

CONCRETE POSSIBLE WORLDS

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1. INTRODUCTION.

Open a book or article of contemporary analytic philosophy, and you are likely to find talk of possible worlds therein. This applies not only to analytic metaphysics, but to areas as diverse as philosophy of language, philosophy of science, epistemology, and ethics. Philosophers agree, for the most part, that possible worlds talk is extremely useful for explicating concepts and formulating theories. They disagree, however, over its proper interpretation. In this chapter, I discuss the view, championed by David Lewis, that philosophers' talk of possible worlds is the literal truth.¹ There exists a plurality of worlds. One of these is *our* world, the *actual* world, the physical universe that contains us and all our surroundings. The others are *merely possible* worlds containing *merely possible* beings, such as flying pigs and talking donkeys. But the other worlds are no less real or concrete for being merely possible. Fantastic? Yes! What could motivate a philosopher to believe such a tale?

I start, as is customary, with modality.² Truths about the world divide into two sorts: *categorical* and *modal*. Categorical truths describe how things are, what is actually the case. Modal truths describe how things could or must be, what is possibly or

¹ The fullest statement of Lewis's theory of possible worlds is contained in his *magnum opus*, Lewis (1986), *On the Plurality of Worlds*. Lewis's view is sometimes called "modal realism."

² Historically, it was the attempt to provide semantics for modal logic that catapulted possible worlds to the forefront of analytic philosophy. The *locus classicus* is Kripke (1963).

necessarily so. Consider, for example, the table at which I am writing. The table has numerous categorical properties: its color, perhaps, and its material composition. To say that the table is brown or that it is made of wood is to express a categorical truth about the world. The table also has numerous modal properties. The table *could have been* red (had it, for example, been painted red at the factory), but it could not, it seems, have been made of glass, not *this very table*; it is *essentially* made of wood. Just where to draw the line between the categorical and the modal is often disputed; indeed, perhaps even color properties are implicitly modal, depending on how objects *would* appear to (normal) observers under various conditions. But surely (I say) there is some level – perhaps fundamental physics – at which the world can be described categorically, with no admixture of modality. Now, suppose one knew the actual truth or falsity of every categorical statement. One might nonetheless not know which truths are necessary nor which falsehoods are possible. One might be lacking, that is, in *modal* knowledge. In some sense, then, the modal transcends the categorical.

And that's trouble; for modal statements are problematic in a way that categorical statements are not. I see that the table is brown, but I do not see that it is *possibly* red. I can do empirical tests to determine that it is made of wood, but no empirical test tells me that it is *essentially* made of wood. By observation, I discover only the categorical properties of objects, not their modal properties.³ That makes special trouble for the empiricist, who holds that all knowledge of the world must be based on observation. But empiricist or not, modal properties are mysterious: they do not seem to be among the basic or fundamental ingredients that make up our world. What to do? Should we turn

³ This claim, which is controversial, has its roots in Hume's account of necessary connection (more on which in §2.) See Hume (1748).

eliminativist about modality, holding that modal statements are unintelligible, or, at any rate, that their communicative purpose is not descriptive?⁴ That would be implausible. We assign truth and falsity to modal statements in principled ways; we reason with modal statements according to their own peculiar logic. No, we must hold that modal statements are descriptively meaningful, but not fundamental. Thus begins the search for an *analysis* of modal statements, the attempt to provide illuminating truth conditions for modal statements without just invoking more modality.

Consider this. Modal statements can be naturally paraphrased in terms of possible worlds. For example, instead of saying “it is possible that there are blue swans,” say “in some possible world there are blue swans.” Instead of saying “it is necessary that all swans are birds,” say “in every possible world all swans are birds.” When paraphrased in this way, the modal operators ‘it is possible that’ and ‘it is necessary that’ become *quantifiers* over possible worlds. Intuitively, these paraphrases are merely a *façon de parler*, and not to be taken with ontological seriousness. But perhaps the ease with which we can produce and understand these possible worlds paraphrases suggests something different: the paraphrases provide the sought after *analyses* of the modal statements; they are what our modal talk has been (implicitly) about all along.⁵ And if that is so, then we have a reduction of the modal to the categorical after all: although the modal properties of this world transcend the categorical properties *of this world*, they are determined by

⁴ The *locus classicus* of the eliminative approach to modality is “Reference and Modality” in Quine (1953).

⁵ Of course, there is much more to modality than statements of (metaphysical) possibility and necessity. But the project of paraphrasing more complex modal locutions in terms of possible worlds has also met with considerable success. A prime example is the possible worlds analysis of counterfactual conditionals independently developed by Stalnaker (1968) and Lewis (1973).

the categorical properties of this world, *and other possible worlds*. But the introduction of possible worlds may seem to raise more questions than it answers. What are these so-called worlds? What is their nature, and how are they related to our world?

Philosophers who believe in possible worlds divide over whether worlds are *abstract* or *concrete*. I use the terms ‘abstract’ and ‘concrete’ advisedly: there are (at least) four different ways of characterizing the abstract/concrete distinction, making the terms ‘abstract’ and ‘concrete’ (at least) four ways ambiguous.⁶ Fortunately, however, on the Lewisian approach to modality I am considering, the worlds turn out (with some minor qualifications) to be “concrete” on all four ways of drawing the distinction.

(C1) Worlds (typically) have parts that are paradigmatically concrete, such as donkeys, and protons, and stars.

(C2) Worlds are particulars, not universals; they are individuals, not sets.

(C3) Worlds (typically) have parts that stand in spatiotemporal and causal relations to one another.

(C4) Worlds are fully determinate;⁷ they are not abstractions from anything else.

It is convenient, then, and harmless, to call worlds “concrete” if they satisfy all four conditions listed above. The concrete worlds taken altogether I call the *modal realm*, or,

⁶ For a discussion of the four ways, see Lewis (1986: 81-86).

⁷ An object is *fully determinate* if and only if, for any property, either the property or its negation holds of the object. In the case of worlds, this is equivalent to: for any proposition, either the proposition or its negation is true at the world.

following custom, *logical space*.⁸ The denizens of logical space – the worlds and their concrete parts – are called *possibilia*.

In one sense, concrete possible worlds are like big planets within the actual world: two concrete worlds do not have any (concrete) objects in common; they do not overlap. Thus, you do not literally exist both in the actual world and in other merely possible worlds, any more than you literally exist both on Earth and on other planets in our galaxy. Instead, you have *counterparts* in other possible worlds, people qualitatively similar to you, and who play a role in their world similar to the role you play in the actual world. This constrains the analysis of modality *de re* – statements ascribing modal properties to objects. When we ask, for example, whether you could have been a plumber, we are not asking whether there is a possible world in which *you* are a plumber – that is trivially false (supposing you are not in fact a plumber), since you inhabit only the actual world. Rather, we are asking whether there is a possible world in which a *counterpart* of you is a plumber.⁹ (More on this in §5 below.)

In another sense, however, concrete worlds are quite unlike big planets within the actual world. Each possible world is spatiotemporally and causally isolated from every other world: one cannot travel between possible worlds in a spaceship; one cannot view one world from another with a telescope. But although this makes other possible worlds *empirically* inaccessible to us in the actual world, it does not make them *cognitively* inaccessible: we access other worlds through our linguistic and mental representations of

⁸ Because logical relations between propositions can be represented by relations between classes of worlds; for example, one proposition *logically implies* another just in case the class of worlds at which the one is true is included in the class of worlds at which the other is true. But see fn. 23.

⁹ The analysis of modality *de re* in terms of counterpart relations was first introduced in Lewis (1968).

ways things might have been, through the descriptions we formulate that the worlds satisfy.

I say that merely possible concrete worlds, no less than planets within the actual world, *exist*. I do not thereby attribute any special ontological status to the worlds (or planets): whatever has any sort of being “exists,” as I use the term; ‘existence’ is coextensive with ‘being’. Of course, merely possible concrete worlds do not *actually* exist. For the realist about concrete worlds, existence and actual existence do not coincide. In most ordinary contexts, no doubt, the term ‘exists’ is implicitly restricted to actual things – as, for that matter, is the term ‘is’. The phenomenon of implicit contextual restriction allows us to truly say, in an ordinary context, “flying pigs do not exist” or “there are no flying pigs,” without thereby denying the existence of concrete non-actual worlds teeming with flying pigs. It is the same phenomenon that allows us to truly say, when there is no beer in our fridge, “there is no beer,” without denying that there are other fridges in the world packed with beer. Ordinary assertions of non-existence, then, do not count against realism about concrete worlds.

Call approaches to modality that analyze modality in terms of concrete possible worlds and their parts *Lewisian approaches*. I take the following four theses to be characteristic of Lewisian approaches to modality.

- (1) There is no primitive modality.
- (2) There exists a plurality of concrete possible worlds.

- (3) Actuality is an indexical concept.¹⁰
- (4) Modality *de re* is to be analyzed in terms of counterparts, not transworld identity.

