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CHAPTER 3.2

Ersatz Possible Worlds

Joseph Melia

1 Introduction

The philosophical benefits that possible worlds offer are rich indeed. Everyday modal statements such as 'there are many different ways the world could have been' can be taken at face value, as talking about possible worlds other than the actual one. A wide range of modal concepts can be analyzed in terms of possible worlds in a logic that is familiar and well understood. Problematic and capricious *de re* modal statements can be tamed and understood. Physical necessity, deontic obligation, and other strengths of modality can be given unifying analyses in terms of possible worlds. Previously unanswerable questions about modal validity can be resolved. Once obscure intensional logics can be given a possible worlds model theory, and completeness and soundness results will have genuine philosophical significance.¹ Unifying ontological reductions – *propositions* as sets of possible worlds, *properties* as sets of possible individuals – become available once we help ourselves to possible worlds.

Though not conclusive, the fact that possible worlds enable us to unify and simplify our theories in such ways speaks in their favor. True, one can wonder whether the simplification and systematization that result are reason for thinking the resultant theory more likely to be true; harshly stated, such criteria can appear to be aesthetic rather than rationally compelling. But appeals to simplicity and unification are not restricted to philosophical theories; they appear in the theoretical sciences and in certain parts of common sense. When one doubts whether such theoretical virtues are worth having, one runs the risk of thereby being skeptical about a great deal more than just possible worlds.

For all this, it is hard to accept David Lewis's view of possible worlds. On Lewis's view, merely possible worlds are like the actual one, concrete island universes containing – well, just about anything you care to think of, really. If it's possible, it'll literally be part of one of Lewis's possible worlds. The view that there is an infinite

number of concrete island universes containing talking donkeys and stalking centaurs sits uneasily with common sense. The view that *every* possible object exists is an appalling violation. Though the kinds of simplicity and unification that possible worlds bring to our theories may be theoretical virtues worth having, simplicity of ontology, of the *entities* that a theory postulates, is a theoretical virtue too. Here, Lewis's theory of possible worlds scores very badly.² One could grant the entire case for possible worlds' theoretical utility, grant that the theoretical benefits are great, yet still rationally believe that they are simply not worth the massive ontological costs.

If only there were a way of getting all, or most, of the theoretical benefits that possible worlds have to offer without the excessive ontological costs and appalling violation of our common-sense beliefs, the case for possible worlds might be restored. Enter the *ersatz*. Like Lewis, the ersatz is a realist about possible worlds: possible worlds exist, can be referred to and quantified over in our theories and analyses. But the ersatz possible worlds have quite a different *nature* from Lewis's possible worlds. There may be no ontological free lunch – perhaps the ersatz will have to invoke unreduced propositions, or states of affairs, or properties – but the ersatz hopes his theory will be ontologically a lot cheaper than Lewis's and a whole load easier to believe in. The ersatz's theory may not yield *all* the benefits that Lewis's theory offers (primitive modal concepts, for example, are hard to eliminate altogether on the ersatz's scheme) but the ersatz's laudable aim is to construct an ontologically parsimonious theory of possible worlds capable of getting as many of the theoretical benefits as possible.

It is essentially this goal, rather than any particular thesis about the nature of possible worlds, that unifies the ersatzers. We cannot characterize the ersatz as one who believes that worlds are *abstract* rather than concrete, as there are versions of ersatzism where possible worlds come out concrete. We cannot characterize the ersatz as one who rejects mere *possibilia* – things that don't actually exist but that could have – for there's no reason why the ersatz couldn't have ersatz *possibilia* along with his ersatz possible worlds. Ersatzism is better seen as a *program* rather than a particular unified position in the philosophy of possible worlds, and there are a number of different versions on the market.

2 The Ersatz's Zoo

Even if modality cannot be analyzed non-circularly, all ersatzers agree on the following:

◇*P* iff there is a possible world according to which *P*

As a realist about worlds, the ersatz takes the right-hand side literally. This requires him to provide (a) an account of possible worlds and (b) an account of 'according to'. It is (b) (which is essentially an account of how it is that possible worlds represent that *P* is the case) as much as (a) that distinguishes the different ersatzisms. In sections 2.1 and 2.2, we examine two versions that are distinguished by the fact that the ersatz tries to give an account of the *according to* relation. Many versions of

ersatzism, however, are quiet or neutral about how exactly this is to be done. In section 2.3 we will examine a quiet version of ersatzism.

2.1 Linguistic ersatzism

For the linguistic ersatz, worlds are a kind of *book*: they represent by containing sentences of an interpreted language.

Concrete books, unlike concrete worlds, are part of a safe and sane ontology. Few doubt the existence of the familiar concrete books we find in bookshops or that we put on our shelves. But such books are ill-suited to play the theoretical role we require of possible worlds, for there are not enough of them. The number of possible worlds is infinite: for every finite *n*, it is possible that there be exactly *n* atoms. So, for every number *n*, we'll need a book that contains the sentence 'there are exactly *n* atoms', which implies that an infinite number of books is needed to cover all these possibilities.

