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## NOT TO BE: MODALITY WITHOUT POSSIBLE WORLDS

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For many with broadly Aristotelian intuitions the Humean usurpation of work in philosophy is a frustrating landscape. This is most obviously demonstrated in the arena of the metaphysics of modality, and talk of “possible worlds” specifically. Famously, the Humean denial of necessary connections in the world has led to the most strongly defended thesis on modality to date: the extreme modal realism (EMR) of David Lewis. *Pace* Lewis, actualism ought to be the preferred position, but whose version, which actuality? The thrust of this paper shall be to argue that the truth makers, or grounding, for modal claims are not to be found in possible worlds. We need to be, in the terms of Gabriele Contessa, *hard-core* rather than soft-core actualists. Such is to take possible worlds as, at most, a useful formal device in modal logic but to have little, if anything, to do with the *metaphysics* of modality. If a direct actualist account of the grounds for modal claims can be provided, then, *ceteris paribus*, it is to be preferred. One can see this as the ambition of the so-called *new actualists*, who deftly avoid the Scylla of Quinean skepticism to modality and the Charybdis of Lewisian EMR. The focus of this paper is on the truthmakers of modal facts and the neo-Aristotelian solution: essences and properties. It is a rather common sense view.<sup>1</sup> This solution allows us to remove “possible worlds” from our ontology as a needless clutter and, given that Hume is simply wrong about necessary connections in the world, causal powers can be sufficient for grounding the truths of modal metaphysical claims.

### Motivation for Possible Worlds

Perhaps one is impressed by the vast array of modal locutions employed in everyday discourse. After all, “I might have been six feet tall”, “Possibly, there are alien civilizations”, and, “If the Germans had won the war we would all be speaking German” seem to be true statements, expressing true propositions. Alethic, truth-ascribing, modal language plays a large role in our lives, often dictating our courses of action; realism seems paramount. Clarification of modal discourse, then, is called for and Kripke gave us just that with models for a formal semantics of modality. Here we have the notion of possible worlds, and the objects they contain, to fill the role of explaining the modal primitives: possibility and necessity. If we want a complete description of reality we need to countenance the ways things could have been *in toto*. Possible worlds give us a way to speak about what might have been and what must be, and in a way that allows us to drop the primitive operators  $\diamond$  and  $\square$  by simple first order quantification over worlds and objects with our well-understood  $\forall$  and  $\exists$  logical operators. The thought is that, only when we have a complete, categorical description of not only the goings on in the actual world but also the various possible worlds have we determined

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<sup>1</sup> As Jonathan Jacobs put it, “It is the view that, pre-theoretically, just seems right. We tend to think of ourselves and the world around us, it seems, in a way reminiscent of the old Batman television series. It’s not just Batman’s fist constantly conjoined in a loose and separate way with criminals falling down. There’s also the biffs and bams, or if you prefer a technical term, the causal oomphs” [12], 7.

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what is necessarily true, possibly true, or contingently true.<sup>2</sup> Hence, given the Leibnizian bi-conditionals, we can quantify over worlds:

◇ **Possibility**: A proposition is possible if and only if it is true in some possible world. A being is possible if and only if it exists in some possible world. i.e.  $\diamond x \Leftrightarrow \exists w1 \exists xw1$ .

**Contingency**: A proposition is contingently true if and only if it is true in this world and false in another world. A proposition is contingent if its contrary does not imply a contradiction. i.e.  $x$  is contingent  $\Leftrightarrow \exists w* \& \exists w1 [ \exists xw* \& \neg \exists xw1 ]$ .

□ **Necessity**: A proposition is necessarily true if and only if it is true in every possible world, i.e.  $\Box x \Leftrightarrow \forall w \exists xw$ .

**Impossibility**: A proposition is impossible if and only if it is not true in any possible world, i.e.  $x$  is impossible  $\Leftrightarrow \neg \forall w \exists xw$ .

These bi-conditionals are inter-definable so that given only possibility (or necessity) we can derive all other modal terms. Kripke incorporated these bi-conditionals into his model theory for modal logic and the metaphysicians took the bait. As Michael Loux puts it,

If we are to make sense of the various modal systems, we *have* to suppose that in some sense there really are possible worlds other than our own and that in some sense there *really are* possible objects not found in the actual world.<sup>3</sup>

So it might seem that we are committed to worlds in a way, reminiscent of good Quinean dogma, that our best theories commit us.

There are further reasons to desire possible worlds, beyond the semantics. As Plantinga points out the notion of possible worlds (and their objects) have allowed us to elucidate the nature of propositions, properties,<sup>4</sup> sets, counterfactuals,<sup>5</sup> the function of names, causality, and perhaps even perplexing theological issues such as the ontological argument and the problem of evil.<sup>6</sup> Perhaps it is the case that when we wonder whether some fact is possible it only seems to be a local fact when indeed it is a global fact, one about the (actual) world as a whole. Thus, when we say, "The Red Sox might have beaten the Yankees" we don't mean just facts about the pitcher, or the coach, such that it is logically possible that the (actual) world is different; rather, we mean that there is some world very much like ours such that, in it, the Yankees lost. This might mean that the history of the worlds remain the same until then, the laws of nature are identical, etc. Thus, in order to do justice to the possibility, we need global

2 [23] 18-19.

3 [20], 29, emphasis mine.

4 Properties for Lewis are simply sets of worlds, and likewise for propositions.

5 The explanation of counterfactuals is particularly promising:  $X \Theta \rightarrow Y$ , read as "if it were that X it would be that Y" iff in the closest possible worlds where X obtains Y also obtains. So if X were "Nixon pushes the button" and Y is "nuclear war occurs", then the counterfactual is true just in case in all the nearby worlds where Nixon pushes the button nuclear war occurs. For the Lewisian/Humean, when our quantifiers are unrestricted, there are worlds where the war does not occur even though the button is pushed. However, for Lewis, we are only concerned with the worlds most closely resembling the actual\* world (that is, our world).

6 [27], 253.

