The contingency of contingency*

(Forthcoming in *The Journal of Philosophy*)

Could I have skipped breakfast today? Might donkeys have talked? Could the universe have consisted of one galaxy only? Might material particles have propagated with superluminal speed? Could there be something that is both round and not round? The most salient feature shared by all these questions is their concern with possibility. We can consider them as instances of a more general question: what is possible, and what is not possible? In other words, where does the line between the possible and the impossible fall?

An answer to that question would immediately yield an answer the related questions of what is, and what is not, necessary, and of what is, and what is not, contingent. For I shall assume, as is standard, that a proposition is necessary just in case its negation is not possible, and that it is contingent just in case it is possible, and its negation is also possible.

It is one thing to ask what is possible, and another thing to ask what possibility consists in. The two questions are, quite obviously, not independent of each other. Still, they are distinct.[1] There are quite a few worked-out responses to the latter question – appealing to spatiotemporally separated cosmoi, fictions, essences, consistent sentences, and the like. The former question has received less discussion, despite being in some sense more basic – it neither requires essentialist locutions nor talk of analysis for its formulation. There has been plenty of local debate, about the possibility of this or that scenario. But global hypotheses about where to draw the line between the possible and the impossible have been in short supply.

One pertinent idea has been expressed by the slogan "there are no brute necessities." This idea is prominent in David Chalmers' "modal rationalism",[2] and has been elaborated and applied in a somewhat different way by Cian Dorr.[3] In this paper, I shall argue that if we reject brute necessities, we should endorse what I call "general contingentism." But I shall also contend that if that view were itself necessary, it would be so brutely. It then follows that there could be brute necessities – and that conclusion does not depend on the assumption of general contingentism. But the fact that there could be brute necessities has no tendency to show that there are any. Rather, the claim that there are brute necessities is itself contingent. On the general contingentist view, the world is full of contingency – but only contingently so.

The plan is as follows. In section 1, I shall formulate constraints on answers to my question, and motivate the claim that there are no brute necessities. Section 2 discusses the notions of coherence and demonstrability, which are used in the characterization of general contingentism. Sections 3 argues against modal rationalism. Section 4 and 5 show that general contingentism entails its own contingency. In section 6, this argument is

generalized to cover certain other versions of contingentism as well. Section 7 defends general contingentism against some objections from modal epistemology.

1. Constraints on possibility

In this paper, I shall take the notion of possibility as primitive. By "possibility," I mean possibility *simpliciter*. For emphasis, I shall sometimes also talk of "genuine possibility", or "unrestricted possibility"; and likewise, *mutatis mutandis*, for the dual notion, necessity.

By taking the notion as primitive, I am not begging the question against any of the substantive accounts, briefly mentioned above, of what possibility consists in. The assumption is merely that we do not need any such account to latch onto the notion. There are other ways to achieve this: typically, a combination of considering paradigms and foils, clarifying the inferential roles, and contrasting it with related notions. Contributors to the literature on modality have successfully done that, in my view.[4] I shall say a bit more about how genuine possibility contrasts with other notions, and why I am steering clear of certain familiar expressions. The notion of necessity that I am concerned with has also been called "absolute necessity" or "metaphysical necessity" by some authors. In my view, these terminological alternatives are problematic. "Absolute" may suggest a contrast to "relative". However, genuine necessity may be world-relative, for all we know. At least, it ought not to be built into its characterization that it is not.[5] "Metaphysical necessity" is occasionally used to pick out a restricted variety of necessity. Moreover, some authors appear to take it as definitive of that term that it applies to fundamental principles of metaphysics,[6] or to true claims about kind membership, or about the constitution of natural kinds. I do not wish to make any such assumptions about genuine necessity. Finally, I join van Inwagen in thinking that the terms "logical necessity" and "logical possibility" are best avoided.[7] If the latter term is taken to mean "genuinely possible, and not ruled out by logic," in analogy to the standard understanding of "nomological possibility" as, roughly, "genuinely possible, and compatible with the laws of nature", then no harm is done. Since nothing that is genuinely possible is ruled out by logic, the second conjunct is merely redundant. But often "logical possibility" is taken to mean simply "not ruled out by logic," with a tacit presumption that what is not ruled out by logic is genuinely possible. But the latter claim is at stake here, and its truth ought not to be presumed.

So much about the concept of possibility. What propositions does it apply to? A satisfactory delineation of the realm of the possible has to meet certain constraints. I shall try to articulate three of them.

It is constitutive of necessity that it is *alethic*, or *factive*: what is necessary is true. This constraint is expressed by principle T of modal logic. If we use $\Box$ as our necessity operator, this principle can be expressed schematically in the following form:

T $\quad \Box p \rightarrow p$

This is equivalent to the schema $p \rightarrow \hat{\Diamond} p$, which is expressed using the possibility operator $\hat{\Diamond}$.

Typically, debates about what is possible concern particular classes of propositions – about matters of particular fact, about laws of nature, or about metaphysics. Given T, all true propositions in the respective classes are possible. Therefore, the live question is whether their negations are possible too. *Necessitarianism* about the relevant class of propositions says no, *contingentism* says yes.

Concerning laws of nature, it is fair to say that contingentism has been the received view. It holds, for example, that gravitational attraction could have been inversely proportional to the cube, rather than the square, of the distance between the mass carriers. However, necessitarianism has gained popularity in recent years.[8] Concerning metaphysical theses, the situation is arguably reversed. The orthodoxy has been necessitarian: it is non-contingent whether the resemblance of distinct things is grounded, and if so, whether by universals or tropes; and it is non-contingent under what conditions certain things have a mereological fusion. But of late contingentists have urged that necessitarianism owes its status more to prejudice than to argument.[9]

As I introduced them, necessitarianism and contingentism are to be relativized to some class of propositions. We can, of course, be necessitarians with respect to some truths and contingentists with respect to others. However, other things being equal, a simple, general hypothesis about the modal status of truths would be preferable. This prompts the question whether such a simple, general hypothesis can be coherently formulated. Can we coherently be necessitarians about all truths, or contingentists about all truths?

In the case of necessitarianism, the answer is positive: *hyperdeterminism*, or *fatalism*, the view that whatever is true is necessary, is the most general necessitarian view.[10] That view is implausible, since it denies even paradigmatic contingency claims, for example those concerning my breakfast. Indeed, David Kaplan writes that "[h]yperdeterminism is my favorite among totally implausible metaphysical views."[11] Nonetheless, hyperdeterminism is surely coherent. It is not false as a matter of logic. Or as Kaplan put it, for a logician to rule it out "would be to meddle in metaphysics."[12]

In the case of contingentism, there is no such straightforward answer to the question how far it can be generalized. In its most extreme version, contingentism holds that every proposition is contingent, or equivalently, that every proposition is possible. We know that extreme contingentism is false: it is not contingent that if snow is white, then snow is white. A tenable generalized version of contingentism needs to respect the constraint that what is ruled out by logic, broadly construed, is impossible. (*Pace* some paraconsistent logicians, I shall assume that there are indeed things that are ruled out by logic.)

It will be convenient to work with two further operator symbols: '*Mp*' is true iff *p* is not ruled out by logic, broadly construed, and *L* is the dual of *M*. These operators express what some authors call "logical possibility" and "logical necessity." I have explained why that

terminology may be misleading. But if "logically possible" is taken to mean "not ruled out by logic," there is no harm if they are read in that way. Still, I shall adopt a different terminology, and say that *p* is *coherent* iff *Mp* is true; and that *p* is *demonstrable* iff *Lp* is true.

Paradigmatic logical truths count as demonstrable in the relevant sense – at least if we take logical truths to be propositions, rather than sentences.[13] Likewise, the negation of T counts as ruled out by logic, such that $L(\Box p \rightarrow p)$ is true. The notions of coherence and demonstrability will receive further discussion in section 2, but I take it that we have a working understanding of them.

A second constraint, beyond factivity, relates modality to demonstrability: that what demonstrably follows from necessary propositions is itself necessary. One way to capture this more precisely is as follows (where $\bigwedge$ applies to a class to form the possibly infinitary conjunction of all its members): if every member of Γ is necessary, and $\bigwedge\Gamma \rightarrow p$ is demonstrable, then *p* is necessary.

