



Truthmaker puzzles for one-level physicalists

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Abstract

According to one-level physicalism, reality is exhausted by fundamental physical entities and properties. This position is sometimes defended on the basis of the truthmaker view of ontological commitment. Accordingly, physicalists can affirm higher-level truths without ontologically committing to any higher-level properties or states of affairs; fundamental physical states of affairs serve as truthmakers of all truths that have truthmakers, and a physicalist's ontology should consist of nothing but the fundamental physical states of affairs and their constituents. In this paper, I raise a problem for one-level physicalists who defend their views by appealing to the truthmaker view of ontological commitment. I argue that the truthmaker view faces certain puzzles the solutions of which clash with the main tenets of one-level physicalism. I conclude that either truthmaking is not a good guide to ontological commitment or one-level physicalism cannot be defended on the basis of the truthmaker view.

1 Introduction

The following two questions are often twisted together:

- (i) What is the ontological status of higher-level *properties*, such as mental properties and the properties that are invoked in the special sciences?
- (ii) What is the semantic status of the higher-level discourse, which makes at least apparent references to higher-level properties by making use of higher-level *predicates*?

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Consider *eliminativism* as an answer to both of these questions: we should dismiss any higher-level discourse because there are no higher-level properties that higher-level predicates pick out. Assuming that there are properties, the only properties that exist are the fundamental physical properties. Eliminativism is widely (and rightly) rejected due to its radical departure from both the manifest image and the scientific image, in particular if the scientific image is meant to do justice to the special sciences discourse. While the manifest image reveals many properties instantiated by macro-level everyday objects (e.g., colours, shapes) as well as our own mental properties, the scientific image suggests that some of these properties are indispensable to explanations of phenomena that involve these entities.

Eliminativism's claims about higher-level *properties* and higher-level *predicates* can come apart. In this paper, I examine a view whereby these claims do come apart. This is the view that the only properties that exist are the fundamentally physical ones, yet higher-level predicates and the higher-level discourse can be legitimate. I shall call this view *one-level physicalism* for its commitment to the existence of only one level of reality: the fundamental physical level.

Proponents of one-level physicalism typically accept that some higher-level statements (i.e., statements that invoke predicates that appear to pick out higher-level properties) we make in ordinary contexts and find in the special sciences are in fact *true*, but in reality, there are only fundamental physical states of affairs, and these fundamental physical states of affairs involve no properties other than the fundamentally physical ones. Then, according to one-level physicalism, assuming that there are properties, there are only fundamental physical properties.¹ A view along these lines has been defended by John Heil, Alyssa Ney, Kevin Morris, and others.²

Take an example: *Sophie is in pain*. A one-level physicalist is in principle happy to accept that it may be true that Sophie is in pain; but this truth has nothing to do with the property of *being in pain*, as there is no such property in reality. Rather, there is some fundamental physical state of affairs the existence of which *makes it true* that Sophie is in pain. Understood this way, one-level physicalism is often accompanied by a 'truthmaker' approach to ontology: fundamental physical states of affairs serve as truthmakers of all truths that have truthmakers, and a physicalist's ontology should consist of nothing but the fundamental physical states of affairs and their constituents. That said, one-level physicalism may be defended due to considerations that have nothing to do with truthmakers.³ For example, one might think that one-level physicalism is superior to alternative physicalist positions because alternative theories have insuperable problems or presuppose objectionable metaphysical posi-

¹ Henceforth, I will assume a broadly realist view about properties.

² See Heil (2003a, b, (2012; Ney, (2016); Morris (2018a, b). A similar view can also be found in the works of Cameron (2008; 2010), though Cameron focuses on macro-level *objects* like tables and chairs (rather than *properties*). Having said that, he explicitly acknowledges Heil's work as an inspiration, which is evident in Cameron (2008, p. 3), as well as in his joint work with Elizabeth Barnes (Barnes & Cameron, 2008).

³ In fact, Ney (2016) does not appeal to truthmaking; instead, she appeals to grounding for motivating one-level physicalism. Interestingly, Ney is rather sceptical about the truthmaking framework (ibid.: 33–34), while Heil is sceptical about the grounding framework (see Heil 2016). I shall have more to say about grounding and its connection to truthmaking in § 4.

tions. However, in what follows, I will focus on one-level physicalism insofar as it is defended on the basis the said truthmaker approach to ontology.⁴

If one-level physicalism is true, then alternative physicalist positions, for example, *non-reductive physicalism*, cannot be true. This latter position is a version of physicalism according to which higher-level properties are real, and they are not reducible to the physical ones.⁵ I find non-reductive physicalism plausible—at least to the extent that physicalism is plausible. In what follows, I shall try to lend more credibility to it by presenting a puzzle for one-level physicalism. This will not constitute a direct argument for non-reductive physicalism; instead, it will provide indirect support for it by showing that there are difficulties that the truthmaking-based version of one-level physicalism faces, and these are not difficulties that someone who accepts higher-level properties in their ontology faces.

