Two Concepts of Possible Worlds – or Only One?

by

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Abstract: In his "Two Concepts of Possible Worlds" (1986), Peter Van Inwagen explores two kinds of views about the nature of possible worlds: abstractionism and concretism. The latter is the view defended by David Lewis, who claims that possible worlds are concrete spatio-temporal universes, very much like our own, causally and spatio-temporally disconnected from each other. The former is the view of the majority, who claim that possible worlds are some kind of abstract objects – such as propositions, properties, states of affairs or sets of numbers. In this paper, I will develop this view in an "extreme abstractionist" way, appealing to a "modal bundle theory", and I will try to show that it is preferable to the standard abstractionist views. Finally, I will compare this kind of abstractionism to concretism, only to find that the difference between the two is minimal.

Keywords: possible worlds, abstractionism, concretism, modal realism, ersatzism.

1.

IN HIS "Two Concepts of Possible Worlds" (1986), Peter Van Inwagen explores and opposes two kinds of views about the nature of possible worlds: *abstractionism* and *concretism*. The latter is the view defended by David Lewis who claims that possible worlds are concrete spatio-temporal universes, very much like our own, causally and spatio-temporally disconnected from each other. The former is the view of the majority, who claim that possible worlds are some kind of abstract objects – such as propositions, properties, states of affairs or sets of numbers (that is, sets of sets, since numbers can be reduced to sets). Abstractionism is thus a family of different views rather than a unique theory. One member of this family seems to me to stand out from its relatives by being the most theoretically virtuous: the Quine-inspired view that says that possible worlds are sets of ordered pairs of space-time regions and distributions of fundamental properties across them. To my mind, this view is best developed and defended by Heller (1998a, 1998b). The main advantages of it are to avoid too much of a mystery and primitivism surrounding possible worlds made out of propositions, properties or states of affairs (see, for instance, Adams, 1974; Plantinga, 1976; and Stalnaker, 1976), and to be able to accommodate modal counterpart theory rather than being forced to embrace the less flexible trans-world identity view.

In this paper, I will first very briefly state Heller's view about the nature of *possibilia*, and I will then ask myself what the nature of *actual* concrete objects is – to give a very Hellerian answer. As we shall see, the two questions are strongly related and my answer to them will give rise to an "extreme abstractionist" view. I will then proceed to a comparison of this abstractionist view with Lewis's concretist view, only to find that the difference between the two is far from being obvious – or, to put it in an even more straightforward way, that it is far from being obvious that there *is* a really important difference between the two views.
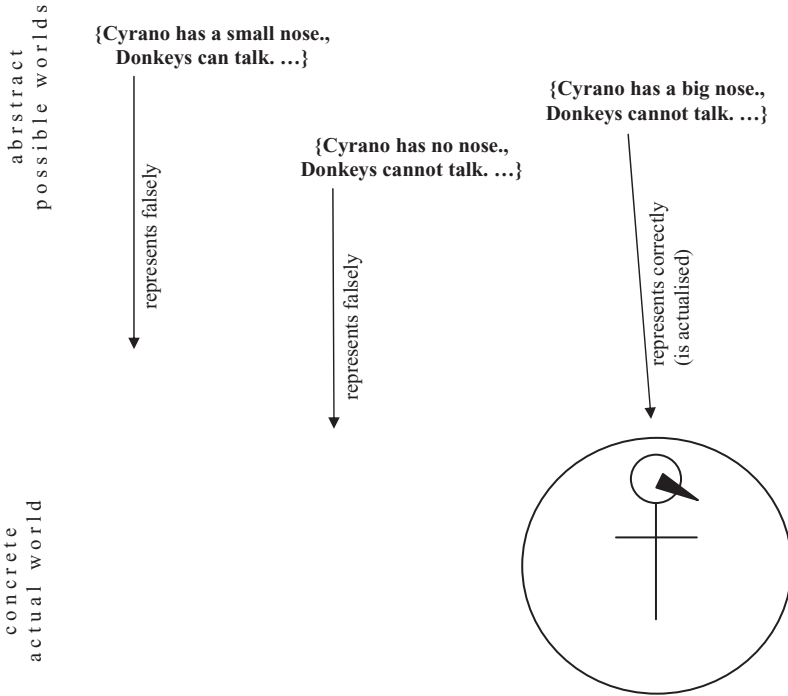
2.

