Modal realism and the possibility of island universes: why there are no possible worlds.

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Abstract:

In this article, I defend Lewisian modal realism against objections arising from the possibility of 'Island Universes' and other similar cases. The problem comes from Lewis' claim that possible worlds are spatio-temporally isolated. I suggest a modification of Lewisian modal realism in order to avoid this family of objections. This modification may sound quite radical since it amounts to abandoning the very notion of a possible world, but as radical as it may *sound* it in fact remains well in the spirit of Lewis' original view.

The purpose of this article is to defend modal realism *à la* Lewis against objections arising from the possibility of 'Island Universes', as well as from the possibility of the non-reality of space-time, the possibility of 'Baby Universes', and other relevantly similar cases. All of these cases, if they are indeed possible, make trouble for Lewis' claim that possible worlds are spatio-temporally (and causally) isolated: the very criterion of individuation/demarcation of possible worlds is in trouble. I suggest a modification of Lewisian modal realism in order to avoid this family of objections. This modification may sound quite radical since it amounts to abandoning the very notion of a possible world, but as radical as it may *sound* it in fact remains well in the spirit of Lewis' original view.

First, I introduce the various possible sources of trouble, focusing mainly on Island Universes, and I explain what the problem for modal realism is. I then leave possible worlds as such aside and I focus on modal counterpart theory, in order to highlight some important issues concerning *de re* modality, and the nature of modality in general. Bearing these considerations in mind, I suggest to amend Lewis' official view in such a way that it avoids trouble with Island Universes. This amendment is not merely an *ad hoc* strategy to deal with this objection but that it actually fits very well the spirit of Lewis' original view, while simply dropping an unnecessary and trouble-making assumption about the nature of possible worlds.

Bricker (2001) claims that Island Universes are at least metaphysically possible and that this raises a deadly objection against modal realism. In Lewis' view, each possible world is internally unified in virtue of all of its parts being spatio-temporally related, and it is *isolated* from other possible worlds in virtue of *not* bearing any spatio-temporal relations to them. Possible worlds are thus individuated by their spatio-temporal intra-relatedness and demarcated from other possible worlds by their spatio-temporal isolation: *W is a world iff W is a maximal mereological sum of spatiotemporally interrelated entities*.

The Island Universes hypothesis claims that there is room for the metaphysical (and perhaps physical) possibility that in *one* possible world (perhaps even our world) there are regions that are spatio-temporally isolated from each other – parts of (our) universe which are not spatio-temporally accessible from each other. This being a genuine possibility (let us assume, along with the objector), modal realism *à la* Lewis is inadequate since it cannot allow for such a possibility. Indeed, such a world, under modal realism, could only be understood as several worlds since spatio-temporal isolation is what defines the frontiers of possible worlds. Thus, modal realism misses a genuine metaphysical/physical/cosmological possibility. Under

Lewisian modal realism, it is simply impossible that there exist disconnected space-times in a given world.

Lewis himself was thus forced to reject the possibility of Island Universes. He did so quite reluctantly: "Against this objection, I must simply deny the premise. I would rather not; I admit some inclination to agree with it. But it seems to me that it is no central part of our modal thinking, and not a consequence of any interesting general principle about what is possible. So it is negotiable. Given a choice between rejecting the alleged possibility of disconnected spacetimes within a single world and (what I take to be the alternative) resorting to a primitive worldmate relation, I take the former to be more credible" (Lewis (1986, p.71-72)[1]. As I suggest below, there is another alternative, acceptable both for Lewis and for the objector. Given this dialectical stance, I am going to simply assume, along with the objector (and along with what Lewis would probably prefer as well) that Island Universes are at least metaphysically possible. (Bricker (2001) offers persuasive evidence and discusses both the metaphysical and the physical possibilities.)