Here is how I shall proceed. In § 2, I introduce non-reductive physicalism. In § 3 I expand on one-level physicalism and elaborate on how a truthmaker approach to ontology is typically employed in defending it. In §§ 4–5, I compare non-reductive physicalism and one-level physicalism in terms of their truthmaker commitments, and in §§ 6–7, argue that the truthmaker approach in question is in fact *incompatible* with one-level physicalism. As part of this argument, I present puzzles for this truthmaker approach and argue that the solutions to these puzzles are in tension with the main tenets of one-level physicalism. In § 8, I conclude: Either truthmaking is not a good guide to ontological commitment, or one-level physicalism shouldn't be defended on the basis of a truthmaker approach to ontology.

2 Irreducibility of higher-level properties

Let me begin with clarifying non-reductive physicalism, as this is the view which I will contrast one-level physicalism with. As stated above, non-reductive physicalism is the variety of physicalism according to which higher-level properties are real and physically irreducible.⁶ My preferred way of formulating this view is that which says that all higher-level properties are *realized* by physical properties. On this formulation, higher-level properties are related to the physical ones via a *realization* relation, where 'realization' denotes a relation thanks to which (i) instantiations of higher-level properties require instantiations of some physical properties; (ii) instantiations of certain physical properties bring about, synchronically, instantiations of certain higher-level properties; and (iii) this 'bringing about' takes place in a physically acceptable way, such that the realized higher-level properties are 'nothing over and above' the physical properties that realize them. This understandably controversial

⁴ I am grateful to an anonymous referee for pointing this out.

⁵ According to how I use the relevant terms, one-level physicalism is not the same view as *reductive* physicalism. One-level physicalism denies the existence of special science properties; reductive physicalism accepts that there *are* special science properties—it is just that such properties are reducible to, or identical with, physical properties. So, one-level physicalism is an alternative view to both reductive physicalism and non-reductive physicalism.

⁶ There are ways of formulating non-reductive physicalism without saying anything whatsoever about properties. I set such alternative formulations aside.

claim of nothing-over-and-above-ness is due to the proposal that realized properties are relatively less fundamental—or simply, non-fundamental—properties, while physical properties are relatively more fundamental—or simply, fundamental—properties. There are different ways of spelling out each of (i), (ii), and (iii), but these differences will not play any role in the following discussion.⁷

Understanding non-reductive physicalism in terms of a realization thesis is faithful to a historically important argument which has led many physicalist philosophers to a non-reductive position. This is the argument that the very same higher-level property could be realized by entirely different physical properties, suggesting that higher-level properties and physical properties are not co-extensional, let alone identical. In other words, higher-level properties are *multiply realizable* by different physical properties (Putnam, 1967; Fodor, 1974).

As a corollary to the multiple realizability argument, non-reductive physicalism is also associated with a ‘layered’ picture of reality. It is a very natural thought that there are macro-level objects such as the entities that special sciences study (e.g., societies, persons, squirrels, hearts, plants, cells), as well as elementary particles that are constituent parts of these objects. And once we have both macro-level objects and their miniscule parts in our ontology, it is again natural to suppose that these macro-level objects have properties that are not identical with the properties that are instantiated by their miniscule parts (or certain combinations thereof); and the former are the properties that we take to be higher-level properties. Non-reductive physicalism makes sense of these natural thoughts by holding that the higher-level properties of macro-level objects are not identical to physical properties; and moreover, they are not reducible to various combinations of such physical properties, as they are multiply realizable by different physical properties.

Thus, according to how I understand non-reductive physicalism, although there are both higher-level properties and lower-level physical properties, only the latter are fundamental, entailing that higher-level properties are not fundamental properties. Understood this way, the ‘levels’ talk traces a hierarchy of fundamentality: lower-level properties are more fundamental than the higher-level ones. One-level physicalists reject these claims. In the next section, I shall explain how the concept of truthmaking is utilised for this purpose.

3 One-level physicalism and the truthmaker view of ontological commitment

The basic idea behind one-level physicalism—as voiced by Kevin Morris—is this: ‘Rather than suppose that there are distinctive higher-level properties, states, and entities, ... the claims of ordinary discourse and special science are simply *made true* by how things are physically’ (2018b, p. 474, emphasis added). That is, statements that make use of higher-level predicates can be true, but this does not require the existence of higher-level properties. Such statements owe their truth exclusively to

⁷ For a more thorough discussion of these individual claims, see Baysan (2015).

how things are physically at the fundamental level. In the remainder of this section, I will work towards identifying the key assumptions behind this idea.

Put this way, the concept of truthmaking plays a key role in defending one-level physicalism. Those who appeal to the concept of truthmaking urge that, typically, when a statement is true, it is true because of how things are in the world. There are various ways of making sense of truthmaking (e.g., Is it entailment? Is it necessitation? Is it grounding? Is it a *sui generis* relation?)⁸; there are different theories about what kinds of entities can be truthmakers (e.g., Are truthmakers objects? Are they objects and properties? Are they states of affairs?); and there are disputes concerning the range of truths that admit truthmakers (e.g., Do all truths have truthmakers?). While some of these questions are relevant to the issues I discuss in this paper, some are not. Where there is relevance, I will make explicit reference to the relevant question and my take on it.

