The Moodless Theory of Modality: An Introduction and Defense*

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Abstract

This paper proposes a new reductive theory of modality called the moodless theory of modality. This theory, and not modal realism, is the closest modal analogue of the tenseless theory of time. So if the tenseless theory is true, and the temporality–modality analogy is good, it is the moodless theory that follows. I also argue that the moodless theory considered on its own is better than modal realism: arguments often thought decisive against modal realism are weak against it.

1 Introduction

This paper introduces and defends a new theory of modality: the moodless theory of modality. The moodless theory is reductive, and resembles modal realism, the most famous reductive theory [Lewis 1986]. Both theories reduce necessity to truth in all possible worlds, and say that possible worlds are concrete things like us and our surroundings. Some arguments for the moodless theory, as a result, parallel arguments for modal realism: the moodless theory, for example, is simpler than non-reductive theories, and it analyzes intensional operators like 'It is necessary that . . . ' in extensional terms. But one might worry that the resemblance cuts both ways. Won't the moodless theory inherit modal realism's many flaws? The answer is no. The moodless theory's reduction base (the set of notions that may appear in

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its truth-conditions) differs from modal realism's in ways I will explain, and these differences allow it to evade many arguments against modal realism, including the argument from island universes, the argument that it changes the subject, and (on some interpretations of it) the incredulous stare.

I was led to the moodless theory by the idea that every theory of time has a modal analogue, and vice versa. The tenseless theory of time, which is the standard reductive theory of temporality, reduces what was the case to what is (tenselessly) the case at some earlier time, and what will be to what is at a later time, and says that times are concrete things. Modal realism appears to be this theory's modal analogue. But it turns out that modal realism is both more and less reductive than the tenseless theory. If you revise modal realism to make the analogy perfect, you get the moodless theory of modality.

You also get the following argument for the theory. Add to the claim that the moodless theory is the perfect modal analogue of the tenseless theory two premises: (1) the tenseless theory of time is true, and (2) the 'analogy thesis' is true—the true theory of modality is the perfect modal analogue of the true theory of temporality. Hence the moodless theory is true. Many philosophers find the analogy thesis plausible on its own, but also think that the tenseless theory is true and modal realism false, so look for reasons to reject the analogy thesis.[1] If I am right, they can make their peace with it.

Both (1) and (2) are, admittedly, controversial. Many reject the tenseless theory in favour of some 'A-theory' of time, like presentism. And many reject the analogy thesis. Books have been written defending, and attacking, these premises.[2]

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[1]This is a theme of Dyke [1998] and Markosian [2001].

[2]Defences of the tenseless theory include Russell [1915], Smart [1963], Mellor [1998], Sider [2001], and Skow [2015]. Defences of presentism include Markosian [2004], Bourne [2006], and Zimmerman [2008]. The analogy thesis has its yin and yang in A. N. Prior and David Lewis. Both accepted it, with Prior defending anti-reductionism about time and modality, and Lewis defending reductionism [Prior and Fine 1977, Lewis 1986]. Rini and Cresswell [2012] is a book-length defence of the analogy thesis, and two recent papers defending it are Emery [2019] and Emery [2020]. Arguments against the analogy thesis include Forbes [1983], Lowe [1986], and Dyke [1998]. Since I am pro-analogy, I will note that Dyke claims that Forbes' and Lowe's arguments fail, and that Markosian [2001] claims that Dyke's

Defending them here would leave no room to explain my new theory of modality. So this part of my case can be read conditionally: if the tenseless theory, and the analogy thesis, are true, then so is the moodless theory. Establishing even this should interest metaphysicians, since many of them are guided by a conditional like this when forming their views on time and modality.[3]

2   Modal Realism is More Reductive than the Tenseless Theory

The moodless theory of modality differs from modal realism in two ways: it has a different definition of 'possible world', and its analyses are moodless, rather than indicative. I will explain the first difference in this section, and the second starting in section 4. Although I start with the first difference, I regard the second as far more important. I could be convinced that the best reductive theory of modality uses a definition of 'possible world' I don't consider. But I am nearly certain that the best reductive theory gives moodless analyses.

I will start with some arguments against modal realism that turn on its definition of 'possible world'. Then I will explain how the moodless theory defines 'possible world', and why it avoids the arguments. Finally I will explain why these definitions makes modal realism more reductive than, and the moodless theory more analogous to, the tenseless theory.

Last preliminary: I will work in the meta-metaphysical framework described in Sider [2011]. A theory of modality or temporality says what the world is fundamentally like, in modal or temporal respects. To do this it describes a language (its 'fundamental language'), and says that if S is true in that language, then S says what the world is fundamentally like. In a fully reductive theory, that language must be non-modal (/non-temporal). A theory is true only if it can describe the world completely using its fundamental language, where completeness means that each non-fundamental sentence S has a truth-condition 'S is true iff F', where a sentence in the fundamental language goes in for 'F'. These truth-conditions must, of course, be true. Importantly, this is weaker than the requirement that S be synonymous with

own argument against the analogy fails.

[3]I explore some other aspects of the moodless theory, including what it says about advanced modalizing, in Skow [2019].

the sentence replacing 'F'. Synonymy is not required.[4]

It is enough here to focus on necessity and possibility *de dicto*. So let P range over qualitative sentences; they contain no names, demonstratives, or free variables.[5] For simplicity let us also restrict P to sentences that are themselves free of modal vocabulary. As a first pass, modal realism's truth-conditions are these:

'It is possible that P' is true iff P is true in some possible world,[6]

and

'It is necessary that P' is true iff P is true in every possible world.