Island Universes are just one striking case where the demarcation criterion between possible worlds consisting in spatio-temporal isolation creates trouble. Another way to claim that this criterion is inadequate stems from the realization that, as Bricker (2001, §1.3) puts it, "for all we know, not even the actual 'world' is spatiotemporally unified; perhaps, as physicists have pondered, spatiotemporal relations do not apply at the 'sub-microscopic' level." The idea that at the fundamental level of reality of our universe there are no spatio-temporal relations at all is common in recent research in physics. Philosophical discussion of this is to be found in Huggett, N. and Wüthrich, C. (2013, forthcoming), in Le Bihan, B. and Linnemann, N. (forthcoming), and in Le Bihan (2018)[2]. Huggett et al. (2013) claim that in

[1] Lewis (1986, p.208-209) discusses the possibility of a *branching* space-time structure. He does accept that there are some possible worlds whose space-time structure is branching. But the branches are spatio-temporally related since they always share an initial segment (i.e. they 'overlap') and a "branch" that would be entirely spatio-temporally disconnected from the "tree" would be a different possible world. So, when it comes to accomodating the possibility of Island Universes, branching cannot help.

[2] Le Bihan (2018, p.72): "The proposal that space or spacetime is not fundamentally real is far more radical than the relationist claim – Leibnizian in spirit – that spatial or spatio-temporal relations depend on their relata, space or spacetime being identified with the collection of these relations. What comes under attack with the phenomenon of space emergence is not the substantiality of space (ordinary space or relativistic spacetime), but the fundamental existence of its structure: if borne out, space emergence would entail that space, with its structural organization – as described by general relativity with the metric field, and our ordinary phenomenology – does not exist fundamentally (or alternatively, that another space exists fundamentally, but

some approaches to quantum gravity, there are very good reasons to think that at least time is not fundamental. Wüthrich (2018) explores then what he takes to be the consequence of these approaches to quantum gravity – namely, the disappearance of space-time at the fundamental level of reality. According to Wüthrich, since Lewis' worlds are individuated/demarcated by spatio-temporal relations, and if there are no spatio-temporal relations at the fundamental level of reality of our universe, our world is thus not possible (i.e. it is not a Lewisian possible world). Suppose this objection succeeds – it then amounts to a *reductio ad absurdum*. (Perhaps this objection does not succeed. Perhaps non-fundamental spatio-temporal relations are enough for Lewis' purposes. But, for the sake of argument, my point here is to be charitable with the objector and see what can be learnt from these considerations.)

I am going to focus on the Island Universes case. But any genuine possibility which somehow invalidates spatio-temporal inter-relatedness and spatio-temporal isolation as a criterion for the individuation/delineation of possible worlds has the same consequence: Lewis' pluriverse, as huge as it is, cannot accommodate some metaphysical possibilities. (Other, perhaps more exotic, possibilities may constitute additional troublesome cases, such as Linde's (1992) claim concerning the possibility of 'Baby Universes', where he develops a possible method for the creation of a universe in a laboratory.)

The first thing to do in order to see how modal realism can be amended to be able to face the objection from Island Universes (and similar objections) is to consider some crucial points concerning how *de re* modality works under modal counterpart theory. In this section, let us then leave possible worlds aside for a moment, before coming back to this main issue in §4 below, and let us focus on modal counterpart theory (under modal realism[3]). The point here is not just to remind ourselves of how modal counterpart theory works, but to highlight some central points about the nature of modality, which will be important later when it comes to possible worlds.

To start, let us consider a short (true) story. On February 7, 2013, the Czech climber Adam Ondra was the first to successfully climb '*La Dura Dura*', one of the hardest climbing routes in the world (graded 5.15c/9b+), located in Oliana, Spain. He has been trying to climb these 40 meters of an incredibly hard rock wall for 9 consecutive weeks (after more than a year of

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one which differs both from our familiar phenomenological space and from the spacetime of general relativity in the case of quantum gravity)."