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(and, hence, possible worldly) possibility.<sup>7</sup> On this view, then, the truthmakers we seek for alethic modal claims are not (just) objects in the actual concrete world we know and love, but (also and for the most part) whole distinct possible worlds.<sup>8</sup>

### World Options

There are, generally, two competing theories of possible worlds (with outliers). These theories agree that the modal semantics requires worlds but disagree on the metaphysics of the worlds. Just what are these possible worlds and what is going on in them? Neo-Humean David Lewis is refreshingly clear on what he holds.<sup>9</sup> His is an extreme realism: there really do exist simpliciter a plurality of other worlds, they are ontologically on par with ours (the actual world), they are isolated (in no way spatiotemporally connected), they are merely possible (but, at their own world, are actual), and there is a plenitude of them (for any way the actual world could be, or any part of the actual world, there is a possible world or part of a world that is that way).<sup>10</sup> Possibility and necessity, then, are accounted for via counter-part relations between worlds and worldmates.<sup>11</sup> That is, given that worlds are spatiotemporally isolated there cannot be identity across worlds, so we have worldmates (objects that are spatiotemporally related) that stand in counterpart relations with otherworldly objects such that X is possibly Y just in case X has a counterpart X\* in a possible world and X\* is Y. The plenitude of possibilities is assured, given that the Humean doctrine of independence (the denial of necessary connections) is in play. Roughly, as Lewis puts it, the idea is that, “anything can coexist with anything else, at least provided they occupy distinct spatiotemporal positions. Likewise, anything can fail to coexist with anything else.”<sup>12</sup> Thus, at least seemingly, we arrive at a true infinity (though, perhaps not a set) of possible worlds instantiating every conceivable possibility.<sup>13</sup>

Lewis touts this as a full-blooded reductive account of modality, such that these worlds and the relations they bear to each other (and the counterpart relations) do not rely on primitive modality for explication of modal intuitions.<sup>14</sup> There is a main contender, though, in the form of Platonistic theories. Here the most developed are those of Alvin Plantinga and

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7 Of course, I am skeptical that this is indeed what we mean. Are we not just imagining a way that our world could have gone, rather than the way some possible world did go? And that seems to depend on the ways our world is already, or was, or will be.

8 See Divers [9], especially the first three chapters, for more on this and Melia [22] chapter 1.

9 [18], especially sections 1.1 and 1.5-1.9.

10 And Lewis wonders why Stalnaker calls his views “extreme”.

11 Ibid, 71.

12 Ibid, 88. Now, one ought to worry that already Lewis is sneaking in primitive modality here. After all, as Kit Fine or E. J. Lowe would be quick to point out, is it not a necessary fact that two material objects cannot co-locate? And is this not a fact dependent upon the things themselves, not upon the makeup of logical space? So, essences seem to be doing some work here.

13 As Lewis remarked in *Counterfactuals*, “If an argument is wanted, it is this... there are many ways things could have been besides the way they actually are. On the face of it, this sentence is an existential quantification. It says that there exist many entities of a certain description, to wit ‘ways things could have been’. I believe that things could have been countless different ways; I believe permissible paraphrases of what I believe; taking the paraphrase at face value, I therefore believe in the existence of entities that might be called ‘ways things could have been’. I prefer to call them ‘possible worlds’.” [17], 182.

14 Lewis takes this as a significant theoretical advantage of his theory of those of Ersatzists.

Robert Adams. These actualists (or as I will call them, soft-core actualists) take the actual world to be all there is; there are no merely possible worlds. Possible worlds are abstract objects actually existing (as opposed to Lewis' concrete merely possibly existing worlds). These abstract worlds are usually taken to be maximally consistent sets of propositions, or states of affairs, or some such suitable Platonic entity. I shall focus on Adam's account of propositions, for simplicity. Worlds, for Adams, are maximally consistent sets of propositions such that the true propositions relate to the actual world and represent possibilities. Hence the name ersatzist: something abstract is standing in for something concrete as the truthmaker for modality. Notice that on this view the actual world is abstract: it is a set of propositions that is actualized into a concrete reality (you, me, etc). That is, possible worlds are akin to blue-prints for the universe, where the true propositions represent possible ways concreta in the actualized world might be. The absolutely maximal set of true propositions just is the actual world, the set that is actualized.

One might wonder what this representation relation between possible worlds and the actual world might amount to, but this must be taken as primitive.<sup>15</sup> Indeed, one should wonder at how it is that any possible world, ersatzist or otherwise, manages to represent actual possibilities. Platonic theories look a bit out of this world. Perhaps one should rather deny allegiance to either of these approaches and, rather, reap the benefits of their theoretical pay-offs. This is the move of fictionalism. Fictionalism concerning possible worlds finds, perhaps, its best defense in Theodore Sider's work; but if fictionalism can be avoided then so much the better.<sup>16</sup> It is not entirely clear just what the fictionalist hopes to gain from their elaborate story telling other than *simply* that: an elaborate, yet false, story. If it is meant to elucidate our modal concepts then perhaps it can to some extent, but it does nothing to answer the pressing question of modal truthmakers.<sup>17</sup> Gideon Rosen so much as admits this, when he contends that the position forces us to revise our patterns of modal concern. If we are consigned to speaking about worlds while not believing in them, then why not simply abandon worlds altogether and search for a genuine grounding of alethic modality? If worlds are no help to extreme modal realism (EMR), then they will be no help to the Fictionalist.

#### The Rejection of Worlds

It would seem that the obsession with the Leibnizian bi-conditionals has gone to extremes. What began as an innocent suggestion by Kripke, to take "worlds" as the "objects" of the semantics, has led to a veritable Cold-War arms race for the metaphysics of these worlds. As Loux admits, then brushes aside, nothing in the semantics commits us to entities such as possible worlds with possible objects.<sup>18</sup> The whole picture is backwards: why are we starting with semantics and then building an ontology? Why assume that the correct ontology could be read off of our semantics? This is wrong-headed; rather, begin with ontology, with the foundational metaphysics, as E. J. Lowe would put it, and then build a semantics for modality.<sup>19</sup>

There are several general concerns with EMR, too many to be fully examined here. It is not clear just how reductive the account is; as William Lycan has pointed out Lewis refuses,

15 See Lewis [18], 182 for a criticism of this representation relation.

16 Aside from the obvious issues with fictionalism, Sider's version fails to save bivalence and seems to be lacking in ability to ground modal truths. See Sider, [32], page 295 and Pruss, [29], pages 147-155 for more.

17 Perhaps one could make the case that fictionalism *does* answer the truthmaker challenge *precisely* by showing that all modal discourse is a useful fiction. This, however, is borderline modal nihilism and ought to be avoided where possible.

18 [19] 29-30.