These are not the final analyses. 'Possible world' is a modal term, so a fully reductive theory of modality must eliminate it from the right-hand side. In modal realism it is stipulated to mean '(maximal) spatio-temporal system', where this in turn is defined as 'thing such that each of its parts is spatio-temporally related to each of its parts, and such that anything spatio-temporally related to any of its parts is (already) one of its parts'.[7]

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[4]Although Sider's book dates to 2011, this approach had been common for many years by then, if sometimes implicit and sometimes articulated in somewhat different terms (such as truthmaking). In the theory of time, the 'old' tenseless theory required synonymy; largely in response to Prior [1959], the 'new' one requires only truth-conditions (see the papers in Oaklander and Smith [1994]). Dyke claims that this distinction is under appreciated in debates about modality, and suggests that 'one could offer any of the possible worlds analyses of modality' and assert that 'the content of the proposed reduction would play the role, not of analysis [that is, providing synonyms], but of stating the truthmakers for modal truths' [Dyke 2007: 285]. The theory I shall propose is an instance of this approach.

[5]To be qualitative, a sentence must also be free of phrases whose analyses contain names, demonstratives, or free variables. If 'mammal' is analysed as 'organism descended from these organisms', then 'There are mammals' is not qualitative. For simplicity I will assume that 'mammal', 'donkey', and so on are qualitative.

[6]These quotation marks should technically be corner quotes. I ask the reader's forgiveness for ignoring this distinction. Also, some authors distinguish between truth in a world and truth at a world (e.g. Adams [1981]); that distinction won't matter here.

[7]Technically, the last clause needs to be 'anything *all the parts of which* are

It is a startling consequence of this definition that possible worlds are concrete things, things of the same kind as tables, chairs, quarks, and continents—just (in the usual case) bigger. But what is important here is not what kind of thing possible worlds are, but which things of that kind are possible worlds. Possible worlds have a unity to them; things that are parts of the same possible world are in some way tied together. Lewis says: spatio-temporal relations do this tying. My desk is in front of me, so we are in the same possible world—we are 'worldmates'. There are other desks, not spatio-temporally related to me (says modal realism); they are part of other possible worlds.

Substituting this definition of 'possible world' into the theory's truth-condition, we get

'It is possible that P' is true iff P is true in some spatio-temporal system,

where P (if qualitative) is true in a system iff the result of restricting all quantifiers in P to the parts of that system is (just plain) true. 'There are talking donkeys' is true in spatio-temporal system S iff there are, among the parts of S, talking donkeys.

If modal realism is true, it is not possible that there be two universes that are spatio-temporally disconnected from each other ('island universes'). For modal realism says that it is possible that there be island universes only if there is a spatio-temporal system with two spatio-temporally disconnected parts. This is false by definition. But island universe are possible. So modal realism is false. This is the argument from island universes.

I think the argument's second premise is obvious. But I can also argue for it. One version of the principle of recombination says, roughly speaking, that anything can coexist with anything. More precisely: if it is possible that there be an F, and it is possible that there be a G, then it is possible that there be an F and a G distinct from it (keep the requirement that F and G be qualitative). It is possible that there be a flying pig; it is possible that there be a flightless pig; so it is possible that

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spatio-temporally related to any of its parts is already one of its parts' (see Lewis [1986: 70]). I will ignore this complication. Note that Lewis intends his theory to entail that if anything is spatio-temporally related to anything, then there is at least one possible world. This requires the assumption that *is spatio-temporally related to* is an equivalence relation.

there be one of each. The principle requires one restriction: 'Something is an F and something else is a G' must not be logically (or analytically) false. Otherwise the principle says it's possible that there be two things each of which is the only thing. Now: 'Something is a maximal spatio-temporal system, and something else is one too' is not analytically false; so the principle entails that it is possible that there be two maximal spatio-temporal systems. Since they're both maximal, neither is spatio-temporally related to the other. So island universes are possible.[8]

Related to the argument from island universes is the argument from alien unity. Suppose that our world is Newtonian, so that each spatio-temporal relation is either purely spatial (like *x and y are 1 meter apart*) or purely temporal. Then if modal realism is true, it is necessary that a spatial or a temporal relation be instantiated. But that is false, and for good scientific reasons: even assuming that Newtonian mechanics is true, it is still possible that special relativity be true. But if special relativity were true, events would unfold on a manifold the points of which are related by *the Interval between x and y is r*, which is neither purely spatial nor purely temporal. So modal realism is false.

Lewis's responses to these arguments are weak. Regarding the first, he denies that island universes are possible. He suggests that people who think they can imagine two island universes are really imagining something else: two four-dimensional universes that are spatio-temporally related along a fifth spacetime dimension, for example [Lewis 1986: 72]. But it is doubtful that people confuse the possibility of

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[8]Bricker [2001] also argues for the possibility of island universes using recombination, or recombination-adjacent, principles. For an argument based on quite different principles, see Bigelow and Pargetter [1987]. A referee worries that the recombination principle I use might generate problematic results for certain unusual 'F' and 'G'. For example, let 'F' be 'thing which is such that everything is red (all over)', and 'G' be 'thing which is such that everything is green (all over)'; then the principle seems to entail that it is possible that something be both red and green all over. I would argue that these and other problematic cases run afoul of the restriction: as I am using 'analytic' (roughly following [Dorr 2005]), 'something is red and green' is analytically false. Also, on these definitions, whether something is an F or a G depends on the intrinsic natures of things wholly distinct from it; I am tempted to restrict the principle to exclude such definitions.

island universes with the surrogates Lewis offers.[9]

Also, the premise that island universes are possible can be defended without appealing to their imaginability. I defended it using a version of the principle of recombination. True, Lewis rejects that version. Despite being pro-recombination, he limits the principle, saying that anything can coexist with anything, provided there is a (connected) spacetime that can hold them both [1986: 89]. But there is no independent reason to limit the principle this way.