Heller-style possible worlds look as follows (see Heller, 1998a, p. 296):

$$\{\langle\langle 13,69\rangle, \{3,48\}\rangle, \langle\langle 589,38\rangle, \{7,19\}\rangle, \langle\langle 88,235\rangle, \{3, 143, 56\}\rangle, \dots \}$$

A possible world is a set of ordered pairs of an ordered n-tuple and a set. The first member of the pair represents a point in a space-time manifold (here only two-dimensional),[1] and the second represents properties exemplified at it. Since numbers can be replaced by sets, worlds are ontologically speaking no more than purely sets. A Heller-style possible world is thus a representation of a distribution of (fundamental) properties across a manifold. Note that this representation represents only relative to an interpretation. One among the (interpreted) possible worlds represents our concrete world correctly, which is the central claim of any abstractionist view. Take as an example an actual individual, Cyrano, who has a big nose. One among the abstract possible worlds represents the entire concrete world as it is, including Cyrano and his big nose. In order to make the following figure more intuitively intelligible, I will include in it sets of English sentences instead of Heller-style sets of sets; the English sentences can be seen as interpretations of the sets of sets (but of course this does not mean to suggest that Heller-style worlds are reducible or replaceable by sets of propositions):

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1 *Regions* of space-time could be represented as well, of course; here I talk only about *points* in a two-dimensional manifold, for simplicity of exposition.

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abrstract
possible worlds

concrete
actual world

{Cyrano has a small nose.,
   Donkeys can talk. …}

{Cyrano has no nose.,
   Donkeys cannot talk. …}

{Cyrano has a big nose.,
   Donkeys cannot talk. …}

represents falsely

represents falsely

represents correctly
(is actualised)

3.

Keeping this abstractionist picture in mind, and now that we know what the nature of the abstract component of it consists in, let us ask ourselves what the nature of the concrete component is – that is, what is the nature of the concrete world and of concrete objects. One among the views about the nature of concrete objects is clearly the closest to a Heller-style metaphysics of ordinary objects: the bundle theory. I do not say that Heller endorses the bundle theory; I only say that something like it would probably be the most natural thing for him to say. In fact, I will now leave firm Hellerian ground and I will present a view that I believe is very close to what Heller himself would/could say.

   The bundle theory is easily understood as a reaction to its main competitor: the substance-attribute view. This latter view can be put as a claim about what the relationship between an individual (a concrete particular) and its properties is: exemplification, or instantiation. On this view, there are individuals and there are their properties that are exemplified, instantiated or simply had by the individuals who are conceived of as being the bearers of those properties. Such a bearer of

properties, which has its identity independently of the properties that it bears, is often called an "underlying subject", a "substratum" or a "bare particular". Now, many complain that the substratum, the bare particular, is a quite mysterious thing. We cannot see it, nor know it in any direct way (because when we experience any individual, we always experience its properties, and not the bare individual itself) – this is the epistemological problem. Besides, complaints are often made that we cannot give any positive characteristics of it – since, in itself, it does not have any, and so, it may seem hard to see what makes it different from other bare particulars.[2] (How many particulars are there? If indiscernibility is a good guide to identity, the answer seems to be: only one.) And finally, such a view seems to be ontologically uneconomical, since it postulates entities that can be done without – and this is where bundle theory comes into the picture.