19 See [5], page 25, footnote 12.

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by *fiat*, to countenance impossible worlds.<sup>20</sup> EMR is then at a disadvantage compared to the Ersatzist, who can easily countenance impossible worlds: they are worlds with falsities, that is, they are not maximally consistent. But EMR must rule out these: there are no actual impossibilities and, since each world is indexically actual, worlds rule out impossibilities. Worlds for Lewis are just, simply, *possible* worlds and as such are modally primitive. The irony is that Lewis rules out impossible worlds so as to avoid primitive modality: with impossible worlds we would need to restrict our quantifiers so as not to quantify over impossibilities, but this is merely more primitive modality. So EMR loses some of its theoretical virtue. The alternative to denial, however, is to accept indexically actual impossible worlds. Takashi Yagisawa has recently argued for this as a natural extension of the Lewisian framework and, if correct, the Lewisian must quantify over impossible worlds and over differing *logical spaces*.<sup>21</sup> In brief, contradictions are impossible, therefore we should countenance impossible worlds.

If this is a natural extension of the EMR framework, then this is no virtue. Impossible worlds are notoriously ill behaved (and one should expect that, they are impossible after all). Such worlds are a gateway to explosion: *ex falso, quodlibet*!<sup>22</sup> There would be an infinity of logical spaces and thus the Lewisian ontology becomes even more bloated.

Possible worlds themselves are problematic. It is rather strange indeed to think that it is worlds, of any kind, doing the modal work for us. What if there were only 18 worlds and each world contained stars, would stars suddenly become necessary existents? Or only one world? In which case everything would become metaphysically necessary. The point being that possible worlds are an ad hoc stipulation and have nothing to do with the metaphysics of modality (do we really believe that simply having more worlds alleviates the problem?). It is highly plausible that many have, as Michael Jubien puts it, “fallen under the spell” of the word “possible” in possible worlds.<sup>23</sup>

Worlds are not even *relevant* to our notions of possibility and necessity. What, after all, do entirely detached realms offer? If we remove the word “possible” from possible worlds and just see them as potential worlds, other realms, then quite simply they seem to be aspects of the one actual world and have nothing whatsoever to do with modality. Counterpart theory is a case in point. The counterpart of Humphrey is supposed to represent of him that he won the election against Nixon. How is it that Humphrey’s counterpart represents Humphrey? It cannot be, as Lewis holds, simply because of similarity relations given that representation is not, after all, a matter of similarity. Intentionality is needed for representation.<sup>24</sup> Thus a legate or an ambassador represents because they are *intended* to do so, or a carved statue of David represents David, not because it is *similar* to him (which is difficult enough to determine), but because it is *intended* to represent him. A flower petal could represent a planet in a film where flowers are solar systems, but this does not mean that a flower petal could *be* a planet (or a planet a flower petal); only that it was intended to represent one. Hence, just what relevance worlds have for grounding the metaphysics of modality is mysterious. If Kripke is correct that origins are essential (assume for argument’s sake), then Queen Elizabeth II could not have been born to the Trumans. Nevertheless, she could be *represented* as being such (perhaps in a film), yet this would not change the modal *facts*. Again, representation by worlds is entirely irrelevant to the metaphysics of modality.

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20 [22], 224-225, and 227.

21 [34], see page 186, 200-203.

22 That is, from what is false, whatever you like!

23 [16], 62.

24 Ibid, 64-65.

The magic bullet seems to be Kripke's semantics. It should be clear, however, that the modal semantics are merely mathematical formulations; the metaphysics is silent. Most have simply assumed that this merely mathematical device must play the central role in our metaphysics of modality, when really the worlds of the logician have nothing to do with our intuitive modal notions. To demonstrate this point, try to imagine a shark that was not a fish and see that it cannot be done. There is no possible non-fish shark. What is doing the modal work here? Surely it is that one imagines something *being a shark* and it not *being a fish* and fails, but these are simply properties. That is, there are *no worlds involved* in understanding that it is impossible, yet suddenly from this most metaphysicians jump to the conclusion that *in no possible world* is there a non-fish shark. Worlds, if there are any, are simply reflecting our *thoughts* about the properties, and this is simply a psychological phenomenon.<sup>25</sup> What this ought to demonstrate is that the real metaphysics of modality, the truthmakers for modal statements, lies beyond the veil of possible worlds and directly in the properties themselves. More will be said on that in section 6. Possible worlds analysis simply says *nothing* about the metaphysics of modality, regardless of how fruitful it may seem to be. This conclusion holds whether one is an *ersatzist* or a possibilist like Lewis. As Lycan put it, speaking of Lewis' EMR, possible worlds analysis has the stunning advantage of removing unclarity at the expense of its *outrageous falsity*.<sup>26</sup>

#### Truth and Truthmakers

Perhaps one does not accept the need for truthmakers and as such is not motivated by considerations of the metaphysics of modality.<sup>27</sup> Perhaps one accepts truthmaker theory but, for one reason or another, does not believe that modal truths need truthmakers.<sup>28</sup> If one is the latter, then perhaps two assumptions are in play (perhaps implicitly): (1) that if  $\langle p \rangle$ <sup>29</sup> is necessary then it does not need a truth maker and (2) that modal truths are simply a subset of all necessary truths.<sup>30</sup> Thus Hugh Mellor says,

Because the identity of a necessary proposition entails its truth, I cannot see why any other entity must exist to make it true. So, in particular, since any contingent proposition 'p' is *necessarily* contingent, I . . . see no need of a truthmaker for the necessary truth that p is contingent and hence that . . .  $\neg p$  is possible.<sup>31</sup>

The argument depends upon S5 and seems to be, generalized, the notion that if  $\langle p \rangle$  is necessary then  $\langle p$  is necessary  $\rangle$  is necessary, and the same follows if  $\langle p \rangle$  is possible then  $\langle p$  is possible  $\rangle$  is necessary, and hence, since all is necessary, there is no need for a truthmaker for modal truths.

While this is brilliant, it is misleading. Why think that necessary truths do not require truthmakers? Is it because, since they are necessary, there is no other option? This is reminiscent, as Ross Cameron points out, to the debate over why there is something rather than nothing.

25 One that Kripke understood well when he suggested we think of worlds and objects for the modal semantics.

26 [21], 219.

27 Perhaps someone like the early Lewis fits here.

28 Hugh Mellor seems to fit in here.

29 Here I abbreviate the proposition that p by  $\langle p \rangle$ .

30 [7], 262.