In what follows, I devote one section to each of these theses. I write as an advocate for Lewisian approaches, and feel under no obligation to give opposing views equal time. For each thesis, I take Lewis's interpretation and defense as my starting point. I then consider and endorse alternative ways of accepting the thesis, some of which disagree substantially with Lewis's interpretation or defense. There is more than one way to be a Lewisian about modality.

2. NO PRIMITIVE MODALITY.

The rejection of primitive modality is a central tenet of Lewisian approaches. It motivates the introduction of possible worlds, the most promising avenue of analysis. And it motivates taking possible worlds to be concrete: Lewis's most persistent complaint against accounts of worlds as abstract is that they must invoke primitive modality in one form or another. But for all the talk of rejecting primitive modality by Lewis and others, there is no clear agreement as to just what this means. Indeed, I think three different theses have been taken to fall under the "no primitive modality" banner. These three theses are all independent of one another; and, although Lewis accepts all

¹⁰ What it means for the *concept* of actuality to be indexical, and how that relates to whether the *property* of actuality is relative or absolute, is discussed in §4.

three theses, only one of them is truly central to the Lewisian approach. It will be worth our while to keep them apart.

First off, it is natural to interpret “no primitive modality” as a supervenience thesis: the modal *supervenes* on the categorical. When statements of one sort *supervene* on statements of another sort, the truth or falsity of the former statements *is determined by* the truth or falsity of the latter. To illustrate: it is sometimes held that the macroscopic supervenes on the microscopic, that the truth or falsity of statements about macroscopic objects is determined by the truth or falsity of statements about microscopic objects. Or, rephrasing: there can be no difference in the way things are macroscopically without there being a difference in the way things are microscopically. Thus understood, the supervenience thesis is a modal thesis, and like other modal theses, the Lewisian will seek a paraphrase in terms of possible worlds. On one way of doing this, we get: whenever two possible worlds differ macroscopically, they differ microscopically as well. The macroscopic facts do not vary from world to world independently of the microscopic facts.¹¹

Now, when we consider the supervenience of the modal on the categorical, we are considering a modal thesis about modality. In terms of possible worlds, we are asking whether whenever possible worlds differ in their modal features, they also differ in their categorical, or non-modal, features. When do possible worlds differ in their modal features? It matters here whether by ‘modal’ we mean to include only *absolute* modality, sometimes called *logical* or *metaphysical* modality; or whether we mean to include also the various *restricted* modalities, such as *nomological* necessity and possibility, what

¹¹ This is a so-called *global* supervenience thesis. For background on the various concepts of supervenience, see Kim (1993).

must or could be true *given the laws of nature*. If we are including the restricted modalities, then one way possible worlds differ modally is by having different laws. For example, at relativistic worlds such as ours no object can travel faster than the speed of light, whereas at Newtonian worlds objects can travel at arbitrarily high speed. When the supervenience thesis is understood to include nomological modality, it makes a substantial claim: it requires a broadly Humean account of laws according to which the laws are determined by the pattern of instantiation of categorical properties and relations. The thesis rules out there being two worlds just alike in their categorical features, but at one of which there are genuine laws of nature, at the other merely accidental generalizations.

But the target of our current analytical endeavor is metaphysical modality; and when applied to metaphysical modality, the supervenience thesis turns trivial. Since no two possible worlds differ with respect to what is metaphysically possible or necessary,¹² *a fortiori*, no two possible worlds differ in this way without differing categorically. The thesis that the modal supervenes on the categorical, although significant for discussions of restricted modality, does not capture the sense of “no primitive modality” that we are after.

A second way one might understand the “no primitive modality” thesis is as what Lewis calls a *principle of recombination*. His initial formulation of the principle is: “anything can coexist with anything else, and anything can fail to coexist with anything else.” (Lewis 1986: 88) The first half, when spelled out, says that any two (or more)

¹² Thus, metaphysical modality satisfies the axioms of the modal logic S5: what is possible is necessarily possible; what is necessary is necessarily necessary. This follows from taking metaphysical possibility and necessity to be *unrestricted* quantifiers over possible worlds, in which case the outer quantifier is idle.

things, possibly from different worlds, can be patched together in a single world in any arrangement permitted by shape and size. To illustrate: if there could be a unicorn, and there could be a dragon, then there could be a unicorn and a dragon side by side. How should this be interpreted in terms of worlds? Since worlds do not overlap, a unicorn from one world and a dragon from another cannot *themselves* exist side by side. The principle is to be interpreted in terms of *intrinsic duplicates*: at some world, a duplicate of the unicorn and a duplicate of the dragon exist side by side.

The second half of the principle of recombination, spelled out in terms of worlds and duplicates, says this: whenever two (distinct) things coexist at a world, neither of which is a duplicate of a part of the other, there is another world at which a duplicate of one exists without a duplicate of the other. ('Distinct', in this context, means non-overlapping, rather than non-identical.) To illustrate: since a talking head exists contiguous to a living human body, there could exist an unattached talking head, separate from any living body. More precisely: there is a world at which a duplicate of the talking head exists but at which no duplicate of the rest of the living body exists.

According to Lewis, the principle of recombination expresses "the Humean denial of necessary connections between distinct existents." (Lewis 1986: 87) But two caveats are needed. First, only the second half, strictly speaking, embodies a denial of necessary *connections*; the first half embodies instead a denial of necessary *exclusions*. And, second, the thesis that the modal supervenes on the categorical is an alternative way to capture the denial of necessary connections, one that may be closer to Hume's intent; it denies that there are necessary connections *in the world*, ontological interlopers somehow

existing over and above the mere succession of events, and somehow serving as ground for modal truths about powers or laws or causation.

I return now to the business at hand: does the principle of recombination succeed in capturing the idea that “there is no primitive modality”? Not if the prohibition against primitive modality is absolute, as one would have expected. For, as Lewis is aware, the principle needs to be qualified in at least three different ways, and each qualification brings with it a smattering of modality. First, there is Lewis’s explicit proviso: any two things can coexist *size and shape permitting*. The proviso is needed, Lewis thinks, because there must be an upper limit to the possible sizes of spacetime, in which case some possible things won’t be able to fit into a single world: no world is big enough.¹³ But the proviso saves the principle of recombination from refutation only by introducing modality into logical space: things that can’t fit into a single world *necessarily exclude* one another.

A second qualification is implicit in Lewis’s use of the term ‘thing’: the principle is restricted to particulars, to what Lewis calls “spatiotemporal parts of worlds.” But if properties are fundamental ingredients of worlds – a view on which Lewis is agnostic – shouldn’t recombination apply to them as well? Thus, consider determinate properties of mass and charge. It seems that an adequate principle of recombination should require that, if there could be something with mass m and charge c , and there could be something with mass m' and charge c' , then there could be something with mass m and charge c' (and, for good measure, something with mass m' and charge c). But a principle for recombining properties must be qualified in some way so as not also to require that there

¹³ The argument for this, which rests on the Cantorian theory of infinite sets, was first given in Forest and Armstrong (1984); it is discussed in Lewis (1986: 101-104).

could be something with mass m and mass m' (or with charge c and charge c'). Again, the qualification introduces modality into logical space. Determinates of a single determinable *necessarily exclude* one another: they are not co-instantiated at any possible world.¹⁴

A third qualification only became apparent to Lewis after the publication of *On the Plurality of Worlds*: the principle must be restricted to individuals; it doesn't apply to sets. For, at least as sets are ordinarily conceived, there are *necessary connections* between a set and its members: a set could not exist unless all its members existed; and an individual could not exist without its *singleton*, the set that has the individual as its sole member. This qualification is especially problematic for Lewis, for it suggests that the principle of recombination may have application only to the concrete realm. And that would undercut Lewis's argument that certain abstract accounts of worlds should be rejected because they posit necessary connections between the abstract "worlds" and the one concrete world.¹⁵

Perhaps these qualifications could be avoided by taking a hard line, by simply rejecting our modal intuitions about sets, or determinates and determinables. But the Lewisian who rejects primitive modality need not go down that path: principles of recombination are not the right way to capture the "no primitive modality" thesis. Violations of recombination impose a modal structure on logical space, but not necessarily a *primitive* modal structure. It may be that the violations can all be accounted

¹⁴ For the problem of determinates and determinables, see Armstrong (1978: 111-113). Holding that determinates of a determinable are only nomologically, not logically, incompatible seems to me to be conceptually mistaken.

¹⁵ See Lewis's discussion of "magical ersatzism" in Lewis (1986: 174-182). The problem was first pointed out in van Inwagen (1986).

for in non-modal terms, that necessary connections and exclusions only occur when some non-modal condition is satisfied. *Contra* what Lewis suggests, violations of recombination are not – or at least not by themselves – primitive modality.