What about the argument from alien unity? Lewis responds to it by revising the definition of 'possible world'. It now means 'maximal spatio-temporal, or analogically spatio-temporal, system'. What makes a relation analogically spatio-temporal? It must be natural, pervasive, discriminating, and external [Lewis 1986: 76]. It is not important to explain these criteria here. It is enough to note that it is not clear that even with this revision the theory generates enough possible worlds.[10]

The moodless theory of modality avoids both these arguments. It is time to introduce the theory. I will give two variants. Neither defines 'possible world' as 'maximal spatio-temporal system'. The first variant gives no definition: it says, with modal realism, that possible worlds are concrete objects, and that I and this table are parts of the same possible world; it makes claims about what possible worlds there are—the possible worlds are diverse enough, for example, to make the principle of recombination true; but it does not define 'possible world'. The second version does define 'possible world', but not in spatio-temporal terms. It defines it as 'maximal worldmate-related thing': An X such that every part of it is a worldmate of every other part, and anything that is a worldmate of one of its parts is one of its parts.[11] But the theory does not define 'is a worldmate of'. Other than

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[9]'If the notion of island universe were obscure, or very complex ...we might not know what possibility we had in mind. But since the notion of island universe, once disambiguated, is simple and clear, Lewis's substitutes are plainly beside the point' [Bricker 2001: 34].

[10]By 'R is pervasive' Lewis means, more or less, that R is transitive, or maybe transitive and symmetric. Bricker argues that in relativistic worlds the basic relations tying spacetime together are not pervasive [Bricker 1993].

[11]Possible worlds, that is, are fusions of equivalence classes of material things under the worldmate relation. It is part of the theory that this relation is, in fact, an

these changes, the moodless theory is (almost) the same as modal realism. It still gives this truth-condition: when P is qualitative, 'It is possible that P' is true iff P* is true, where P* comes from P by restricting the quantifiers to the parts of some possible world.[12] But now 'possible world' does not have a non-modal definition.

The moodless theory of modality easily avoids the arguments from island universes and from alien unity, since neither argument works if the parts of a possible world are not required to be spatio-temporally related.[13]

One might object that if the principle of recombination implies the possibility of island universes, then it also implies the possibility of two things not related by the worldmate relation. But it does not. 'Everything is a worldmate of everything else' is analytic, so 'There are things that are not worldmates' is analytically false. The restriction kicks in, and the principle cannot take you from 'It is possible that there be a maximal worldmate-related thing' (twice over) to 'It is possible that there be one of those, and also another'. 'Everything is spatio-temporally related to everything else', on the other hand, is (again) not analytic.[14]

I said that the moodless theory's definition of 'possible world' makes it more analogous to the tenseless theory of time. Why is that?

The tenseless theory of time is reductive in the sense that it offers truth-conditions for tensed sentences and of sentences containing 'now', 'past', 'present', 'future', and related terms (like 'last week') that are free of these features. For example, a standard tenseless truth-condition for (simple, *de dicto*) sentences in the

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equivalence relation.

[12]The moodless theory's analysis doesn't quite look like this. Its truth-condition is moodless, rather than indicative. I will explain the difference in section 4.

[13]The theory does require that if two things are spatio-temporally related, they are parts of the same possible world.

[14]You might object that the moodless theory cannot say that 'Everything is a worldmate of everything else' is analytic, since it in fact asserts its denial. Does it not say that there are many worlds, and isn't it true that no world is a worldmate of another? Actually there is no problem here, but I will not be able to explain why until section 6. As a preview, the response will resemble the tenseless theory's claim that 'Everything is present' has both an analytically true reading and a false reading. Section 6 also defends of the thesis that 'Everything is a worldmate of everything else' has an analytic reading.

past tense looks like this:

> 'It was the case that P' is true at T iff there is a time S earlier than T such that P*, the result of restricting the quantifiers in P to S (or, things that exist at S), is true.[15]

So for example 'It was the case that there are dinosaurs' is true at T iff there are, at a time S earlier than T, dinosaurs. Note that the truth-condition contains both 'time' and 'earlier than', which denotes a temporal relation. The tenseless theory of time is not trying to reduce the temporal to the non-temporal generally. Its more modest aim is to reduce the temporal to 'untensed' facts about times and things' relations to times. That's why it is okay for its fundamental language to contain 'time' and 'earlier'.

The moodless theory of modality is more like this theory than is modal realism. In both, the role played by possible worlds is analogous to the role played by times in the tenseless theory. For example, 'Possibly, ...' becomes truth in some world, and 'It was the case that ...' becomes truth at some past time. But it is the moodless theory that includes 'possible world' in its fundamental language, as the tenseless theory includes 'instant of time'.[16] Modal realism, from this perspective, goes too far in trying to reduce the notion of a possible world to something non-

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[15]By 'simple' I mean that P is in the present tense; for embedded tenses a recursion clause is needed. The statement of the truth-condition assumes that a tensed sentence like 'X was F' has been re-written to put the tense in a sentential operator: 'It was the case that X is F'. As Prior pointed out, this is convenient when doing the formal logic of tense but does some violence to English grammar, which requires 'X was F' to become 'It was the case that X was F' [Prior 1968]. For reasons I will get to below, P* also differs from P in that present-tensed verbs have been replaced by tenseless ones.