According to bundle theorists, all of the theoretical work that is done by the substance-attribute view can be done with less: no bare particulars, just the properties. Take Cyrano, for example: he is of a certain age, he has such and such a nose, he has such and such a height, and so on. And this is all there is to know, and all there *is* to be Cyrano – his properties. On this view, Cyrano is then taken to be a bundle (a cluster, a bunch . . .[3]) of his properties. And the same story goes for all individuals: they are bundles of properties which are, then, the ultimate constituents of reality.

The latter claim rings a bell: Heller's possible worlds are distributions of properties across a manifold. So let me start with a very naïve suggestion: if the *possible* world that correctly represents our world is a distribution of properties, and if the *concrete* world is a distribution of properties (= generalised bundle theory), why keep having the two things instead of only one of them? Suppose that we follow this naïve suggestion. What this amounts to is to abandon a *two-category ontology* view – that is, the abstractionist view that has an abstract component and a concrete component (see the figure above) – and embrace a sort of "extreme abstractionist" *one-category ontology* view. In short: since the "concrete" component is just a set of sets of (fundamental) properties, it does not seem to be so different from the "abstract" components, and so the suggestion is simply to "collapse" the two kinds of components into one – which amounts simply to abandoning the so-called "concrete" component, and to claiming that the concrete actual world, the one that we inhabit and the one that contains Cyrano and his big nose, is a set of properties, *and* that other possible worlds are sets of properties too. (So, on the figure above, let us simply "erase" the bottom concrete part.) Such a view has two immediate advantages: the

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2   For interesting replies to these traditional worries, see Sider (2006).

3   I am not suggesting that all of these labels have the same meaning (this depends very much on the authors who used them), I just do not want to and do not think I need to commit either way. As I use "bundle", it is a set whose members are "compresent" with each other (compresence being the bundle theorist's primitive variably polyadic relation).

abandonment of the two-category view avoids any problems with representation that classically give rise to objections against abstractionist theories (see especially Lewis, 1986, ch. 3) – since the view simply is not a representationalist view any more. The actual world just is what it is, and there is no additional need for some representation of it. This also avoids troubles linked with the need for interpretation of the representations (see Lewis, 1986, ch. 3; Merricks, 2003). Besides, such a view seems to be more economical and more respectful of Ockham's Razor, since it is a *one*-category ontology view. Thus, the naïve suggestion seems to me to have some interesting *prima facie* advantages, and so deserves at least a closer look.

Before answering objections and facing incredulous stares, let me go through two classical objections to the bundle theory, that are easily answered by the view I am now suggesting, which will allow me to develop the view a little more, and see the ways in which it is similar to the bundle theory, and the ways in which it is not.

4.

The first objection can be found, for instance, in Van Cleve (1985, p. 122): "If a thing were a set of properties, it would be incapable of change. For a thing could change its properties only if the set identical with it could change its members, but that is impossible; no set can change its members." Taking an example of an individual that is supposed to change one of its properties over time, he adds: "[. . .] what we have is replacement of one individual by another, not change in the properties of one and the same individual" (Van Cleve, 1985, p. 124).
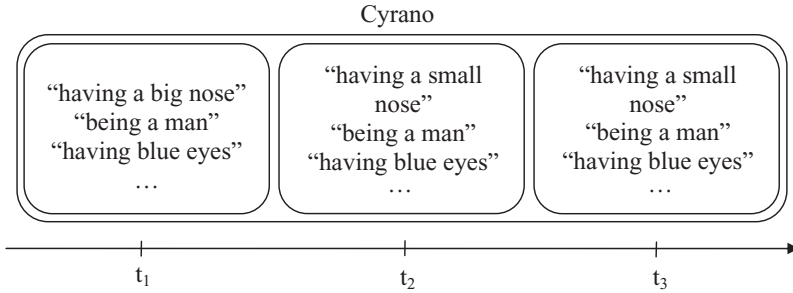
The idea here is simple, and quite compelling: if an individual is identified with a bundle of properties, then if one of the properties changes, the bundle is not the same, and so, the individual who is the bundle is not the same – it has simply ceased to exist, while another individual has taken its place. So, nothing can undergo change in properties.