[3] A different version of modal counterpart theory is compatible with a brand of ersatzism about possible worlds; see Heller (1998a, 1998b). In this article, I only focus on modal counterpart theory under modal realism.

specific preparation), and he successfully managed to do the climb after more than 90 attempts. But this climb is also well known for the friendly rivalry that it triggered between Adam Ondra and Chris Sharma, the American climber who was at the time considered to be the strongest climber in the world. Indeed, Ondra and Sharma have been working on this climbing route together, alternating attempts and discussing possible strategies – the two best climbers in the world working each for his own success and competing with the other, but in a friendly and collaborative manner. After Ondra's success, Sharma managed to successfully climb the route a month later. Interestingly, it was Sharma who started this project and who presented this route to Ondra. Indeed, the route was so hard that it was not clear whether it was even possible for anyone to ever climb it. But once Ondra managed to do it, Sharma knew that he could do it as well. He knew this because his level of strength and skill were virtually the same as Ondra's. Thus he realized: "if Ondra can do it, so can I". On February 8 (the day after Ondra's success), we can thus say: it is possible for Sharma to climb '*La Dura Dura*', because it is actual for Ondra. The fact that Ondra did it means that Sharma can do it, *given how similar their climbing skills are*. Such thoughts are commonplace in our everyday understanding of what is possible for us, when we compare ourselves to others, or when we compare an object to another similar object, and so on.

Keeping in mind this idea (namely, that something is said to be possible for X because it is actual for a suitably similar Y), let us now turn our attention to Lewis' modal counterpart theory (see Lewis (1968, 1986)), before coming back to this initial idea. Modal counterpart theory's central claim is that all individuals are world-bound (i.e. they inhabit only one world) and the analysis of *de re* modal statements it provides is the following:

(a) (X is possibly F) ↔ (X is F or at least one counterpart of X is F)
(b) (X is necessarily F) ↔ (X is F and all of X's counterparts are F)

Take Adam Ondra, who is a *climber* in the actual world and who is *tall*. Take also Jim who is a *sprinter* inhabiting a different possible world, say W*, and who is a bit *shorter*. As it happens, Jim is the individual in W* who is the most similar to Ondra (more similar than any other individual inhabiting W*, perhaps because there aren't any climbers in W* at all) and who is similar to Ondra is many relevant respects indeed (he is human, he resembles him closely, he is very fit, and so on). Thus, under modal counterpart theory, Jim is Ondra's other-worldly counterpart. The idea is: there is this individual, namely Jim, who is relevantly similar to Ondra, and this then grounds the possibility that *Ondra could be a sprinter and could be*

shorter. He *could* because somebody similar enough to him *is*. In short: X is an other-worldly counterpart of Y if X is an individual inhabiting a different possible world, if X resembles Y in relevant features, and if X resembles Y more closely than any other object in that world. Note that the converse is not automatically the case. Indeed, considering the situation from the other direction, it might perhaps *not* be the case that Ondra is the most similar individual to Jim in the actual world. Perhaps, Usain Bolt is more similar to Jim than Ondra. As a consequence, Bolt is then Jim's counterpart in our world, and not Ondra. The counterpart relation is not always symmetrical (see Lewis (1968, p.113)). Such a view rejects trans-world numerical identity (since the different counterparts are numerically different individuals) and it thus avoids well-known objections concerning accidental intrinsic properties (see Lewis (1986, p.201)), but this is not our point of focus here.

The point to focus on, in order to better understand how modal counterpart theory works, concerns an objection according to which modal counterpart theory is completely wrongheaded and entirely misses its target – this is Kripke's (1972, p.45) well-known 'Humphrey objection'[4]; nicely summarized by Merricks (2003, p.522): "That objection charges counterpart theory with changing the subject. When I ask whether I might have been happier, so the objection goes, I am asking whether I – this very person – might have been happier. It is simply not to answer my question to say that an other-worldly someone else is happier, even if he is very much like me, even if we call him 'Merricks's counterpart'".

The objector's idea is quite clear: counterparts are world-bound individuals, inhabiting only one world; so, when talking about Ondra's modal property of *possibly being shorter* or *possibly being a sprinter* we are not talking about *him* at all, since modal counterpart theory analyses the *de re* modal statement in terms of *somebody else* being shorter or being a sprinter. Jim might very well be many things, including being shorter than Ondra and being a sprinter, but this concerns him, not Ondra. The way Jim is, is just the way *Jim* is, and it has nothing to do with Ondra – and, in general, it has *nothing to do with modality*. It's just a fact about Jim. Suppose that Ondra just avoided a deadly fall during a dangerous climb: it is then central, in order to justify his sensation of relief, that he has the belief that it was *him* who could have fallen and died, and *not* that somebody else, in another possible world, fell and died. These are just two entirely different things, the objector claims, and modal counterpart theory simply has it all wrong.