[16]I described another version of the moodless theory, which has 'is a worldmate of' but not 'possible world' in its fundamental language. There is a version of the tenseless theory that does the parallel thing. It puts 'is simultaneous with' in its fundamental language, and defines 'x is a time' as 'every part of x is simultaneous with every other part of x, and everything simultaneous with a part of x is a part of x': a time is a thing maximally related by the simultaneity relation. (Sometimes the domain here is restricted to parts of spacetime. A different definition would be needed to deal with relativistic spacetimes.)

modal.[17] If the true theory of modality is the one that is the closest analogue of the tenseless theory of time, the true theory is the moodless theory.[18]

3   The 'Changing the Subject' Objection

A common objection to modal realism is that it changes the subject. According to Peter van Inwagen, modal realists 'face the . . . problem of explaining what these things [spatio-temporal systems other than our own] would have to do with modality if there were any of them' [van Inwagen 2001a: 203–204n]. He asks, 'What would such things and their parts have to do with modality? Why should I call a horse that is a part of one of those things a 'merely possible horse'? Why is that a good thing to call it' [van Inwagen 2001b: 226]? To turn these questions into an argument: *what could be the case* is one thing, and *what is the case in places spatio-temporally disconnected from here* is another; this claim, moreover, is so obvious as to need no defence. But modal realism wrongly identifies the two.[19]

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[17]Modal realism has a simpler ideology (in the Quinean sense) than the moodless theory, since 'possible world' is not in its fundamental language. And many metaphysicians think that the theory with the simpler ideology is better, other things being equal. Quine was the original source [Quine 1948]; David Lewis agreed [Lewis 1986: 4]. Might modal realism's advantage in simplicity be so great that it is overall better than the moodless theory? I think the answer is no. But a full defence of this would require getting deeper into the epistemology of metaphysics than I have space for.

[18]The tenseless theory's fundamental language contains, not just a word for instants, but also phrases for temporal relations between times, like 'earlier than'. The moodless theory does not—so far—have in its fundamental language any phrases for modal relations between worlds. But a fully developed version of the moodless theory might: it might, for example, have 'w* is the nearest world to w in which A is true' (where this phrase would not be defined in terms of non-modal similarities between worlds), and use this phrase when giving truth-conditions for counterfactuals. Exploring this idea is beyond the scope of this paper.

[19]This objection is sometimes called 'the irrelevance objection'. Others who press it include Jubien [1988] and Chihara [1998: 95]. Maybe the most famous objection to modal realism is the 'Humphrey Objection' [Kripke 1980]. It targets modal realism's analyses of de re modal claims, analyses like: 'Humphrey could have won the election' is true iff Humphrey has a winning counterpart. I will not

The standard response is that this objection is too powerful to be good; it is just a version of the paradox of analysis [Sider 2003]. The same problem arises, or at least could arise, for any analysis. Someone uninformed by astronomical advances would be reasoning poorly if they regarded *the morning star is one thing, the evening star another* as conclusive proof that that Hesperus is not Phosphorus.

I think the truth is somewhere in the middle. Trenton Merricks is convincing when he writes,

> everyone ... should agree that my possibly being forty feet tall is not analyzed in terms of my being on the same planet as a yawning cat. ... It is obvious that my being possibly forty feet tall is one thing, a cat's yawning another. ... Yawning cat counterpart theory is obviously wrong and we should come right out and say it. [Merricks 2003: 536]

Merricks is arguing against analyses of *de re* modal claims that use the notion of a counterpart, including the analyses modal realism offers (which are beyond the scope of this paper). But what is important is not his exact target but his general point: sometimes, not always but sometimes, we can know that some proposed analysis is wrong even when it is embedded in a metaphysical theory with many theoretical virtues. No matter how good yawning cat counterpart theory on the whole is, in other ways, we still know it is false, because we know it contains a false analysis of *being possibly forty feet tall.* The quasi-Quinean idea that we cannot evaluate a part of a metaphysical theory in isolation, but must in the first instance always evaluate the theory it belongs to as a whole, is false.[20]

But even if we can know some proposed analyses to be false in isolation, with others we should gather more evidence. And if we learn they are part of sufficiently powerful metaphysical theories, we should be willing to put our doubts aside and accept them.

Is modal realism in 'yawning cat territory', or is it in the region of logical space containing proposed analyses that we should be open-minded about? I sus-

discuss this objection directly, but I think that the 'changing the subject' objection is, as it were, its de dicto counterpart.

[20]The locus classicus is Quine [1951]. An argument against Quine's epistemological holism, focusing on scientific theories, is in Glymour [1980].

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pect the former. But even if I'm wrong, the moodless theory of modality is doing far better than modal realism. The moodless theory is not even within sight of yawning cat territory.

The argument again is by analogy with theories of time. If the analogy between modal realism and the tenseless theory is not perfect, then what is the true temporal analogue of modal realism? We can reverse engineer it. Modal realism defines 'possible world' in non-modal terms; this version of the tenseless theory will define 'instant of time' in non-temporal terms. To give this definition we need to assume that the spatio-temporal structure of the world is described by Leibnizian spacetime.[21] This spacetime can be partitioned into time-slices with the feature that a point of spacetime is spatially related to and only to other points on its slice. If we assume that *is spatially related to* is an equivalence relation, we can turn this into a definition:

> T is an instant of time =df every part of T is spatially related to every other part of T, and every thing spatially related to a part of T is a part of T.[22]

How plausible are the analyses of temporal notions that this theory offers? Here is its analysis of 'not-P, but sometimes P' where P is a simple qualitative sentence:

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[21]A precise description of Leibnizian spacetime may be found in Earman [1989]. Other spacetime structures also permit the definition of 'instant' I will give, but many, including Newtonian, Galilean, and Relativistic spacetimes, do not. The theory of time I'm describing is thus falsified by known physics. But I am using it to make a philosophical point, not proposing it as true.

