Possible Worlds

In this essay I will propose modal realism as the correct thesis to utilise in our understanding of modal terms. In order to do this I shall being, in section one by introducing the theory itself. In section two I will argue for the utility and accuracy of this doctrine. In section three I will present some commonly presented objections to modal realism, discounting many of these and accepting one of them. I will then present a popular alternative to modal realism, ersatz modal realism, which seeks to avoid the problems I accepted in section three. In section four I will discount this rival theory on the basis of the additional problems it creates and thus propose that modal realism is the most viable account of modalism even if it comes at a price.

1. Modal Realism

David Lewis is defines the 'world' as inclusive in both time and space. That is, the world contains everything that is spatiotemporally related to us – no matter how disconnected we are from these things by time and space. The world may have been very different. I may have begun this essay in a different way to this, or I may have presented a different doctrine in it, or I may never have existed at all, indeed it may have been the case that no person ever existed. Lewis states "There are ever so many ways that a world might be; and one of these many ways is the way that this world is."[1] To talk of ways the world may have been is to talk in modal terms. Explicitly, it is to talk of possible ways the world could have been. But it is not instantly clear what it means to say that something is possible. Lewis seeks to clarify this issue by proposing a doctrine of 'modal realism'. Modal realism is the thesis that our world is simply one amongst many. There exist a vast but finite number of possible worlds that are spatiotemporally and causally isolated from each other. Amongst these worlds is a world that is more or less identical to ours except that in this other possible I begin this essay differently. There is another that is more or less identical to ours except that in this other possible world I do not exist. In

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[1] Lewis, *On the Plurality of Worlds*

fact, there exist just as many possible worlds as there could be. There exists ever possible world that we could ever conceive of, and a great many that we cannot conceive of.

At this point it is sensible to ask what privileges our world – the world we know and exist in – over these other possible worlds. In response to this question I reply that this world is no more privileged over another than 'here' is over 'there'. Thus, 'actual' (as in, the *actual* world that we inhabit) is an indexical term. We are a part of this world and are not related in any spatiotemporal or causal way with any other world, thus this world seems to us to be very special – after all it is the only one that effects us – however in actual fact this world is not objectively privileged over any other than 'here' is privileged over 'there'.

It seems reasonable to respond by saying that only things that exist in this world *really* exist. The modal realist is perfectly accepting of such talk but states that such talk is implicitly restricted – in the same way that saying "all the paper is in the printer" is restricted to, for example, all the paper in the room – most of the paper in the world is ignored. In this example we are quantifying over less than all (unrestrictedly speaking) there is. The modal realist argues that things from other world do *really* exist – though it frequently makes a lot of sense to ignore these other things. So to say "only things that exist in this world *really* exist" is to restrict our quantification of 'things that really exist' to things that *actually* exist, where actual is used as an indexical term to quantify over things that exist in the world we inhabit.

2. Arguments for Modal Realism

This thesis of modal realism was developed to make sense of modality and this is a task it performs exceptionally well. We have already seen that to talk of something as possible is of what happens in another possible world – we will further clarify this notion shortly. We can also use modal realism to explain our notion of necessity. Anything that is necessary is true in all possible

worlds. Therefore no possible world can exist without this being the case. Beyond these simple descriptions of modality in terms of possible worlds we find that the concept of modal realism allows us a great deal of further explanatory power – a power that is not so conclusively afforded to us by any rival theory. Lewis states "logical space is a paradise for philosophers. We have only to believe in the vast realm of *possibilia* and there we find… the wherewithal to reduce the diversity of notions we must accept as primitive, and thereby to improve the unity and economy of… total theory." We will here analyse how modal realism leads us to this 'paradise'.

We have already hinted at modal realism's capability for explaining modal terms. Armed with a basic understanding of possible worlds we may now explore this capacity in more depth. Modal Realism "provides a reductive analysis of modality." [2] Just as we noted how one makes an implicit quantification when stating (e.g.) "All the paper is in the printer", one may reduce modality into a quantification over possible worlds. For example, possibly there are talking horses iff, for some world W, at W there are talking horses.