[4] See also Plantinga (1973) for the same worry put in a different way.

To answer this objection, it is useful to remember the (actual) story of Ondra and Sharma. In this situation, it is entirely natural and correct to say that since Ondra managed to do the climb, it is possible for Sharma to do it (as compared to the situation before Ondra's success where it wasn't clear at all that any human could ever do it). Why is this the natural and correct thing to say? Because *given the relevant similarity* in strength and skill between the two climbers, the fact that one of them did it means that the other can do it as well. This is a very common-sense thing to say, and we often do indeed think about *de re* modality in this way: (*i*) here is a situation which is extremely similar to my own situation, (*ii*) something happens/is the case in this situation, so (*iii*) it could happen in my situation as well. We can say all this, and see that it is the correct thing to say, without having even mentioned modal counterpart theory or possible worlds – indeed, the (true) story about Ondra and Sharma happens in Spain, in the actual world. There is no need to go looking for other-worldly counterparts in order to know that it is possible for Sharma to climb '*La Dura Dura*' – since the most relevantly similar individual (namely, Ondra) is available right there, in actual Spain.

Modal counterpart theory is no more heavily loaded than that: we can say that the fact that other-worldly Jim exists and that he is such-and-such means (or, we could say, *represents* the possibility) that Ondra could be such-and such, in the same way the story of comparative similarity about Ondra and Sharma goes in the actual world. If you like the idea of representation, you can thus say: Ondra's success represents the possibility of Sharma's success; Jim being a sprinter represents the possibility of Ondra being a sprinter, and so on.

The objector claimed that properties of numerically different other-worldly individuals (like Jim) have nothing to do with the modal properties of actual individuals (like Ondra), and that the whole story about there being a plurality of individuals inhabiting different concrete worlds simply has nothing to do with modality – these are just *things that exist*. But we now see that this has *everything to do with modality*. It is true that there is nothing 'modal' in the individuals/counterparts themselves – they *are* just things there are. But the fact that they are out there means something. It means at the very least that it is possible for something to be such and such, since it *is* such and such. This is true, as we have seen in the actual case of Ondra and Sharma, even when it comes to simply two different individuals inhabiting the same world. The fact that Ondra and Sharma are so relevantly alike means (represents, if you prefer) that if one of them can do the climb, the other can do it as well. So, we don't even have to look in other possible worlds to get modality: *modality is to be found in every situation similar in a sufficiently relevant way – actual or other-worldly*. The job of modal counterpart theory (given modal realism) is then simply to provide enough individuals (more than just the

individuals inhabiting our world) to have a variety of situations sufficiently rich in order to account for all possibilities. Thus, the simple *existence* of the huge number of *concreta* postulated by modal realism has everything to do with modality.

An important point to appreciate here is that the way something has modal properties is a very different story from the way it has non-modal intrinsic properties. Ondra has the intrinsic property of being tall. Such a property is perhaps a trope, or perhaps a universal, or perhaps it can be somehow reduced to more fundamental properties about the fundamental particles he is composed of, but whatever the precise metaphysical nature of this property is, it is something he has/is – something that constitutes him in one way or another. The case of *modal properties* is very different. The property of *being possibly short* is not a property that Ondra has in any comparable way – for instance, he does not have a trope of being-possibly-short. There are no such tropes. *In this sense*, there are no modal properties. Modal properties are better understood in the way modal counterpart theory provides: it is correct to say that Ondra could have been shorter, because there is a situation very similar to his where an individual very similar to him is shorter – and that's all there is to say. Nothing forces us to commit ourselves to the existence of modal properties understood as tropes, universals, or something of such kind. Or, at least, nothing forces us to say that modal properties are intrinsic properties; perhaps they are to be understood here as being relational extrinsic properties. Modal counterpart theory thus not only provides a perfectly good analysis of *de re* modal statements but it also helps us realize what the nature of 'modal properties' is (not). Again, to say that Ondra '*has*' a '*modal property*' is no more than to simply say that something is possible for him, and this is represented by the *existence* of a situation where this something is the case for somebody else, suitably similar to Ondra (since this shows that it is compatible with the way Ondra is).