[22]This is a non-temporal analysis only if x is spatially related to y is a non-temporal relation. I think it is, but I acknowledge there is room for disagreement and uncertainty about this. More generally, there is also room for disagreement and uncertainty about what it takes for an analysis to be non-modal or non-temporal. Regarding whether 'is spatially related to' (or more specific things like 'is ten meters from') names a non-temporal relation, on the pro side one might note that this is in some sense the relation's canonical name (it provides the best guide to the relation's nature), and that the name contains no words having anything to do with time or temporality. On the con side one might note that it relates spacetime points, that its job is to help knit spacetime points together into a spatio-temporal structure, and that it relates only simultaneous points. (Thanks here to a referee.)

'Not-P, but sometimes P' is true at T iff P is false when all quantifiers
are restricted to parts of T, and, for some time S, P is true when all
quantifiers are restricted to parts of S.[23]

This entails that

'There are no dinosaurs, but sometimes, there are dinosaurs' is true now
iff there are no dinosaurs spatially related to me, and there are dinosaurs
spatially unrelated to me.

If this analysis is not in yawning cat territory, it is not far off. What does *being spa-
tially related to me* have to do with temporality, specifically, with being temporally
distant from me? To say the least, these notions appear to have nothing to do with
each other.

By contrast, the standard version of the tenseless theory does not raise eye-
brows. From its analysis we get

'There are no dinosaurs, but sometimes, there are dinosaurs' is true
now iff there are no dinosaurs simultaneous with me (or: existing at this
time), and there are dinosaurs temporally distant from me (or: existing
at a time before or after this time).

Some philosophers may think that *what is the case at other times* has nothing to
do with *what is sometimes-but-not-now the case.* They may think also that *whether
X happens in the future* has nothing to do with *whether X will happen.* But these
complaints ring hollow, or at least do not ring strongly.

It is the same with modal realism and the moodless theory. If modal realism
is not in yawning cat territory, it is near the border. But the moodless theory is as
far from that border as the standard tenseless theory of time. ' "Possibly P" is true
iff, in some possible world, P' (where 'possible world' is irreducibly modal) is no
more objectionable than ' "It was that P" is true iff, at some earlier time, P' (where

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[23]This theory will also want analyses of past and future tense operators. That
will require a non-temporal definition of 'earlier than'. To avoid a detour through
what such a definition might look like, I focus on a sentence with 'sometimes'. For
an attempt to define 'earlier than' in non-temporal terms, see Barbour [2001].

'time' is irreducibly temporal). If the second does not change the subject, neither does the first.

4   Modal Realism is Less Reductive than the Tenseless Theory

We have seen one way in which modal realism is more reductive than the tenseless theory of time. In another way it is the tenseless theory that is more reductive than modal realism. Seeing how will lead to a full statement of the moodless theory. The argument will also show that modal realism does not in fact reduce the modal to the non-modal.[24]

How is modal realism less reductive than the tenseless theory? Look again at its analysis of one possibility statement:

'It is possible that there be talking donkeys' is true iff something is part of some spatio-temporal system and is a talking donkey.

This is supposed to be a non-modal analysis. But it is not: the right-hand side is in the indicative mood, and the indicative/subjunctive distinction is a modal distinction. Modal realism's fundamental language is not free of modality.

If this is not obvious, it is because the indicative / subjunctive distinction in mood is not as strongly marked in English as is the present / non-present distinction in tense. In contrast with tense, it is only in a very special case that the mood of a clause can be read off of the form of the clause's verb. The verb *be* is the special case: 'Jones is hungry' is indicative and 'Jones were hungry' is its subjunctive counterpart. (The subjunctive is the one that can appear as the antecedent of a subjunctive conditional, as it does in 'If Jones were hungry, he would be looking for food'. Its indicative counterpart appears in the indicative conditional 'If Jones is hungry, he is looking for food'.) It is easy to think that, since 'Jones is hungry' lacks any modal lexical items, like 'necessarily', or 'essentially', it is a non-modal sentence. But this is a mistake. It is as much a modal sentence as a tensed sentence:

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[24]Many have argued that modal realism fails to reduce the modal to the non-modal; see Cameron [2012] for discussion. The basis for my argument is, as far as I know, new.

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it is in the present indicative. And if 'Jones is hungry' is indicative, so is the right-hand side of the above analysis: 'Something is part of some spatio-temporal system and is a talking donkey'.

In the vast majority of cases verb inflection does not distinguish indicative clauses from subjunctive clauses. Nevertheless, all clauses in English are either indicative or subjunctive. In cases where the main verb is not *be,* the difference is purely semantic rather than partly syntactic: the one clause has both indicative and subjunctive interpretations. 'Jones had walked to the store', for example, on its indicative reading, locates the walking to the past of some other salient past event. In 'Jones had walked to the store before I arrived', the other past event is my arrival. On its subjunctive reading, by contrast, it simply locates the walking at some past time or other. 'If Jones had walked to the store, he would have bought some milk' does not differ from its indicative counterpart 'If Jones walked to the store, he bought some milk' in how it locates the walking in time; it differs in how it locates it in 'modal space'.[25]

Mistaking an indicative sentence for a moodless sentence is analogous to mis-taking a present-tensed sentence for a tenseless one. Careful presentations of the tenseless theory of time try to ward off this confusion. Its fundamental language contains tenseless verbs, and no tensed ones, not even present-tensed. So its truth-conditions are phrased, not like this:

'It was the case that P' is true at T iff P is true at a time S earlier than T,

where it is tempting to read everything outside quotation marks as in the present tense, but like this:

'It was the case that P' IS true at T iff P IS true at S,

where some typographical convention (here, capitalisation) is used to make clear that the verbs that appear outside quotation marks are in their tenseless forms.[26] A convention is needed because these tenseless forms do not exist in English; they are an innovation philosophers have made in order to state their theory.

