

# Contemporary metaphysics

Review of David J. Chalmers, *Constructing the world*. Oxford: Oxford University Press 2012, 494 pages, John Heil, *The universe as we find it*. Oxford: Oxford University Press 2012, 311 pages, and Theodore R. Sider, *Writing the book of the world*. Oxford: Oxford University Press 2011, 318 pages

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Metaphysics is definitely back on the agenda of contemporary philosophy. It is a metaphysics in the full traditional sense, seeking to provide the means to gain knowledge that covers being as a whole, not just parts of it (such as the metaphysics of mind, the metaphysics of values, etc.). Oxford University Press published three books in 2011 and 2012 each of which spells out that ambition. The present review sums up the main topics covered in these books and offers some comments.

Frank Jackson once characterized metaphysics in the following manner:

Metaphysics, we said, is about what there is and what it is like. But of course it is concerned not with any old shopping list of what there is and what it is like. ... The methodology is not that of letting a thousand flowers bloom but rather that of making do with as meagre a diet as possible. ... But if metaphysics seeks comprehension in terms of limited ingredients, it is continually going to be faced with the problem of location. Because the ingredients *are* limited, some putative features of the world are not going to appear explicitly in the story. The question then will be whether they, nevertheless, figure implicitly in the story. Serious metaphysics is simultaneously discriminatory and putatively complete, and the combination of these two facts means that there is bound to be a whole range of putative features of our world up for either elimination or location.<sup>1</sup>

Although among the three books reviewed here, only David Chalmers sides with Jackson's view about the importance of the *a priori* in metaphysics, the message of each of the three books is an illustration of how Jackson characterizes metaphysics in this citation. Each of them puts forward a proposal about what is fundamental on the basis of which all the rest then is to be construed.

Chalmers' main objective is in his book *Constructing the world* is to argue for an *a priori* scrutability thesis according to which "there is a compact class of truths from which all truths are *a priori* scrutable" (p. 58). The crucial question then of course is which truths are to be included in that class. For Chalmers, it is physical truths (*P*), phenomenal truths (*Q*), certain indexical truths (*I*) and a negative 'that's all' truth (*T*) (*PQIT*) (p. 110). The physical truths can presumably be narrowed down to microphysical truths, whereby these are "truths about fundamental physical entities in the language of a completed fundamental physics" (p. 110).

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<sup>1</sup> Frank Jackson, "Armchair metaphysics", in: J. O'Leary-Hawthorne and M. Michael (eds.): *Philosophy in mind*, Dordrecht: Kluwer, pp. 23-42; reprinted in F. Jackson, *Mind, method and conditionals. Selected essays*, London: Routledge 1998, pp. 154-176. Quotation on p. 25 / pp. 156-157 in the reprint.

Chalmers is open-minded about what these truths may eventually turn out to be. For instance, he contemplates the possibility that even truths about spatio-temporal location are not fundamental, but may turn out to be scrutable from truths about the quantum mechanical wave-function of the universe that exists in a very high dimensional space (pp. 293-298, 325-336). In any case, the fundamental physical truths include not only truths about particular matters of fact, but also truths about the laws of nature. Although Chalmers is heavily influenced by David Lewis (and dedicates his book to David and Steffi Lewis), he rejects Humeanism about laws: nomic truths are not *a priori* scrutable from non-nomic truths (pp. 336-340). Among the three authors considered here, only Sider endorses Humeanism in regarding modality as nonfundamental (ch. 12).

Chalmers' claim that some indexical truths – namely truths using the expressions “I” and “now” (e.g. p. 111) – have to be included in the basis from which all other truths are *a priori* scrutable is not a big issue; the same goes for his claim that a truth of the type “that’s all” has to be explicitly admitted to the basis (although that claim is disputable). The main controversial issue in this context is Chalmers' opposition to physicalism, showing up here in the claim that phenomenal truths – that is, truths about how things appear to persons – have to be included in the basis (pp. 110-111, 293, 340-344). Materialists, among them notably functionalists about consciousness, maintain that truths about the conscious states of persons are – *a priori* – scrutable from physical truths. But in this book, Chalmers simply states his opposition to physicalism; he is not concerned with a defence of phenomenalism. The central issue is that there “there is a compact class of truths from which all truths are *a priori* scrutable”. One can endorse this stance independently of the views about fundamental physics, consciousness, etc. that one holds.