I shall mostly use a special case of this constraint, where Γ is an empty class. The operators introduced above enable us to express that constraint succinctly:

LOGIC $\quad \forall p\,(Lp \rightarrow \Box p)$

This is equivalently expressed by $\forall p\,(Mp \rightarrow \hat{E}p)$.[14]

I shall take LOGIC to be self-evident.[15] It constrains the extent to which contingentism can be generalized. Quite how far-reaching a contingentism it still allows depends on what is coherent, and what is demonstrable. These will be contentious matters as well, of course. A view according to which many substantive theses are demonstrable – theses such as the existence of God, the immortality of the soul, and the universality of mereological composition, say – I call "rationalist." Both 'many' and 'substantive' are vague, and my characterization of rationalism inherits their vagueness. But it will do for now, and more will be said later.

Rationalism constrains contingentism. If some substantive claims are demonstrable, necessitarianism is true about them. Strong versions of contingentism are incompatible with rationalism.

In this paper, I want to explore such a strong version of contingentism, to be labelled "general contingentism." General contingentism is the conjunction of two claims, which I call "anti-rationalism" and "modal liberalism," respectively. Anti-rationalism, as one would expect, denies that any substantive claims are demonstrable. In this formulation, there is no vagueness due to the word 'many', unlike with rationalism. Even though the vague 'substantive' remains, I hope that the characterization is sufficiently clear.

Modal liberalism is the view that a proposition is possible unless its possibility is ruled out by logic, broadly construed. It is captured by the claim LIB:

LIB $\forall p\,(\Box p \rightarrow Lp)$

If we interpret *M* as "it is conceivable that," an equivalent of LIB can be read as the familiar, albeit contentious thesis that whatever is conceivable is possible. LIB expresses the idea that if a proposition is impossible, there needs to be some explanation – in a fairly demanding sense of "explanation" – for why it could not be true. This thought is often captured by the slogan "there are no brute necessities".

To many, the idea that there are no brute necessities is immediately appealing. It can be motivated by the idea that contingency is the default, and non-contingency the deviation, which requires explanation. As Leibniz put it: "[T]here is always a presumption on the side of possibility, that is, everything is held to be possible unless it is proven to be impossible."[16] Or, to echo a distinction that Bas van Fraassen drew with respect to rationality:[17] that there are no brute necessities corresponds to an English conception of modality – whatever is not explicitly ruled out is possible – as opposed to a Prussian one – whatever is not explicitly allowed to happen is impossible.

But we can say more on behalf of the hypothesis that there are no brute necessities. Beyond factivity and the necessity of logical truths, there is a third constraint on the placement of the boundary between the possible and the impossible: it ought not to be drawn arbitrarily. Suppose that it is possible that there be a fifteen meter high unicycle, and that it is also possible that there be a seventeen meter high unicycle. Then, presumably, it is also possible that there be a sixteen meter high unicycle, or there is some explanation for why it is not. Otherwise, there would seem to be something arbitrary about the modal facts. Similarly, non-arbitrariness prescribes that if it is possible that a lightbulb is conscious, then it is also possible that a refrigerator is – barring some unexpected discovery about the nature of one of these artefacts.

This third constraint does not have quite the same status as the first two. While it is incoherent to suppose to something is both true and impossible, or that some contingent truth is demonstrable, it is not incoherent, I think, that there is such arbitrariness. But even though it is not incoherent, we do not have any reason whatsoever to suppose that it is the case. The hypothesis that it is is a skeptical one. The status of the third constraint is similar to the status of the assumption that we are not in a counter-inductive world. Its negation is presumably coherent, but we have no reason to believe that it is true.

Modal liberalism has the virtue of satisfying the non-arbitrariness constraint as well as the other two. For some views that posit brute necessities, it is not clear that they do. At least, they face the challenge of explaining why their division is not arbitrary. Consider, for example, views according to which for some sortals *S*, it is necessary that if some *x* is an *S*, it could not exist without being an *S*. After discussing two versions of such a view in the literature, Penelope Mackie argues that "[n]either ... theory ... gives ... a satisfactory account of why some sortals should be essential while others are not", and adds that she "know[s] of no other theories that attempt to do."[18] Whether or not she is right, it is certainly an advantage of modal liberalism that it does not face a challenge of that kind.

Admittedly, modal liberalism is not the only view about the extent of possibility that satisfies the three constraints. After all, hyperdeterminism clearly satisfies them too. In particular, since no two truths end up on different sides of the line, none are arbitrarily and invidiously assigned a different modal status. Therefore, the three constraints are compatible with brute necessities.

I do not even wish to suggest that hyperdeterminism – which, I claim, is highly implausible – is the only rival to modal liberalism that satisfies the three constraints. But I wish to set any such putative rivals aside in the next few sections, and develop an argument concerning modal liberalism. In section 6, I will consider the question whether a modified version of my argument applies to such rivals as well.

2. Coherence and demonstrability

In the last section, I introduced the notion of coherence and its dual, demonstrability, expressed respectively by the operators *M* and *L*. According to my initial gloss, a proposition is coherent just in case it is not ruled out by logic, broadly construed. Coherence and demonstrability are used in the formulation of modal liberalism (LIB), which in turn is part of the characterization of the radical version of contingentism that I am exploring. In this section, I would like to say more about these notions.

Since I deploy the notion of coherence in my characterization of modal liberalism, I have to presuppose that we understand it. But I would like to emphasize again that modal liberalism is not a proposal for defining or analyzing possibility in terms of coherence. Hence there is no suggestion that we understand the former concept through our understanding of the latter, or that the latter is a better choice of conceptual primitive than the former. LIB is simply an hypothesis about what falls under the concept of possibility. It is not an explanation of that concept, not even a partial one.

Just as I am not in the business of analyzing modality, I will not attempt to analyze coherence. I am only presupposing that we understand that notion, not that we can analyse it. As far as I am concerned, both possibility and coherence may be primitive concepts, and none the worse for it. Instead, I will try, in this section, to elucidate the notion of coherence.

We are all familiar with paradigms of incoherent propositions: that there are white swans and there are no white swans, that something is red but not coloured, that some square is round, and that something exists but is not self-identical. Likewise, we are familiar with paradigms of coherent propositions: that there is a city with more than twenty million inhabitants in 2020, that there is no city with more than twenty million inhabitants in 2020, that all mountains are golden, and that no mountains are golden. Furthermore, we know a few things about how coherence relates to other concepts: for example, that all truths are coherent, or that if p is coherent and $p \wedge \neg q$ is incoherent, then q is coherent.

Roughly, coherence corresponds to what David Chalmers calls "ideal negative conceivability."[19] Adapting his terminology, we can say that a proposition is negatively conceivable for an agent if that agent cannot derive a contradiction from it. Actual agents have various contingent limitations in processing power, memory, and concentration. The notion of ideal negative conceivability idealizes away from such limitations. Heuristically, it is useful to think of ideal negative conceivability, and hence of coherence, as negative conceivability for an ideal reasoner.[20]

There is no doubt that a great deal more could be said about that notion, and what sort of logic we should take an ideal reasoner to use.[21] What is clear is that despite the idealization, the bar for incoherence is set very high. It is not enough for a supposition to be unfamiliar or peculiar for it to be incoherent.

So much far for the clarification of the notion of coherence. I should add that much of the following discussion may require little or no modification if we set out to defend a cousin of LIB which results from interpreting *M* as positive conceivability. Positively conceiving a proposition involves imagining a situation where it is true, roughly speaking. In the influential view of Chalmers, a proposition is ideally positively conceivable just in case it is ideally negatively conceivable.[22] If that view is correct, then the truth-value of LIB will not depend on which of these two interpretations of *M* we adopt. Likewise, I expect the discussion to carry over, *mutatis mutandis*, to a cousin of LIB which results from interpreting *M* as truth in virtue of logical form and analyses, or reducibility upon analysis to truths of logic.[23]

3. Against modal rationalism

By dint of accepting both LOGIC and LIB, modal liberalism is committed to the following equivalent claims:

COEXT $\forall p\,(\Box p \leftrightarrow Lp)$

With *M* interpreted as "it is conceivable that" – in a suitably idealized sense – an equivalent of COEXT can be read as the claim that conceivability and possibility coincide. In the literature, this thesis is sometimes called "modal rationalism".[24] But this thesis is not rationalist in my sense; and neither, I would argue, in the traditional sense. Traditionally, to be a rationalist about some subject matter is to hold that propositions about it can be established by reason alone. So a rationalist about *p* is committed to the claim that either Lp or $L\neg p$. However, LIB does not, on its own, entail propositions of either of these forms. We can infer such propositions from it only if we are using some necessity claims as premises. But in the present context, when we are asking where the boundary between the possible and the impossible falls, such claims cannot be taken for granted.