Fortunately, the ersatz can get around this problem by taking advantage of the fact that the language in which the books are written (henceforth, the 'world-making language') is not something that has to be written or spoken. It doesn't much matter *what* the ersatz takes sentences to be. Nothing relevant to the representational power of language hangs on the particular notation that he uses, whether he takes the words of his world-making language to be marks of black ink or pixels on a screen. Provided merely that the atomic parts of the language can be interpreted and that these parts can be syntactically structured to form complex formulas, the ersatz is free to take his words and sentences to be whatever he likes. By letting each individual and property be its own name, the linguistic ersatz has at his disposal a powerful world-making language.³ Atomic sentences of the language can be identified with ordered *n*-tuples, such as $\langle F, a \rangle$, where *F* is a property, such as *being red*, or *having charge*, and *a* is an individual. Naturally, $\langle F, a \rangle$ is interpreted as saying that the object *a* has the property of *F*-ness. Worlds themselves can be identified with sets of sentences.

In this way, the linguistic ersatz can give an account of the *according to* relation: *P* is true according to the set of sentences *w* if and only if *w* contains a sentence that expresses *P*, or a set of sentences that jointly entail that *P*.

Unfortunately, there remain possibilities about individuals and properties that outstrip this language's descriptive power. For instance, it is possible that there be something which doesn't actually exist. But on the scheme above, the only things which have names are the actual objects. There is no world described by the ersatz containing something that doesn't actually exist.⁴

There is a similar problem for properties. The fact that a property is not actually instantiated doesn't immediately imply that it is beyond the reach of the linguistic ersatz's language. For instance, as far as we know, the property *being a talking donkey* is not actually instantiated. But since this can be analyzed in terms of properties that *are* actually instantiated – *being a donkey* and *talking* – the linguistic ersatz can describe worlds containing such objects. However, there is a problem describing worlds containing things that instantiate *alien* properties, properties which are neither instantiated by anything in the actual world nor which can be analyzed in terms of such properties. It seems plausible that there could have been things that instantiated

properties that are alien to actuality, but the current world-making language cannot describe them.

Solution: supplement the language with quantifiers, variables, the identity symbol, and give it the wherewithal to say that there exists an entity which is distinct from *a*, distinct from *b*, distinct from *c* . . . , plus further clauses that may characterize this non-actual object. (This may seem outrageous. Since when were infinitary sentences ever part of a respectable language? But remember: the ersatz's world-making language is not something that has to be spoken or written.) Such a sentence describes a world containing something which is not identical to any actual object – in other words, a world containing something which doesn't actually exist. A similar trick should also allow the ersatz to describe worlds containing alien properties.

Is *this* world-making language strong enough? It has been argued that, at least in the case of alien properties, the linguistic ersatz ends up conflating intuitively distinct possibilities (Lewis 1986: 158–65; Bricker 1987). The trouble here is that there are many ways in which a sentence describing such possibilities can come true, and so the ersatz is unable to distinguish intuitively distinct possibilities. Consider a world where *a* and *b* instantiate alien property *P* and *c* instantiates alien property *Q*. Isn't it a further possibility that *a* and *b* instantiate *Q* whilst *c* instantiates *P*? Certainly, our intuitions support the idea that there can be distinct worlds which differ only over which actual properties play which roles: a world containing two round things and one square thing is not the same as one containing two square things and one round thing. Shouldn't the same be true of alien properties? Unfortunately, with his current resources, the only story the ersatz can tell goes something as follows: "There are two alien properties, one of which is instantiated by *a* and *b*, the other of which is instantiated by *c*." That story equally well describes the situation when the objects swap their properties. If we have many possibilities corresponding to the single story, the linguistic ersatz's identification of worlds with books is in trouble.

The ersatz might just bite the bullet, deny the modal intuition for alien properties and say there is just one possibility after all (Skyrms 1981). This may not be too big a price to pay, for it's not as if such modal intuitions about alien properties are sacrosanct. Or it may be that, to accommodate these intuitions, the ersatz merely needs a way of representing the transworld identity of alien properties, and that such a way is available to the ersatz.⁵ Nevertheless, the worry remains that, no matter how powerful his language, the possibilities outrun the ersatz's means of expressing them.

Besides the problem of finding words to describe *all* the possibilities, the linguistic ersatz also has a problem of consistency. Possible worlds can't be identified with *any* set of sentences: a book according to which an object is red and green all over doesn't describe a possibility. Only the *consistent* books count as the possible worlds. But *consistency* is a modal notion: a set of sentences is consistent if the members of the set *could* all be true together. In defining which sets of sentences are the possible worlds, primitive modality enters the ersatz's theory. Unless this can be remedied, the analytic ambitions of ersatzism are curtailed.

It may be that the linguistic ersatz can find a way of distinguishing the consistent stories from the inconsistent ones that doesn't use primitive modality. Suppose, for instance, that he limits the properties that explicitly appear in his stories to the most fundamental or basic ones. Suppose he also limits the particulars to the simples. Pos-

sible worlds are still sets of *n*-tuples, but now they are *n*-tuples of the simple properties and particulars. Now maybe, as Wittgenstein believed, any rearrangement of the most fundamental individuals and properties results in a *possible* world. So any set of *n*-tuples of the simple properties and individuals does indeed describe a possible world, and there's no need to employ a primitively modal restriction.⁶

Unfortunately, primitive modality remains. Recall what the linguistic ersatz has to say about *according to*: *P* is true according to the set of sentences *w* if and only if *w* contains a sentence that expresses *P*, or a set of sentences that jointly entail that *P*. The trouble is that *entails* is a modal notion. If the world-making language were rich, if it contained a sentence that expressed every proposition, the ersatz could drop all talk of entailment without loss. But on the current proposal, his worlds contain only sentences for simple objects and simple properties. Merely saying that *P* is true according to *w* if and only if *w* contains a sentence that expresses *P* is insufficient: Since *being a donkey* and *talking* are both complex properties, the ersatz's theory would fail to generate worlds according to which a donkey talks. Of course, a particular description of the fundamental properties and relations of the fundamental object may *entail* the truth of 'a donkey talks' so, providing he keeps the extra disjunct, everything is alright. But it seems the entailment used here can only be modal.