31 Mellor, "Real Metaphysics: Replies". In H. Lillehammer and G. Rodriguez-Pereyra (eds), *Real Metaphysics*. London: Routledge, 2003. Quoted in [7], 262.

ing: there is *something* because it just *had* to be that way, there's no other way for things to be. The confusion here is one of giving an explanation versus giving the ontological ground for some fact. It is an explanation that there is something rather than nothing simply to *point* to, say, a chair and say "there!" but this does not explain the *ontology*. *Everything* is a truthmaker for the proposition <something exists>, that tells us nothing important. The demand for an ontological grounding does not disappear in the 'something or everything' case just because the fact that there is something makes the proposition <something exists> true. Likewise, just because <p> is shown to be necessary does not vitiate the demand for an ontological grounding.<sup>32</sup> Necessary truths need truthmakers just as much as contingent ones, and this also follows from a standard correspondence theory of truth. To assume that necessary truths do not need truthmakers would be to assume that there is no fact of the matter, no state of affairs, in the world to which the truth of the necessary truth corresponds. This would commit one to a strangely disjunctive theory of truth.<sup>33</sup> This ought to be avoided; let us hold then that there are substantive truthmakers for modal truths such that, at the very least, modal statements are true iff they correspond to certain facts of the actual world. That is, truth is determined by reality.<sup>34</sup>

#### Starting the Analysis With Essences

Kit Fine, in his seminal article "Essence and Modality", argued that accounting for modality beginning with worlds and then analyzing essence in terms of possible worlds was backwards.<sup>35</sup> On the standard worlds account, an essential property of some *x* is a property that *x* has necessarily (i.e. in all possible worlds in which *x* exists). This, however, does not do justice to essential facts. Fine's example, demonstrating this, is of Socrates and singleton set {Socrates}. It is essential to {Socrates} that it contains Socrates as a member, but it is not essential to Socrates that he be contained in {Socrates}. The standard possible worlds analysis, however, confuses this asymmetry: given that both exist in exactly the same possible worlds, it makes Socrates' membership in his singleton set essential to *both* Socrates and {Socrates}, since it is necessary (i.e. true in every world where Socrates exists).<sup>36</sup> Such is not taking essential ascriptions seriously. Rather, modal terms such as essentiality must begin with essences and then, if needed, one can build an ontology of possible worlds.

It is often objected that Fine, and those after him, have traded one less obscure notion (possible worlds) for a rather obscure notion (essences). However, take the following example from E. J. Lowe: the discovery that Hesperus is Phosphorus.<sup>37</sup> When astronomers discovered that Hesperus is Phosphorus it was an empirical discovery, but not *purely* such. Astronomers discovered that, at every stage of their orbit, Hesperus and Phosphorus coincide. This, however, can only be taken to imply *identity* if what coincide are of the right *kinds*. That is, we must know beforehand that material beings, in this case planets, are such that they cannot co-locate. Before the astronomers knew that they were identical they had to know that they were of the

32 [7], 263.

33 What David Armstrong calls a dualism about truth.

34 See Timothy Pawl [26] for an excellent argument as to why David Armstrong's version of truthmaker theory for modal truths fails.

35 Thus Kit Fine, "Indeed, it seems to me that far from viewing essence as a special case of metaphysical necessity, we should view metaphysical necessity as a special case of essence... The metaphysically necessary truths can then be identified with the propositions which are true in virtue of the nature of all objects whatever." [11], 9.

36 See [11], 4-5. The standard possible worlds account stipulates that if it is necessary for Socrates to be a member of {Socrates}, then it is essential for Socrates to be a member of his singleton, and this Fine rejects.

37 See [19], 43-44, and also 26-27.



same kind, and as such could not co-locate, and that is an *a priori* principle not an empirical discovery. That is, it is an *a priori* principle implied by what it is to be a planet—a truth grounded in the *essence* of what it is to be a material being. This is entirely modal, for several reasons. First, we have identity grounded in essence: Hesperus is Phosphorus, but that is only known after the grasp of an *a priori* principle grounded in the natures of material objects. Given that, further, we know that Hesperus *cannot* co-locate with Phosphorus.<sup>38</sup>

Essences, then, ground metaphysical modality. Hence, one of the reasons why it can be the case that  $\Phi$  is *necessarily*  $\Psi$  is that it is part of the *essence* of  $\Phi$  to be  $\Psi$ .<sup>39</sup> Notice that relations can also enter in here. Hamlet is necessarily the subject of the play *Hamlet* (assume that Hamlet was a real person), even though it is not of the essence of Hamlet to be the subject of *Hamlet*. Nevertheless, he is the subject because it is of the essence of *Hamlet* that Hamlet be the subject of that play. This is not to say that Hamlet could not have lived a different life and, say, been the prince of Spain rather than Denmark, but no one but him could have been the subject of the play. Lowe, following Fine, ventures that, “all facts about what is necessary or possible, in the metaphysical sense, are grounded in facts concerning the essences of things—not only existing things but non-existing things.”<sup>40</sup> And these essences are not as mysterious as many would make them out to be. Indeed, if Lowe is correct, then we *must* be able to grasp essences to *some* extent quite easily given that we are capable of thought *at all*.<sup>41</sup> Knowledge of essences, and hence of the boundaries of metaphysical modality, is acquired through rational reflection upon *being qua being* and its modes.<sup>42</sup>

#### Hardcore-Actualism

The neo-Aristotelian, hard-core actualist, theory being defended here is intuitive and simple.<sup>43</sup> It does not posit any worlds other than the actual; it does not depend upon mysterious relations to abstracta or counterparts. To put it metaphorically, when God looks out his window all he sees is the cosmos, *and nothing else*. There are no worlds for God to contemplate other than the one, concrete, actual world. One nice feature of Lewis’ counterparts is that they demonstrate a crucial point on this subject. I could have been a contender, but this

38 It is not metaphysically possible, it may be logically possible but we are not concerned with that here.

39 [19], 45.

40 Ibid, 46.

41 As Lowe puts it, “Moreover, there *must* be knowledge of essences if there is to be any kind of knowledge *at all*, including empirical and conceptual knowledge. For example, conceptual knowledge that bachelors are not married depends on knowledge of the essences of *concepts*... But concepts are just are one kind of entities amongst many and if we can grasp *their* essences—as we must, I believe, in order to possess conceptual knowledge—then why should we not equally be able to grasp the essences of other actual and possible kinds of entities, such as material bodies, times, and places?” Ibid, 33.

42 We can see that Lowe is a classical rationalist, nevertheless this does indeed seem to be the first and foremost role of metaphysics: the study of being. His argument is primarily an epistemological one in that modal knowledge can only arise from our *sui generis, a priori* grasp of the essences of things. See Oderberg [25] for a distinct but potentially not incompatible view that takes a traditional Thomistic view of essence as form to be the correct account, with the possible existence of non-actual objects grounded in prime matter.