I thus propose to distinguish "modal rationalism" from "modal liberalism," and take the former to be the claim that the latter is demonstrable. Modal rationalism, or MR, can then be formulated as follows:

MR $L(\forall p\,(\Box p \leftrightarrow Lp))$

David Chalmers, who coined the term "modal rationalism", uses an equivalent of COEXT to characterize it – modulo some differences between his notion of conceivability and my *M*, which I cannot discuss here. But he also accepts the stronger claim, MR.[25] So I trust that my terminology will not be misleading.[26]

Modal rationalism is not entailed by rationalism. A rationalist could be a hyperdeterminist, after all, or hold any of a number of other views. But given modal liberalism, MR provides an instance of a more general rationalism. MR entails that LOGIC is demonstrable, and hence true, and hence – applying it to itself – necessary. That much should be uncontroverisal. Even the anti-rationalist will agree that LOGIC is demonstrable. Moreover, MR entails that LIB is demonstrable, and hence necessary.

As I emphasized in section 1, it is distinctive of general contingentism that it combines modal liberalism with anti-rationalism, and in particular with the rejection of modal rationalism. In this respect, it differs from extant version of modal liberalism, which have typically been modal rationalist. I will now argue that MR is false.[27]

Consider the proposition that there are brute necessities. One may find this proposition plausible or not, but it seems very hard to deny that it is *prima facie* coherent – I at least, cannot derive a contradiction from it. In this post-Kripkean age, we are very well aware that the concept of coherence is distinct from the concept of possibility. But once we are aware of this, we should not except a straightforward refutation of the claim that some things fall under the former but not the latter. To reinforce this point, we may consider hyperdeterminism once more. Its *prima facie* coherence seems hard to deny. But if hyperdeterminism is coherent, then so is the claim that there are brute necessities.

To be sure, some claims may be *prima facie* coherent but not coherent in the sense pertinent here, where it is the dual of *ideal* negative conceivability. A defender of MR will hold that the negation of LIB belongs to that class. I am not in a position to demonstrate that they are wrong in this. Nonetheless, the claim strikes me as highly implausible. The negation of LIB is not the sort of claim that becomes susceptible to refutation once certain limitations on reasoning are lifted. Presumably, the best examples of such claims are furnished by mathematics. To pick one among many examples: the conjunction of the axioms of Morse-Kelley set theory and the claim that there is a non-trivial elementary embedding of the universe V into itself is *prima facie* coherent. It does not involve a contradiction in any obvious way – certainly not in any way obvious to me. But Kenneth Kunen[28] showed it to be false, and since he did so by means of a proof, he also showed it to be incoherent on ideal reflection. Further examples can be found in the philosophical literature on paradoxes. But when examining paradoxes, one is often struck by just how hard it is to actually derive a contradiction. Several assumptions are needed to fill loopholes. It is the conjunction of all these assumptions – which is typically fairly long and complex – that is refuted by the derivation of a contradiction, rather than any particular conjunct. To put it bluntly: the statement that negates LIB is too short, and does not have

enough inner complexity, for the claim that it is refutable on ideal reflection to be plausible.

In this section, my aim has been to argue for the anti-rationalist component of the radical contingentist package, and in particular against modal rationalism. In the following, I will discuss the tenability of general contingentism, which combines modal liberalism with anti-rationalism. The argument to be given will not assume the falsity of modal rationalism, except at one point that I will flag up. The considerations in this section mainly serve to motivate exploring the consequences of general contingentism.

4. General contingentism must be contingent

General contingentism has a noteworthy feature: it entails its own contingency. In a nutshell, the argument is the following: if general contingentism is true, substantive philosophical claims are contingent; but general contingentism is a substantive philosophical claim; hence it is contingent if true.

Since reasoning with iterated modalities has its pitfalls, I shall now present this argument more carefully. Thereby I shall take into account the distinction between modal liberalism – LIB – and general contingentism – here GC – and keep track of the principles of modal logic needed. The two premises are the following:

(1) $L(\mathrm{GC} \rightarrow \mathrm{LIB})$
(2) $L(\mathrm{GC} \rightarrow \neg L(\mathrm{LIB}))$

General contingentism was introduced as the conjunction of modal liberalism and anti-rationalism. It is, of course, demonstrable that if a conjunction is true, so is one of its conjunct. Hence (1) ought to be uncontroversial. In contrast, $\neg L(\mathrm{LIB})$ is not itself a conjunct of GC, so (2) requires more comment. What needs to be argued is that the negation of modal rationalism follows from anti-rationalism.

I characterized the latter somewhat vaguely as the view that no substantive theses are demonstrable. Surely, LIB does count as such a substantive claim. While the characterization is vague, LIB is not among its borderline-cases. Hence anti-rationalism entails $\neg L(\mathrm{LIB})$. Since GC entails its conjunct, anti-rationalism, it also entails $\neg L(\mathrm{LIB})$. Hence premise (2) is true as well.

Since $(\mathrm{GC} \rightarrow \mathrm{LIB}) \wedge (\mathrm{GC} \rightarrow \neg L(\mathrm{LIB})) \rightarrow (\mathrm{GC} \rightarrow \mathrm{LIB} \wedge \neg L(\mathrm{LIB}))$ is a tautology, it is demonstrable. Given the uncontroversial assumption that the logic of demonstrability is a normal modal logic – in the technical sense – we can infer (3) from (1) and (2):[29]

(3) $L(\mathrm{GC} \rightarrow \mathrm{LIB} \wedge \neg L(\mathrm{LIB}))$

Since $\neg L(\mathrm{LIB}) \rightarrow \neg \Box(\mathrm{LIB})$ is the contrapositive of an instance of LIB, (1) also gives us the following:

(4) $L(\mathrm{GC} \rightarrow (\neg L(\mathrm{LIB}) \rightarrow \neg\Box\mathrm{LIB}))$

Hence, from (3) and (4), and the closure of demonstrability under tautological consequence:

(5) $L(\mathrm{GC} \rightarrow (\mathrm{LIB} \wedge \neg\Box\mathrm{LIB}))$

From (5) and LOGIC:

(6) $\Box(\mathrm{GC} \rightarrow \mathrm{LIB} \wedge \neg\Box\mathrm{LIB}))$

From (6) and an instance of the principle K ($\Box(p \rightarrow q) \rightarrow (\Box p \rightarrow \Box q)$) of modal logic:

(7) $\Box\mathrm{GC} \rightarrow \Box(\mathrm{LIB} \wedge \neg\Box\mathrm{LIB})$

Since $\Box$ distributes over conjunction and is factive (principles M and T):

(8) $\Box(\mathrm{LIB} \wedge \neg\Box\mathrm{LIB}) \rightarrow \bot$

Here $\bot$ is some contradiction. From (7) and (8), we get:

(9) $\neg\Box\mathrm{GC}$

The conclusion of the argument, (9), is not that general contingentism is contingent. For all it shows, GC might be impossible. What it does show is that GC is contingent if true.

The argument makes minimal assumptions about the logic of $\Box$ and *L*. It goes through in the system *KT* for $\Box$, all of whose principles are surely uncontroversial if $\Box$ is interpreted as genuine necessity. The assumptions about *L* are even weaker: nothing beyond the system *K* is needed.

It may seem *prima facie* surprising that general contingentism entails its own possible falsity. Normally, when we advocate a philosophical thesis, it is open to us – whether or not it would be plausible move – to defend it as a necessary truth. In the case of general contingentism, the claim that it is a necessary truth is incoherent.

On reflection, this is the result that we ought to expect. General philosophical theses about statements or propositions had better apply to themselves. Otherwise they will share the embarassment of the crude principle of verification, which is unverifiable, but according to which all meaningful statements are verifiable. A general contingentist claim had better be itself contingent. So the result of this section showcases a feature of the view, not a bug.

The last part of the above argument formally echoes Fitch's famous "knowability paradox."[30] In the latter, it is established that a proposition of the form $p \wedge \neg Kp$ is not known – $\neg K(p \wedge \neg Kp)$, with *K* a knowledge operator. In the above argument, it is established that the a proposition of the form $p \wedge \neg\Box p$ is not necessary – $\neg\Box(p \wedge \neg\Box p)$. The relevant instance is obtained by replacing *p* with LIB. Since GC strictly implies that conjunction, it is itself not necessary.

Despite the formal analogy, our epistemic attitudes towards the propositions on which the two arguments turn need not at all be the same. Fitch's argument shows that no proposition of the form $p \wedge \neg Kp$ can be known. For that reason, such a proposition arguably ought not to be asserted. In the present modal case, no such conclusion follows. There is nothing problematic about asserting propositions that cannot be necessary, and hence the above consequence need not detain us from asserting general contingentism.