2.2 Structural ersatzism

Maps and pictures represent. Representation occurs because the representing objects have properties that mirror or reflect what they represent; the spatial relations between the parts of a map, for example, reflect the spatial relations between the parts of the terrain. What's doing the work here is a kind of isomorphism between the picture and the pictured. The structural ersatz's possible worlds represent that *P* is the case by isomorphism rather than language.

It would be nice if we could say that such ersatz worlds represent simply by being isomorphic to that which they represent. But this can't always work; there are no talking donkeys and so there is no isomorphism between the talking donkey and the structure that is isomorphic to it. Instead it seems that the ersatz must say that his world *would* have been isomorphic to a talking donkey, and that it *couldn't* be isomorphic to anything that isn't a talking donkey. So primitive modality again rears its head on this view.

Lewis considers the proposal that worlds represent by isomorphism (1986: 165–74), but focuses on one version of this idea: that ersatz worlds are idealized pictures that represent by being *similar* to what they represent. Though similarity is a form of isomorphism, the idea quickly leads to an ontology too similar to Lewis's for comfort. With ordinary pictures, we have only a limited similarity between the representations and the represented. Flat pictures have a problem representing three-dimensional scenarios: a picture represents a (distant) big boy chasing a (nearby) tiny ant, rather than a (nearby) tiny boy being chased by a (distant) giant ant not solely by isomorphism, but because background assumptions held by the community of viewers enable them to 'read' the picture correctly. Three-dimensional waxwork dummies arranged appropriately would do a better job. But then, one of the dummies represents the fact that the boy is flesh and blood again only because of background assumptions held

by the community of viewers. This difficulty could be patched over by taking the representations to be themselves made out of flesh and blood.

It's clear where this is going and it's clear that the ersatzter shouldn't like it. The ontology we are going to end up with is going to be just as bad as Lewis's. For pictures to picture the world as being a certain way, they have to have so much in common with the things that they are supposed to represent that they end up being duplicates of the represented object. Lewis allows that the ersatzter might maintain that, despite the properties the pictures instantiate, the ersatzter's worlds might still be abstract rather than concrete, but I cannot see how this could be so. If a picture, in order to represent a cat perfectly, has to have fur, has to be made of flesh and blood, has to have four legs, and so on, then it just is a cat. And, if in order to represent a unicorn, a picture has to have all the properties that a unicorn would have, then it is a unicorn. Ersatzism was supposed to avoid Lewis's ontology, not embrace it.

All this shows, however, is that *similarity* was the wrong isomorphism for the structural ersatzter to choose. Two things do not have to share the same properties in order to be isomorphic to each other: sharing the same properties is one way in which two complex things can be isomorphic, but it is not the only way. A scale drawing may perfectly represent the size of some two-dimensional physical object without it being the very same size. Isomorphisms require merely that the picture and the pictured share a particular *structure* – not that they be duplicates of each other.

There's no reason why the ersatzter can't take the isomorphism to hold between the concrete and the abstract. As the case of applied mathematics shows, the abstract can be isomorphic to the concrete. For example, assuming that space is continuous, the abstract real numbers under the *greater than* relation are isomorphic to the points on a spatial line ordered by the *left of* relation. Similarly, the powerset of a pure set of cardinality n minus the empty set is, under the *is a subset of* relation, isomorphic to the mereological sums of a collection of n simples under the *is a part of* relation. Logically, an isomorphism is treated as a 1-1 mapping from the elements of one domain to the elements of another, such that the properties and relations of the objects in the first domain are mapped onto properties and relations of the objects in the second domain. Let domain 1 be the set of objects that actually exist. Domain 2 can be any set of elements that one likes, abstract or concrete. With only this much structure in place, the ersatzter can generate worlds that represent the cardinality of possible worlds: a model containing n elements represents the world as containing n elements – for the only way in which the world can be isomorphic to a set containing n elements is if it too has n elements. Similarly, the properties and relations possessed by domain 1 must be mapped onto the properties and relations possessed by domain 2. In the above examples, we saw how the isomorphism mapped the relation *is a subset of* to the relation *is a mereological sum of*. If this, rather than similarity, were the isomorphism the ersatzter chose to deploy, then his abstract structures could represent various facts about parthood.

One might worry about the role of convention on this structuralist view. If we are presented with a map and told that it has been done perfectly to scale, this will allow us to draw conclusions about the shape of the object, but not about its size. This information isn't even enough to infer whether the represented object is supposed to be smaller or larger than the picture. Only when the scale of the drawing is given, when we are told which distances in the map correspond to which distances in the

terrain, can we say what the map represents. But, so the worry goes, the choice of scale is arbitrary, a matter of convention. Against this, the ersatzter may counter that we don't *make* or *create* the isomorphism – the shared structure is there independently of our thought and talk. It is true that the map represents different things depending upon the choice of scale, but choice of scale is a matter of the *selection* of a particular structure-preserving mapping, not a matter of the *creation* of one. The structure-preserving mappings are there independently of our thought and talk, and pictures have their representational properties in virtue of these mappings – but a particular structure-preserving mapping has to be chosen to fix the representational properties of the pictures, or to fix upon a particular interpretation of 'according to'.