43 Versions have been defended by [5], [8], [11], [12], [13], [14], [15], [16], [19], [28], [29], and see also [33] for a well written overview of the various thoughts.

is not because I have a counterpart that is a contender, even though he could be very similar to me. He is *similar* to me, though, given that there are certain facts grounding that similarity: properties. My contender counterpart and I share the same properties, powers, and capacities and people with those (plus, perhaps, a few more) can be contenders. This is a rather commonsense view. I could be a contender, or an astronaut, or... because of the properties I *have* (or had), which could start a chain of events or causal processes such that I *am* a contender, or astronaut, or... The only reason my counterpart might be relevant would be if we shared the same properties. Right away we must disagree with the Humean here: independence is violated. There are necessary connections in the world such that my properties are powerful, bringing about modal changes and possibilities in the actual world. The world is not chaotic, as the Humean would have us believe; it is self-governed.

The actual world can be seen as an inter-related web of properties and it is this that all modality hangs on. The hard-core actualism of this view is one of powers (or, as Williams and Borghini put it, dispositions, I shall use the terms interchangeably). These powers have at base irreducibly powerful properties that produce manifestations, and this is causal potency.<sup>44</sup> To have these properties *is just to have* dispositions. Importantly, dispositions can go unmanifested; that which is required for the manifestation may never be actualized, and so there will be merely possible manifestations. Importantly, the best promise for a semantics of powers is one such that is couched in terms of counterfactuals. Borghini and Williams do not offer such an account in their work, but are not opposed in principle to such a move.<sup>45</sup> We can then have a properties based semantics for counterfactuals. Jacobs (2010) has offered the preliminary sketches of such a semantics in hopes that an alternative to a possible worlds semantics will remove much of the spell. Modal facts are counterfactual facts, grounded in the natures of powerful properties.<sup>46</sup> Modality can be reduced to counterfactuals in the following way: P is necessary iff it is true come what may, and P is possible iff it would not be false come what may.<sup>47</sup> More formally, letting T stand for tautology, possibility and necessity can be defined as:

$\diamond\Phi \Leftrightarrow \neg(T \Box \rightarrow \neg\Phi)$  That is, it is not the case that, whatever else is the case,  $\neg\Phi$  would be the case, and

$\Box\Phi \Leftrightarrow (T \Box \rightarrow \neg\Phi)$  That is, whatever else is the case  $\Phi$  would still be the case.<sup>48</sup>

These formulas preserve inter-definability, such that  $\neg\diamond\neg\Phi \Leftrightarrow \Box\Phi$ .

Jacobs claims that this defining of modality in terms of counterfactuals allows the hard-core actualist to reduce all of modality, needing only a semantics. That semantics, roughly, is the following. Using the idea of “chains of property complexes” or “stages”, which are simply groupings of natural properties (what Lewis called sparse properties). Then, a counterfactual is true iff the “stage” picked out be the antecedent is a power, the exercise of which would bring about the property complex (what Borghini and Williams term a state of affairs) designated by the consequent. Roughly, chains are complexes of properties such that they are pow-

44 Compare this account of causal power to Lewis, who transfers causality to counterfactual analysis across worlds.

45 See [5], 26.

46 [13], 241.

47 Ibid.

48 Compare this to Borghini and Williams’ definition of possibility: “State of affairs S is possible iff there is some actual dispositional property D, which supports a disposition d, the manifestation of which is (or includes) S.” [5], 28. As I read it, there is no conflict with these definitions.

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ers to bring about more complexes of powers. Context, of course, will determine how charitable we are in what goes into the antecedent, but this is no worry for the semantics.<sup>49</sup>

The domain of discourse here is, naturally, the actual world. Hence the scope of possibility will be limited to the range of manifested, and possibly manifested, dispositions in the actual world. If one is tempted to think that this sounds suspiciously similar to elements of Armstrong's Combinatorialist thesis, note that there is no principle of recombination at work here; there are no worlds that need to be filled. Properties have powers to bring about manifestations, many of which are higher order manifestations, and many of which may go on never to *be* manifested. So the scope of possibility is much larger than one might at first suspect. This view has several virtues to weigh against worries, however. As we have seen, powerful properties (or, dispositional properties) serve as the truthmakers for counterfactuals and modality in general. These are *this* worldly, everyday entities, not some mysterious possible worlds. Causation, *pace* Hume, is a matter of the real relations between properties and their manifestation.<sup>50</sup> Hence we have Stephen Mumford's notion of "passing powers around". Further, we can understand laws of nature as the descriptions of the natures of powerful properties, such that science has a firm foundation in the actual world.

### Properties Explained

Fair enough, one might say, properties ground modality and make it such that they, along with their relations, are the truthmakers for modal facts. Properties are basically modal, intrinsically powerful. But what *are* these properties? They seem mysterious; can nothing be said about them? There are two recent accounts defended in the dispositionalist camps, roughly a pure powers view and a powerful qualities view. Stephen Mumford, with others, has been a champion of the former. Both of these views are opposed to an understanding of properties as pure *qualities*, a view that has much adherence in Humean circles.

The properties as pure powers view holds that there is nothing to a property but its causal role. The essence of a property is exhausted, in other words, by its relations: a property is nothing more than its relations to other properties.<sup>51</sup> If R is the manifestation relation holding between a property that is a power and the resulting manifestation of the power, then the view is that every property P is *identical* with the set of the instances of R (where P bears R to some property or some property bears R to P).<sup>52</sup> Properties, then, are no more than the relations into which they enter, but what is this *they*? Consider the following four possibilities: substances, properties, instances of R itself, or nothing at all.<sup>53</sup>

Examining the options, begin with substances. This is *prima facie* rather strange, since this is, in effect, the view that properties are identical with relations that substances enter into. On this view I have properties means that I am related in various ways to other objects, presumably those objects that are related to other objects themselves. I find this unacceptable

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49 Lewis, after all, uses context to pick out worlds.

50 See Mumford, [24], especially page 108-109: "...I would criticise the tradition, deriving from Hume, for being too simple. The dispositionalist, instead of seeing causation as a matter of clearly distinguishable cause and effect, with the appropriate relation between them, sees causation as almost always complex, involving multiple powers combining to produce something together through a process." We do not need to countenance the extravagances of a Lewisian plurality of worlds with no necessary connections. Theoretical simplicity, here, is a significant virtue and one that weighs in favour of the Aristotelian.

51 See Mumford [24] and Jacobs [14].

52 [14], 84.