The first two interpretations of the “no primitive modality” thesis each put constraints on logical space, though in opposite ways. The supervenience thesis demands that there not be *too many* worlds, that there never be two worlds that differ modally without differing non-modally. Principles of recombination demand that there not be *too few* worlds, that there always be enough worlds to represent all the different ways of recombining. The third interpretation – the one we’re after – is different: it puts constraints on our *theorizing* about logical space, not (directly) on logical space itself. It demands that our *total theory*, our best account of the whole of reality, can be stated without recourse to modal notions, that the (primitive) *ideology* of our total theory be non-modal.¹⁶

Can the Lewisian meet this demand? First, we need to know what terms of our total theory count as non-modal. Here I will suppose this includes the Boolean connectives (‘and’, ‘or’, ‘not’) and unrestricted quantifiers (‘every’, ‘some’) of logic, the ‘is a part of’ relation of mereology, the ‘is a member of’ relation of set theory, the ‘is an instance of’ relation of property theory, and a (second-order) predicate applying to just those properties and relations that are fundamental, or *perfectly natural*.¹⁷ I will also suppose

¹⁶ I use ‘ideology’ roughly in Quine’s sense; see Quine (1953: 130-132). But I do not suppose our total theory is couched in first-order predicate logic. Thus, all primitive terms of the language contribute to the ideology, not just the primitive predicates.

¹⁷ The perfectly natural properties make for intrinsic qualitative character; the perfectly natural relations are the fundamental ties that bind together the parts of worlds. (See also fn. 25.) For discussion of the notion of a perfectly natural property, and a defense of its legitimacy, see Lewis (1983) and Lewis (1986: 59-69).

that the notion of a spatiotemporal relation is non-modal; perhaps it can be given a structural analysis in terms of the above.¹⁸ Now, let us suppose that the Lewisian has succeeded in providing possible worlds paraphrases for the vast panoply of modal locutions. That still leaves the notion of a possible world itself, an ostensibly modal notion. It won't do simply to take this notion as primitive. At best, that would reduce the number of modal notions to one. If primitive modality is to be eliminated, the Lewisian must provide an analysis of 'possible world' in non-modal terms.

It might appear that analyzing 'possible world' involves two separate tasks: first, analyzing the notion of world; then, distinguishing those worlds that are possible from those that are not. This second task, however, would appear to land the Lewisian in vicious circularity: possibility is to be analyzed in terms of possible worlds, which in turn is to be analyzed in terms of possibility, and round and round and round.¹⁹ But the threat of circularity is bogus because there is no second task to perform. On a conception of possible worlds as concrete, there are no impossible worlds. For suppose there were a concrete world at which both p and $not-p$, for some proposition p . Then there would be a property corresponding to p such that the world both had and didn't have the property. Contradictions could not be confined to impossible worlds; they would infect what is true *simpliciter*, thereby making our total theory contradictory.²⁰ The law of non-

¹⁸ Lewis sketches such an analysis in Lewis (1986: 75-76). (He calls them the "analogical spatiotemporal relations," but I drop the 'analogical'.)

¹⁹ For (a version of) the argument that Lewisian analyses of modality are circular, see McGinn (2000: 69-74). For a response, see Bricker (2004).

²⁰ Lewis's brief argument for this occurs in a footnote in Lewis (1986: 7). For further discussion, see Stalnaker (1996). Of course, the argument presupposes classical logic, that our total theory satisfies the law of non-contradiction. For a non-classical approach to contradictions, see Priest (1998). Note that, if worlds are abstract, the argument doesn't apply. For example, if worlds are sets of sentences, then an "impossible world"

contradiction, then, demands that the Lewisian reject impossible worlds. But if there are no impossible worlds, the ‘possible’ in ‘possible world’ is redundant, and no separate analysis is needed to pick out the worlds that are possible from the rest.

Let us, then, focus on the one and only task: analyzing the notion of world. To accomplish this task, it suffices to provide necessary and sufficient conditions for when two individuals are *worldmates*, are part of one and the same world. Lewis’s proposal is this: individuals are *worldmates* if and only if they are spatiotemporally related to one another, that is, if and only if every part of one stands in some distance (or interval) relation – spatial, temporal, spatiotemporal – to every part of the other. (Lewis 1986: 71). This leads immediately to the following analysis of the notion of world: a *world* is any maximal spatiotemporally interrelated individual – an individual all of whose parts are spatiotemporally related to one another, and that is not included in a larger individual all of whose parts are spatiotemporally related to one another. On this account, a world is *unified* by the spatiotemporal relations among its parts. If one further assumes with Lewis that being spatiotemporally related is an equivalence relation (reflexive, symmetric, and transitive), it follows that each individual belongs to exactly one world: the sum (or aggregate) of all those individuals that are spatiotemporally related to it. Now, the point to emphasize for present purposes is this: if Lewis’s analysis is accepted, the notion of world has been characterized in non-modal terms, and the claim to eschew primitive modality has been vindicated.

The acceptability of Lewis’s analysis of world hinges on the acceptability of his analysis of the worldmate relation. One direction of the analysis (sufficiency) is

might just be an inconsistent set of sentences, which is not something with contradictory properties.

uncontroversial. Whatever stands at some spatiotemporal distance from us is part of our world; or, contrapositively, non-actual individuals stand at no spatiotemporal distance from us, or from anything actual. In general: every world is *spatiotemporally isolated* from every other world. (The worlds are also for Lewis *causally* isolated from one another, as follows from his counterfactual analysis of causation. Lewis (1986: 78-81).) According to the other direction of the analysis (necessity), worlds are unified *only* by spatiotemporal relations; every part of a world is spatiotemporally related to every other part of that world. This direction is more problematic, for at least three reasons.

Although I believe Lewis's account needs to be modified to solve these problems, in each case the modification I would suggest does not require introducing primitive modality.

First, couldn't there be worlds that are unified by relations that are not spatiotemporal? Indeed, it is controversial, even with respect to the actual world, whether entities in the quantum domain stand in anything like spatiotemporal relations to one another; the classic account of spacetime may simply break down. I have defended elsewhere a solution that Lewis considered but (tentatively) rejected: individuals are *worldmates* if and only if they are *externally related* to one another, that is, if and only if there is a chain of perfectly natural relations (of any sort) extending from any part of one to any part of the other. (Bricker 1996). This analysis quantifies over all perfectly natural relations rather than just the spatiotemporal relations, but it is none the worse for that with respect to primitive modality.

Second, isn't it possible for there to be disconnected spacetimes, so-called "island universes"? Couldn't there be a part of actuality spatiotemporally and causally isolated from the part we inhabit? Lewis must answer "no." When Lewis's analysis of world is

combined with the standard analysis of possibility as truth at some world, island universes turn out to be impossible: at no world are there two disconnected spacetimes. But although Lewis rejects the possibility of island universes, he is uneasy, and for good reason: principles of recombination that Lewis seems to accept entail that island universes are possible after all.²¹ Of course, if one took the worldmate relation to be primitive, one could simply posit as part of the theory that some worlds are composed of disconnected spacetimes. But that's no good. A primitive worldmate relation is primitive modality: what is possible – for example, the possibility of island universes – depends on how the worldmate relation is laid out in logical space. Is there a way to allow for the possibility of island universes without invoking primitive modality?

This time, I think, the best strategy is to amend the analysis of modality instead of the analysis of world. The modal operators should be taken to quantify over worlds *and pluralities of worlds*. For example, to be possible is to be true at some world, *or some plurality of worlds*. What is true at a plurality of worlds is, intuitively, what would be true if all the worlds in the plurality were actualized. If a plurality of two or more worlds were actualized, then actuality would include two or more disconnected parts; and so, on the amended analysis, island universes turn out to be possible.²²

²¹ For example, according to one such principle, for any individual, simple or composite, it is possible that a duplicate of that individual exist all by itself. Applying this principle to a disconnected sum leads to the possibility of island universes. See Bricker (2001: 35-7) for detailed argument. Lewis (1986) does not explicitly accept any principle this strong; but Langton and Lewis (1998: 341) accept such a principle, and claim that it is part of the combinatorial theory put forth in Lewis (1986).

²² This view is presented and defended in Bricker (2001). Note that, on this approach, if island universes *actually* exist, then there is more than one actual world. But I will continue to speak of *the* actual world for ease of presentation.

A third problem afflicts Lewisians who are also Platonists of a certain kind, namely, those who believe that in addition to the modal realm consisting of the isolated concrete worlds there is a mathematical realm consisting of isolated mathematical systems of abstract entities. Most Platonists (although not Lewis) believe in at least one such system: the pure sets, externally related to one another in virtue of the structure imposed by the membership relation. But I for one believe also in *sui generis* numbers, externally related to one another in virtue of the structure imposed by the successor relation, in *sui generis* Euclidean space, and much, much more. But, then, on the (amended) analysis of world being considered, the pure sets comprise a world, the natural numbers comprise a world, and so on for all the mathematical systems one believes in. That makes metaphysical possibility, which is analyzed as a quantifier over worlds, depend on what mathematical systems there are, and that seems wrong.²³ The Lewisian, then, needs to find a way to demarcate modal reality from mathematical reality, a way that that does not invoke primitive modality.