This structural account of representation gives us another, perhaps more natural, way of interpreting the view that worlds are sets of n -tuples of properties and particulars – the same entities that the Lagadonian linguistic ersatzter took possible worlds to be. Just as the object a instantiates F -ness at a world, so the pair $\langle F, a \rangle$ may appear within a particular combination. Just as the pair $\langle a, b \rangle$ may instantiate the R relation at a world, so the pair $\langle R, \langle a, b \rangle \rangle$ may be a member of a particular combination. The mathematical relations between the elements appearing in the ordered pairs mirrors or reflects the instantiation relations that hold (or would hold) between particulars and properties. Representation occurs in virtue of the abstract, mathematical structure such sets of n -tuples display.

The strengths and weaknesses of this proposal are similar to those found for linguistic ersatzism. Primitive modality is used in explaining how these structures represent. A safe and sane ontology is offered, and the representation relation is not mysterious. What is less clear is how this version of ersatzism can generate worlds that represent the existence of non-actual objects, but it may be that by choosing the appropriate isomorphism, the structural ersatzter can find a way of doing this. It's not clear that it offers any definite advantages over linguistic ersatzism, but structural ersatzism is worth further exploration.

2.3 Quiet ersatzers

The linguistic and structural ersatzers aim high. Ontologically, they offer an account of worlds which identifies them with set-theoretic constructions of elements of the concrete natural world. They also offer an account of how it is that their possible worlds represent. But perhaps a satisfactory ersatzism doesn't have to be so ambitious. Perhaps it is not necessary for the ersatzter to give an account – linguistic, structural, or otherwise – of the nature of the *according to* relation. Perhaps it can appear simply as a primitive of his system, something which is basic and undefined.

The world-making language of the linguistic ersatzter was restricted by human limitations. The linguistic ersatzter focuses on the details of his world-making language and has problems finding a language capable of describing all the possible worlds. But it's not the details of the language that matter so much as what the sentences *mean*. Why not avoid the linguistic ersatzter's problems by constructing the possible worlds out of *meanings* – or, more precisely, out of *propositions*? Although, at first sight, *propositions* may not be the elements of a safe and sane ontology, one might try to sweeten the pill by pointing out that our everyday thought and talk does in

fact commit us to such things. After all, it is a commonplace that there are sentences from different languages that express the same thing; that there are many things that people from the same religion all believe; that there are as yet undiscovered truths that transcend our current means of expression. In these cases and others, the natural candidate for the object we are quantifying over is the *proposition*. Moreover, just as mathematical entities earn their spurs through the role they play in the empirical sciences, so defenders of propositions argue that they earn theirs through the role they play in the science of mind.

Possible worlds cannot be identified with any old set of propositions. Certain propositions ascribing incompatible properties to an object describe *impossibilities*. Most propositions do not describe a complete world. But worlds are typically taken to be both *possible* and *complete* entities: nothing, no matter how small or seemingly trivial, is overlooked by a possible world. Fortunately, propositions have certain modal properties and stand in certain modal relations to each other. Some propositions, such as *there exists a talking donkey* and *there exists a stalking centaur*, are propositions which *could* have been true. Some propositions, such as *Andy is angry* and *Andy is happy*, are incompatible. And some propositions entail others. Use these modal features to define the *maximally consistent sets* of propositions. A set of propositions is consistent if all the propositions in the set could be true together. A set of propositions is maximal if every set of propositions that properly includes it is inconsistent. With this machinery in place, we recover the desired biconditional:

◇P if and only if P is true at some possible world.

Were propositions identified with ordered *n*-tuples of properties and propositions, we would reach the same ontological view of worlds as is found in linguistic ersatzism, Lagadonian style. Were a linguistic or structural theory of representation also adopted, then this version of ersatzism would seem to collapse into one of the two previous versions. But the ersatzter may resist such a collapse by digging in his heels at this point and refusing to give an informative account of propositions or how they manage to represent things about the concrete world. *Proposition* may be a primitive of his theory. One proposition, *a donkey talks*, is such that, necessarily, the concrete world contains a talking donkey if and only if this proposition is *made true* by the actual world. An informative account of how propositions are *made true* is not to be had here - it's another primitive of the theory.

Effectively, this view appears in many different guises. *Propositions* that may or may not be true can be replaced by *states of affairs* (Plantinga 1974, 1976) that may or may not obtain, or *world-natures* (Forrest 1986) that may or may not be instantiated. It's not clear whether such substitutions result in brand new theories, or are just the same old theory presented under a different name.

3 Actualism and Possibilism

Many ersatzters stress that they are *actualists*: everything that exists is *actual*. In other words, there are no merely possible objects. But it's *possibilia* as much as possible

worlds that play a useful theoretical role. For instance, possible worlds models for predicate modal logic are taken to be tuples of the form $\langle W, R, D, d, \text{val}, w^* \rangle$. *W* is a set which represents the set of worlds and *R* is the accessibility relation between worlds. No problems here: the ersatzter has his set of ersatz worlds and so has something straightforward to say about the relation between semantics and modal reality. But *D* represents the set of *possibilia* and *d(w)* represents the *possibilia* which exist at world *w*. Some account needs to be given of how these elements of the model correspond to modal reality. Those who accept *possibilia* have an easy answer. Those who do not have work to do.