This stance is shared by Heil and Sider, leaving aside the controversy about the “*a priori*” and the question of whether this stance is best formulated in terms of scrutability. Chalmers, Heil and Sider share the view that there is a limited class of truths that are sufficient to make true all the other truths about the world. Against this background, all three authors address the location problem that Jackson mentions in the quotation above. All of them give a conservative reply to this problem. They are all realists about the objects of the special sciences and the familiar common sense world of macroscopic objects. The rationale of metaphysics is to determine what makes the claims formulated in the special sciences and common sense true – that is, to find out what the world in which these claims are true is fundamentally like – instead of eliminating anything. Nonetheless, none of these authors is concerned with descriptive in distinction to revisionary metaphysics.<sup>2</sup> They are all at least open-minded with respect to revisionary metaphysics, since the standard for what are the fundamental truths is not the conceptual framework employed in common sense, but what fundamental physics will finally come up with.

Thus, John Heil's book *The universe as we find it* is not at all a metaphysics based on common sense. Quite to the contrary, for Heil, science is the measure of what there is – more precisely, only fundamental physics is. Metaphysics comes in a package with physics. Its task is to draw the broad picture, the details are then to be filled in by physics. In distinction to Chalmers, Heil puts forward a proposal as to what the fundamental ontological categories are

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<sup>2</sup> That distinction goes back to by Peter F. Strawson, *Individuals. An essay in descriptive metaphysics*, Oxford: Oxford University Press 1959, introduction.

in which the fundamental truths are cast. According to him, the broad picture is one of substance and property. Substances are simple – that is, they don't have constituents that are themselves substances, although they can be spatially extended. That is why only fundamental physical objects can qualify as substances (ch. 2.4 and 3). It is an open matter of physical research to settle the issue of whether there is a numerical plurality of substances (e.g. elementary particles) or only one substance (namely space, with particles and the like being thickenings of space, as Heil puts it) (e.g. pp. 22-23). Properties are modes, that is, the particular ways in which substances are. Since substances are simple, only the ways in which fundamental physical objects are count as properties (ch. 2). Properties hence necessarily are properties of substances, and substances necessarily have properties, for they cannot fail to be some way or other. In being the ways objects are, properties are qualities and dispositions (powers) in one (ch. 4).

That's all according to Heil. All the truths about the universe are made true by the ways in which the fundamental physical, simple substances are (e.g. ch. 1.3). This is not eliminativism: the objects of the special sciences and common sense exist with all their familiar features, but they are not substances, and their features are not properties. Nonetheless, configurations of simple substances (or thickenings of space, if space should turn out to be the only substance) are sufficient to make true all the truths about these objects. This position is not reductionism either. Heil considers himself to be an anti-reductionist (p. 274). For him, reductionism is concerned with predicates by contrast to ontology. He maintains that the predicates of the special sciences and common sense can in principle not be reduced to physical predicates, although all the truths expressed by employing the former predicates are made true by the ways in which the simple substances are, which can be fully described by employing only the latter predicates (p. 275).