It might seem that the conditions (C1)-(C4) used to characterize what makes a world concrete could do the job. For the mathematical systems, one might hold, are abstract in virtue of violating (C4): they are not fully determinate; it is neither true nor false of numbers, for example, that they are red, or weigh ten grams. But that is not how I see it. Indeed, the pure sets, or *sui generis* numbers, or Euclidean points have no

²³ Note that on a view that accepts mathematical systems alongside the concrete worlds, it is natural to distinguish between logical, metaphysical, and mathematical modality. Logical modality is absolute modality: it quantifies over concrete worlds and abstract systems both. Metaphysical and mathematical modality are both restricted modality, quantifying over just the concrete worlds or just the mathematical systems, respectively. The term 'logical space' is now best used to refer to mathematical and modal reality together, not just modal reality.

intrinsic qualitative nature, but not because they are somehow abstractions from something else.²⁴ Rather, they determinately fail to instantiate every qualitative property.²⁵ Their nature is purely relational, but it is no less determinate for that. But perhaps there is a simple fix. I think there is a fifth way in which entities can be said to be concrete: concrete entities have an intrinsic qualitative nature in virtue of instantiating, or having parts that instantiate, perfectly natural properties. This provides a fifth condition to be satisfied by the concrete worlds:

(C5) A world is a sum of individuals, each of which instantiates at least one perfectly natural property.²⁶

Incorporating (C5) into the analysis of world provides the needed distinction between the modal and the mathematical realm. And since the notion of a perfectly natural property is non-modal, we have not had to invoke primitive modality to do the job.

²⁴ I do not accept that there are any entities that are abstract in virtue of violating (C4). There is a mental operation of abstraction, which involves ignoring some features and attending to others; and we can represent the results of this mental procedure, if we want, by using set-theoretic constructions in ways made familiar by mathematicians. But, in my view, there are no “indeterminate objects.”

²⁵ A property is *qualitative* (in the narrow sense) if its instantiation does not depend on the existence of any particular object, but does depend on the instantiation of some perfectly natural property. (The broad sense drops the second clause.) Every object *a* instantiates the non-qualitative property: *being identical with a*. Every natural number other than zero instantiates the non-qualitative (structural) property: *being the successor of something*. I suppose that the perfectly natural properties are all qualitative, and that the qualitative properties supervene on the perfectly natural properties and relations. All qualitative properties are categorical, but not conversely.

²⁶ This “simple fix” presupposes that material objects can be *identified* with regions of spacetime. That is, it presupposes that worlds do not divide into two distinct domains: an immaterial spacetime, and material objects that occupy regions of spacetime. On the “dualist” view, the immaterial spacetime regions, arguably, would not instantiate any perfectly natural properties.

The elimination of primitive modality is a central goal of Lewisian approaches. To achieve this goal, the Lewisian must make a case for the following controversial claims. First, there is the claim that there exists a plurality of concrete worlds; that claim will be the focus of §3. Second, there is the claim that the analysis of modality in terms of concrete worlds is materially and conceptually adequate; that claim will be put to the test in §4 with respect to the analysis of actuality, and in §5 with respect to the analysis of modality *de re*. Finally, there is the claim, noted above, that there are no impossible concrete worlds. That claim rests ultimately on a defense of classical logic, a topic too far afield to pursue further here.

3. CONCRETE WORLDS EXIST.

Why believe in concrete worlds other than the actual world? Throughout his career, Lewis held to a broadly Quinean methodology for deciding questions of existence. Roughly, we are committed to the existence of those entities that are *quantified over* by the statements we take to be true.²⁷ And we should take those statements to be true that belong to the *best total theory*, where being “best” is in part a matter of being fruitful, simple, unified, economical, and of serving the needs of common sense, science, and systematic philosophy itself. What we should take to exist, then, is determined by criteria both holistic and pragmatic.

²⁷ Or, in Quine’s slogan: “To be is to be the value of a variable.” That is to say, we are ontologically committed to those entities that belong to the domain over which the variables of our quantifiers range. See Quine (1953: 13).

Early on, Lewis applied the Quinean methodology directly to statements we accept in ordinary language. (Lewis 1973: 84). We accept, for example, not only that “things might be otherwise than they are,” but also that “there are many ways things could have been besides the way they actually are.” This latter statement quantifies explicitly over entities called “ways things could have been,” entities that Lewis identifies with concrete possible worlds. But that identification is far from innocent. It was soon pointed out (in Stalnaker (1976)) that the phrase ‘ways things could have been’ seems to refer, if at all, to abstract entities – perhaps uninstantiated properties – not to concrete worlds. Indeed, it is doubtful that any statements we ordinarily accept quantify explicitly over concrete worlds.

In *On the Plurality of Worlds*, Lewis abandoned any attempt to apply the Quinean methodology directly to ordinary language, and applied it instead to systematic philosophy. Concrete worlds, if accepted, improve the unity and economy of philosophical theories by reducing the number of notions that must be taken as primitive. Moreover, concrete worlds provide, according to Lewis, a “paradise for philosophers” analogous to the way that *sets* have been said to provide a paradise for mathematicians (because, given the realm of sets, one has the wherewithal to provide true and adequate interpretations for all mathematical theories). Here Lewis has in mind not just the use of possible worlds to analyze modality, but also their use in constructing entities to play various theoretical roles, for example, the meanings of words and sentences in semantics and the contents of thought in cognitive psychology.²⁸ So, when asked – why believe in

²⁸ Lewis (1986: 5-69) surveys some of the uses to which possible worlds have been put in systematic philosophy. Lewis’s *oeuvre* taken altogether provides a monumental testament to the fruitfulness of possible worlds.

a plurality of worlds? – Lewis responds: “because the hypothesis is serviceable, and that is a reason to think that it is true.” (Lewis 1986: 3).

Lewis does not claim, of course, that usefulness by itself is a decisive reason to believe: there may be hidden costs to accepting concrete worlds; there may be alternatives to concrete worlds that provide the same benefits without the costs. Lewis’s defense of realism about concrete worlds, therefore, involves an extensive cost-benefit analysis. His conclusion is that, on balance, his realism defeats its rivals: rival theories that can provide the same benefits all have more serious costs. I will not attempt here to summarize Lewis’s lengthy and intricate discussion.²⁹ But I will say something about the general idea that belief in concrete worlds can be given a pragmatic foundation, and I will ask whether an alternative foundation is feasible.

Lewis’s argument for belief in concrete worlds depends on the assumption that we should believe pragmatically virtuous theories, theories that, on balance, are more fruitful, simple, unified, or economical than their rivals. Although this assumption is orthodoxy among contemporary analytic philosophers, I find it no less troubling for that. It is one thing for a theory to be pragmatically virtuous, to meet certain of our needs and desires; it seems quite another thing for the theory to be true. On what grounds are the pragmatic virtues taken to be a mark of the true? It is easy to see why we would desire our theories to be pragmatically virtuous: the virtues make for theories that are useful, productive, easy to comprehend and apply. But why think that reality conforms to *our* desire for simplicity, unity, and the other pragmatic virtues? Moreover, standards for

²⁹ Chapter 2 of Lewis (1986) argues that the cost of accepting concrete worlds is manageable by responding to eight objections from the literature; Chapter 3 argues that rival views that take worlds to be abstract entities all have serious objections. For summaries of some of these arguments, see Bricker (2006).

simplicity, unity, and the like have been notoriously difficult to pin down objectively; it seems such standards may differ from culture to culture, era to era, galaxy to galaxy. Why think that reality, even if simple and unified by some standards, conforms to *our* standards for simplicity and unity? Believing a theory true because it is pragmatically virtuous leads to *parochialism*, and seems scarcely more justified than, say, believing Ptolemaic astronomy true because it conforms to our desire to be located at the center of the universe. Such wishful thinking is no more rational in metaphysics than in science or everyday life.

But if we reject a pragmatic foundation for belief in concrete worlds, what is there to put in its place? My hope is that there are general metaphysical principles that support the existence of concrete worlds, and that we can just *see*, on reflection, that these principles are true. This “seeing” is done not with our eyes, of course, but with our mind, with a Cartesian faculty of rational insight. This faculty is fallible, to be sure, as are all human faculties. (*Contra* Descartes, I do not take the faculty to be invested with the imprimatur of an almighty deity.) But fallible or not, some such faculty is needed lest our claim to have *a priori* knowledge be bankrupt. Now, what general principles could play a foundational role for belief in a plurality of concrete worlds? I will consider, briefly, two lines of argument.