Island universes make no trouble for modal counterpart theory concerning *individuals inhabiting* possible worlds. Indeed, we have even seen above that we do not need to go looking for other-worldly individuals at all in some cases such as the Ondra vs. Sharma case. The important thing is that a suitable counterpart exists *somewhere*, in a suitably similar situation, and it is not important whether it exists today on actual Earth, or long ago in a galaxy far, far away, or in a spatio-temporally disconnected and isolated universe. Given Lewis' framework of possible worlds, the only thing that counts is that it exists *somewhere in the pluriverse*. This works perfectly fine for any individuals inhabiting Lewisian possible worlds – but, what about the worlds themselves? This is where the Island Universes objection

really has some bite. Consider the statement: "it is possible that the actual universe/world contains Island Universes". As we have seen in §2, this seems (let us grant to the objector) to be a genuine metaphysical possibility but one that cannot be accounted for in the Lewisian framework since any "world" containing disconnected/isolated space-times would not count as a world at all, given Lewis' criterion for delineating/individuating worlds.

As deadly as this objection may sound, I want to suggest that it only applies to the version of modal realism Lewis officially provided, but that it poses no difficulty to an amended version of modal realism which preserves the spirit of Lewis' view while abandoning the letter. The suggestion is to abandon entirely the very notion of a possible world. This may sound utterly un-Lewisian, but it is much less radical than it sounds, and I believe that Lewis could have been happy with it. Let me try to expand this view: *modal realism without possible worlds*[5].

Perhaps the shortest and easiest way to realize that possible worlds are not really central to Lewis' view and that they are not really important is to see what happens if we try to preserve everything in Lewis' version of modal realism except possible worlds and see what happens – as we will see, not much happens indeed. What is essential to Lewis' insight into the nature of modality is (*i*) modal counterpart theory and the idea that modality is to be found in relevantly similar situations, and (*ii*) that there are more entities than we thought there were – this is Lewis' huge pluriverse. (*i*) is the core of Lewis' view and (*ii*) is needed in order to provide enough entities to account for all possibilities. What is *not* essential to Lewis' insight into the nature of modality, as we have seen, is that we need to go looking in a different 'world' in order to account for a given possibility. What counts, again, is that a suitable counterpart exists somewhere in the pluriverse, and that's it. Relevantly to our present concerns about Island Universes, note that the pluriverse *does* contain parts that are spatio-temporally isolated from each other. In Lewis' official view, these parts are labelled "possible worlds". But there is no need for that. Let us simply drop this assumption and drop this trouble-making notion of a possible world. In order to properly manage our modal discourse, we can usefully replace

[5] There are some similarities between this approach and the view offered in Yagisawa (1992) and Yagisawa (2010), but there are also important differences. To mention only three, Yagisawa embraces impossible worlds, he appeals to primitive modal notions, and (in Yagisawa (2010)) he claims that physical objects extend not only in space and time (four-dimensionalism) but that they also extend in 'modal space' (this is a brand of "five-dimensionalism"; in Benovsky (2006a and 2006b), I did defend a similar brand of five-dimensionalism, but I do no longer think that it is preferable to modal counterpart theory.)). Yagisawa's view thus diverges rather significantly from Lewisian modal realism (and from the view I am advocating for here).

the unpalatably metaphysically loaded notion of a possible world by a much less loaded and simpler notion of a 'zone of reality'. There is a zone of reality which we inhabit and which is spatio-temporally maximally inter-connected. But, in the pluriverse, there also is a zone of reality which contains spatio-temporally isolated parts. Perhaps, one of these parts is even our own zone of reality, the one we inhabit, but this is not important. What counts is that somewhere in the pluriverse there is a zone of reality which contains spatio-temporally isolated parts – this is all we need to be able to say "it is possible that there exist Island Universes". There is no need to ever mention anything like Lewisian possible worlds in this story, exactly as there was no need to mention anything like possible worlds in the story of Ondra and Sharma. Of course, we could want to stick to the standard terminology and use the term "possible world" to simply speak about a zone of reality of the pluriverse, but in order to avoid terminological confusion, and given that the term "possible world" has been used by Lewis to refer to spatio-temporally delineated/isolated zones of reality, let us avoid possible misunderstandings and keep "possible world" for Lewis' official use, and "zone of reality" for any portion of the pluriverse, spatio-temporally delineated/isolated or not.