By inspecting the proof, we can extract two corollaries from this result: that the conjunction of modal liberalism and the negation of modal rationalism (LIB $\wedge \neg$MR) entails its own contingency, and that it entails, in particular, the contingency of LIB.[31]

Combining the results of the last section and this one, we can conclude that there could be brute necessities. We show this by dilemma. If modal liberalism is not true, then there are brute necessities, and hence it is possible that there are. If it is true, then so is LIB $\wedge \neg$ MR – this is the only point in this section where I assume the falsity of modal rationalism, argued for in section 3. But then, by the second corollary, LIB is contingent, and hence it is possible that there are brute necessities. Either way, there could be brute necessities.

I shall conclude this section by further clarifying the relationship between general contingentism and modal rationalism. From LOGIC and LIB, accepted by both views, it follows immediately that demonstrability and necessity are co-extensional – the thesis labelled COEXT above. For the modal rationalist, the two notions are also co-intensional: their co-extensionality is a matter of necessity. Indeed, modal rationalism collapses the operators $\Box$ and L, in a certain sense. Say that p' is an *operator-variant* of p if it results from replacing some or all occurrences of L in p by $\Box$, and some or all occurrences of $\Box$ in p by L. (For example, $\Box\Box (q \rightarrow Lr)$ is an operator-variant of $\Box L (q \rightarrow \Box r)$, and so is $L\Box(q \rightarrow Lr)$.) Then it can be shown, by a straightforward but somewhat tedious induction on the complexity of formulas, that MR entails that for all p, if p' is an operator-variant of p, then p is true just in case p' is.[32]

In contrast, L and $\Box$ (as well as M and $\hat{\text{E}}$, of course) are co-extensional but not co-intensional according to general contingentism. For let p some coherent falsehood, say, a false proposition about the number of stars in the history of the universe. Since p is coherent, Mp is true. Given that coherence is not itself contingent, $\Box Mp$ is also true. However, since fatalism is coherent, and does not entail anything about the number of stars in the universe, $\neg\hat{\text{E}}p$ is also coherent. Hence $M(\neg\hat{\text{E}}p)$, and by LIB, $\neg\Box(\hat{\text{E}}p)$. It follows that $\Box Mp \leftrightarrow \Box\hat{\text{E}}p$ is false, showing that M and $\hat{\text{E}}$ cannot always be substituted *salva veritate* in the scope of $\Box$. In that respect, they are related like the predicates "belongs to a species of vertebrate with kidneys" and "belongs to a species of vertebrate with a heart."[33]

5. An alternative refutation of the necessity of general contingentism

In the last section, I argued, first, that general contingentism is at best contingently true, and second, that the view is none the worse for that. I would now like to consider a

challenge to the first of these points. To obtain line (4) of the argument, I needed to instantiate the universal quantification in LIB with LIB itself. This move may be questioned: perhaps the quantifier in LIB is restricted in some way, and does not range over all propositions – in particular, not over LIB (or the proposition expressed by it) itself. Perhaps there is something suspicious about propositional quantification over a range that includes the proposition itself.

This move need not be *ad hoc*, since it can be motivated independently. The semantic paradoxes have suggested to many that a proposition cannot quantify over itself. This, in turn, may tell us something significant about the structure of representation.

The cogency of this objection turns on large and complex issues. For that reason, I do not wish to evaluate it here. Instead, I will sketch an alternative argument for the conclusion that general contingentism entails its own contingency. This will show that our result is robust: it does not stand or fall with the legitimacy of a particular instantiation of a schema.

In the alternative argument, modal liberalism shoulders less weight – it is no longer assumed that its initial quantifier can be instantiated with itself – while anti-rationalism bears more than in the first. The key premise, along with (1), is now that it follows from GC that some proposition is both necessarily indemonstrable and not demonstrably not necessary – in other words, GC entails that it is coherent that that proposition is necessary, and necessary that it is not demonstrable. In symbols:

(10) $L(\mathrm{GC} \rightarrow \Box\neg L p \wedge \neg L \neg \Box p)$

Plausibly, any paradigmatically indemonstrable truth yields a true instance. For example, p might be the claim that there are at least 17 concrete objects; or that there is an object that is (approximately) spherical. The negations of these propositions are perfectly coherent. Assuming that what is coherent is necessarily so – how could coherence be contingent? – they satisfy $\Box\neg Lp$. While we would typically take such propositions to be contingent, it is not at all clear what it would take to demonstrate their contingency. It is very hard to refute fatalism, after all. Therefore, an anti-rationalist should take them to satisfy $\neg L\neg\Box p$ as well.

From (1) and (10), and the closure of demonstrability under logical consequence:

(11) $L(\mathrm{GC} \rightarrow \mathrm{LIB} \wedge \Box\neg L p \wedge \neg L \neg \Box p)$

Since $\Box\neg\Box p \rightarrow L\neg\Box p$ is an instance of LIB, and thus entailed by it:

(12) $L(\mathrm{LIB} \wedge \Box\neg L p \wedge \neg L \neg \Box p \rightarrow \Box\neg L p \wedge \neg\Box\neg\Box p)$

By (11), (12), and the closure of demonstrability under tautological consequence:

(13) $L(\mathrm{GC} \rightarrow \Box\neg L p \wedge \neg\Box\neg\Box p)$

Since everything equivalent to an instance of the principle K of modal logic is demonstrable:

(14) $L(\Box\neg Lp \wedge \neg\Box\neg\Box p \rightarrow \neg\Box(\neg Lp \rightarrow \neg\Box p))$

Furthermore, it is demonstrable that LIB is false whenever one of its instances is:

(15) $L(\neg\Box(\neg Lp \rightarrow \neg\Box p) \rightarrow \neg\Box\text{LIB}))$

By (13), (14), (15) and the closure of demonstrability under logical consequence:

(16) $L(\text{GC} \rightarrow \neg\Box\text{LIB})$

From (1) and (16) we obtain (5), which has already been shown to entail (9): general contingentism is not necessary.

This argument, like the previous one, only uses minimal assumptions about the logic of the operators $\Box$ and L – with one exception: (15) is not as innocuous as it may look. Unpacking LIB, and contraposing, we arrive at the following equivalent formulation:

(15*) $L(\Box(\forall p(\Box p \rightarrow Lp)) \rightarrow \Box(\Box p \rightarrow Lp))$

This is of the form $L(\Box\forall\varphi(p) \rightarrow \Box\varphi(p))$, with the propositional variable p appearing bound in the antecedent of the embedded conditional, and free in the consequent. This principle may seem suspicious. After all, one could argue that the corresponding principle for objectual quantifiers is false: it is not true, let alone necessary, that if it is necessary that everything exists, then I exist necessarily. If quantification at every world is only over existents, then "at every possible world, everything exists" is true, and hence also "it is necessary that everything exists." But I do not exist at every world.

To put the point another way: if $L(\Box\forall\varphi(p) \rightarrow \Box\varphi(p))$ is valid, then the Converse Barcan Formula for propositional quantification holds. The question whether that principle is valid embroils us in issues about the *de re* modality and propositions.[34] To discuss them, it is useful to talk about possible worlds.

We can distinguish two conceptions of the relationship between propositions and possible worlds. On one conception, the space of propositions is a fixed structure, which does not vary from world to world. On another conception, propositions may exist in one world but not another, perhaps because they have constituents that are contingent existents. On the first conception, the Converse Barcan Formula for propositional quantification ought to be uncontroversial. On the second conception, it may fail for some formulas. But surely, a proposition cannot be necessary at a world without existing at that world. So if $\exists p\hat{\text{E}}(\Box p \wedge \neg Lp)$ holds, so does $\hat{\text{E}}\exists p(\Box p \wedge \neg Lp)$. On either conception, then, (15*) and thus (15) comes out true.

I have offered this second argument in response to a challenge to the use of universal instantiation in the first argument. Perhaps a friend of a necessary version of general contingentism could take that challenge further, and claim that the quantifier in LIB is not just restricted to a domain that does not include LIB itself, but indeed does not include any modal propositions at all. If that were right, we would not be entitled to assume (12) in the

above argument, since that step relies on instantiating the universal quantification with $\neg\Box p$, which is clearly a modal proposition.

However, this move would have an *ad hoc* character. It would get us into the messy business of trying to characterize a distinction between modal and non-modal propositions. While those that are formulated using words like 'possible' or 'necessary' and their ilk are certainly modal, there are presumably lots of other propositions that are implicitly modal. Even if the distinction could be drawn, it is unclear how restricting LIB could be motivated independently from the desire to avoid counterexamples.