Here we have introduced a new term, 'at W', which must be explained before proceeding. 'At W' is a term with the function of restricting the domains of the quantifier within its scope – in this case to the possible world W. Thus, 'at W' works in a similar manner to (e.g.) 'in the Sahara desert'. There are no fish in the Sahara desert. Indeed there are no fish if we ignore everything not in the Sahara desert. Equally, at some possible world W there are talking horses – horses do indeed talk if we ignore everything not at W and quantify only over things that are a part of W.

Just as possibility is reduced to existential quantification over possible worlds with restricting modifiers in the scope of the quantifiers, so necessity is reduced to universal quantification. Thus, necessarily all horses talk iff, for any world W, quantifying over every part of W, all swans are birds. It is impossible

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[2] Van Inwagen, *Two Concepts of Possible Worlds*

for horses to talk iff, for any world W, quantifying over every part of W, no horse can talk. A horses ability to talk is contingent iff, there exists a world W and a world W* such that horses can talk in W and cannot talk in W*.

Likewise, we can reduce restricted modality to quantification over possible worlds. Thus it is nomologically necessary the entropy in a system increases over time if at every world that obeys the laws of our world entropy in a system increases over time. It is historically necessary as I write these words that my essay is partly written iff at every world that perfectly matches ours up to now – only diverging, if ever, after this point – the essay is at least partly written.

A combination of these two restricted forms of necessity in terms of possible worlds allows one to come up with an unambiguous definition of predetermination. Thus, it was predetermined at my conception that I would write this essay iff I do so at every world that is nomologically identical to the actual world and that perfectly matches the history of the actual world up to the point of my conception.

3. Objections to Modal Realism

Many philosophers claim that modal realism is false. They support their claim through several popular arguments designed to show that modal realism leads to paradox. Van Inwagen suggests that everything is actual. This is because 'actual' is a term much like 'exists' – it applies to everything. Thus, Lewis' proposal that there exist things that are things that are unactualised (i.e. any part of a non-actual possible world) is a fallacy comparable to that committed by Meinong in declaring 'there are objects of which it is true to say that there are no such objects."[3] Therefore, the thesis that everything is actual is a trivial analytic thesis – the rejection of which is unintelligible. This doctrine

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[3] Meinong, *UberGegstandstheorie*

leads to the thesis that the other worlds we propose must actually exist. Therefore it is not merely *possible* that they exist. The fact that we are proposing their existence means that we are also proposing their actuality. However, possibility does not deal with the actual – it deals with what it is not actual but what could be. Therefore the modal realist faces "the problem of explaining what these things would have to do with modality if there were any of them."[4]

This objection clearly relies upon the initial proposal that 'actual' is a blanket term like 'exists'. However, Lewis explicitly denies that he uses 'actual' as a blanket term. Instead, he uses it as an indexical term distinguishing our world from all other worlds. This much is clear. Thus, any sensible critic must be suggesting that the term 'actual' is so connected with the blanket meaning which the critics invest it with that to use it in the Lewisian manner is to divorce it from its common meaning.

Lewis takes this aspect of the objection seriously, mainly due to what he describes as his 'metaphysical conservatism'. This conservatism leads to lend some weight to arguments from common sense, and he rightly proposes that the "spokesman for common sense" would adhere to three theses:

1) Everything is actual
2) Actuality consists of everything that is spatiotemporally related to us and nothing that is not so related (ignoring some abstract entities such as numbers).
3) Possibilities are not parts of the actual they are alternatives to the actual.

Clearly these three theses together deny modal realism. As we have discussed, Lewis denies the first thesis when interpreted in an absolutely unrestricted sense – over all possible worlds – and thus denies that the third thesis is a threat to his argument. However, he does concede that the fact that

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[4] Van Inwagen, *Plantinga on Trans-World Identity*

his doctrine runs contrary to common sense in certain respects is a slight weakness that we must accept in order to win the prize of the 'paradise' that modal realism provides.