One way to argue for controversial ontology is to invoke a *truthmaker principle*: for every (positive) truth, there exists something that makes it true, some entity whose existence necessarily implies that truth.³⁰ Truths don’t float free above the ontological fray. They must be grounded in some portion of reality. For example, *that Fido is a dog*,

³⁰ For an introduction to truthmaking, see Armstrong (2004). For reasons to accept only a weak truthmaker principle that applies to positive truths, see Lewis (2001).

if true, has Fido himself as a truthmaker. (Assuming, as is customary, that an animal belongs to its species essentially.) *That some animals are dogs* has multiple truthmakers: each and every animal that is a dog. (On the other hand, a negative truth, such as *that no dog is a bird*, is made true by the lack of falsemakers, by the non-existence of any dog that is a bird.) A more controversial case: *that there are infinitely many prime numbers*, I claim, is made true by the existence of the system of natural numbers. Mathematical truths have mathematical entities as truthmakers.

Consider now a (positive) modal truth such as *it is possible for there to be unicorns*. What could be a truthmaker for this truth? Not any actual unicorn: there aren't any. Not actual ideas of unicorns, or other actual mental entities; for the possibility of unicorns doesn't depend on whether any mind has ever conceived of unicorns, or even whether any mind has ever existed. What then? To find the truthmakers for a statement, it helps to ask what the statement is *about*. *That unicorns are possible* appears to be about unicorns, if about anything at all. And, by the truthmaker principle, it is about *something*. But since there are no *actual* unicorns, that leaves only *merely possible* unicorns for it to be about: it has each and every possible unicorn as a truthmaker.

Thus baldly presented, the truthmaker argument for concrete *possibilia* may fail to convince. Indeed, the argument would need to be supplemented in at least two ways. First, even if one grants that modal truths require *possibilia* for truthmakers, why hold that the *possibilia* in question must be *concrete*? Perhaps abstract *possibilia* can meet the demand for truthmakers. Filling this gap in the argument, it seems, must wait on a decisive critique of all abstract accounts of *possibilia* – a tall order. Second, the truthmaker principle is often restricted to *contingent* truths, and for good reason. A

truthmaker for a statement is an entity whose existence *entails* that statement. As entailment is ordinarily understood in terms of possible worlds, one statement *entails* a second just in case every world at which the first is true is a world at which the second is true. Thus understood, any statement entails a necessary truth, and so truthmaking for necessary truths becomes a trivial affair, devoid of ontological consequence. But the thesis that concrete worlds exist (with ‘exists’ unrestricted) *is* a necessary truth. If the truthmaker principle is to apply to this thesis, truthmaking must be based on a more discriminating notion of entailment. It won’t do to take this discriminating notion of entailment as primitive, lest the “no primitive modality” thesis be violated. So, some non-standard account of truthmaking in terms of worlds will need to be developed – no easy task.

Given these difficulties with the truthmaker argument for concrete *possibilia*, I find a different line of argument more promising, one that focuses on the nature of *intentionality*. Intentionality, in the relevant philosophical sense, refers to a feature of certain mental states such as belief and desire: these states are always “directed” towards some object or objects; one doesn’t *just* believe or desire, one always believes or desires *something*.³¹ That some of our mental states have this feature is something we know *a priori* by introspection. We know, that is, a general principle to the effect that mental states with this feature – “intentional states” – are *genuinely relational*. The second line of argument, then, is that this general principle can serve as foundation for belief in concrete possible objects and possible worlds. Concrete *possibilia* are needed to provide

³¹ For an introduction to the logical and metaphysical issues raised by this notion of intentionality, see Priest (2005).

the objects of our intentional states, to provide an ontological framework for the content of our thought.

To illustrate how the argument might go, consider the intentional state of *thinking about* some object or objects. Suppose, for example, that I am now thinking about a dodecahedron made of solid gold. I can do this, of course, whether or not any such object actually exists. If there is, unbeknownst to me, an actual gold dodecahedron, then I am related to it in virtue of being in my current intentional state; it is an object of my thought. But what if there is no actual gold dodecahedron? Does that somehow prevent me from thinking about one? Of course not. In either case, I claim, *thinking about* is relational, and relations require *relata*. In the latter case, only merely possible gold dodecahedrons are available to be objects of my thought; I am related to possible but non-actual objects.

However, if the relationality of intentional states is to serve as a foundation for a Lewisian account of worlds, at least three further claims require support. First, the objects of thought, even when merely possible, must instantiate the same qualitative properties as actual objects of thought. Suppose again that a merely possible gold dodecahedron is an object of my thought. Does this object *instantiate* the property of being gold? Or is it an abstract object that somehow *represents* the property of being gold? I say the former. It is one thing to think about a gold dodecahedron, another thing to think about some abstract simulacrum thereof. If I am thinking about a gold dodecahedron and *thinking about* is genuinely relational, then there is a gold dodecahedron that I am thinking about. That it is made of gold and shaped like a dodecahedron is independent of whether it is actual or merely possible. Indeed, nothing

prevents actual and merely possible objects from being perfect qualitative duplicates of one another.

But, second, more is needed if the objects of my thought are to count as concrete: they must not only instantiate qualitative properties, they must be fully determinate in all qualitative respects. How can that be? Intentional states such as *thinking about* do not seem to be determinate with respect to their objects. In thinking about a gold dodecahedron, I wasn't thinking about a gold dodecahedron of any particular size. Should I say, then, that I was related by my thought to an object that has no definite size? No. It is one thing to think indeterminately about a gold dodecahedron, another thing to think about an indeterminate object. The indeterminacy is in the thinking, not the object of thought. I am related by my thought to a multitude of possible gold dodecahedrons with a multitude of different, but fully determinate, sizes.³²

But still more is needed if the argument is to support a Lewisian account: each concrete object of thought must be part of a fully determinate concrete world. In thinking about a gold dodecahedron, I wasn't thinking about how it is situated with respect to other objects. But that is just another aspect of the indeterminacy of my thought. Each possible gold dodecahedron has a determinate *extrinsic* nature; my thought doesn't discriminate between differently situated gold dodecahedra, and it therefore ranges indeterminately over them all. Perhaps, as I believe, there exists in logical space a solitary gold dodecahedron that is a world all by itself. But then distinguish: it is one thing to think about a *solitary* gold dodecahedron, another thing to think about a gold

³² We can call on the method of *supervaluations* to explain why I can truly say that there is one thing that I am thinking about: a dodecahedron made of solid gold. See Lewis (1993).

dodecahedron without considering how it relates to other objects. In the former case, what I am thinking about stands in no spatial or temporal relations to other objects; in the latter case, it is indeterminate whether what I am thinking about stands in spatial or temporal relations to other objects. In either case, the possible gold dodecahedra that are objects of my thought belong to fully determinate concrete worlds.

That, in barest outline, is how the relationality of thought could serve as foundation for a Lewisian account of concrete worlds. A thoroughgoing Quinean pragmatist would say, of course, that the thesis of the relationality of thought – or the truthmaker principle of the preceding argument, or any fundamental metaphysical principle – can support belief in concrete worlds only to the extent that *its* acceptance confers benefits on our total theory. But if I am right that the pragmatic virtues are never, in and of themselves, a mark of the true, then a “pragmatic foundation” is not to be had; indeed, it is a contradiction in terms. *Contra* what Lewis claims, that a belief is “serviceable” for the project of systematic philosophy provides no reason at all to hold it. Founding belief in concrete worlds instead on a (fallible) faculty of rational insight into matters metaphysical is controversial, to be sure, and in need of much development. But better a shaky foundation, I say, than no foundation at all.

4. ACTUALITY IS INDEXICAL.

Thus far, I have said very little about the notion of actuality. But some of the commitments of a Lewisian account are already clear. Since the Lewisian believes that merely possible worlds exist, she rejects the thesis that whatever exists is actual; that is to

say, the Lewisian is a *possibilist*, not an *actualist*. Moreover, since the Lewisian believes that merely possible *concrete* worlds exist, she rejects any identification of the actual with the concrete. Furthermore, since the Lewisian holds that actual things have qualitative duplicates in merely possible worlds, actuality cannot itself be any sort of qualitative property. What, then, is it? In virtue of what do actual things differ from their merely possible counterparts? The Lewisian needs a positive account of actuality.

Lewis responds by proposing a deflationary account of actuality. The actual world and the merely possible worlds are ontologically all on a par; there is no fundamental, absolute property that actual things have and merely possible things lack. Nonetheless, I speak truly when I call my world and my worldmates “actual” because ‘actual’ just means ‘thisworldly’, or ‘is part of my world’. For Lewis, ‘actual’ is an *indexical* term, like ‘I’ or ‘here’ or ‘now’. What ‘actual’ applies to on a given use depends on features of the context of utterance, in particular, on the speaker, and the speaker’s world. When I say of something that it is “actual,” I say simply that it is part of *my* world; when my otherworldly counterpart says of something that it is “actual,” he says simply (if he is speaking English) that it is part of *his* world. I call my worldmates “actual” and my otherworldly counterparts “merely possible”; my counterpart calls his worldmates “actual” and me “merely possible.” And we all speak truly, just as many people in different locations all speak truly when each says, “I am here.” For Lewis, being actual or merely possible does not mark any ontological distinction between me and my counterparts because – as with being here or being there – there is no ontological distinction to be marked.