53 Here I am drawing upon Jacobs [14], 84-87.

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since it is a form of impure nominalism. . It is impure, given that relations are real, but there are no qualities on this view, no intrinsic properties.<sup>54</sup> Maybe there could be intrinsic properties, but they would have to be bundles of relations. However, this should be seen to be an elimination of properties altogether and this can be nicely demonstrated by example of phenomenal qualia. On this version, pure powers eliminate qualia since, if anything, qualia are *not* purely relational (unless everything *is* zombie-like).<sup>55</sup> I will come back to the importance of qualia later.

Perhaps what the pure powers view relates with R, however, are properties. This is no good, for it simply is a disguised way of saying that the relation R relates instances of itself to itself (since properties, on the pure powers view, are identical to the relation!). This, then, is nothing more than the next option, namely instances of R itself. The structure here is a relational structure: the world is entirely relational, substances as well as properties. That is, this version commits us to an implausible bundle theory of substances and properties.<sup>56</sup> The final option, no relata, is no better. For, if there are no relata for R to be a relation to, then how is R a relation? Further, how could a substance (construed however one likes) instantiate a relation with no relata? It *could* instantiate it as being one of the relations, but then there *are* relata, and if the substance is an instance of the relation then it seems we are back to a bundle theory: relations upon relations.

Properties, then, need to be *both* qualitative *and* powerful.<sup>57</sup> This is what Jacobs calls the truthmaker view.<sup>58</sup> That is, properties are at the same time qualitative and powerful. They are qualitative in that they are identical to a *thick quiddity* and they are powerful in that every (natural) property *is* a nature sufficient to be a truthmaker for a counterfactual. This sufficiency is important since, as we saw with Borghini and Williams, a property may never bring about a manifestation, *but it still could*. So, being a power such that it is a truthmaker for a counterfactual is too strong, it need only be *sufficient*; the counterfactual may never manifest. One may see this as stipulative, but this is what is needed to ground the claims of section 6 to the effect that there are powerful properties that are the truthmakers for modal claims. The powerful natures of properties here are such that they can make (or be a part of a chain making) a counterfactual true.

The qualitative nature of a property is, on this view, *identical* with its powerful nature. One and the same property is both powerful and qualitative, a thick quiddity and a nature sufficient to be a truthmaker.<sup>59</sup> Being a thick quiddity is simply to be a quality that differs, not simply numerically but by its nature, from all others. A simple view to hold then would be that *all* properties are such that they are thick quiddities (and this squares nicely with the position that we have irreducible mental qualia). But, given that these properties are qualities differing by their nature from all others, they can also function as the *powers* sufficient to be (at least in part) truthmakers for counterfactuals. So properties are unitary beings, not properties upon properties, and are qualitative powers.

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54 Note, intrinsic properties on the view being defended are essential properties, but not understood in the way Lewis understands essential properties (such that they could be had in isolations). On the power theory of properties, properties are interconnected such that they are mutually dependent in many respects and are not had in isolation. I do not have a positive view to counter the Lewisian, however.

55 I am rather disposed to keep qualia in my ontology, so this view has serious drawbacks

56 As Jacobs notes, there is far too much R going around in a world like this!

57 See earlier work by C. B. Martin and John Heil on this subject in addition to what is cited herein.

58 [14], 90 ff.

59 Ibid, 90.

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 Objections, Concerns, and Responses

There are several avenues for criticism of the view defended herein. I will mention and comment only on the most salient for our purposes. Firstly, if this Aristotelian account is correct, then it seems, as mentioned already, that the scope of possibilities is significantly smaller than we thought (given possible worlds). Is it not possible that there could be different properties, and alien properties? There are several ways to answer this, depending on how strong one takes their Aristotelianism. Broadly speaking, the intuition that *things could have been otherwise* is preserved. Different causal chains give rise to different manifestations of dispositions such that, had events been otherwise the outcomes would have been different. Had the course of evolution differed there would have been talking donkeys; this is acceptable. Remember though that we are denying Humean independence, and in fact need to deny it in order to have properties do modal work. But once we deny this independence why should we assume before hand that there is a plenum of possibilities that our metaphysics is in need of accommodating? Is not this, as Borghini and Williams put it, putting the cart before the horse? Some conceivable states of affairs are going to be metaphysically impossible but this is no new news: the conceivable is a bad guide to the metaphysically possible (*pace* David Chalmers). Further, as we have seen, we have room for some alien properties. Many powers will not manifest their dispositions, perhaps infinitely many; but there is no reason to think that we need or will arrive at as many possibilities as David Lewis thinks we have.

Perhaps one is worried that, on the view defended here, there is no room for epiphenomenal facts. Can there not be existing yet causally independent properties? On this the Aristotelian will bite the bullet: no epiphenomenal facts. Qualia on this view are not epiphenomenal but are grounded in beings, having causal efficacy.<sup>60</sup> This may seem to be a strange outcome of a theory of metaphysical modality; after all, would it not be preferred to argue for this on separate grounds? Indeed, if there is a weak point of the theory this is one of them, nevertheless, I would submit that there are strong independent reasons for holding that epiphenomenal facts do not exist.

Alexander Pruss has argued<sup>61</sup> that the Aristotelian can in effect have her cake and eat it too. That is, if we posit a necessary being, God, as the source and ultimate ground of all truthmakers for modal facts then we can have a thoroughgoing causal powers theory *and* worlds to account for uninstantiated possibilities. All we need is to incorporate the Leibnizian position that worlds are thoughts in the mind of God and we can account for all the possibilities that the more pure Aristotelian might leave out. As a bonus, for Pruss, he is able to help himself to the standard picture of possible worlds while adding the grounding work of powers.<sup>62</sup>

While Pruss is correct in noting that if we add God to the picture we can fill in the gaps that one might suspect exist on a bare powers thesis, I disagree with his positing of worlds. Aside from the issues of taking on the added responsibility (burden?) of arguing for

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60 One can see this as fitting nicely with an emergent individuals view of the mental. For further on this see the excellent overview given by Timothy O'Connor and Jonathan Jacobs in "Emergent Individuals", *The Philosophical Quarterly*, Vol. 53, no. 213, pp. 540-555, 2003.