Armstrong and Forrest develop a more subtle line of argument against modal realism. This argument utilises a principle of unqualified recombination. Armstrong loosely describes this by urging us to "think of our world as like a patchwork quilt, with the individual patches as the distinct existences. Any recombination of the patches will be a possible world. 'Recombination' of patches here can be taken to include… the *indefinite reduplication* of any patch."[5] More precisely, this is a principle stating that a world copies a class of possible individuals iff it contains non-overlapping duplicates of all the individuals in that class. Lewis himself endorses something like this principle, stating "given a class of possible individuals, there is some world which copies that class."[6]

Armstrong shows this principle to lead to disaster for modal realism. He points out that we can use this principle to allow for possible worlds that are copies or duplicates of entire other worlds. This in itself leads to the problem that given this, the possible worlds disobey Leibniz's law as we may now have possible worlds that are separate but entirely indiscernible. Lewis can cope with this minor problem by identifying a possibility for a world with an equivalence class of indiscernible worlds.

However, there is a more serious problem for modal realism which springs from Armstrong's principle. If there exist indiscernible worlds then each world must be a member of a set of indiscernible worlds. We may presume that each set will contain the same indefinitely large number of worlds. Indeed, "why should we stop at the lowest infinity? Humean considerations drive us on. But where then do we stop? There is no highest infinity. Any choice will seem arbitrarily restrictive."[7] Not only will there be infinite worlds, but surely the

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[5] Armstrong, *A Combinational Theory of Probability*
[6] Lewis, Ibid
[7] Armstrong, Ibid

unqualified principle of recombination will allow for worlds that are infinitely large – as we are able to infinitely reduplicate any "patch" of any world within a single world. Indeed the possibility of infinitely many worlds means that the entirety of the infinite worlds can be duplicated into another world – and so on. As Lewis allows, this means that there is "no stable resting place… the more we concede, the more the principle demands." This leads to an absurd and paradoxical situation of the existing an actual infinite number of possible worlds occupying infinite spacetime.

However, it is this very absurdity which leads Lewis to reject the unqualified principle of recombination in favour of a *qualified* principle of recombination: given a class of possible individuals, there is some world which copies that class *size and shape permitting.* Armstrong argues that such a qualification is arbitrary and added to save the theory rather than for any merit of its own. Surely we can see that this criticism is not entirely validated. Given the utility of modal realism we are also provided with the option of arguing that the proviso is necessary because without it a theory that has much other evidence for its truth will collapse into paradox. This collapse is reason enough to deny the arbitrary nature of Lewis' qualification. Lewis does not attempt to provide a definite answer to the question of where his restriction should lie: "My thesis is existential: there is *some* break, and the correct break is sufficiently salient within the mathematical universe not be *ad hoc.*

We have already mentioned the Lewis' metaphysical conservatism leads him to treat the fact that his theory does, in certain respects, contradict common sense as a more serious weakness than many other contemporary philosophers would. Lewis supplements this initial criticism from common sense with his observation that when he presents modal realism he is often met with an 'incredulous stare'. He treats this contradiction with our intuitions as perhaps the biggest problem his theory faces. This is the cost of entry into the 'philosophers' paradise'. Therefore if there were a way of retaining the benefits of his theory whilst getting rid of the cost we would have paradise for free.

4. Paradise for free

Some philosophers have attempted to formulate just such a theory – ersatz modal realism. 'Ersatzists' propose that there exists (in a completely unrestricted sense) only one world – the actual world. Instead of arguing for the existence of countless other possible worlds they argue for the existence of countless other abstract entities representing ways that this world may have been. Equally, they propose abstract entities representing the way parts of this world may have been – for example an abstract entity representing a talking horse. Ersatz modal realism does not conflict with common sense of modal realism does because it does not propose the existence of talking horses, but only of an abstract representation of a talking horse.