Actualism is independent of ersatzism. As we shall see, there's nothing in the spirit of ersatzism that is incompatible with the postulation of ersatz *possibilia* on top of ersatz worlds.

3.1 Actualist ersatzisms

It would be odd to accept possible worlds but to reject possible worlds semantics. But without *possibilia*, how is the actualist ersatzter to account for the *D* and *d(w)* that appear in such semantics? Since the ersatzter does believe in actual individuals, he might try identifying *D* with the set of actual individuals. But that would imply that *d(w)* is a subset of the actual individuals for every *w* - in other words, that there are no worlds at which there exist non-actual objects. If the ersatzter wants to allow that there could have been things that don't actually exist, he had better think again.

But perhaps *D* and *d(w)* don't have to be interpreted so literally in order to justify the workings of possible worlds semantics. The issue is delicate for it is contentious exactly what has to be done before a formal semantics for modal logic can be said to be more than a mere mathematical game and something which gives us information about particular modal concepts. Although actualist ersatzters can't interpret *D* and *d(w)* as literally corresponding to sets of *possibilia*, they nevertheless still might be able to tell a story. Perhaps the representational properties of the worlds the ersatzter has postulated will suffice. We have seen that the linguistic ersatzter is able to generate a world *w* according to which there are things that don't actually exist. Perhaps the actualist ersatzter can say that *d(w)* just represents what exists according to the ersatz world *w*, and *D* just represents what exists according to all the ersatz worlds *w*. Unfortunately, certain aspects of the logical behavior of *D* and *d(w)* in the possible worlds semantics are not explained by this story. Consider the sentence: 'Fred could have had a brother who doesn't actually exist, who could have been an astronaut.' On a possible worlds approach, this requires a world *w* and some object *o* from *D* such that *o* is not in *d(w*)*, where *w** represents the actual world, *o* is in the domain of *d(w)*, *o* is a brother of Fred at *w* and there is another world *w#* such that *o* is in *d(w#)* and, at *w#*, *o* is an astronaut. The trouble here is that sense needs to be made of the idea of one and the same non-actual object existing according to these different worlds, and one and the same object having various properties according to these different worlds. The linguistic ersatzter has given no story about how this aspect of *D* and *d(w)* is rooted in the representational properties of his books. Books talk of non-actual objects merely by quantification. Nothing that the ersatzter has said so far grounds the fact that an object that exists according to one story and which is merely

spoken of by existential quantification is identical or different to a non-actual object that exists according to a different story. This is trouble. Without such an account, how is the ersatz to explain this aspect of D and $d(w)$?

This problem for the linguistic ersatz is tied directly to the way the ersatz represents possibilities containing non-actuals. Can actualist ersatzes of the quiet persuasion do better? Perhaps they can say that their ersatz worlds, be they propositions or properties, are capable of representing not just that merely possible objects exist, but of representing the *identity* of a merely possible object. For instance, the proposition *Andy is happy* represents a particular object, Andy, as being a certain way. *Andy is calm* represents that very same thing, Andy, as being a different way. Now, though Andy might not have existed, the ersatz takes the proposition *Andy is happy* as a necessary existent that would exist even if Andy did not. Consider an impoverished world, one in which Andy never existed. Although a philosopher who lived at such a world could never have named Andy, propositions about this very actual Andy would still have existed at this world. Facts about the transworld identity of Andy are thus represented in exactly the same way as facts about him actually are. As it is for the impoverished philosopher, the story goes, so it is for us: there exist propositions which represent particular individuals being a certain way even if the individual does not exist. Some maximal set of propositions represents the existence of a particular non-actual individual Fred's brother, and another maximal set of propositions represents that very same individual being an astronaut. The ersatz can thereby account for the function of D and $d(w)$ in the possible worlds semantics.

The worry with such a proposal is that it postulates very strong representational properties of the ersatz worlds. The very idea that representations can represent the existence of a *particular* non-actual object is questionable. Normally, such *de re* representation happens because of an intimate relation between the representation and the represented. In natural language, a name denotes an object because, in part, of the causal relations between the name and its denotation; in the case of the linguistic ersatz's language, a name represented an object by simply *being* that object. But when the represented does not even exist, how can 'that particular object' be represented?

Perhaps the quiet ersatz is better off following Plantinga's (1976) suggestion that, as well as ersatz worlds, there also exist *essences*, and use these essences to provide an actualist conception of D . An object's essence is a property which (a) that object has essentially; and (b) *only* that object can instantiate. So, for instance, *being identical to Andy* is an essence; it satisfies (a) as Andy could not exist without being identical to Andy, and it satisfies (b) as, necessarily, anything which instantiates this property is identical to Andy. Now, the story goes, not only are there essences corresponding to *actual* individuals, but so too are there essences corresponding to *non-actual* individuals: not all essences are actually instantiated. But although these essences are not actually instantiated they *might* have been, and had any of these essences been instantiated, then there would have been something that didn't actually exist. Accordingly, these essences give us a way of understanding sentences such as 'there could have been things that do not actually exist' in a way which does not require us to posit merely possible objects that do not exist: it holds precisely when there is some (actually existing) essence that is not instantiated, but that could have

been. Unlike typical properties, such as *being a unicorn* and *being a talking donkey*, which are qualitative and repeatable, the very point of essences is that they are necessarily unique to one thing. Accordingly, no actual object can instantiate an uninstantiated essence. The only way that it could be instantiated is if something non-actual were to exist. Essences also give us a way of tracking the identity of possible objects across worlds, and thus a way of justifying the way in which D and $d(w)$ function in possible worlds semantics.