This objection should sound familiar: it is analogous to the "no-change" objection that is sometimes raised against four-dimensionalism. And so, of course, it is very easy to adapt the four-dimensionalist's reply to defend the case of the bundle theory.[4] The reply goes as follows.

Granted, if one property of a bundle of properties is taken away and replaced by another, then the resulting bundle is not numerically identical to the original bundle, and so, the original bundle did not change, but was replaced by a new one. But ordinary individuals, like Cyrano, are not such bundles – they are *bundles of*

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4   The "no-change" objection can be found, for instance, in Simons (2000). The strategy that I am using here has also been used by Casullo (1988) and Cover and Hawthorne (1998, p. 208).

bundles.[5] That is: ordinary individuals are four-dimensional entities that are extended in time, as well as they are extended in space, by having temporal parts at different times. In the bundle theorist's vocabulary, they are bundles that are made up of bundles of properties, which are the temporal parts that make up the whole four-dimensional individual (the bundle of bundles). Now it is easy to see how the bundle theorist can give an account of change in intrinsic properties.

Cyrano

"having a big nose" "being a man" "having blue eyes" …	"having a small nose" "being a man" "having blue eyes" …	"having a small nose" "being a man" "having blue eyes" …

t_1 t_2 t_3

Take Cyrano: at t_1 he has a big nose; then he undergoes a plastic surgery operation and so, at t_2, he has a small nose. There was a bundle at t_1 that contained the property of having a big nose, and lost it – and so ceased to exist. And there is a bundle at t_2 that contains the property of having a small nose. Neither of those two bundles of properties changed. But *Cyrano* did. Cyrano is the bundle of those two (and, probably, much more) bundles of properties and *he*, the four-dimensional individual, can be said to change from t_1 to t_2, in virtue of having different temporal parts at those two different times. It takes then no more (and no less) than adopting the four-dimensionalist's strategy to answer this objection against the bundle theory.

The Heller-inspired view that I am suggesting has almost exactly the same structure, and is led by the same core idea, except that a momentary temporal part of Cyrano is not a set of properties, but a set of pairs of space-time points and sets of properties (see the beginning of section 4), and the four-dimensional Cyrano is a set of his temporal parts.

One important point, and one that applies both to the bundle theory depicted above and to the similar Heller-style view, is that the "bundling relation" (that is, the relation that bundles together properties of a bundle) is a very different thing in (a) the case of a momentary temporal part of Cyrano, and (b) the whole four-dimensional Cyrano. In the case of (a), it is just the primitive compresence relation, while in the case of (b) it is the four-dimensionalist's unification relation that "glues together" temporal parts of a single four-dimensional individual – a relation that

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5 Castaneda (1977, p. 322) uses the label "bundle-bundle theory" (but his theory is different in several respects from the one I am considering).

can be based on similarity, causality, spatio-temporal continuity, psychological continuity, or whatever one takes to be relevant for the identity of things like Cyrano through time.

In light of this, saying that Cyrano is a "bundle of bundles" may sound a bit misleading; however, this terminology underlines the main idea, which is that Cyrano is a distribution of properties across a space-time manifold, and so I suggest keeping this terminology while bearing the preceding points in mind.

5.

The next traditional objection to the bundle theory is structurally very similar to the first.[6] Take Cyrano, who is a bundle of bundles of properties. Now, the objector remarks, as before, that the identity of bundles depends on their constituents – a bundle must have the constituents it has, otherwise it would not be the same bundle. So, it seems that the components of a bundle are essential to it. But then, the bundle theorist faces the unwelcome consequence of his theory that any property of any individual turns out to be a necessary property of it. Take, again, Cyrano who has a big nose. In the bundle theorist's vocabulary, what we have is a bundle of bundles of properties, among which is the property of having a big nose. But, since Cyrano is this bundle, and since bundles have their components essentially, it is impossible for Cyrano to have had any properties other than the ones he actually has – even the most insignificant and contingent ones, like the size of his nose, or the amount of hair he had this morning at 7a.m. If this is true, bundle theory certainly does not look very appealing.