6. The contingency of restricted versions of contingentism

In the previous two sections, I have argued that general contingentism is contingent if true. However, many philosophers reject general contingentism anyway, since they believe that some coherent propositions are impossible. For them, the significance of my arguments will be limited. But it turns out that those arguments are in a certain sense robust: they also apply to a range of views that are incompatible with modal liberalism. Or so I shall I contend in this section.

Consider the view that there is a special realm of the non-contingent, separate from the physical universe. Its denizens may include mathematical objects, transcendent universals, and the like. I will refer to it as a "platonic" realm, and the view as "platonic." According to it, the claim that there are numbers, say, will be necessary. Is it also demonstrable? If it is, the view is compatible with modal liberalism; otherwise it is not. But it is surely a commitment of anti-rationalism that they are not demonstrable.[35] So a platonist view of that kind must reject either modal liberalism or anti-rationalism, and is thus incompatible with general contingentism. Still, it can be consistently combined with certain restricted versions of contingentism.

Suppose that P is a class of propositions that jointly comprise a full account of the platonic realm, in the sense that for every truth p about it, the conditional $\bigwedge \mathrm{P} \rightarrow p$ is demonstrable. (The class P may be infinite.) Since the platonic realm is a realm of the non-contingent, and since the necessary is closed under demonstrability – the second constraint from section 1 – the following stronger variant of LOGIC holds:

$$\forall p\,(L(\bigwedge \mathrm{P} \rightarrow p) \rightarrow \Box p)$$

A restricted version of modal liberalism will also accept the converse of this conditional, which is a weaker variant of LIB:

$\mathrm{LIB_P}$ $\quad \forall p\,(\Box p \rightarrow L(\bigwedge \mathrm{P} \rightarrow p))$

Together with anti-rationalism, these two conditionals specify an answer to the question where the dividing line between the possible and the impossible falls. I shall call the conjunction of these three claims P-contingentism, or $\mathrm{C_P}$.

As it turns out, the arguments from sections 4 and 5 can be modified to show that P-contingentism is at best contingent. Just as the non-necessity of general contingentism follows from (1) and (2), the non-necessity of P-contingentism follows from (1') and (2'):

(1') $L(\mathrm{C_P} \rightarrow \mathrm{LIB_P})$

(2') $L(\mathrm{C_P} \rightarrow \neg L(\bigwedge \mathrm{P} \rightarrow \mathrm{LIB_P}))$

Fortunately, we do not need to go through all the intermediate steps again. Inspection of the argument from section 4 reveals that it remains valid if we consistently replace GC with $\mathrm{C_P}$, LIB with $\mathrm{LIB_P}$, and, for any L embedded in a formula, $\ulcorner L\varphi \urcorner$ with $\ulcorner \bigwedge \mathrm{P} \rightarrow L\varphi \urcorner$. The same substitutions also ensure that the argument from section 5 remains valid. That is, the non-necessity of P-contingentism follows from (1') and (10'):

(10') $L(\mathrm{C_P} \rightarrow \Box \neg L(\bigwedge \mathrm{P} \rightarrow p) \wedge \neg L(\bigwedge \mathrm{P} \rightarrow \neg \Box p))$

Moreover, we have similarly strong grounds to believe (1'), (2') and (10') as we do for their unprimed cousins. Since $\mathrm{LIB_P}$ is a conjunct of $\mathrm{C_P}$, (1') is obvious. Recall that the justification for (2) turned on anti-rationalism entailing the non-demonstrability of LIB, or $\forall \mathrm{p}\ (\Box p \rightarrow Lp)$. Roughly speaking, this holds because there are non-demonstrable truths that might be brute necessities, for all we can demonstrate. What is required for the truth of (2') is that anti-rationalism also entails the non-demonstrability of $\bigwedge \mathrm{P} \rightarrow \forall p\,(\Box p \rightarrow L(\bigwedge \mathrm{P} \rightarrow p))$. Let p be the truth that there are buildings higher than 100m. Then it can be argued that if $\Box p \wedge \neg Lp$ is coherent, so is $\bigwedge \mathrm{P} \wedge \Box p \wedge \neg L(\bigwedge \mathrm{P} \rightarrow p)$. Since P concerns the platonic realm, it has no implications for the measurements of concrete objects such as buildings. Hence $\neg L(\bigwedge \mathrm{P} \rightarrow p)$ is true – at least assuming anti-rationalism, which all of the relevant claims here are conditional upon. Moreover, $\bigwedge \mathrm{P}$ has no implications either way for the modal status of propositions about the concrete realm: $\bigwedge \mathrm{P} \rightarrow \neg \Box p$ is not demonstrable.

Taking p to be the propositions that there are buildings higher than 100m also makes (10') true. I have just argued that $\bigwedge \mathrm{P} \rightarrow \neg \Box p$ is not demonstrable. It is also clear that $\bigwedge \mathrm{P} \rightarrow p$ is not just indemonstrable, but necessarily so. Hence the two conjuncts of the embedded consequent do follow from anti-rationalism, and (10') is true.

I conclude that P-contingentism is at best contingently true. But P-contingentism is only one of the relevant rivals to general contingentism. Another one finds the source of indemonstrable necessities not in a platonic realm, but rather in the essential properties of objects and kinds. They may believe, for example, that it is coherent but impossible that Hesperus is distinct from Phosphorus, that water is an element, or that heat is inversely proportional to kinetic energy. These propositions belong to a certain class often called "Kripkean".[36]

Kripkean propositions are sometimes characterized by their form. For example, Gideon Rosen takes Kripkean necessities to be "(propositions expressed by) true identities flanked by rigid terms and essential predications: propositions of the form *Fa*, where *a* is essentially *F*."[37] Moreover, the Kripkean necessity is often thought to derive from an

essentialist or *de re* necessary predication: it is because some things, or kinds, necessarily satisfy a certain predicate that the corresponding propositions in which they are designated by rigid terms is true. We can also use the following heuristic to pick out Kripkean necessities: they do not constrain the qualitative variety of worlds in modal space, but merely deny certain claims of transworld identities. A relatively neat way of delineating them is offered by the framework of two-dimensionalism, where they correspond, roughly speaking, to thoughts whose primary and secondary intensions come apart.

However Kripkean necessities are characterized, it is customary to treat them as a special class in discussions of contingentism and brute necessities.[38] The acceptance of alleged Kripkean necessities as genuine is compatible with a fairly strong version of contingentism. Many metaphysical theses that are traditionally taken to be non-contingent – about what grounds resemblance, and about the conditions for composition – arguably do not fit the template of Kripkean propositions.

Suppose that we have fixed on a certain view of what the essential properties of objects and kinds are. Let K be a class of propositions that jointly comprise a full account of those – it may contain the proposition that water is a composite, say. Since essential properties are had necessarily, and since the necessary is closed under demonstrability – the second constraint from section 1 – the following stronger variant of LOGIC holds:

$\forall p\,(L(\bigwedge \mathrm{K} \rightarrow p) \rightarrow \Box p)$

A restricted version of modal liberalism will also accept the converse of this conditional, which is a weaker variant of LIB:

$\mathrm{LIB_K}\quad \forall p\,(\Box p \rightarrow L(\bigwedge \mathrm{K} \rightarrow p))$

Just as the corresponding claims with P instead of K were seen to do before, these two conditionals, in conjunction with anti-rationalism, specify an answer to the question where the dividing line between the possible and the impossible falls: K-contingentism, or $\mathrm{C_K}$.

The argument that K-contingentism is at best contingent then parallels the one for P-contingentism. Of course, K needs to be substituted for P in (1'), (2'), and (10') above. The informal argument for the truth of the resulting claims will need to be adapted. It may well be essential to the Eiffel Tower that it is taller than 100m. If so, $\neg L(\bigwedge \mathrm{K} \rightarrow \neg \Box p)$ –with p chosen as above – is false, and hence the analogue of (10') is false too.

But the argument still goes through if we use a true negative existential claim. Suppose that there is no sphere that is both pink and more than 1km in diameter. Then this proposition does not follow from the conjunction of all attributions of essential properties and relations. Nor does it follow from that conjunction that this proposition is not necessary. Just as in the case of (2') and (10'), these observations can be used to argue that their analogues with K instead of P are true.