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[25]Iatridou [2001] discusses modal interpretations of the past tense in counterfac-tuals in more detail.

[26]Smart [1963: 134], the first I know of to pick a convention, uses italics.

These tenseless verb forms are a site of controversy. One objection to the tenseless theory, and maybe it is the best objection, is that, despite the intentions of the philosophers who introduced them, these capitalised verb forms do not have tenseless meanings. Either 'IS' is meaningless, or means the same as the tensed 'is, was, or will be'.[27] Either way, the theory fails to describe a truly tenseless fundamental language. I think these objections fail, but my point here is not to argue against them. Instead it is to make clear what the tenseless theory of time is doing. It is not analysing all tenses in terms of the present tense. It is analysing all tenses, including the present, in tenseless terms, where this requires the right-hand side of the analyses, written in its fundamental language, to be neither present nor past nor 'future' tensed.[28]

The perfect modal analogue of the tenseless theory, then, should give analyses using a fundamental language whose sentences are truly moodless, neither indicative nor subjunctive. Modal realism gives indicative analyses, so it is not the perfect modal analogue; it does not go as far in its reduction as the tenseless theory does. The moodless theory of modality will. Since all clauses in English are either indicative or subjunctive, stating the moodless theory requires an innovation similar to the one needed for the tenseless theory. We need a way to write moodless clauses. Let us say that clauses in which all verbs are bold-face are moodless clauses.[29] The moodless theory then asserts this:

'It is possible that there be talking donkeys' **is** true in w iff something **is** part of some possible world and **is** a talking donkey.

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[27]Tichy attacks 'the myth of atemporal predication', which includes the thesis that 'is' can have a tenseless meaning [Tichy 1980]. That 'is, was, or will be' is the only available meaning for 'IS' is a premise of some versions of the argument that presentism and eternalism are compatible; see Sider [2001: 15], Crisp [2004], and Sider [2006] for discussion.

[28]Grammar books tell me that verbs in English lack future tensed forms. Instead English talks about the future using the modal auxiliary 'will' together with the plain form of the verb. But we non-linguists call 'Jones will be hungry' a future-tensed sentence.

[29]Note that while I boldface verbs, it is clauses as a whole that are indicative, subjunctive, or moodless. (Of course, a clause of one mood can embed a clause of another, as in 'Anyone who would have jumped in the lake is a fool'.)

A natural reaction to this theory is to think that you do not understand it. What is a moodless sentence anyway? What do they mean? Do they mean anything? These same questions arose for the tenseless sentences that appear in the tenseless theory. The best way to answer these questions in that case is to explain the relation between the hard-to-understand tenseless sentences and already-understood tensed sentences. 'There ARE dinosaurs' is supposed to be something not yet tied to any particular time. The role of tense in natural language is to tie it to a time: 'There are (present tense) dinosaurs' IS true iff there ARE, at this time, dinosaurs. The present tense in the original becomes a restriction on a quantifier (it is restricted to the time of utterance) in the tenseless truth-condition. Similarly 'There **are** dinosaurs' is something not yet tied to any possible world. The role of (certain parts) of modal vocabulary is to tie it to a world: 'It is possible that there be dinosaurs' **is** true if there **are** dinosaurs in some possible world; 'There are (indicative) dinosaurs' **is** true iff there **are**, in this world, dinosaurs. 'Possible' and the indicative mood have functions analogous to those of the past and present tense: when they appear in a sentence, they indicate how a quantifier in that sentence's moodless truth-condition is to be restricted. 'It is possible that' means a restriction to some possible world or other; indicative mood means a restriction to this one.

The contrast I have drawn between the moodless theory and modal realism— is it really fair? Maybe modal realism's analyses are also moodless, rather than indicative? I don't think so. David Lewis never indicated that his analyses were supposed to be interpreted as in some philosopher's expansion of English. In fact he often assumed or presupposed, to the contrary, that they were supposed to be interpreted as ordinary English—and interpreted that way they are indicative. If David Lewis had had the concept of a moodless clause in mind when he wrote about modal realism, he would have known that it was a concept as foreign to ordinary ways of thinking as the concept of a tenseless clause is, and he would have explained to his readers how to interpret his writing, just like defenders of the tenseless theory do when they write tenseless verb forms. But he did not do that.

More evidence that modal realism's analyses are indicative comes from the Lewis–Lycan debate. Lycan claimed that 'There are talking donkeys' is obviously false when interpreted as a sentence in English; since Lewis thought the sentence

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was true, Lycan reasoned that Lewis must interpret it some other way. But, Lycan alleged, interpreted that way it contained 'primitive Meinongian quantification', which, Lycan complained, is 'simply unintelligible ... to me it is *literally* gibberish or mere noise' [Lycan 1979: 290]. Lewis replied that he was not giving the sentence some new interpretation: 'I quantify just the way he or anyone else does ... We don't need to learn [our quantifiers] anew whenever we change our opinions about what there is' [Lewis 1986: 98]. But if Lewis were really proposing a moodless theory of modality, he should have agreed that he wasn't using 'There are talking donkeys' with its English (that is, indicative) meaning. He should have said that there is another meaning, a moodless and therefore alien meaning, to attach to it, which he would be happy to explain to you.[30]

5 Against Indicative Analyses

Offering truly moodless analyses makes the moodless theory superior to modal realism. When you have the indicative/moodless distinction clearly in mind, it is evident that indicative analyses of possibility are obvious false. Modal realism, again, says that

> 'Possibly there are talking donkeys' is true iff there is (indicative) something that is (indicative) part of some spatio-temporal system and is (indicative) a talking donkey.