61 See [27] and [28].

62 Hence, "In a precise sense, the possible worlds exist in the actual world: it is true at the actual world that possible worlds exist. But this is not paradoxical: the possible worlds are just divine ideas, one of which is actualized, and the actualized one contains within itself an account of all the other divine ideas... Moreover, the account squares nicely with the intuition that attributions of the possibility of doing something should be claims precisely about the beings to which this possibility is attributed and their environment, something which neither Lewisian nor ersatzist approaches allow for." [29], 279.

the existence of God, if powers are doing the real metaphysical work for Pruss' account, why posit worlds at all? That is, why assume that God has worlds on the mind? Now, the representing relation that divine ideas have is not as problematic as *ersatz* worlds, since God has causal powers. But, rather than stipulate worlds we should simplify and stipulate that God simply has causal powers and use a semantics of counterfactuals to fill in the rest.

Reacting to speculations by Mumford and others that real powers provide the truth-makers for necessities in nature, Eagle (2009) and Schrenk (2010) have both argued that, in effect, counterfactual relations cannot be doing the work of necessity since they can be prevented. This is the general problem of finks and antidotes. That is, a disposition's manifestation, even when triggered, can always be interfered with. For instance, external circumstances can affect the outcome of the counterfactual: 'if *x* were an electron and negatively charged it would move away from another electron' depends on the external circumstances beyond the possession of the power of *x* to be repelled. Here we have a fink: the disposition can be gained or lost (in this instance due to external circumstances, say, the presence of intense pressure). A response to this line of argument has not been given in the literature by hard-core actualists, but it should be apparent that it is not at all clear why one is needed. It is plain, by what has been presented in section 6 above, that properties are often interdependent for the manifestation of their dispositions. Context is often regnant, and context is external to the powers of properties (although, context can be *brought about* by complexes of properties). The natures of properties are such that they bring about different manifestations in different circumstances, so they do exactly what they are *supposed* to do. Hence, I do not find this objection telling.

Schrenk offers a similar objection, to the effect that dispositions and their manifestations can always be circumvented, or blocked, thus rendering counterfactual analysis of necessity impotent.<sup>63</sup> That is, there are antidotes to counterfactuals given that we can alter the circumstances in which a power finds itself. As Schrenck puts it,

Suppose, for the sake of argument, that there is a disposition D to react with E in circumstance C. (the disposed uranium pile is triggered to react, E, for it has critical mass, C)... this is to say that there is a natural kind of process: the process from C events to E events. Further, C events and E events are (when mediated by the disposition) joined as a matter of metaphysical necessity... The problem is not that in antidote cases, E does not come about although C occurs. Yet, how can that be possible if C and E are, due to D, linked by metaphysical necessity? Not even an antidote should be able to interfere with necessary connections.<sup>64</sup>

The antidote in Schrenk's case being a rod of boron inserted into the uranium pile and lowering its critical mass. If this works, then this demonstrates not only that Humean independence holds (since the necessity is not in nature after all) but also that counterfactual conditionals do not capture metaphysical modality. Additional factors should not prevent necessity.

On the account presented in section 6, however, I do not see how this is detrimental. Necessity is presented as what would hold *come what may*, so on the preferred account it is not a matter of necessity that the uranium reach critical mass but contingency. However, there is a rather simple and, it would seem, obvious answer to Schrenk. The causal necessity relations *are* holding *even though* additional factors interfere with the manifestation of the disposition. For, remember, manifestations "hang together" in mutual support from other properties. In order to bring about the manifestation, *despite* the interference, simply *add more uranium*. It may well be a law of nature that, at certain equilibriums, boron interferes with the critical mass of uranium; but not in sufficient quantities. Hence, the antidote is not truly such.

63 As he puts it, "the powerlessness of necessity", see [7], 731-735.

64 Ibid, 731-732.

If we add the notion, as I have suggested here in so many words, that there is causal completeness to a property complex, then antidotes are no challenge to counterfactual analysis.<sup>65</sup>

There is one final problem that could be detrimental to the hard-core actualist. Ross Cameron has argued that on this view it is impossible to make sense of some possibilities, in particular that *none* of the actually contingently existing substances existed.<sup>66</sup> The Aristotelian can account for the contingency of *my* existence (presumably, my parents could have chosen *not* to have children), but of the intuitive possibility that *none* of the actually existing contingent beings existed—what could be the truthmaker for this? Indeed, on a pure Aristotelian theory this would be rather difficult to ground, since no *actually* existing being could make it such that *none*, including *itself* did not ever exist.

One perfectly natural and obvious strategy would be to take an Alexander Pruss route and ground further powers in the nature of a necessary being, and this necessary being has the power to ground the truth of the possibility that no contingent beings ever existed. Hence, as Cameron himself thinks, if there really are truthmakers for modal facts *and* this is a genuine possibility, then it needs a truthmaker. Cameron takes this as a cut and dry reason to hold to a version of soft-core actualism (namely, one similar to Adams'). However, there are two ways out for the Aristotelian. The first has already been mentioned: go theist. After all, on Cameron's own account, truthmakers are needed even for necessary existents and if possible worlds are necessarily existing abstract objects then what are their truthmakers? One finds oneself right back to Pruss' views fairly quickly. The second option would be to deny that the cosmos is contingent, perhaps in favor of a view such as that of Timothy Williamson where *everything* exists necessarily.<sup>67</sup> I doubt that Cameron would find that view enticing either, but the hard-core actualist is not without options.

#### Synthesis Attempted

I stated in section 5 that essences ground modality (following E. J. Lowe and Fine) and then proceeded in section 6 to state that properties and their relations ground modality. Have I contradicted myself? I think not, for I want to argue that, at the end of the day, these two are the same thesis. My sketch shall be, admittedly, sketchy but this is where the real work in the metaphysics of modality needs to be accomplished.

This claim is not uncontroversial. *Prima facie* natures/essences and properties are distinct, and if they are grounding metaphysical modality then they are doing so in different ways. But consider the following. Finean-style essentialism attributes essences to numerous entities, including properties; hence, the properties of the dispositionalist/powers theorist are acting out of their essential natures, their thick quiddities. Nothing bars a concrete object, say Socrates, from grounding modal truths by his essence or from various properties he has, chiefly given the fact that the properties he has are going to depend to a great extent on the essence he has. Essences and properties are acting out of innate, primitive powers and, given that properties have natures of their own they are acting from their essential nature. Essences, further, are one form of powerful property and thus are included in the "web" of powerful properties grounding metaphysical modality. Thus, in the end, essences really are doing the work for us and we have a more robust theory rather than separate and sparse rivals. A single account, then, would capture the intuition we have that, as Gabriel Contessa puts it,

65 See [14], 96-96 for more on the notion of a causally complete property complex.

66 [7], 273.

67 See Timothy Williamson. "Necessary Existents". In A. O'Hear (ed). *Logic, Thought and Language*. Cambridge: Cambridge University Press, 2002.