Nevertheless, worries remain. If it is hard to see how a representation of a particular individual could exist without that individual existing, it is just as hard to see how an individual's essence could exist without that individual existing. And traditionally, although some forms of primitive modality have not been too worrying, the notion of *essence* has been one that has caused particular concerns. If possible worlds were unable to analyze all modal notions, there was still the hope that it might provide an illuminating analysis of the more problematic ones. But on this proposal, it appears that the notion of an essence is built into the heart of the theory. And even amongst those who think that the notion of an essence makes sense, there will be many who will hesitate to accept that there are essences of things that do not exist.

3.2 Possibilist ersatzism

Why shouldn't the ersatz take possible objects as seriously as he takes possible worlds? Certainly, the ersatz doesn't want his ersatz *possibilia* to be like Lewis's, as the old ontological problems would just raise their head all over again. In the case of possible worlds, the various theories of ersatz worlds were made available by the fact that the operator *according to* could be interpreted in various ways. Nothing similar seems to be available in the case of quantification over *possibilia* (we do not say 'there is a possible object according to which P '). But maybe the ersatz can use the representational properties of his ersatz worlds to do all the hard work. Perhaps what the *possibilia* are like in and of themselves is wholly irrelevant; all that matters is what they're like *according to possible world w* . What's required is not a non-actual talking donkey, but merely a non-actual object which some world represents as being a talking donkey. Now, if the intrinsic properties the non-actual object possesses are irrelevant here, then the ersatz is free to say pretty much anything he likes about the nature of the *possibilia*. There need to be a lot of them, of course, but they can all be exactly alike. In fact, they don't need to have any qualitative properties at all. They can all be mere featureless blips, if the ersatz likes, outside space and time. Or they could be identified with mathematical objects. On this view, even if a large number of *possibilia* are accepted into our ontology, there would be no real decrease in the *qualitative* parsimony of our theory. From an ontological point of view, then, a failure of actualism construed this way is no big deal.

The drawback to this view is that it forces us to accept the idea that there are things that don't actually exist. But if, as argued above, the denial of actualism is not ontologically profligate, then it's not clear why actualism is particularly desirable. The big problem with Lewis's view was its profligate and implausible ontology – not the fact that this ontology is classified as non-actual. Imagine a philosopher who held exactly Lewis's ontological views but rejected his views about the analysis of modal

statements. His position would be no more attractive if he told us that everything in his ontology was *actual*. Conversely, it seems to me that an ontology is no worse for some objects being labeled *non-actual*. Using the word 'actually' to restrict quantifiers to the things that existed only in the solar system, or to only the concrete objects, or to only the things that are spatiotemporally related to me may be a strange use of the word 'actually' – but it doesn't change the attractiveness of the ontology.

True, if we took the *possibilia* to be elements of the set-theoretic hierarchy, then, if we'd been minded to call these cardinals 'actual' beforehand, this is a practice we would have to renounce – once the identification has been made, they are the merely possible objects. But it's not clear that this would be a big blow against ordinary practice, or that there's anything much in ordinary thought or language that thinks that inaccessible cardinals must be actual. Non-actualism can be entirely consistent with a conservative ontology, one that doesn't even damage common sense: instead of treating non-actualism as the proposal that our quantifiers range over more than we previously thought to exist, it can equally well be treated as the view that the pre-actual objects are a *subset* of what we previously thought existed. Only one pre-theoretic thought has to be given up – the thought that everything is actual. Even here, it might be questioned whether this is such a central tenet of common sense. We have a tendency implicitly to restrict our quantifiers to things that actually exist anyway. Perhaps the view that everything is actual only seems so certain because the quantifier is typically restricted to actual objects anyway.

There is an objection to the view that non-actual objects are abstract. Suppose the ersatzter accepts ersatz *possibilia* and that he takes them to be abstract, for example. Since there are worlds which represent these *possibilia* as unicorns, and since unicorns are concrete, it then follows that these possible objects could have been concrete. This in turn seems to imply that there are objects that, though abstract, are only abstract *contingently*, that they fall under their particular ontological category merely contingently. But this is absurd.⁸

The ersatzter has the resources to resist this argument. On his analysis, an object has property *F* contingently if it has *F* at some worlds and lacks *F* at others. Let *o* be one of the abstract *possibilia*. There is a world according to which *o* is concrete. But is there a world where *o* fails to be concrete? It's natural to think so: after all, *o* is abstract. But, under the proposal currently under consideration, we cannot conclude from this that it is *actually* true that *o* is abstract, that *o* is abstract at the actual world. Object *o* doesn't even exist in the actual world – it is a merely possible object and so outside the range of the quantifier – and so, at the actual world, it isn't concrete. As long as the ersatzter postulates no world which describes this object as abstract, there is no reason to say that it is contingently abstract. This move is surprising, but this might be only because we typically tend to think that the properties an object has *simpliciter* are the properties it has at the actual world. But once we have given up actualism, it is no longer the case that the truth of a proposition implies its actual truth.⁹

Accepting *possibilia* solves certain problems for the ersatzter. He can give a straightforward account of the role *D* and *d(w)* play in possible worlds semantics, and can give a straightforward account of the problematic sentence $\diamond \exists x(-AEx \ \& \ Bax \ \& \ \diamond Fx)$. He can have worlds according to which there are non-actual objects. On the linguistic

account, for example, these are just books that contain names for non-actual objects.