Many responded to modal realism with incredulous stares [Lewis 1973: 86]. Different ideas lay behind different stares, but behind some of them must have been the idea that the left-hand side of this analysis is obviously true, and the right-hand side is obviously false. The right-hand side entails that there is (indicative) a talking donkey. But obviously there isn't.[31] Maybe there **is** (moodless) a talking donkey;

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[30]Lycan and Lewis talk about quantifiers, but I read their dispute as one about the meaning of an entire clause. This isn't a misreading, because the properties of being indicative, and being subjunctive, and being moodless, are properties of clauses that influence the interpretation of quantifiers the clauses contain.

[31]Van Inwagen argues against modal realism this way—he talks of million-carat diamonds rather than talking donkeys—but does not use the distinction between

I'm prepared to be persuaded of that. But I know that it is false that there is (indicative) one. The modal realist thesis is as absurd as the claim that 'There were dinosaurs' is true iff there are (present-tense) dinosaurs located at times before this one. If there are (present tense) dinosaurs with any further properties, including the property of being located at times before this one, then there are (present tense) dinosaurs. But there aren't any. Since there were, the left-hand side is true but the right-hand side is false.

Lewis said that this argument equivocates: 'There are (indicative) talking donkeys' is obviously false only when the quantifier is interpreted as restricted to parts of this world, but when the sentence appears in the truth-condition for 'Possibly there are talking donkeys' the quantifier is to be interpreted as unrestricted [Lewis 1986: 3]. The standard response to Lewis is that there is no equivocation: the sentence is judged obviously false on its unrestricted reading [van Inwagen 2001b]. The moodless theory (almost) agrees: it says that 'There are (indicative) talking donkeys' is false on its most unrestricted reading.

There is a subtlety, though, because, according to the moodless theory, this sentence's most unrestricted reading is not completely unrestricted. To get a completely unrestricted quantifier you need a moodless clause. 'There **are** talking donkeys' does have a completely unrestricted reading, and, according to the moodless theory, is true. But, the theory says, this truth cannot be expressed with any indicative clause, including 'There are talking donkeys'. In general, in the moodless theory, there is no such thing as a completely unrestricted quantifier in an indicative clause. That is because, in the theory, the truth-condition of a quantified indicative statement is a moodless statement with quantifiers restricted to the world of utterance.[32] So, again, even on the most unrestricted reading it permits, 'There are

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indicative and moodless clauses that I think is needed to bolster the argument [van Inwagen 2001b: 222].

[32]All examples so far have been of existential quantification expressed using 'There is/are', but the claim is general. For example, the moodless truth-condition of 'Some donkeys talk (indicative)' is: some donkeys that **are** part of this world **talk**.

The claims I make in the text about the influence of the present and the indicative on quantifiers are over-simplified. Closer to the truth is that these are their default

(indicative) talking donkeys' is false.[33] This parallels the tenseless theory of time, which says that there are no unrestricted quantifiers in present-tensed clauses: the truth-condition of a quantified present-tense statement is a tenseless statement with quantifiers restricted to the time of utterance.[34]

But wait: if modal realism's truth-condition for 'Possibly there are talking donkeys' is obviously false, isn't the moodless theory's also obviously false? I don't think so. When we contemplate the indicative 'There are talking donkeys,' even interpreted with quantifier as unrestricted as can be, we recognize the thought, and are familiar with how to judge its truth. But the moodless theory's truth condition entails that there **are** talking donkeys. And unlike thoughts expressible using indicative clauses, this is an alien thought that hardly anyone has even had the means to grasp. Just in virtue of its being so alien no one is entitled to think anything is obvious about it.

What if it turns out that 'There are (indicative) talking donkeys' is true after all? What if, in general, there are (indicative) far more things than we think? A version of the 'changing the subject' objection would still threaten modal realism's analyses. The previous version of the objection said that spatio-temporal related-ness has nothing to do with possibility. The current version says that P's being (indicative) the case is not the same as P's being possible. (Here is another thought

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interpretations. For discussion of the use of the present for other times and the in-dicative for other worlds, see Mackay [2013]. These other uses are fully compatible with the tenseless and moodless theories.

[33]Similarly, the moodless theory validates the common (among metaphysicians) belief that 'Everything is (indicative) actual' is analytic, even though it agrees with Lewis that 'actual' applies to all and only things that are part of the possible world of utterance. What is false, in the moodless theory, is 'Everything **is** actual'. Modal realism, by contrast, entails that 'Everything is (indicative) actual' is false, so Lewis tries to show that this sentence is not analytic [Lewis 1986: 97]. I don't think he succeeds.

[34]Deasy [2019] argues, on the contrary, that tenseless theorists should say that quantifiers in present-tensed clauses can be completely unrestricted. One of his premises is that tenseless theorists assert the present-tensed 'There are many in-stants of time'. I think this premise is false; they assert only the tenseless 'There ARE many instants of time'. I say more about my disagreement with Deasy's view in Skow [2019].

that may lie behind some incredulous stares.) Maybe the way things are (indicative) is maximally rich, so that if there could have been Fs, then there are (indicative) Fs. Still, this isn't the sort of thing that could follow from an analysis of possibility, any more than an analysis of the past tense could reveal that if there were Fs, then there are (present-tense) Fs. The moodless theory is doing better here: identifying *there could have been Fs* with *there **are** (moodless) Fs in some other part of modal space* is no more objectionable than identifying *there were Fs* with *there ARE (tenseless) Fs in some earlier part of time,* and many are happy with this latter identification.