What sort of property is expressed by a given use of ‘actual’ on Lewis’s account? When Lewis’s indexical analysis of actuality is combined with his analysis of world, we get that, in any context, ‘actual’ expresses the property of being spatiotemporally related to the speaker in that context. Thus, in any context, the property expressed by ‘actual’ is a *relative* property, a property things have in virtue of their relations to things, not in virtue of how they are in themselves. That makes actuality, on Lewis’s account, *doubly* relative: what property is expressed by a given use of ‘actual’ is relative to the speaker; and the property thus expressed is itself a relative property.

Lewis’s indexical account conflicts rather severely with our ordinary way of thinking about actuality. As Robert Adams vividly put it: “We do not think the difference in respect of actuality between Henry Kissinger and the Wizard of Oz is just a difference in their relations to us.” (Adams 1974: 215) According to Lewis, however, a believer in concrete worlds has no choice but to accept an indexical analysis of actuality according to which actuality is doubly relative. For, Lewis argues, if my use of ‘actual’ instead expressed an absolute property that I have and my otherworldly counterparts lack, then no account could be given of how I know that I am actual. I have counterparts in other worlds that are epistemically situated exactly as I am; whatever evidence I have for believing that *I* have the supposed absolute property of actuality, they have exactly similar evidence for believing that *they* have the property. But if no evidence distinguishes my predicament from theirs, then I don’t really *know* that I am not in their predicament: for all I know, I am a merely possible person falsely believing myself to be absolutely actual. Thus, Lewis concludes, accepting concrete worlds together with

absolute actuality leads to skepticism about whether one is actual. Since such skepticism is absurd, a believer in concrete worlds should reject absolute actuality.³³

Lewis's indexical account makes short work of the skeptical problem, and that is an argument in its favor. On Lewis's analysis, 'I am actual' is a trivial analytic truth analogous to 'I am here'. Just as it makes no sense for me to wonder whether I am here (because 'here' just means 'the place I am at'), so it makes no sense for me to wonder whether I am actual (because 'actual' just means, according to Lewis, 'part of the world I am part of'). Moreover, my otherworldly counterparts have no more trouble knowing whether they are actual than I do. When one of my counterparts says, "I am actual," he speaks truly (if he is speaking English), and he knows this simply in virtue of knowing that he is part of the world he is part of. Thus, Lewis can explain why it strikes us as absurd for someone to wonder whether or not she is actual.

Is Lewis correct, however, that a believer in concrete worlds has no choice but to reject absolute actuality? I hope not. I, for one, could not endorse the thesis of a plurality of concrete worlds if I did not hold that there was a fundamental ontological distinction between the actual and the merely possible. A Lewisian approach to modality that rejects absolute actuality does not seem to me to be tenable. Actuality, I claim, is a *categorical* notion: whatever belongs to the same fundamental ontological category as something actual is itself actual. When Lewis insists, then, that all worlds are ontologically on a par, this can only be understood as saying that all worlds are equally actual – his denials notwithstanding. But that undercuts Lewis's defense of concrete worlds: an analysis of

³³ Lewis first introduced his indexical theory of actuality and invoked the skeptical argument to support it in Lewis (1970). See also Lewis (1986: 92-96).

modality as quantification over concrete parts of actuality, no matter how extensive actuality may be, is surely mistaken.³⁴

A way to test whether actuality is absolute or merely relative is to ask whether it is coherent to suppose that actuality is composed of island universes: parts that stand in no spatiotemporal (or other external) relations to one another. If actuality is absolute, the hypothesis of island universes is coherent: something could be actual even though entirely disconnected from the part of actuality we inhabit. But if actuality is merely relative, as Lewis supposes, then the hypothesis of island universes is analytically false – and that seems wrong. Nor would it help for Lewis to switch to the amended analysis of possibility suggested in §2: that analysis would make the hypothesis of island universes metaphysically possible – true at some plurality of worlds; but the hypothesis would remain analytically false of (what Lewis calls) actuality. Accepting that combination compounds the problem, rather than solving it.

Fortunately, I think a Lewisian can accept absolute actuality without falling victim to the skeptical problem. To see how, we first need to distinguish, for any predicate, the *concept* associated with the predicate from the *property* expressed by a given use of that predicate. The concept associated with a predicate is naturally identified with its meaning. It embodies a rule that determines, for each context of use, what property is expressed by the predicate in that context. A predicate is *indexical* if it expresses different properties relative to different contexts of use; in that case, the associated concept can also be called indexical. Indexicality is one kind of relativity: relativity to features of context. But that sort of relativity must be distinguished from the relativity of

³⁴ As Lewis himself concedes: “if the other worlds would be just parts of actuality, modal realism [Lewis’s brand of realism about possible worlds] is kaput.” Lewis (1986: 112).

the property expressed. Lewis's argument against absolute actuality presupposes that these two sorts of relativity must go together, that any indexical analysis of actuality will be *doubly* relative. But that assumption, I think, is mistaken. Indexical concepts can be associated with predicates that express either relative or absolute properties.

For example, consider the indexical predicate 'is a neighbor'. On different occasions of use, it expresses different properties. When I use the predicate, it expresses the property of being one of *my* neighbors; when you use the predicate, it expresses the property of being one of *your* neighbors. On any use, the property expressed is a *relative* property: whether a person has the property expressed depends on that person's relations to the speaker. Other indexical predicates, however, express absolute properties on each occasion of use. For example, the indexical predicate 'is nutritious' expresses different properties relative to different speakers (depending on age, or state of health). But, on each use, the property expressed is absolute, not relative: something is nutritious (for the speaker) in virtue of its chemical nature, not in virtue of its relative properties; if two things are chemical duplicates of one another, then either both or neither are nutritious (for the speaker).

Now, on Lewis's analysis of actuality, the concept associated with the predicate 'is actual' is indexical, and the property expressed by the predicate, on each context of use, is relative. It is the indexicality of the concept that allows for a solution to the skeptical problem. It is the relativity of the property that leads, I have claimed, to an untenable position. Is there a way of analyzing actuality so that the concept is indexical but the property is absolute? Consider this: 'is actual' in my mouth expresses the property, "belonging to the same fundamental ontological category as me." That builds the

categorial nature of actuality directly into the analysis. But, thanks to the indexical component, it makes short work of the skeptical problem. On this analysis, I know that I am actual simply in virtue of knowing that I belong to the same ontological category as myself. Knowledge that I am actual is just as trivial as on Lewis's analysis of actuality, as it should be, but the property of actuality remains ontologically robust.³⁵

Lewis would no doubt object that a theory of concrete worlds with absolute actuality is less parsimonious than his own. Granted. What matters, however, is which theory gets it right. If actuality is a categorial notion, as I believe, then Lewis's indexical theory must be rejected. Lewis would also, I suspect, object that the notion of absolute actuality is mysterious. Perhaps. (It is not, however, the mystery of primitive modality: absolute actuality is no more primitive modality than is absolute truth.) It does not help our understanding, for example, to say that merely possible entities are "less real" than actual entities: both merely possible and actual entities *exist*, and I do not understand how existence could be a matter of degree. Nor does it help to say that actual and merely possible entities exist *in different ways*, that there are two *modes* of existence: if that means anything at all, it just means that there are two fundamental ontological categories. The best inroad to understanding the distinction between the actual and the merely possible, I would say, comes from considering how we and our surroundings differ from what exists merely as an object of our thought.

Lewis himself allows that there are entities of distinct ontological categories: individuals and sets. The distinction between an individual and its singleton is arguably no less mysterious than the distinction between an actual thing and its merely possible

³⁵ For a detailed attempt to develop an alternative indexical analysis of actuality on which actuality is absolute, see Bricker (forthcoming).

qualitative duplicates. In the case of sets, Lewis embraces the mystery.³⁶ Why not also, in the case of *possibilia*, embrace the mystery of absolute actuality? The answer turns on whether concrete talking donkeys and flying pigs are any easier to believe in if they belong to a different ontological category than actual donkeys and pigs. I leave that to the reader to ponder.