Fortunately for the bundle theorist, this is not true, or at least, need not be. The bundle theorist can make good use of a view structurally close to four-dimensionalism in order to be saved from the unwelcome consequences just mentioned.

What is being proposed, then, is that individuals, like Cyrano, are to be conceived of as *bundles of bundles of bundles* of properties. Not only is Cyrano spatially and temporally extended, but he is also "modally extended"; that is, he is a "modal perdurant".[7] In the bundle theorist's vocabulary, not only is he a bundle of his temporal parts (the bundles of properties), but he is also a bundle of several (many) such bundles, each of them existing in some possible world. So, Cyrano is to be identified with a bundle of bundles (of bundles of properties) inhabiting different possible worlds by having different sub-bundles at different worlds, and *those*

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6   The objection can be found, for instance, in Van Cleve (1985, p. 122) and Loux (1998, pp. 105–106).
7   Lewis (1983) prefers the term "modal continuant", while Varzi (2001) chooses the terminology "modal occurrent", since entities that perdure through time are sometimes called "occurrents". I prefer the term "modal perdurant" because it parallels the most standard terminology in the temporal case.

bundles can of course have different properties. For instance, one of them has the property of having blue eyes, and another has the property of having brown eyes – and this is how such properties turn out not to be necessary but only contingent properties of, for instance, the actual Cyrano. Schematically, Cyrano, the modal perdurant, looks then as the following figure shows.
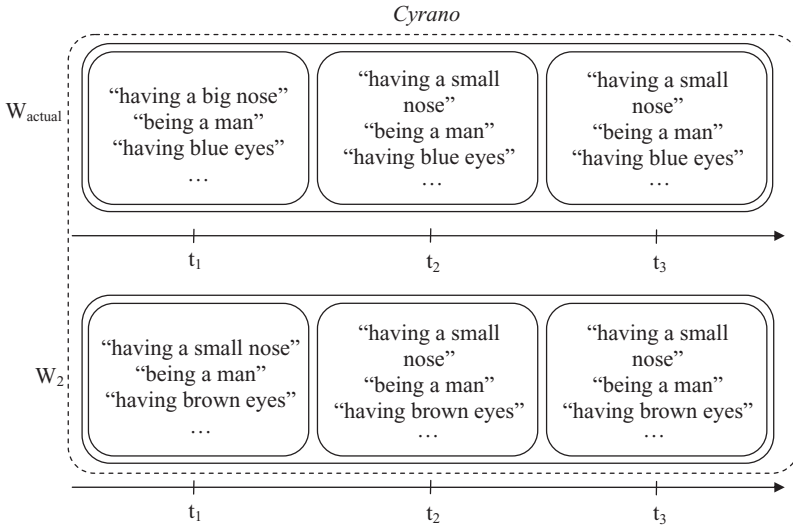
In the actual world, Cyrano (the actual modal part of Cyrano, the actual bundle of bundles of properties) starts his life with a big nose but later he undergoes plastic surgery in order to change its size, and so, at t_2, he has a small nose. He also has, throughout his entire actual life, blue eyes (and does not undergo any operation to alter this feature), but this property can be said to be only a contingent one, since he is a part of a modal perdurant that has an other-worldly W_2 modal part which has the property of having brown eyes. But all of the modal parts of Cyrano, the modal perdurant (that is, all of the bundles of bundles of properties that make up the bundle of bundles of bundles of properties, that *is* Cyrano, the modal perdurant) share the property of being a man, and this is why it is said to be one of the actual Cyrano's essential, non-contingent properties. (This is just an example to show how the theory works, and I do not claim that "being a man" is an essential property of Cyrano. If you do not like this example, just pick any other property you take to be essential to Cyrano. And of course, this view allows for anti-essentialism as well.)