6 Recombination Revisited

One bit of unfinished business, and then I will conclude. I said in section 2 that 'Everything is a worldmate of everything else' is analytic, so the principle of recombination does not entail the possibility of two things that are not worldmates.[35] You might have had doubts. Having drawn the indicative/moodless distinction I can now make a stronger case. First, note that the sentence is indicative. The moodless 'Everything **is** worldmate of everything else' is not just not analytic, it is false. Second, think about the temporal analogue of my claim: since the analogue of 'worldmate' is 'simultaneous', the analogous claim is that 'Everything is simultaneous with everything else' (note that this is in the present-tense) is analytic. That this is analytic should not be controversial: it amounts, more or less, to saying that everything that is (present-tense) happening is happening now, and should not be confused with the tenseless (and false) 'Everything IS simultaneous with everything else'. But if 'Everything is (present-tense) simultaneous with everything else'

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[35]The principle of recombination in section 2 was modal. One might wonder whether a moodless principle of recombination entails this possibility. Well the moodless analogue of the principle from section 2 says that if there **is** an F in some possible world and there **is** a G in some possible world then some possible world **contains** an F and a G. This principle is subject to the moodless version of the original restriction: 'Some possible world **contains** an F and something else that is a G' must not be analytically false. This principle does not yield a world **containing** things that **aren't** worldmates. (The moodless theory might be incompatible with other moodless principles of recombination; whether to amend the theory or reject the principle would depend on the details. Thanks here to a referee.)

is analytic, then so is 'Everything is (indicative) a worldmate of everything else'. If you doubted that it was analytic, that may have been because you couldn't see how any analysis of 'worldmate' could make its analyticity clear. That's the wrong place to look: its analyticity is revealed, not by the analysis of 'worldmate', but by the analysis of the indicative mood.

7   Conclusion

I have described and defended (part of) a new theory of modality: the moodless theory of modality.[36] The moodless theory is what modal realism should have been. It has many of modal realism's virtues—both reduce intensional modal operators to quantifiers over possible worlds, for example—and lacks many of its vices. It generates the right possibilities, including the possibility of island universes, without making absurd claims about what there is. It does not claim that there are (indicative) talking donkeys, or flying pigs, or million-carat diamonds.

The moodless theory does make claims about what there **is**, moodlessly speaking, that probably no one believes, like the claim that there **are** talking donkeys. But coming to believe the moodless theory does not require abandoning any beliefs, the way coming to believe modal realism does, because no one believes that there **aren't** talking donkeys. No one (or very few anyway) has any prior opinion about this.

Modal realism is in danger of being an eliminativist theory of modality. But the moodless theory of modality is not eliminativist. Since modality is a real phenomenon, and so eliminativist theories are false, we should prefer the moodless theory.

The idea that modal realism eliminates modality lies behind the objection that

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[36]I have focused on modality *de dicto.* Modality *de re,* claims about what is possible or necessary for a particular thing, raises a whole host of other well-known problems. The moodless theory could adapt modal realism's strategy of using counterparts. Modal realism needs a non-modal definition of 'counterpart', but it is in the spirit of the moodless theory to use a modal definition, or no definition. I believe this change will be to the moodless theory's advantage; but defending this is the project for another paper.

modal realism changes the subject [see e.g. Plantinga 1987]. If there is any such proposition as the proposition X that there could have been talking donkeys, then if modal realism is true X is identical to the proposition that there are (unrestricted indicative) talking donkeys. Since we know ahead of time, the thought goes, that X is not this proposition, a modal realist's only true option is to hold that there is no such proposition as X. There are no modal facts. The moodless theory, by contrast, is the analogue of the tenseless theory of time, which is not an eliminativist theory of time; nor is it a theory so reductive that it is in danger of falling into eliminativism. It agrees that time is a real and important phenomenon. It asserts that there really are such things as times, and does not assert that times are really some kind of non-temporal thing. It asserts that times stand in fundamental, unanalyzable temporal relations—some times are later than others—and does not assert that *later than* is really some kind of non-temporal relation.[37] What the tenseless theory says about time is that tense is an unnecessary and misleading way to talk about it. The moodless theory of modality similarly asserts that modality is a real and important phenomenon, and for analysis (and maybe elimination) targets only mood.

The failure to distinguish the indicative from the moodless is an important part of the failure of modal realism. Many discussions of modality exhibit this failure. Why try for a reductive theory of modality? Sider writes that 'In metaphysics one seeks an account of the world in intelligible terms, and there is something elusive about modal notions. Whether something is a certain way seems unproblematic, but that things might be otherwise, or must be as they are, seems to call out for explanation' [Sider 2003: 184]. A reductive theory is supposed to provide an explanation. But if Sider's first clause—'whether something is a certain way'— is in the indicative, then the speech motivates, not the reduction of the modal to the non-modal, but the reduction of the modal to the indicative, which is implausible to say the least. And if that clause is moodless, then the claim seems false: moodless claims are also elusive, they are hard to wrap one's mind around, and so are in at least one way problematic; they certainly rank low on anyone's list of

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[37]If the distinction between the past and the future is not metaphysically fundamental, then it is *T is temporally between S and V* that is an unanalysable temporal relation, not *later than*.

terms-intelligible-at-the-start-of-inquiry. You can't motivate the moodless theory by asserting that its basic story about reality is couched in intelligible, unproblematic and familiar terms. But you don't need to motivate it that way. The tenseless theory of time's basic story also lacks these features, but it is still the best theory of time. Similarly the moodless theory of modality, its perfect modal analogue, is (maybe!) the best theory of modality.[38]

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