In the pluriverse, there are zones of reality which are maximally spatio-temporally inter-connected and which are also causally inter-connected, but there are also zones which are not spatio-temporally or causally inter-connected – for instance, anything that lies outside my light cone is causally isolated from me. This does not prevent counterpart relations to hold (between spatio-temporally or causally isolated entities) since similarity relations do not require any spatio-temporal or causal connection between the entities being compared. Thus, in order to be able to say that there could be flying pigs, it is *not* important that we find a flying pig in a spatio-temporally and causally isolated Lewisian possible world – what *is* important is that we find a suitably similar flying pig somewhere in the pluriverse. It is not important *where* this flying pig is located, what counts is that it *exists*, and that's it. When it comes to worlds and Island Universes, we can say that the zone of reality we inhabit and which is maximally spatio-temporally inter-related is, structurally and metaphysically speaking, similar enough to another zone of reality (another portion of the pluriverse) which contains at least two spatio-temporally isolated parts – this would be a way of saying, if there was a need to say it, that the actual world has a counterpart which contains Island Universes.

This modifies Lewis' official view, while remaining well in a Lewisian spirit. We abandon here the notion of a possible world understood as a maximally spatio-temporally inter-related whole. But nothing really hinges on that. We can preserve modal counterpart theory and we

can still have a reductive analysis of modality, as Lewis wanted it. For *de re* modality, we can simply keep the standard analysis:

- X is possibly F iff X has a counterpart that is F
- X is necessarily F iff all of X's counterparts are F

For *de dicto* modality, we can replace the notion of a possible world with the notion of a zone of reality, with the help of counterpart theory. For instance, we can say

- It is possible that it's snowing in Tahiti iff there is a zone of reality which is a relevant counterpart of Tahiti where it is snowing.
- It is necessary that it's snowing in Tahiti iff it is snowing at all zones of reality which are relevant counterparts of Tahiti.

More generally:

- It is possible that P iff at a relevant zone of reality P.
- It is necessary that P iff at all relevant zones of reality P.

Modal counterpart theory, as it is officially stated in Lewis' view, relies heavily on the notion of possible worlds and thus also needs to be amended. As an illustrative example, take for instance Lewis' (1968, p.111) axiom P5:

P5. $(\forall x)\ (\forall y)\ (\forall z)\ (Ixy \ \& \ Izy \ \& \ Cxz \rightarrow x = z)$
where
Ixy: x is in possible world y
Cxy: x is a counterpart of y

This axiom states that nothing is a counterpart of anything else in its world – except itself, as specified by the following axiom P6:

P6. $(\forall x)\ (\forall y)\ (Ixy \rightarrow Cxx)$
(Anything in a world is a counterpart of itself.)

In the version of modal realism and modal counterpart theory I am putting forward here, since there are no worlds, it does not make sense to restrict the counterpart relation in this way. Indeed, as we have seen, Ondra and Sharma – who, as Lewis would put it, are two individuals inhabiting the same (actual) world – are, in the new view, counterparts, *contra* P5. P5 should simply be dropped here. (P6, however, still holds, except that it cannot be formulated using "Ixy" since "I" is defined by appealing to the notion of a world. P6 simply becomes "(∀x) (Cxx)" – anything is a counterpart of itself.) This is a direct and natural consequence of the abandonment of the notion of possible worlds. It makes modal counterpart theory simpler. Modal counterpart theory does not need to be defined in terms of worlds, it can simply be defined in terms of relevant comparative context-dependent similarity (see below).