Non-actualist ersatzism is an intriguing option for the ersatzter. It does require him to give up on the natural idea that everything is actual. But if the ersatzter can give this up, then he has a natural and straightforward way of dealing with the applications of *possibilia* considered in this section.

4 Ersatz Ontology, Ersatz Ideology

4.1 Shaky foundations?

The ontology and ideology of the linguistic and structural ersatzters look to be in relatively good standing. It's true that worlds are identified with certain set-theoretic constructions and the ideology and ontology of set-theory is not entirely unproblematic, but many philosophers have come to accept it (see chapters 1.1 and 1.2). True, these ersatzisms must also use properties in their constructions, but the ersatzter needs only *instantiated* properties. Moreover, the world-making language of the linguistic ersatzter is no weaker if it contains predicates for only the most fundamental properties and relations, so he really only needs to reify these. This allows him to buy into an attractive sparse theory of properties, such as Armstrong's (1978) theory of universals. Indeed, when fundamental physics is completed, we will find ourselves with a language containing predicates for all these basic properties. With this supply of predicates, the linguistic ersatzter will be able to construct just as strong a world-making language without even having to reify fundamental properties and relations.

All the ersatz theories take modality as primitive. But this is no terrible thing. While some have complained that the modal is mysterious because we have no empirical access to it, even Lewis's reduction of the modal to the non-modal doesn't solve that problem: as concrete as they may be, Lewis's worlds are not empirically accessible. It's true that, when weighing the pros and cons of different theories, Lewis's theory may score an extra point for the number of distinct concepts it can analyze.¹⁰ But the ersatzter can fairly claim that he scores far better on the ontology front.

It's also true that Lewis effects a kind of reduction of the modal to the non-modal. On Lewis's view, when you've fixed what there is, what things are categorically like and how they are categorically arranged, then you've fixed the modal facts also. Ersatzters seem unable to effect such a reduction – the consistency of certain sets of sentences or of certain propositions is not reduced or explained in categorical terms. In certain respects, then, Lewis's world-view seems simpler. But, at least for those who are realists about modality, the thought that the primitively modal should enter into our most fundamental description of the world is not an unnatural one. Indeed, there are those who find it positively counterintuitive that the modal should be grounded in the non-modal, as they are on Lewis's system. What, they ask, has the existence of island universes cut off from the actual world got to do with what we think is *possible* (van Inwagen 1985)? Why should the fact that concrete island universes of such and such a sort exist imply anything about the impossibility or otherwise of talking donkeys?

The ontology and the ideology of the quiet ersatzers are more problematic. The notion of a proposition is itself one that cries out for a proper analysis and ontological definition. The identification of possible worlds with complete sets of propositions may not be coherent: a complete 'collection' of propositions may be too big to form a set (see Grim 1984). What good are possible worlds analyses of our concepts if the foundations of possible worlds is built on sand? And until we possess a worked out theory of propositions, it will be unclear whether they are suited to play the theoretical roles we want of them.

4.2 Grasping the primitives

Unlike the linguistic and structural ersatzers, who offered a substantive account of the *according to* relation, the quiet ersatzers said very little about how their abstract propositions and properties manage to represent things about the way the concrete world is. Perhaps there isn't much to be said. Necessarily, when, and only when, the concrete world contains a talking donkey, the abstract proposition *a donkey talks* is made true. There's no analysis to be given of the concept of a proposition, nor any analysis of 'makes true'. Without analyses, these notions will have to be taken as primitive. But then, every theory has its primitives.

Lewis thinks that the ersatzers' primitives are particularly problematic: it is a mystery how the ersatzers can ever grasp them. His argument runs as follows. Since whether the world *makes true* a particular proposition depends upon the goings on of the concrete actual world, we can treat this as a relation between the concrete world and propositions. Lewis thinks that it is a mystery how the ersatzers could have picked out a particular relation by his primitive 'makes true'. The ersatzers refuse to analyze this in terms of anything else. Nor can he say that 'makes true' gets its meaning through acquaintance with pairs of things that stand in the relevant relation: since the propositions are outside space and time and acausal, we can never be acquainted with the *relata*. It is a mystery how the ersatzers ever came by a word for this relation (Lewis 1986: §3.4).

Unfortunately, as Lewis concedes (1991: §2.2), this argument proves too much: the primitives of the set-theorist are subject to analogous worries (van Inwagen 1986). Since we have no way of pinning down the meaning of 'x is a member of y' relation by analysis or by acquaintance, the set-theorist is at a loss to explain how he has ever managed to pick out a particular relation with this predicate. Lewis seems to accept that it's a mystery how the set-theorist ever manages to pick out a particular relation by 'is a member of'.