The debate about reductionism vs. anti-reductionism is a side issue in all three books, risking to turn into a merely verbal dispute – Heil considers the position that all the truths about the world are made true by a limited class of fundamental truths as compatible with anti-reductionism, whereas this position clearly rings reductionist, as pointed out by Chalmers (pp. 301-311) (modulo his strong emergentism with respect to phenomenal truths). For Sider, in his monograph *Writing the book of the world*, the central issue is what the structure of the world is. "Structure" is a primitive concept for him (ch. 1 and 2). Accordingly, he does not offer a definition, but only illustrations: capturing structure means carving nature at the joints (e.g. p. 5) and discerning the patterns that there are in the world (e.g. p. 1). Thus, following Sider, the fundamental facts about the world are the facts that concern its structure, and these, in turn, are physical facts (e.g. pp. 6, 19-20, 292) – although, as for Chalmers, the central concern of Sider is not to argue for physicalism or dualism, but to make a case for structure being fundamental, whether or not structure is only physical, or includes mental facts, etc. The crucial claim is that structure is fundamental so that given structure, all the rest is fixed (ch. 7).

There is a sharp difference between Sider and Heil in that respect. For Sider, in maintaining that structure is fundamental, certain relations are fundamental. Heil, by contrast, refuses to admit relations as being part and parcel of the ontological ground floor (ch. 7); only substances and properties – the latter understood as intrinsic properties – are fundamental. As Heil concedes, if there is a plurality of substances, they of course have to be related in some way or other to make up a world. But he maintains that the view of space as the only

substance can do merely with substance and property without being committed to relations as being ontologically fundamental – insofar as there are relations, these are internal relations, founded on intrinsic properties of the relata (pp. 146-147). The view that there is only space (or spacetime) and that ordinary physical objects are properties of space (or spacetime) is also the one that Sider favours (pp. 292-293). Chalmers considers spacetime-structuralism as well (without, however, going as far as envisaging the position that all physical properties reduce to properties of spacetime) (pp. 410-412).

In any case, the crucial issue in this context is that even if space or spacetime is the only substance, there will be points or regions of space, and topological and metrical relations among these points (or regions), without there being any prospect in physics of these relations turning out to be founded on non-relational properties of something (cf. Sider pp. 38-43). Even if, turning to quantum gravity, one goes beyond the topological and metrical relations making up classical spacetime as described by the theory of general relativity, there will still be some fundamental relations that are not founded on intrinsic properties of anything (such as e.g. the adjacency relations symbolized by edges of a graph in loop quantum gravity). So even if there should be only space or spacetime, it seems evident that there still is a fundamental structure, consisting in certain relations among points or regions of space or spacetime.

Heil is in good company to reject radical ontic structuralism – the view that there are only structures in the sense of relations, with no objects or substances standing in the relations (p. 25)<sup>3</sup> –, but it seems that he throws the baby of relations away with the bathwater of radical ontic structural realism. His argument for doing so is one that can serve as a typical illustration of the tension between *a priori* metaphysics and metaphysics in line with science: based on the history of metaphysics Heil claims that it is difficult to see to what category relations could belong, since they are neither substances nor accidents (p. 149). But why should it not be possible for the ways in which substances are to include ways in which several substances are taken together? Quantum entanglement or quantum non-separability offers a clear and concrete example from contemporary physics how this can be so, an example that is worked out in that respect in the relevant literature.<sup>4</sup>

Although Sider, by contrast to Heil, subscribes to a commitment to structure as something fundamental, he is not a radical ontic structuralist either. He does not even consider the discussion on structural realism in contemporary metaphysics of science, which clearly is a lack in a book that considers structure as fundamental and takes physics to be in the position to tell us what the real structure of the world is. Structure in Sider's sense – the real patterns, what carves nature at its joints – by no means excludes a commitment to objects, and these objects may even be substances in Heil's sense. The point is that, following Sider, what is fundamental is not how these objects or substances are in themselves, but how they work together to constitute the fundamental patterns of the world (cf. ch. 7).

Despite the fact that according to all the three authors considered here, metaphysics is based on physics – by contrast to common sense, intuitions or language – when it comes to

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<sup>3</sup> For that view, see James Ladyman and Don Ross, *Everything must go. Metaphysics naturalised*, Oxford: Oxford University Press 2007, and Steven French, *The structure of the world: from representation to reality*, forthcoming Oxford: Oxford University Press.