In short, the actual Cyrano manages to have the contingent properties he has in virtue of being a part of a modal perdurant that has modal parts that have them – similarly, the actual Cyrano manages to have intrinsic temporary properties by having different temporal parts at different times that have those properties *simpliciter*.

As in the temporal case, the Heller-style view differs from this picture not in spirit but in its structure that is different in the way exposed at the end of section 4 above. And, as before, the modal bundling relation differs from compresence and from the temporal bundling relation; indeed, it probably most sensibly is the modal counterpart relation (see section 7 for more on this).

6.

One thing that is, to my mind, very appealing about this bundle-bundle-bundle-style theory is that it answers in *one* breath two difficult questions: the nature of objecthood, and the nature of possible worlds. Objects (like Cyrano) are modally extended and thus the account of what the having of modal properties amounts to is, so to say, already *built into* the analysis of the notion of an object. So, *de re* modality does not require any further explanation or piece of theory; it is already given in the explanation of what an object is. In short, by saying what an object is, the theory says what it is for it to have temporary properties, how it persists through time, and what it is for it to have modal properties. And since worlds are nothing more than big objects, by saying what our world is, the theory also already says what the nature of possible worlds is. Instead of a picture of the world as being a four-dimensional manifold, this view provides a "five-dimensional" picture that provides all the tools we need to analyse issues about persistence through time and across possible worlds.[8]

Besides, as already noted above, this view seems to be ontologically quite inexpensive: it only requires us to believe in (fundamental) properties and sets based on those. (Probably, as Heller insists, it is also necessary to have space-time regions across which the properties and bundles of properties can be distributed. But then, space-time regions are no more than sets of n-tuples of numbers, and so are not an addition to the bundle-bundle-bundle theory's ontology.) And, returning to the issue with which we started, any abstractionist *à la* Heller already believes in those entities anyway, but usually believes in more: the concrete world that is ontologically different and that is represented by these abstract entities. But I think that we have seen that such a dualism is unnecessary.

7.

With these remarks in mind, let me now compare this "extreme abstractionist" view with the concretist view. The concretist view, which was introduced and mainly

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8   Besides, in Benovsky (2006), I also argue that this "five-dimensionalist" view can save a special version of the bundle theory, i.e., a bundle theory that says that properties are universals, from what is often supposed to be a deadly objection to it (the objection from Identity of Indiscernibles).

defended by David Lewis (see especially Lewis, 1986), is most often conceived of as using modal counterpart theory rather than modal perdurants, since Lewis himself favours this view. Heller, too, endorses modal counterpart theory, in combination with his abstractionist view. But in fact, both the concretist and the extreme abstractionist view can be construed as "five-dimensionalist" views appealing to modal perdurants, or alternatively as appealing to modal counterpart theory. This is easily seen since modal perdurants are no more than aggregates (or bundles) of modal counterparts, and since what unifies modal parts of a single modal perdurant (the "glue" that glues them together in order to make up a modal perdurant, or the bundling relation that bundles them together) is something that will be very close to the counterpart relation. (Compare to the temporal case: there is no metaphysical difference between the four-dimensionalist worm view and the stage view; the disagreement is only semantic disagreement about what our names and other terms ordinarily quantify over – stages or worms. But both stages and worms exist according to both views.) So, while comparing the concretist and "extreme" abstractionist view, it will not matter here so much to choose a counterpart-theoretic version of it or a modal perdurants version. I choose the latter, because I think it provides a more satisfactory general picture, as explained in section 6 above.[9]

Here are some important similarities between the two views:

(a)   Both views claim that possible worlds are of the same kind as our world (they are like me and my surroundings, as Lewis puts it).
(b)   Both views claim that ordinary objects have spatial, temporal and modal parts (and that this is how they manage to have temporary and accidental contingent properties). Their *persistence* conditions are then clearly given by their *nature* – in fact, once the "five-dimensional" nature of them is given, no additional piece of theory is needed to account for their persistence through time and possible worlds.
(c)   Both take it that "actual" is an indexical term. (This was not explicitly argued for in the case of the abstractionist theory, but it is a consequence of (a) if one does not want to worry about his or her own actuality.)