However, a move is available to the set-theorist, a move outlined by Lewis himself (1991: §2.6). One way to define theoretical terms that requires neither explicit definition nor acquaintance is via the Ramsey-Carnap method. Take the total theory involving the problematic predicates, replace the problematic predicates with variables, and let the relevant predicates stand for whatever properties and relations satisfy the relevant open formula. There's a danger: what happens if the properties and relations are multiply realized? The predicates of the theory then fail to designate uniquely. But maybe that doesn't matter. Perhaps a kind of structuralist approach is acceptable here, and set-theoretic claims can be understood as being about *any* of the relations

that satisfy the relevant claims. Moreover, in the case of set-theory, we have a theory which, when formulated using plural quantifiers and clever coding devices, essentially captures its models up to isomorphism¹¹ without having to take the concept of *membership* as primitive.¹² The set-theorist can therefore *Ramseyfy* out the *membership* relation, and say that a set-theoretical statement *S* involving 'x is a member of y' is true if, for *any* relation *R* satisfying the axioms of set-theory,¹³ if *S* is true when 'x is a member' is interpreted by *R*.

Lewis himself is not happy with this. It's not that set-theory so construed is unable to play its familiar useful pragmatic and theoretical roles – the fact that the *membership* relation has been so tightly characterized by the powerful axioms sees to that. It's true that, even in its Ramseyfied version, set-theory commits us to a vast number of entities, more than the concrete world around us can contain. But since the relation may be taken to be external, the intrinsic properties of the propositions are irrelevant – propositions may be taken to be all alike, and thus, though the theory may not be quantitatively parsimonious, the cost in terms of qualitative parsimony is low. Worse, for Lewis, is that this way of construing set-theory is a kind of rejection of mathematics as it is currently practiced: 'If we want to understand set theory as we find it now, we have to concede that it claims a primitive understanding of membership' (1991: 54). But I don't know where in set-theory anything about the primitiveness or otherwise of membership occurs. Besides, if the justification for believing in set-theory really lies in the theoretical utility that sets bring, then the Ramseyfied theory scores just as well. Since it does not commit us to a mystery about how we can come by a name for the membership relation, that is a good reason for adopting it.

Can the ersatzers similarly Ramseyfy away the predicates 'x makes true y' and 'x is a proposition'? It seems not. There's no ersatz analogue of second order set-theory. All it seems the ersatzers can do is to write down a few axioms:

Necessarily, there is a proposition *e*, *A donkey talks* that the world makes true if and only if a donkey talks.

Necessarily, there is a proposition *e*, *A centaur stalks* that the world makes true if and only if a centaur stalks.

etc.

If the ersatzers could write down every one of these biconditionals, then he could say that any relation satisfying the theory will do. But there's no known way of doing this. The problem will be especially acute generating biconditionals for those states of affairs that are about alien individuals and properties; explicit clauses like those above cannot, since we don't have words for the particular alien properties. Until the ersatzers puts forward a theory that is plausibly capable of implicitly capturing the relevant relation, the question how the ersatzers can grasp his own primitives remains unanswered.

5 Conclusion

Between the ersatzisms, the linguistic variety is the most promising. Its ontology and ideology are both reasonably safe and sane and there are no worries about how we

can grasp the primitives of the theory. And yet, I cannot recommend it wholeheartedly. The ersatz's aim is to get a theory of possible worlds which has most or all the advantages of Lewis's theory, but without the costs. A safe and sane ontology and ideology shows that it doesn't have the costs – but what remains to be seen is whether it has the advantages. We've already seen the ersatz give up on an analysis of modality – but what the ersatz still owes us is a thorough account of how his ersatz possible worlds, perhaps aided by ersatz *possibilia*, are capable of delivering the benefits. Until a thorough account is forthcoming, we may find that the costs of ersatzism, like with Lewis's theory, are still not worth the benefits – not because the costs are too high but because the benefits are too low.

Notes

- 1 Of course, the set-theoretic semantics alone doesn't require a belief in possible worlds, just a belief in sets. But unless the semantics faithfully represents the kinds of states of affairs that make the sentences of the intensional language true, there's no reason to think that the set-theoretic semantics is anything more than a formal game.
- 2 See Melia (1992).
- 3 Such a language is frequently called *Lagadonian*.
- 4 Some think it better to readjust our modal intuitions and deny the possibility of non-actual objects. Although this goes against our pre-theoretic intuitions, saving an attractive theory of worlds might be make it worthwhile. An ingenious way of making this proposal less damaging to common sense is found in Linsky and Zalta (1994).
- 5 See Roy (1995) and Melia (2001).
- 6 And *combinatorialist* theories of possible worlds are still popular today. See Armstrong (1989).
- 7 More formally, so it's clear what modal proposition is being expressed here: ' $\diamond \exists x(\neg AEx \ \& \ Bax \ \& \ \diamond Fx)$ ', where 'Fx' is 'x is an astronaut', and 'Bxy' is 'y is the brother of x' and 'a' is a name for Fred.
- 8 Though Linsky and Zalta defend this idea (1994).
- 9 The same is true on Lewis's view. It is true *simpliciter* that there are many possible worlds, but it is not actually true that there are.
- 10 And even this is not agreed by all; there are those who think that Lewis too must use primitive modality in his theory. See, for instance, Shalkowski (1994), Lycan (1988), and Divers and Melia (2002).
- 11 Certain questions about the "height" of the set-theoretic hierarchy are left open, even in a second-order formulation.
- 12 Hazen and Burgess have shown how this can be done. See the appendix of Lewis (1991) for details.
- 13 Plus perhaps some informal axioms.

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