistent if at least one rational has tried to show that 'p' is inconsistent and that no rational agent has succeeded in doing so. I am not saying, however, that it is rational to believe that 'p' is consistent just because no rational agent knows that 'p' is inconsistent. If 'p' is consistent and no rational knows it because no rational agent has tried to show (by proof, discovery, construction or imagination) that 'p' is consistent, we do not *for that reason alone* have reason to believe that 'p' is consistent. But having tried and failed to show inconsistency is a reason *to believe* consistency. A positive consistency proof would of course be preferred. When I say that *we* do not have reason to believe that 'p' is inconsistent I am saying that I have tried and failed to show that 'p' is inconsistent, and I know of no successful attempt to show the 'p' is inconsistent. I am not necessarily saying that it is impossible to show that 'p' is inconsistent.

21. William Rowe: *The Cosmological Argument* (Princeton University Press, 1975); see especially Chapter II and pp. 109–111.

22. Graham Oppy: *Ontological Arguments and Belief in God* (Cambridge University Press, 1995), p. 80.

23. We often express this counterfactually by saying that if the sugar were placed in hot water, it would dissolve. We then state the truth conditions for counterfactuals in terms of there being laws or structures, or in terms of similarities between the laws and/or structures of the actual world and the laws and/or structures of certain possible worlds.

24. The sentence 'The world is temporally infinite' is not a completely accurate way to translate the sentence '$\sim(\exists t)(x)\sim Pxt$'. We should have rendered it 'The world is either temporally infinite or temporally unbounded'. Or we could simply have stuck with the literal reading 'There was not a time when nothing existed'. But either rendition works in the subsequent argument, and the first is simpler.

25. David Hume: *Dialogues Concerning Natural Religion* (Hafner Press, 1948), p. 58.

26. We can ignore the problem created for D1 and D2 by any existential proposition of the form '$(\exists x)Tx$', where 'Tx' is tautological; for in such a case both '$(\exists x)Tx$' and '$\sim(\exists x)Tx$' can be conceived to be true but '$\sim(\exists x)Tx$' implies a contradiction. The problem could be avoided without changes the thrust of Hume's argument by replacing 'existential' throughout by 'nontautologically existential'.

27. I shall assume for argument sake that the analytic-synthetic and a priori-a posteriori distinctions make sense, Quine's misgivings notwithstanding. If it did not, Hume's case against justifiable synthetic a priori truth would be all the more suspect.

28. David Hume: *An Inquiry Concerning Human Understanding* (Bobbs-Merrill, 1955), p. 41.

29. Never mind the naivete of this conception of causality. If it were true without qualification we would be unable to distinguish accidental generalizations from genuine causal generalizations.

30. Immanuel Kant: *Critique of Pure Reason*, trans. Norman Kemp Smith (New York: St Martin's Press, 1965), pp. 508–509.

31. Causality for Kant only applies properly to that which is given in experience. And while he argues that everything which is given in experience is caused, he believes that we can never know whether anything outside of experience causes anything at all. Neither can we know whether any chain of causes outside experience, *if* there are any, is finite or is

infinite. Indeed, Kant even holds that we cannot in general know whether or not causal chains within experience are infinite.

32. Kant argues that ontological arguments are flawed because they a priori infer supremity from necessity by mistakenly treating existence as a property.

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