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“truths about how the world *could possibly be* are no less grounded in the concrete, actual world than truth about how the world *actually is*.”<sup>68</sup> It is hard to shake the deep intuition that possibilities have *nothing* to do with possible worlds.

### Conclusion

One might be concerned that modality on this view is still primitive. Indeed, it is but not in a troublesome way since some reduction was made in the form of finding a genuine ontological grounding. Natures, whether the essences of things or the qualitative/powerful natures of properties, are grounding metaphysical modality. This is a significant improvement over the stipulation of possible worlds, which have nothing to say about the *metaphysics* of modality, as far as truthmakers are concerned. They are entirely the wrong sort of entity. The neo-Aristotelian metaphysic outlined and defended here is significantly simpler than its alternatives, and avoids the many pitfalls and back-alleys of possible worlds discourse (impossible worlds being a pertinent example). If David Lewis’ extreme modal realism is the most promising theory of possible worlds, then the option to give up Humean independence and take up the cause of powers is attractive indeed. Let us, then, return to a metaphysics of simplicity and common sense; that is, the metaphysics of Aristotle.

### Bibliography

- [1] Adams, R. M. “Theories of Actuality”. In: Michael Loux (ed). *The Possible and the Actual: Readings in the Metaphysics of Modality*. Ithica, New York: Cornell University Press, 1979.
- [2] Adams, R. M. “Primitive Thisness and Primitive Identity”. *The Journal of Philosophy*, Vol. LXXVI, no. 1, pp. 5-26, January, 1979.
- [3] Adams, R. M.. “Actualism and Thisness.” *Synthese*, Vol. 49, no. 1, pp 3-41, October 1981.
- [4] Armstrong, D. A *Combinatorial Theory of Possibility*. Cambridge: Cambridge University Press, 1989.
- [5] Borghini, A and Williams, N. E. “A Dispositional Theory of Possibility.” *Dialectica*, Vol. 62, no 1, pp. 21-41, 2008.
- [6] Bricker, P. “Absolute Actuality and the Plurality of Worlds.” *Philosophical Perspectives*, Vol. 20, 2006.
- [7] Cameron, R. P. “Truthmakers and Modality.” *Synthese*, Vol. 164, pp. 261-280, 2008.
- [8] Contessa, G. “Modal Truthmakers and Two Varieties of Actualism.” *Synthese*, Vol. 174, pp. 341-353, 2010.
- [9] Divers, J. *Possible Worlds*. London: Routledge, 2002.
- [10] Eagle, A. “Causal Structuralism, Dispositional Actualism, and Counterfactual Conditionals”. In T. Handfield (ed) *Dispositions and Causes*, Oxford: Oxford University Press, 2009.
- [11] Fine, K. “Essence and Modality.” *Philosophical Perspectives*, Vol. 8, pp. 1-16, 1994.
- [12] Jacobs, J. D. *Causal Powers: A Neo-Aristotelian Metaphysic*. Doctoral Dissertation: University of Indiana, 2008.
- [13] Jacobs, J. D. “A Powers Theory of Modality: or, How I Learned to Stop Worrying and Reject Possible Worlds.” *Philosophical Studies*, Vol. 151, pp. 227-248, 2010.

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68 [8], 350.



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- [14] Jacobs, J. D. "Powerful Qualities, Not Pure Powers." *The Monist*, Vol. 94, no. 1, pp. 81-102, 2011.
- [15] Jubien, M. "Problems With Possible Worlds." in D. F. Austin (ed.), *Philosophical Analysis*, pp. 299-322. Dordrecht: Kluwer Academic Publishers, 1988.
- [16] Jubien, M. *Possibility*. Oxford: Clarendon Press, 2009.
- [17] Lewis, D. "Possible Worlds". In: Michael Loux (ed). *The Possible and the Actual: Readings in the Metaphysics of Modality*. Ithica, New York: Cornell University Press, 1979.
- [18] Lewis, D. *On the Plurality of Worlds*. Oxford: Blackwell Publishing, 1986.
- [19] Lowe, E. J. "Two Notions of Being: Entity and Essence." *Philosophy*, Vol. 83, 2008.
- [20] Loux, M. *The Possible and the Actual: Readings in the Metaphysics of Modality*. Ithica, New York: Cornell University Press, 1979.
- [21] Lycan, W. "The Trouble with Possible Worlds," in: Michael Loux (ed). *The Possible and the Actual: Readings in the Metaphysics of Modality*. Ithica, New York: Cornell University Press, 1979.
- [22] Lycan, W. "Two-No, Three-Concepts of Possible Worlds." *Proceedings of the Aristotelian Society*, Vol. 91, pp. 215-227, 1991.
- [23] Melia, J. *Modality*. Montreal: McGill-Queen's University Press, 2003.
- [24] Mumford, S. "Passing Powers Around." *The Monist*, Vol. 92, no. 1, pp. 94-111, 2009.
- [25] Oderberg, D. S. "Essence and Properties." *Erkenntnis*, Vol. 75, pp. 85-11, 2011.
- [26] Pawl, T. "The Possibility Principle and the Truthmakers of Modal Truths." *Australasian Journal of Philosophy*, Vol. 88, no. 3, pp. 417-428, September 2010.
- [27] Plantinga, A. "Actualism and Possible Worlds". In: Michael Loux (ed). *The Possible and the Actual: Readings in the Metaphysics of Modality*. Ithica, New York: Cornell University Press, 1979.
- [28] Pruss, A. "The Actual and the Possible." in Richard M. Gale (ed.), *Blackwell Guide to Metaphysics*, pp. 313-333. Oxford: Blackwell Publishing, 2002.
- [29] Pruss, A. *Actuality, Possibility, and Worlds*. New York: The Continuum International Publishing Group, 2011.
- [30] Rosen, G. "Modal Fictionalism," *Mind*, New Series, Vol. 99, No. 395, pp. 327-354, July 1990.
- [31] Schrenk, M. "The Powerlessness of Necessity." *Nous*, Vol. 44, no. 4, pp. 725-739, 2010.
- [32] Sider, T. "The Ersatz Pluriverse." *The Journal of Philosophy*, Vol. 99, no. 6, pp. 279-315, 2002.
- [33] Vetter, B. "Recent Work: Modality Without Possible Worlds." *Analysis Reviews*, Vol. 71, Number 4, October 2011, pp. 742-754.
- [34] Yagisawa, T. "Beyond Possible Worlds." *Philosophical Studies*, Vol. 53, Number 2, March 1988, pp. 175-204.