What those similarities show is that the two views are *structurally* similar in some important respects. But, one could say, they are different metaphysically because they disagree on to what kind of "stuff" this structure applies. The concretist theory

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9   Besides, the modal perdurants view is perhaps better armed to face the Kripkean "Humphrey objection" (see Kripke, 1972, p. 45), since, according to *this* view, unlike under modal counterpart theory, it is really Humphrey himself who wins the elections in another possible world (in the same way four-dimensionalism can say, for example, that it is Humphrey himself who did such-and-such a thing yesterday).

takes it that reality is ultimately constituted by *concrete* entities, while the abstractionist theory claims that the fundamental constituents of reality are *abstract* entities.

Together with (a) above, this entails an incredulous stare for each theory to face. The concretist theory was often given the well-known incredulous stare because it claims that there is a plurality of concrete possible worlds, just like the actual world is. Furthermore, it claims that ordinary individuals are things that are extended across possible worlds – that is, they are aggregates not only of actual entities but also of possible ones. The incredulous stare, here, is mainly aimed at the account of the nature of the *possible*.

Now, the abstractionist theory has to face a similar but "opposite" incredulous stare: it also claims that there is a plurality of worlds of the same kind our actual world is, but since all of those worlds are abstract, I think the incredulous stare would more likely be aimed at the account of the nature of the *actual* world (nobody usually gives an incredulous stare to *abstract possible worlds*): it sounds simply extremely bizarre to claim that Cyrano or ourselves are abstract individuals.

But in the end, I think that both incredulous stares come in the first place from (a) – and the particular accounts (concretist or abstractionist) of the ultimate nature of reality just cause it to be expressed in different ways. What is being stared at in the concretist's case, I think, is that *if* I go around with a theory that makes me call me and my surroundings concrete, I then claim that possible pink dragons are also concrete. And what is being stared at in the abstractionist's case is that *if* I go around with a theory that makes me call me and my surroundings abstract, I then claim that possible pink dragons are also abstract. (It is not the bundle theory that is being stared at, but (a).) Granted, the abstractionist's claim that I am an abstract individual *sounds* crazy, and could be given an additional incredulous stare on its own, but this is only due, I think, to the fact that we are used to talking about abstract entities under a *two*-category ontology view of the world(s). But once one takes this away and one starts to think of abstract "stuff" as the *only* "stuff" there is, one starts to realise, I believe, that such a picture of the world is no more or less crazy than the concretist's. Indeed, the right thing to say is probably that under these considerations the distinction between concrete and abstract just seems to collapse and does not make sense any more.

So, this is why I chose to call this paper "Two Concepts of Possible Worlds – Or Only One?": there does not seem to be much of a difference between the concretist and the abstractionist view. Of course, I seriously altered the original abstractionist view (and I hope I have succeeded in motivating the alteration). But perhaps there is one difference, and one that can be put in favour of the bundle-bundle-bundle theory. It is notoriously difficult to account for the nature of sets in a nominalistic way; sets have a hard time being conceived of as concrete entities – and this causes problems for the concretist who needs sets in his view, and therefore has to embrace

a *two*-category ontology after all. But nothing like this bothers the bundle-bundle-bundle theorist: she will probably have to take sets as primitive, but can claim them to be of the same kind as everything else that exists (that is, properties). So, while this latter view can really be a one-category ontology one, and can really cause the distinction between "abstract" and "concrete" to collapse, the concretist view does not seem to be really able to achieve this theoretically elegant result. Therefore the question posed by the title of this paper remains a very speculative one.

Acknowledgements

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