The two views considered in this section could both be characterized by the conjunction of anti-rationalism and a quantified biconditional of the following form:

$\forall p\,(L(\bigwedge\Phi \rightarrow p) \leftrightarrow \Box p)$

I argued that both views are at best contingently true. This raises the question whether the argument generalizes to any view that can be thus characterized. The answer is negative. Suppose that for some Φ, LIB_Φ is a consequence of the conjunction of the members of Φ. Then $L(\bigwedge\Phi \rightarrow \mathrm{LIB}_\Phi)$ will be true, and hence also $LL(\bigwedge\Phi \rightarrow \mathrm{LIB}_\Phi)$ and $L(\mathrm{C}_\Phi \rightarrow (\bigwedge\Phi \rightarrow \mathrm{LIB}_\Phi))$. It follows that either the Φ-variant of (2') is false, or else C_Φ is incoherent. By a similar argument, it can be shown that no Φ-variant of (10') can be true.[39]

In fact, we can know for independent reasons that the arguments cannot go through for every Φ. Given that Φ can be infinite, arguably any division of the class of propositions into the possible and the impossible ones can be captured by a quantified biconditional of the above form.[40] (Although some would not be aptly called "contingentism," however qualified.) But clearly, some such divisions are not itself contingent, with hyperdeterminism again providing an example.

So there are limits to how far the two arguments generalize. If those views to which they do not apply were to be rejected on independent grounds, it would still follow that the truth about what is contingent is itself contingent. In section 1, I rejected hyperdeterminism because of its sheer implausibility. Moreover, I argued that views that divide the possible from the impossible in an arbitrary way should be rejected. I suspect that any view distinct from hyperdeterminism which escapes the arguments would fail to satisfy that constraint. What principled reason is there to think that propositions about the division between the possible and the impossible are themselves non-contingent? At least, those who wish to oppose the conclusion face a challenge: to articulate such a division that entails its own necessity, and to do so without special pleading for the non-contingency of the modal or resorting to other *ad hoc* moves.

7. Objections from modal epistemology

Is general contingentism a defensible position? In this section, I would like to address a cluster of epistemological worries about the view. Since I shall assume anti-rationalism, and take the modal liberal to be a general contingentist, I will no longer distinguish between those views. I shall also not consider P-contingentism or K-contingentism separately, since they will be no more vulnerable to the objections than general contingentism.

Epistemological challenges to general contingentism can take different forms. Some of them do not go beyond the expression of some unspecified unease. I shall here try to articulate three more focussed challenges, and indicate how the modal LIB can respond.

First, the objection from *modal agnosticism*. Its starting point is the observation that modal knowledge is rather hard to account for. It is, perhaps, not mysterious how we can know $\Box p$ when p is demonstrable, or $\hat{\mathrm{E}}p$ when p is true. But it is not easy to explain how we can

know $\hat{E}p$ when p is false, or $\Box p$ when p is not demonstrable. What is more, this difficulty does not pertain only to knowledge, but also to the weaker condition of justification. The reasons for this are familiar, and shall not be rehearsed. It is a natural thought that if we cannot account for knowledge, or justification, of either $\Box p$ or $\neg\Box p$, the rational attitude is to refrain from believing either. The upshot is that we should endorse some kind of modal agnosticism, understood as the view that we ought to withhold belief from, or suspend judgment about, modal matters.

The objection from modal agnosticism is no more threatening to general contingentism than it is to any other hypothesis about where the line between the possible and the impossible falls. Any such hypothesis will entail epistemologically problematic modal theses, if the objection is right. That is, it will entail a modal thesis that is either unknowable or such that its knowability cannot be accounted for. For the general contingentist, all these modal theses take the form $\hat{E}p$. On rival hypotheses, some of the epistemologically worrisome theses take the form $\Box p$. But we have not been given a reason to think that brute necessities – truths of the form $\Box p$ for indemonstrable p – are any less problematic, from an epistemological point of view, than non-actual possibilities.

So the objection, as it stands, does not urge us to draw the line between the possible and impossible differently. Rather, it urges us not to draw such a line at all, that is, to refrain from formulating a hypotheses of such generality.

We should note, though, that in my characterization of general contingentism, I did not talk about knowledge, or about justification. *Prima facie*, then, the claims about modal epistemology discussed above are not objections to the view, in so far as they turn on such concepts. Of course, they would count as objections if a proponent of general contingentism could be shown to be committed to know various possibility claims, or be justified in believing them. It might be argued that she is so committed in virtue of asserting general contingentism. On an influential view, an assertion that p is successful only if the asserter knows that p. But if assertions are understood thus, then many scientific and philosophical hypotheses are not put forward in the mode of assertion. Rather, they are advanced in an experimental spirit, to be tested by whatever means of testing is appropriate to the discipline. In this paper, general contingentism has been put forward in such a spirit.

I acknowledge that if general contingentism is false, then its proponents commit an error. They have a false belief, and make a false judgment. No appeal to the spirit in which they have put forward their hypothesis will save them from that charge. But the risk of error needs to be weighed up against the chance of attaining truth. In inquiry, the twin goals of seeking truth and avoiding error need to be balanced. As the pragmatists have told us, we are often prejudiced in favour of the latter goal at the expense of the former. Such prejudice may underlie the objection from agnosticism. Why should the risk of error in modal matters be such a deterrent that it is not outweighed by the chance of attaining truth? Unless we are given some reason for this, we are free to reject the objection from the epistemology of possibility.

Second, the *objection from infallibilism*. If it is coherent that modal liberalism is false, then it is also coherent that someone falsely believes it. But then, given modal liberalism, it is also possible that someone falsely believes the view. In this sense, belief in modal liberalism is fallible.

The possibility of error could be described in more detail, and more vividly. Suppose that in the actual world, Fred believes that modal liberalism is true. Then there is a possible world in which Fred*, who has the same beliefs as Fred, and the same justification for those beliefs, is deceived. What grounds does Fred have to think that he is not in Fred*'s situation? None, according to this objection, and this is thought to undermine the epistemic credentials of Fred's belief.

This objection does not need to worry the modal LIB, in seems to me. For if this sort of infallibilist challenge were effective, it would not just undermine modal liberalism. As is familiar from the discussion of skeptical arguments, it would likewise undermine our putative knowledge of the external world, if we acknowledge the possibility of evil demons and brains in vats. For this reason, many epistemologists have found that infallibilism sets too high an epistemic standard.

Third, the objection from *privileged access*. This objection – which will concern us for the rest of this paper – turns on a certain egalitarianism about possible worlds. Rather than to general epistemological considerations, it appeals to a bespoke principle about the subject matter of modality and possible worlds. In a slogan, the principle is: Don't take our world to be metaphysically special!

The idea is this. There is a plethora of possible worlds in modal space. One of those worlds is ours, the actual world. When we form beliefs, we narrow down the region of modal space where we take the actual world to be located. Roughly speaking, the principle enjoins us to take the actual world to be typical representative of the class of possible worlds. That is, we should not form beliefs that correspond to regions of modal space in which only atypical worlds are located.

Put like that, the principle needs some clarification. We might think that it is not typical of a world to contain a planet whose topography is correctly represented by my atlas. But that ought not to make me suspicious of my atlas. There are two reasons why the principle cannot be applied in this case. First, the principle is supposed to be defeasible. It can be overridden by other considerations – in this case, geographical evidence. Second, and more importantly, a world ought not to count as atypical merely in virtue of being fully determinate. On all the standard conceptions of possible worlds, every world is fully determinate. Hence most worlds will have geographical features that most worlds do not have. But we should not conclude that a world is atypical on account of that. Typicality cannot be understood in a statistical sense. It is not a matter of how many worlds share a feature with a given world. Rather, I would like to suggest that typicality has to do with certain kinds of non-trivial strict orderings among possible worlds (I take a strict ordering on a class to be *trivial* if it does not relate anything): a world is atypical with respect to such an ordering if it is maximal or minimal in it.

This articulation of the injunction against taking the actual world to be special fits the application that David Lewis made of it in his case against the so-called "linguistic ersatzist" conception of possible worlds. Lewis complained that linguistic ersatzism conflates possibilities involving different alien natural properties. The problem would not arise if every possible natural property were instantiated in the actual world. But Lewis took it to be likely that the problem does arise:

> Think of an ersatzist philosopher who lives in a simpler world than ours. The protons and neutrons ... of his world are indivisible particles. ... [T]he distinctive properties of quarks ... are alien to that world. Likewise, perhaps some properties instantiated within richer worlds than ours are alien to our world. Maybe there are some especially opulent worlds that do have instances of all the natural properties there could possibly be. ... But those worlds are special, and we have no reason to think we live in one of them. More likely we are in the same position as the philosopher who lives in a simpler world than ours.[41]

Linguistic ersatzists need to take the actual world to be special, because they allow that the there are worlds with fewer fundamental properties, but no worlds with extra ones. A world *w* is prior to *w′*, in the relevant ordering, if and only if every fundamental property that exists in *w′* exists in *w* as well, but not vice versa. The linguistic ersatzist, according to Lewis, needs to take the actual world to be maximal relative to that ordering.