<sup>4</sup> See e.g. Michael Esfeld and Vincent Lam, "Ontic structural realism as a metaphysics of objects", in Alisa and Peter Bokulich (eds.): *Scientific structuralism*, Dordrecht: Springer 2011, pp. 143-159.

discerning what the fundamental truths about the world are, what they say about physics is rather sketchy and superficial. Consider as one example the position that Heil leaves open and that Sider favours, namely that there is only one substance, i.e. space or spacetime. This position is known as super-substantivalism in the philosophy of physics. Sklar (1974) has set up the standard for spelling it out in a meaningful way: one has to make clear what the properties of space are such that the properties of space itself can serve as truthmakers for ordinary claims about objects in space.<sup>5</sup> Heil's metaphor of ordinary objects being thickenings of space hardly does any work in that respect, and Sider does not even consider this problem. Of course, the task of metaphysics is not to decide whether there is a plurality of substances or only one substance. But if one proposes something as a serious metaphysical option – space or spacetime as the only substance in this case – one has to provide a meaningful content for it.

Heil is the only one among the three authors to address the concern that objects as described by fundamental physics lack qualities, since all the properties that physics attributes to objects are introduced by spelling out what these properties do (or can do or would do if certain circumstances obtain). He rebuts this concern by maintaining that properties are both dispositional and qualitative in one (pp. 62-81). While this is certainly a possible metaphysical view of properties, it cuts no ice as far as an ontology that takes fundamental science into account is concerned to simply claim that properties such as mass and charge are both dispositional and qualitative in one. If these are dispositional properties, they are dispositions to change the state of motion of objects in a certain manner – gravitational mass being a disposition for a certain form of attraction, charge being a disposition for a certain form of attraction and repulsion (more precisely, the disposition or power to build up an electromagnetic field that then changes the state of motion of objects present in the field). In a nutshell, all the dispositional properties that physics treats are dispositions for a certain form of motion of objects. Hence, if these properties are qualities, the qualitative difference between them can only consist in differences in the manner in which they affect the state of motion of objects. It is questionable whether such qualities are sufficient to silence the critic who complains that physics does not attribute qualities to objects. In sum, the position to consider properties as dispositions or powers insofar as they are qualities certainly is an attractive view in the metaphysical landscape, but, again, one would like to see the details filled in when the standard is a metaphysics in line with fundamental physics.

Finally, let us come back to the opposition between Heil's claim that substance and property are the fundamental categories and Sider's claim that structure is fundamental. There indeed are still good reasons to regard contemporary fundamental physics, like classical physics, as being about some stuff and formulating laws for the behaviour of that stuff (and that stuff may be space or spacetime itself), with it being an open option to trace the laws back to certain dispositions of motion of the stuff (such as mass and charge). However, it is questionable whether the categories of substance and property offer the best metaphysics to capture the stuff and its dispositions of motion. As Heil emphasizes, there is no real distinction between substance and property, properties being the ways in which substances are (e.g. pp. 18, 280). Differentiating between substance and property is making a conceptual

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<sup>5</sup> See Lawrence Sklar, *Space, time and spacetime*, Berkeley: University of California Press 1974, pp. 166-167, 221-224.

abstraction to which no distinction in nature corresponds. Indeed, the distinction between substance and property looks like the linguistic distinction between subject and predicate imported into ontology. But if there is no real distinction between substance and property, it is questionable why these should be fundamental ontological categories. It seems that Heil is in the end not radical enough in his ontological turn, which is to overcome the linguistic turn. One does not have to go as far as notably the radical ontological structuralists who reject on behalf of contemporary physics the commitment to objects altogether and one may also have reservations about Sider's view according to which *all* the fundamental work is done by the notion of structure, but there certainly are good reasons to be sceptical whether categories such as substance and property are tailor-made categories for a metaphysics that is inspired by fundamental science rather than by language.