Ersatzists propose that we have a clear common sense distinction between the abstract and the concrete – or the actual. As common sense suggests there is only one concrete world, containing everything there is – there are no concrete other worlds. Whilst the ersatzist denies the possibility of our paradise existing in the concrete world they suggest it can be found in the abstract. Just as mathematicians can deal with vast hierarchies of pure sets in this realm, so can we deal with out vast representations of possibilities. The abstract entities somehow represent concrete entities. Some of these representations are entire ersatz worlds. Of the vast number of ersatz worlds there is one ersatz world that represents the actual world correctly – this is the ersatz world that is actualised. The rest are unactualised representations of ways the world could be. We need to be clear that we are not a part of the correct representation of the world – we are a part of the actual world – rather we are somehow represented in this representation.

In order to make his theory more complete the ersatzist must be able to explain how it is that the ersatz worlds represent – how it is the case that x is the case according to the ersatz world W. We will here focus on the linguistic ersatzism supported by Jeffrey, Carnap, Skyrms and (temporarily) Quine. Linguistic ersatzism constructs its worlds as maximal consistent sets of

sentences. For example, we can easily imagine the language of these sentences to be English. In this case, an ersatz world represents a talking horse if the set that comprises the world contains the sentence 'A horse talks'. The set may also represent a talking horse less explicitly by containing several sentences which, jointly interpreted, imply that a horse talks.

It is easy to see that English is not a suitable language to construct the ersatz worlds out of. We need a rather more ideal language such that "the declarative sentences of that language have fixed… truth values, independent of the contexts of their utterance."[8] That is, the language of choice must be extremely disambiguated and precise.

5. No such thing as a free paradise

Whilst this thesis does avoid the problems of incredulous stares that modal realism brings with it, it faces several problems of its own. The most damaging of these focus on the descriptive power of the 'worldmaking language'. The first such problem is a problem of indiscernibles. If an ersatz possibility *is* its description then there can only be one world for any single description. Thus the ersatz worlds will obey Leibniz's law. Therefore if it is appropriate to acknowledge a "plurality of indiscernible *possibilia*", as we have suggested it may be, ersatzism cannot account for this.

The graver problem related to this focuses on the indiscernibility of possible individuals. It is certainly possible that there should be many indiscernible individuals – for example in the ersatz world that describes a perfect and infinite crystalline lattice. However, we do not have corresponding indiscernible ersatz possible individuals. Thus the ersatz model implies that where there are many indiscernible individuals this is simply one ersatz individual actualised many times over. Thus our infinite crystalline world

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[8] Jeffrey, *The Logic of Decision*

seems to contain just one individual. But this is not an accurate representation of the world described.

The second descriptive problem for ersatzism is that if we can specify a worldmaking language then it cannot have a rich enough vocabulary to describe and distinguish all the different possible ersatz words there are. If we are to construct such a language we can only do so from actual things – our language cannot cope with extra individuals. This is a problem of naming. If individuals do not exist for us to name we cannot possibly have names for them. Without such names we cannot distinguish ersatz worlds that are identical to ours save containing the sorts of individuals contained in the worlds.

This problem extends more seriously to properties. If we only have words for properties that are instantiated within our world then any language we formulate cannot describe any world containing properties not present in our world. Therefore the ersatz worlds containing such alien properties (of which it is reasonable to expect there to be many) are indescribable in any language we could possibly formulate. As the linguistic ersatz worlds simply *are* our descriptions of them these worlds *cannot* cover all possible scenarios because it is impossible for us describe all of them.

This means the linguistic ersatzism is an extremely incomplete theory – a large shortcoming of which modal realism is not guilty. These problems are the price one must pay for this paradise and is one that I believe to be greater than the price of an affront to common sense. Therefore I propose that modal realism is the sensible theory to endorse and that its competitors fail to provide any added benefits for the added costs they impose.