Consider, by way of contrast, the example of the atlas. Every world has its own specific geography. But there is no obvious way of ordering worlds according to their topographical features. Perhaps there is an unobvious, and unnatural, way of doing so. But if so, then such an ordering ought not to bear on the question whether a world is typical.

Applying this idea to general contingentism, consider the following ordering among possible worlds: $w < w'$ if and only every possible world that is accessible from *w* is also accessible from *w′*, but not vice versa. Given modal liberalism, this ordering is non-trivial, and the actual world needs to be maximal relative to it. If everything that is coherent is already possible at the actual world, as modal liberalism requires, then any world with further possibilities would have to be one where, *per impossibile*, something incoherent is possible. According to the objection, then, the actual world is metaphysically atypical because it accesses every possible world. The actual world enjoys privileged access.

In response, the general contingentist should grant that given the familiar biconditionals linking modality and possible worlds, the actual world is maximal among all possible worlds in the ordering defined above. But general contingentism is not to blame – rather, the privileged access of the actual world is a consequence of certain widely accepted principles linking modality and possible worlds.

According to one such principle, $\hat{E}p$ is true in world *w* just in case *p* is true in some world *w′* accessible from *w*. Accessibility can be understood as relative possibility: a world *w′* is accessible from *w* just in case it is possible relative to *w*. But what worlds are possible –

possible *simpliciter*, not just possible relative to this or that world? The standard framework for modeling modality in terms of worlds does not immediately give an answer, since its purpose is to give truth-conditions for the attribution of possibility to propositions, rather than to worlds. But there is a very natural answer: a world is possible if and only if it is accessible from, or possible relative to, the actual world. From that answer, it follows that every possible world is accessible from the actual world, and hence that the actual world is maximal in the ordering < among possible worlds defined above.

I doubt that what I described as the natural answer – that the possible worlds are those that are accessible from the actual world – needs much defence. Nonetheless, in case one is needed, I shall offer an argument for the one direction of the biconditional that is relevant here – the claim that every possible world is accessible from the actual world (@). Consider the following four claims:

Inheritance: If a world is possible, every proposition true at that world is possible.

Internality: If the same propositions are true at w and w', then @Rw iff @Rw'.

Closure: For any class of propositions, there is a proposition true at exactly those worlds where all the members of the class are true.[42]

Together with the claim that if a proposition is possible, it is true at a world accessible from the actual one – one of the key bridging principle between modal and possible-worlds talk – these three claims above entail that every possible world is accessible from the actual world.[43]

On the assumption that we wish to use worlds to illuminate modality, these principles strike me as rather plausible. While their acceptance is not compulsory for a possible-worlds theorist, they contribute to the simplicity and elegance of the theory. But the important point to note for present purposes is that their plausibility or lack thereof is in no way dependent on general contingentism. If the general contingentist is committed to the actual world's being maximal in the ordering <, so is everyone else.

This *tu quoque* response does not yet fully answer the objection from privileged access, however. The complaint was that the actual world is atypical with respect to an ordering that is non-trivial. Given the above principles, general contingentism entails that < is a non-trivial ordering, while a view according to which modal status is non-contingent entails that it is trivial: since all possible worlds access each other, there are none that stand in the relation < . It appears, then, that general contingentism, unlike some of its rivals, entails that the actual world is special.

On closer inspection, this appearance turns out to be illusory. When he objected to linguistic ersatzism, Lewis asked us to consider the situation of a philosopher in a possible world with no quark flavours. He suggested that she would be wrong to think that there could not be any natural properties alien to her world. According to linguistic ersatzism, our situation is relevantly different from that philosopher. Our world, unlike hers, is maximal relative to the relevant ordering. But now consider a philosopher in a world that

accesses some but not all of the actually accessible worlds. By the above reasoning, she can conclude that her world is maximal in the ordering < of possible worlds. But, unlike the philosopher in the quark-free world, she would not be wrong. She would be considering the ordering < on the class of worlds that are possible relative to her world, not relative to our world. So her conclusion would be equally justified as ours. It is not a special feature of the actual world that it is maximal in such an ordering, after all.

One lesson to draw here is that objections to taking the actual world to be special need to be treated with care. We should be particularly suspicious of them if the allegedly special feature is one whose possession depends on which world is actual. Consider the following parody:

> The actual world is actual. If there are any non-actual worlds, the actual world is special. But it is not special, and hence there are no non-actual world. Therefore, hyperdeterminism is true.

On the indexical analysis of actuality, every world is actual relative to itself. So if the actual world is special in this respect, then every world is, making the argument ineffective.

In Lewis's objection against linguistic ersatzism, the supposedly special property was containing all natural properties. It was common ground between Lewis and the linguistic ersatzist that possession of this property does not depend on which world is actual. The situation is different with the objection from privileged access. The general contingentist holds that whether a world is <-maximal among the possible worlds depends on what world is actual, since what worlds are possible depends on what world is actual. Their opponent may disagree. But on pain of circularity, they cannot use the objection from privileged access in the version given above.

However, there may be other variants of that objection. To avoid the charge that the allegedly special feature is sensitive to what world is actual, the objector could work with a concept of a world which is neutral with respect to possibility or impossibility. The claim is then that the actual world should not be <-maximal in the class of worlds. But general contingentists are under no pressure to deny that claim. If they wish, they can posit impossible worlds that access all possible ones plus some impossible ones too. Such worlds will be above @ in the ordering <.

Yet another alternative version of the objection specifies the class of worlds neither as the class of worlds or the class of possible worlds, but rather the class of coherent worlds. General contingentism is indeed in the target area of that objection, and some of its rival will not. But the general contingentist can rightly protest that the principle is *ad hoc*. A parallel objection could be made to any hypothesis about where the line between the possible and the impossible falls. Suppose that according to some view, a proposition is possible just in case it satisfies the condition φ. Then the actual world will be maximal among the φ-worlds. But unless we are given some reason that being maximal among the φ-worlds is a bad thing, this objection should not trouble the advocate of such a view.

8. Conclusion

In this paper, I have argued that if we are modal liberals, then we should not be modal rationalists. Further, I provided two arguments for the conclusion that if we are modal liberals but not modal rationalists, then we should acknowledge our own position to be at most contingently true. The resulting view, general contingentism, has it that the world is full of contingency, but only contingently so.

Still, the question remains whether we should be modal liberals. In section 1, I provided some motivation for it. In the last section, I defended the view against a number of objections. Pending a more thorough evaluation, it seems to me that the view is perfectly coherent. If I am right, it is true that there could be brute necessities, but that, by itself, does not give us any reason to think that there are any.

Admittedly, general contingentism faces a number of challenges. What kind of logical systems for the two operators □ and *L* are compatible with it? How are we to account for the validity of certain inferences using the word 'actually', given that the standard theory appears problematic for modal liberalism? Such question call for more technical work, and cannot be addressed within the confines of this paper. A definitive evaluation of the view will depend on how they can be answered. Here, my aim has merely been to argue that among theories about what is possible, general contingentism is a serious contender.

---

* Many thanks to audiences in Geneva, Birmingham, Canberra, Dublin, and St Andrews, where early versions of this material received extremely useful feedback. I am also grateful to Adam Rieger and two anonymous referees for detailed comments on a later version. This work was supported by the Arts and Humanities Research Council [grant number AH/J004189/1].

[1] The distinction is analogous to the one between the "special composition question" and the "general composition question" in Peter van Inwagen, *Material Beings* (Ithaca: Cornell, 1990).

[2] David J. Chalmers, "Does Conceivability Entail Possibility?", in Tamar Szabo Gendler and John Hawthorne, eds., *Conceivability and Possibility* (Oxford University Press), pp. 145-200.

[3] Cian Dorr, "Non-symmetric relations," in Dean W. Zimmerman, ed., *Oxford Studies in Metaphysis*, vol. 1 (Oxford: Oxford University Press, 2004), pp. 155-192; and "There Are No Abstract Objects", in Theodore Sider, John Hawthorne and Dean W. Zimmerman, eds., *Contemporary Debates in Metaphysics* (Oxford, Blackwell, 2008), pp. 32-63.