These amendments are of course significant ways to change the letter of Lewis' official view. But they respect the spirit of what counts when it comes to try to understand the nature of modality in a Lewisian manner. Zones of reality are simply Lewisian possible worlds freed from an unnecessary need to somehow distinguish/individuate them *in a metaphysically objective way*. Indeed, a zone of reality simply corresponds to *any portion of the pluriverse that is relevant* to our modal discourse. This actually fits *better* Lewis' own view than his official formulation. Indeed, Lewis insisted (and he was right to do so) that when it comes to modal counterpart theory, the counterpart relation is context-dependent. Depending on our interests, Jim who is a sprinter and who also is a metaphysician, located in a zone of reality far away from ours, is more similar to Usain Bolt *qua* sprinter or he is more similar to David Lewis *qua* metaphysician. Depending on our interests, either Bolt or Lewis is then Jim's counterpart, since Bolt is more similar to Jim when it comes to running and Lewis is more similar to Jim when it comes to philosophizing. There is no objective privileged similarity, there just are different similarity standards and contexts, depending on what we are interested in – sports or philosophy. The same applies to zones of reality. Depending on our interests, we can focus on such-and-such a zone of reality – bigger, smaller, spatio-temporally isolated or not, etc. – and we can consider how similar it is to other relevant – bigger, smaller, spatio-temporally isolated or not, etc. – zones of reality. In a mereologically unrestricted sense, any bit of the pluriverse is a suitable zone of reality. This is perfectly in line with Lewis' own official view, since this is no more than simply applying the idea of modal counterpart theory to 'worlds' themselves, in a more generalized way. When we say "There is no beer.", we might mean that there is no beer in the fridge, or we might mean that there is no beer in the whole country (perhaps due to some kind of anti-beer prohibiting law), or that there is no beer

anywhere in the known universe, etc. Depending on our interests, we thus restrict our attention to a given zone of reality and we can then evaluate the statement "There could possibly be beer." by selecting a suitably similar zone of reality which can count as a relevant counterpart to the zone of reality we have been focusing on. Again, any zone of reality can be selectively focused on, depending on our interests, and can be used to ground the truth/falsity of *de re* and *de dicto* modal statements. There is no need to say that there are *special entities* such as Lewis' spatio-temporally isolated *worlds* – this is where Lewis' official view is open to trouble, because it attributes a special ontological status to some zones of reality, namely those that are spatio-temporally maximally interconnected, but as we have seen this is not necessary and we can simply get rid of such a trouble-making assumption. All we need is counterpart theory and a pluriverse big enough.

Does this mean that, in this view, everything is actual? No. Here again, we can simply provide a slightly amended version of Lewis' analysis of actuality and say that being actual is merely an indexical expression, referring to any zones of reality that we have decided to selectively focus on. Ontologically speaking, you, me, Ondra, Sharma, Jim, and flying pigs are on a par. There is no ontological difference between an actual Ondra and a merely possible flying pig – both *just exist* somewhere in the pluriverse. There are no ontological privileges. But this does not prevent us from saying that Ondra is actual and that flying pigs are merely possible, since Ondra inhabits a zone of reality close to us and to which we have decided to restrict our attention, while a flying pigs inhabits a zone of reality which is, say, spatio-temporally and causally isolated from us. In an indexical way, I can thus say that I and Ondra are actual, while the flying pig is merely possible. Again, this is no more than embracing Lewis' own official view, while abandoning the notion of a Lewisian possible world. When it comes to saying what is actual and what is not, Lewis would say that the *actualia* are "me and my worldmates", while the view I put forward here says, in a similar way, that they are "me and the relevant things that my interests and my attention are restricted to" – following the same context-dependence that we find in modal counterpart theory.

We have seen that modal realism supplemented with modal counterpart theory can successfully face the objection from Island Universes and similar objections, by making some significant changes to it, while preserving the spirit of the original view. From the start, I have charitably supposed that the objections mentioned in §2 are successful, and this was the starting point of my argument. But even someone who is not moved by these objections could still find the new version of modal realism without possible worlds attractive. It has a lot to

recommend for itself: it is simpler, more straightforward and provides a clearer picture of the core Lewisian insight into the nature of modality than the original view since it focuses only on what's essential to it and leaves aside what is not[6].

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