5. MODALITY *DE RE* AND COUNTERPARTS.

It is traditional to divide modal statements into two sorts: *de dicto* and *de re*. A modal statement is *de dicto*, it is sometimes said, if the modal operator applies to a *proposition* (Latin: *dictum*); it is *de re* if the modal operator applies to a property to form a modal property, which is then attributed to some *thing* (Latin: *res*). Thus, ‘necessarily, all birds are feathered’ is *de dicto*; ‘Polly is necessarily feathered’ is *de re*. The traditional characterization, however, is defective in a number of ways. For one thing, equivalent statements are not always classified alike. Indeed, any *de dicto* modal statement is equivalent to a statement attributing a modal property to the (actual) world. Thus, ‘necessarily, all birds are feathered’ is equivalent to ‘the world is necessarily such that all birds are feathered’, which the above criterion classifies as *de re*. Moreover, a *de re* modal statement such as, ‘Polly is necessarily feathered’ is equivalent to ‘necessarily, Polly is feathered’ (or, perhaps, ‘necessarily, if Polly exists, Polly is feathered’), which the above criterion classifies as *de dicto*. Another defect of the traditional characterization is that it fails to provide an exhaustive classification of modal statements:

³⁶ See Lewis (1991), especially pp. 29-35 on “mysterious singletons.”

modal statements with a complicated structure will not be classified either as *de dicto* or *de re*.

A better way to characterize the *de dicto/de re* distinction looks to the *content* of modal statements, rather than their *form*. Here is the rough idea, neutrally expressed so as to apply to Lewisians and non-Lewisians alike.³⁷ All possible worlds theorists will have to provide an account of how *truth at* a world is to be determined, how a world *represents* that things are one way or another. Part of any such account will involve providing for each world a *domain* of entities – the entities that in some primary sense “inhabit” the world – and saying, for each entity in a world’s domain, what properties it has at the world. Any such account will also have to say how it is determined, when an entity is picked out as belonging to the domain of one world, whether the entity exists at some *other* world, and what properties it has at this other world. Call this “crossworld representation *de re*.” Now, what makes a modal statement *de re* is that in the course of evaluating its truth or falsity, one must have recourse to facts about crossworld representation *de re*. A modal statement is *de dicto*, on the other hand, if no recourse to crossworld representation *de re* is needed to evaluate its truth or falsity. To illustrate with a standard example: compare the *de re* ‘everything is necessarily material’ with the *de dicto* ‘necessarily, everything is material’. The former statement depends on crossworld representation *de re*: it says that every entity in the domain of the actual world is material, not only at the actual world, but at every possible world (better: at every possible world *at which it exists*). The latter statement does not depend on crossworld representation *de re*: it says that at every possible world, everything in the domain of *that*

³⁷ For a precise account applied to a formal modal language, see Fine (1978).

world is material. These two statements are not equivalent. The *de dicto* statement is made false by a possible world whose domain contains a non-material object; but if that possible world doesn't represent *de re* concerning any actual object that it is non-material, then the *de re* statement may still be true.

How is crossworld representation *de re* determined? The simplest answer, of course, would be this: an entity picked out as belonging to the domain of one world exists at some other world just in case it also belongs to the domain of that other world. On this account, the domains of different worlds overlap, and all facts about what properties an entity has at a world are given directly by how that world represents that entity to be. To *exist* at a world is just to belong to the domain of that world. I will say, following standard though somewhat misleading usage, that such an account endorses "transworld identity." To illustrate, consider again George W. Bush. On the transworld identity theory, Bush belongs not only to the actual domain, but also to the domain of many merely possible worlds. Some of these worlds represent him as having properties he doesn't actually have, such as losing the presidential election in 2004, or being a plumber.

The Lewisian, however, needs a different account of crossworld representation *de re*. For the Lewisian, each world has as its domain just the entities that are part of the world. Bush is part of the actual world, and is in the actual domain. But since worlds do not overlap, Bush is not in the domain of any merely possible world. How, then, does a merely possible world represent Bush as existing and having properties he doesn't actually have? Lewis responds: by having in its domain a *counterpart* of Bush. A merely possible world represents *de re* concerning Bush that he exists and, say, is a

plumber by containing a counterpart of Bush that is a plumber. So, for the Lewisian, *existing at a world* must be distinguished from *being in the domain of a world*: Bush exists at many worlds, although he is in the domain of – is part of – only one. Because Bush exists at many worlds, the Lewisian can be said to accept “transworld identity” in a weak, uncontroversial sense; but not in the stronger sense that requires overlapping domains.

What makes an entity in one world a counterpart of an entity in another? According to Lewis, the counterpart relation is a relation of qualitative similarity. He writes:

Something has for *counterparts* at a given world those things existing there that resemble it closely enough in important respects of intrinsic quality and extrinsic relations, and that resemble it no less closely than do other things existing there. Ordinarily something will have one counterpart or none at a world, but ties in similarity may give it multiple counterparts. (Lewis 1973: 39).

With a counterpart relation in place, *de re* modal statements can be analyzed in terms of concrete worlds and their parts. For example, to consider the simplest cases: ‘Bush is possibly a plumber’ is true just in case at some world some counterpart of Bush is a plumber; ‘Bush is necessarily (or essentially) human’ is true just in case at every world every counterpart of Bush is human.³⁸ For the Lewisian, we have a simple way of

³⁸ Not all *de re* modal attribution follows this pattern. For example, ‘Bush necessarily exists’ should be analyzed as the falsehood, ‘at every world there is some counterpart of Bush’, not the trivial truth, ‘at every world every counterpart of Bush exists’. For discussion, see Lewis (1986: 8-13).

distinguishing *de re* from *de dicto*: *de re* modal statements depend for their evaluation on the counterpart relation; *de dicto* modal statements do not.

Whether one is a Lewisian or not, there are good reasons to prefer counterpart relations to transworld identity as an account of representation *de re*. I have space here to consider just one such reason, namely, that only counterpart relations can allow for essences that are moderately, without being excessively, tolerant.³⁹ Let me explain. Modality *de re* is the realm of essence and accident. A property had by an individual is *essential* to the individual if that individual couldn't exist without the property; it is *accidental* if it is not essential. An individual's *essence* is the sum of all its essential properties. These notions will be translated into the framework of the counterpart theorist and the transworld identity theorist in different ways. For the counterpart theorist, an essential property of an individual is a property had by the individual and all of its counterparts. For the transworld identity theorist, an essential property of an individual is a property had by the individual itself at every world at which it exists. These two accounts come apart if the counterpart relation does not have the logical properties of identity, such as transitivity.⁴⁰ When they come apart, the counterpart theorist enjoys a flexibility that the transworld identity theorist cannot match. In particular, only a

³⁹ Two other important arguments supporting counterpart theory are the following. (1) *Contingent Identity Statements*. Only counterpart theory allows one to hold, for example, that a statue is identical with the lump of clay from which it is made, even though one can truly say: "that statue might have existed and not been identical with that lump of clay." (2) *Inconstancy of Representation De Re*. Only counterpart theory allows one to hold, in accordance with ordinary practice, that attributions of essential properties may vary from context to context. In both of these cases, the counterpart theorist introduces multiple counterpart relations to achieve the desired result. See Lewis (1986: 248-259).

⁴⁰ A relation is *transitive* if and only if whenever one thing bears the relation to a second, and the second bears the relation to a third, then the first bears the relation to the third.

counterpart theorist can allow that an individual could have been *somewhat* different, say, with respect to its material composition or its origins, but could not have been *wildly* different. The transworld identity theorist will have to hold that essential properties are either not tolerant at all (with respect to material composition, or origins) or excessively tolerant; moderation will have to be abandoned. And that, in many cases, will lead to the wrong truth conditions for *de re* modal statements.

To illustrate the problem of moderately tolerant essences, consider the following simple, though somewhat implausible, example. Suppose that it is essential to any person to have *at least one* of the (biological) parents he or she in fact has, but that it is not essential to have *both*. Thus, I could have had a different mother, and I could have had a different father, but I couldn't have had *both* a different mother and a different father. My essence, then, is moderately tolerant with respect to my origins. Now, if representation *de re* works by transworld identity, an essence such as this leads to contradiction. Call my mother *m* and my father *f*. Since my essence is (moderately) tolerant, I could have had a different father and the same mother. So there is a world *w* and a person *p* existing at *w* such that $p = \text{me}$ and p has father f' ($\neq f$) and p has mother *m*. But now, since *p*'s essence is (moderately) tolerant, *p* could have had a different *mother* and the same *father*. So there is a world *w'* and a person *p'* existing at *w'* such that $p' = p$ and p' has mother m' ($\neq m$) and p' has father f' . But if $p' = p$ and $p = \text{me}$, then $p' = \text{me}$ (by the transitivity of identity). So, at *w'* I exist and my father is f' and my mother is m' . I could have had both a different father and a different mother after all, which contradicts the supposition that my essence is *moderately* tolerant.