[4] For a good example, see Gideon Rosen, "The Limits of Contingency," in Fraser MacBride, ed., *Identity and Modality* (Oxford University Press, 2006), pp. 13-39.

[5] Nathan Salmon, "The Logic of What Might Have Been," *Philosophical Review*, 96, 1 (1989): 3-34.

[6] Alexander R. Pruss, *Actuality, Possibility, and Worlds* (New York: Continuum, 2011), p. 16.

[7] Peter van Inwagen, "Modal Epistemology", in *Ontology , Identity, and Modality* (Cambridge: Cambridge University Press, 2001), pp. 247-248.

[8] See e.g. Alexander Bird, Nature's Metaphysics: *Laws and Properties* (Oxford University Press, 2007).

[9] Gideon Rosen, "A Study in Modal Deviance," in Tamar Szabo Gendler and John Hawthorne, eds., *Conceivability and Possibility* (Oxford University Press), pp. 283-307; Ross Cameron, "The Contingency of Composition," *Philosophical Studies* 136, 1 (2007): 99-121; Kristie Miller, "Defending Contingentism in Metaphysics," *dialectica* 63, 1 (2009): 23-50; Josh Parsons, "Conceptual Conservatism and Contingent Composition," *Inquiry* 56, 4 (2013): 327-339.

[10] The view that all propositions are necessary, even false ones, is incompatible with T.

[11] David Kaplan, "A Problem in Possible-Worlds Semantics", in Walter Sinnott-Armstrong, ed., *Modality, Morality, and Belief* (Cambridge: Cambridge University Press, 1995), pp. 49. Kaplan also reports the historical conjecture that "it was the rigors of Hyperdeterministic Puritanism from which the original settlers of Southern California were fleeing".

[12] *Ibid.*, p. 42.

[13] Some authors take the sentence "I am here now" to be a logical truth. But surely, whatever proposition it expresses will not be a logical truth.

[14] For a defence of the sort of *sui generis* propositional quantification used in LOGIC, see Timothy Williamson, "Truthmakers and the Converse Barcan Formula," *dialectica* 53, 3/4 (1999): 253-270. Readers who only understand quantification into name position can replace *p* in the matrix of these quantifiers with *Tp*, where *T* is a truth-predicate. For discussion of technical issues concerning the interaction of a modal operator and a truth predicate, see Volker Halbach and Philip Welch, "Necessities and Necessary Truths: A Prolegomenon to the Use of Modal Logic in the Analysis of Intensional Notions," *Mind*, 118, 4 (2009): 71-100.

[15] I am setting aside the Leibnizian view that demonstrable truths are contingent provided that they are not finitely demonstrable.

[16] G.W. Leibniz, *Philosophical Essays*, ed. Roger Ariew and Daniel Garber (Indianapolis: Hackett, 1989), p. 238.

[17] Bas C. van Fraassen, *Laws and Symmetry* (Oxford: Oxford University Press, 1989), p. 171.

[18] Penelope Mackie, *How Things Might Have Been* (Oxford: Oxford University Press, 2006), p. 144.

[19] David J. Chalmers, "Does Conceivability Entail Possibility?", in Tamar Szabo Gendler and John Hawthorne, eds., *Conceivability and Possibility* (Oxford: Oxford University Press), pp. 145-200.

[20] In contrast to Chalmers, I take negative conceivability to be a property of propositions, not of token sentences or token mental states. Moreover, I do not rely on Chalmers' distinction between "primary" and "secondary" conceivability.

[21] For some relevant discussion, see Bruno Whittle, "There Are Brute Necessities," *Philosophical Quarterly* 60, 238 (2010): 149-159.

[22] David J. Chalmers, "Does Conceivability Entail Possibility?".

[23] Cian Dorr, "There Are No Abstract Objects".

[24] David J. Chalmers, "Does Conceivability Entail Possibility?".

[25] David J. Chalmers, "The Two-Dimensional Argument Against Materialism", in *The Character of Consciousness* (New York: Oxford University Press, 2010), pp. 141-91.

[26] Some philosopher who would not wish to be called "rationalists" in any sense would also accept the sentence MR, but would take it to express an analytically true statement. See the index of A.J. Ayer, *Language, Truth and Logic* (London: Penguin, 2001), where "necessary propositions" refers you to "a priori propositions."

[27] On this point, I am in agreement with Robert J. Howell, "The Two-Dimensionalist *Reductio*," *Pacific Philosophical Quarterly* 89, (2008): 348-358.

[28] Kenneth Kunen, "Elementary Embeddings and Infinitary Combinatorics," *The Journal of Symbolic Logic*, 36, 3 (1971): 407-413.

[29] As far as modal logic is concerned, I use the terminology of Brian F.Chellas, *Modal Logic: An Introduction* (Cambridge and New York: Cambridge University Press, 1980).

[30] F.B. Fitch, "A Logical Analysis of some Value Concepts," *The Journal of Symbolic Logic*, 28, 2 (1963): 135-42.

[31] The conjunction LIB $\wedge \neg$ MR is weaker than general contingentism, since it is compatible with rationalism about many metaphysical theses – just not about LIB.

[32] The result holds only for propositions expressible in an intensional language. In the presence of hyperintensional operators, all bets are off.

The proof uses a few assumptions, none of which ought to be controversial. They include: i) LOGIC, like LIB on the modal rationalist view, is demonstrable. ii) Whatever is demonstrable is demonstrably demonstrable (principle 4 for *L*).

[33] For a discussion of some logical issues concerning operators that are co-extensional but not co-intensional, see Timothy Williamson, "Iterated attitudes", in Timothy Smiley, ed., *Proceedings of the British Academy*, vol. 95 (Oxford: Oxford University Press, 1998), pp. 85-133.

[34] For discussion of the Converse Barcan Formula, see Timothy Williamson, "Truthmakers and the Converse Barcan Formula."

[35] For relevant discussion, see Josh Parsons, "Conceptual Conservatism and Contingent Composition."

[36] Whether they are indeed neither demonstrable nor refutable will depend partly on what kind of propositions the relevant sentences are taken to express. On some views, the proposition that Hesperus is distinct from Phosphorus is the same as the proposition that Hesperus is distinct from Hesperus, the proposition that water is an element the same as the proposition that H_2O is an element, and the proposition that heat is inversely proportional to mean kinetic energy the same as the proposition that mean kinetic energy is inversely proportional to itself. (See Scott Soames, *Beyond Rigidity: The Unfinished Semantic Agenda of* Naming and Necessity (New York: Oxford University Press, 2002), for discussion.) These latter propositions are arguably incoherent.

[37] Gideon Rosen, "The Limits of Contingency," p. 18.

[38] Gideon Rosen, "The Limits of Contingency" does so, for example, and likewise Scott Sturgeon, "Modal infallibilism and basic truth," in Fraser MacBride, *op.cit.*

[39] Suppose that for some *p*, $\Box\neg L(\Lambda_{\dagger}\ '\ p)$ – i.e. the first conjunct of the consequent in the $\dagger$-variant of (10') – is true. Given $LIB_{\dagger}$, $L(\Lambda_{\dagger}\ '\ \neg L(\Lambda_{\dagger}\ '\ p)$ is also true. Assuming that $L(\Lambda_{\dagger}\ '\ LIB_{\dagger})$ holds, so does $L(\Lambda_{\dagger}\ '\ (\neg L(\Lambda_{\dagger}\ '\ p)\ '\ \neg\Box p))$. It follows that $L(\Lambda P\ '\ \neg\Box p))$ – equivalent to the negation of the second conjunct of the consequent in the $\dagger$-variant of (10') – is true. Hence the $\dagger$-variant of (10') is false, for any *p*.

[40] I say "arguably" because of a complication concerning well-foundedness. It is tempting to say that $\dagger$ should just consist of all necessary propositions. But if $LIB_{\dagger}$ is itself necessary and also well-founded, then $\dagger$ cannot consist of all necessary propositions.

[41] David Lewis, *On the Plurality of Worlds* (Oxford: Blackwell, 1986).

[42] Closure is a consequence of the analysis of propositions as classes of worlds. But I am not presupposing such an analysis.

[43] Suppose that *w* is possible. Take the class of all truths of *w*. By Closure, there is a proposition A_w that is true exactly where all the members of that class are. So A_w is true in *w*. By Inheritance, A_w is possible. By the standard possible-worlds analysis, there is a world *w'* such that *@Rw'* where A_w is true. Then the same propositions are true in *w* and *w'*. By Internality, *@Rw* iff *@Rw'*. Hence *@Rw*.