What to do? It would not be plausible, I think, to deny that individual essences can be moderately tolerant. A better solution is to switch to counterpart theory. If representation *de re* works by counterpart relations instead of transworld identity, then moderately tolerant essences are unassailable. A counterpart relation is based (at least in part) on qualitative similarity, and relations of similarity are not in general transitive. For the example at hand, the counterpart theorist will simply say that although *p* is a counterpart of me and *p'* is a counterpart of *p*, *p'* is not a counterpart of me. Thus, the counterpart theorist is not driven to assert that I could have had both a different mother and a different father, and no contradiction can be derived.⁴¹

So much in favor of counterpart theory; now for something on the other side. Many philosophers have argued, the theoretical benefits of counterpart theory notwithstanding, that counterpart theory provides unacceptable truth conditions for *de re* modal statements. If Lewisian realism is committed to counterpart theory, they say, so much the worse for Lewisian realism. I will briefly consider two of the most common lines of attack, both of which can be traced to Saul Kripke's influential discussion of counterpart theory in *Naming and Necessity*.⁴² For the first line of attack, consider Kripke's complaint that according to counterpart theory:

“... if we say ‘Humphrey might have won the election (if only he had done such-and-such)’, we are not talking about something that might have happened to *Humphrey*, but to someone else, a ‘counterpart’. Probably, however, Humphrey could not care less whether someone *else*, no matter

⁴¹ The problem of moderately tolerant essences was first introduced in Chisholm (1967). The counterpart-theoretic solution is discussed in Lewis (1986: 227-235).

⁴² See Kripke (1980: 44-53). For other well-known objections to counterpart theory, see Plantinga (1973).

how much resembling him, would have been victorious in another possible world.” (Kripke 1980: 45).

Kripke’s objection naturally falls into two parts. The first part is that, on the analysis of modality *de re* provided by counterpart theory, the modal property, *might have won the election*, is attributed to Humphrey’s *counterpart* rather than to Humphrey himself. But surely, the objection continues, when we say that “Humphrey might have won,” we mean to say something about *Humphrey*. This part of the objection, however, is easily answered. According to counterpart theory, Humphrey himself has the modal property, *might have won the election*, in virtue of his counterpart having the (non-modal) property, *won the election*. Moreover, that Humphrey has a winning counterpart is a matter of the qualitative character of Humphrey and his surroundings; so on the counterpart theoretic analysis, the modal statement is indeed a claim about Humphrey.

The second part of Kripke’s objection is more troublesome. We have a strong intuition, not only that the modal statement, “Humphrey might have won the election,” is about Humphrey, but that it is *only* about Humphrey (and his surroundings). On counterpart theory, however, the modal statement is also about a merely possible person in some merely possible world; and that, Kripke might say, is simply not what we take the modal statement to mean. The first thing to say in response is that the charge of unintuitiveness would apply equally to any theory that uses abstract worlds to provide truth conditions for modal statements; for our intuitive understanding of modal statements such as “Humphrey might have won the election” does not *seem* to invoke abstract worlds any more than counterparts of Humphrey. The objection, then, if it is good, would seem to cut equally against all possible worlds approaches to modality; if

anything, it would favor a non-realist approach that rejects possible worlds, concrete or abstract. But is the objection good? Should our pre-theoretic intuitions as to what our statements are and are not *about* carry much, or even any, weight? I think not. A philosophical analysis of our ordinary modal statements must assign the right truth values and validate the right inferences; moreover, it must be able to withstand mature philosophical reflection. But requiring that philosophical analyses match all our pre-theoretic intuitions would make systematic philosophy all but impossible.

The second line of attack on counterpart theory I want to consider also has its origin in Kripke's *Naming and Necessity*; but I will present the argument in the way I find most effective, even though it may not coincide with Kripke's intentions. The argument begins with the observation that we often simply *stipulate* that we are considering a possibility for some given actual individual. For example, we can simply say: consider a possible world at which Bush lost the election in 2004. In doing so, we consider a possible world that represents *de re* concerning Bush that he lost. Of course, such stipulation cannot run afoul of Bush's essential properties: we cannot stipulate that a world represents *de re* concerning Bush that he is a poached egg if Bush is essentially human. The point, rather, is that such stipulation may be legitimate even if no loser at the world in question can be singled out as qualitatively most similar to Bush. But then, the argument concludes, representation *de re* cannot be based (entirely) on relations of qualitative similarity. If counterpart relations are relations of qualitative similarity, as Lewis asserts, then counterpart theory must be rejected.

To illustrate the argument, consider the possibility that I have an identical twin. It seems coherent to suppose that, in the possibility being considered, neither my twin nor I

is qualitatively more similar to the way I actually am than is the other. Nonetheless, in the possibility being considered, I am one of the twins and not the other; indeed, we can stipulate that I am the first-born twin. How can the Lewisian account for such a possibility? It seems that the Lewisian has to hold that there is a possible world that represents *de re* concerning me that I am the first-born twin without representing *de re* concerning me that I am the second-born twin. But if representation *de re* works by counterpart relations, that would seem to be impossible. Both twins are equally good candidates to be my counterpart, if the counterpart relation is a relation of qualitative similarity.

A Lewisian has the following perfectly adequate response. If counterpart relations are relations of qualitative similarity, then indeed each twin is a counterpart of me at the world in question. Given that, the world can only represent *de re* concerning me that I am the first-born twin if it *also* represents *de re* concerning me that I am the second-born twin, lest representation *de re* not be determined by counterpart relations. But the Lewisian can allow that the one world represents two distinct possibilities for me: it represents *de re* concerning me that I am the first born of two identical twins in virtue of containing a counterpart of me that is a first-born identical twin; but it *also* represents *de re* concerning me that I am the second born of two identical twins in virtue of containing a counterpart of me that is the second born. In this way, all the facts of crossworld representation *de re* still depend only on the one qualitative counterpart relation; but when there are multiple counterparts at a world, multiple possibilities are represented within a single world.⁴³

⁴³ Lewis presents and defends this response in Lewis (1986: 243-248).

There is another sort of example involving stipulation *de re*, however, that the above response does nothing to accommodate. Not only can we stipulate that we are considering a possibility that involves a given individual, we can also stipulate that we are considering a possibility that *does not* involve a given individual. And, with this sort of stipulation, there do not seem to be any qualitative constraints. Indeed, it is perfectly legitimate to say: consider a possibility qualitatively indiscernible from actuality but in which I do not exist. In the possibility envisaged, I have a doppelganger, a person exactly like me in every qualitative respect, intrinsic and extrinsic; but that person isn't *me*. I find this intuition compelling, and think that any account of modality *de re* must find a way to accommodate it. But now the counterpart theorist is in trouble if counterpart relations are relations of qualitative similarity. If the possibility in question is represented by some non-actual world qualitatively indiscernible from the actual world, then an inhabitant of that non-actual world is qualitatively indiscernible from me without being my counterpart. If the possibility in question is instead somehow represented by the actual world, then there would have to be a counterpart relation under which I am not a counterpart of myself. Either way, the Lewisian would have to reject the idea that counterpart relations are (always) relations of qualitative similarity. So be it. That is a retreat from Lewis's original understanding of counterpart theory, but it is by no means a defeat for the Lewisian. Counterpart theory, first and foremost, is a semantic theory for providing truth conditions for *de re* modal statements. As such, it should adapt to those *de re* modal statements we take to be true. As long as this is accomplished in a way that doesn't compromise the metaphysics of Lewisian realism, nothing of value is lost.⁴⁴

⁴⁴ Anti-Haecceitism – the view that representation *de re* supervenes on qualitative

6. CONCLUSION.

When Lewis first began advocating the thesis that there exists a plurality of concrete worlds, he received in response mostly “incredulous stares.” That soon changed. Over the ensuing years, arguments for and against Lewisian realism have filled philosophical books and journals. Lewisians have had to develop and revise their position in the light of powerful criticism; non-Lewisian alternatives have sprouted like weeds in the philosophical landscape. The debate goes on; as with other metaphysical debates, a decisive outcome is not to be expected. And through it all, the incredulous stares remain: Lewisian realism does disagree sharply, as Lewis himself concedes (Lewis 1986: 133), with common sense opinion as to what there is. There seems to be a fundamental rift – unbridgeable by argument – between ontologically conservative philosophers who have, what Bertrand Russell called, “a robust sense of reality,” and ontologically liberal philosophers who respond, echoing Hamlet: “there is more on heaven and earth than is dreamt of in your philosophy.” No doubt, the Lewisian approach to modality will always be a minority view. But the power and elegance of the Lewisian approach has been

features of worlds (in the broad sense) – is arguably an essential component of the metaphysics of Lewisian realism. But the Lewisian need not abandon anti-Haecceitism to accommodate the possibility that things could be qualitatively the same as they actually are and yet nothing actual exist. The Lewisian can say that the actual world represents this possibility with respect to a counterpart relation under which nothing is a counterpart of anything. Although, *contra* Lewis, this counterpart relation is not a relation of qualitative *similarity*, it is nonetheless *qualitative* (in the broad sense): it does not distinguish between qualitative indiscernibles. For Lewis’s characterization and defense of anti-Haecceitism, see Lewis (1986: 220-235).

widely appreciated by philosophers of all stripes. The bar is set high for the assessment of alternative views.

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