In addition to the basic idea that many truths have truthmakers, some of those who appeal to truthmaking in metaphysics also hold a specific meta-ontological view that has come to be known as *the truthmaker view of ontological commitment* (Heil, 2003a; Armstrong, 2004; Cameron, 2008, 2010)⁹. According to this view, a statement is ontologically committed to what would be needed as its truthmaker. Naturally, those entities that one is ontologically committed to constitute one's ontology. So, '[t]o postulate certain truthmakers for certain truths is to admit those truthmakers to one's ontology' (Armstrong, 2004, p. 23). Combined with *the principle of parsimony*, according to which one should not posit any entities that one doesn't need to, we get the picture that if truthmaking is the right guide to ontological commitment, then in affirming a statement, one should be ontologically committed only to that statement's truthmakers; all else is superfluous. Once we have all truthmakers for all truths, we have our ontology; anything else may as well be eliminated.

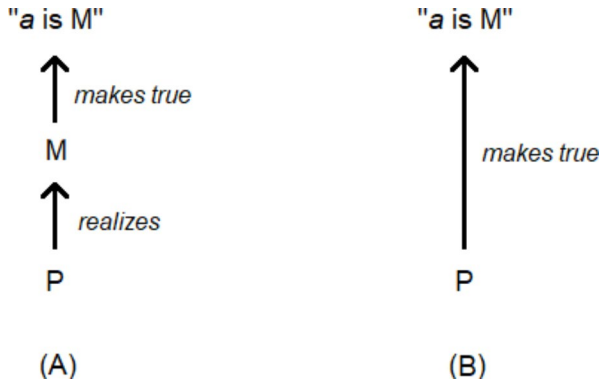
Recall the question of what kinds of entities can be truthmakers. On this question, I shall follow Armstrong's (1997; 2004) lead and take truthmakers to be states of affairs. The particular debate that this paper is on concerns higher-level *properties*, so our choice of possible truthmakers of higher-level statements should make room for properties. I take a state of affairs to be an entity's (or multiple entities') having of some property (or properties). Thus, taking states of affairs as truthmakers will be appropriate.

With the state-of-affairs choice of truthmakers endorsed, we can understand one-level physicalism to be committed to the claim that there are only fundamental physical states of affairs; there is nothing else. To be sure, in saying that there are only fundamental physical states of affairs, we have to count the constituents of such states of affairs. So, if there are any properties (as constituents of such states of affairs), these properties are fundamental physical properties. Yet, marking its difference from eliminativism, one-level physicalism is compatible with the truth of some sentences or statements that use higher-level predicates. I will call such truths

⁸ The way I phrased these parenthetical questions inevitably oversimplifies the debates surrounding these issues. More precise treatments of these questions will follow as we proceed.

⁹ Rettler (2015) is another example of a defence of a truthmaker view of ontological commitment, but Rettler's view is importantly different from the other authors cited here. I discuss his view in § 7 below.

Fig. 1 Non-reductive physicalism (A) and one-level physicalism (B)



higher-level truths. Higher-level truths may be statements, sentences, or any other truth-bearers. (I will use the relevant terms variably when I talk about truth-bearers.) Without presupposing a particular answer to the question of which kinds of truths have truthmakers, I will assume that higher-level truths *typically* have truthmakers. Given that, on this view, there are only fundamental physical states of affairs, it follows that *higher-level truths that have truthmakers have fundamental physical states of affairs as their truthmakers.* If we must admit any properties into our ontology, we must admit fundamental physical properties. Or, so argues the one-level physicalist who appeals to the truthmaker view of ontological commitment.

4 Higher-level and fundamental truthmakers

It will be helpful to contrast one-level physicalism with non-reductive physicalism by using the notion of truthmaking. For this, I will borrow Morris's depiction of these two views (see Fig. 1).¹⁰

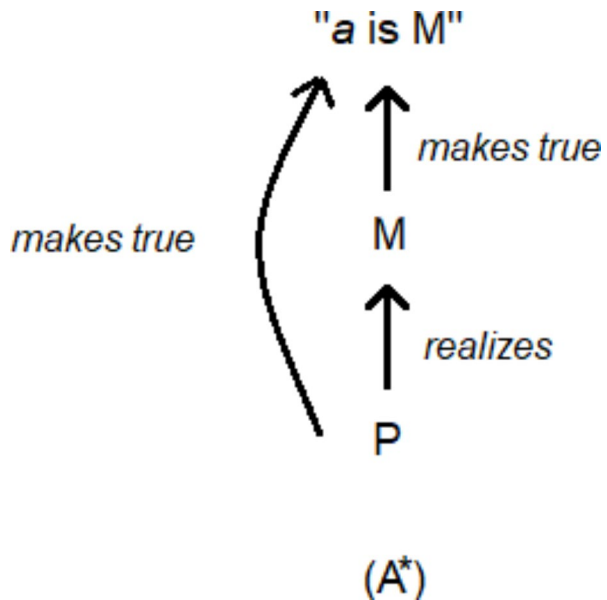
In this picture, (A) depicts non-reductive physicalism. Here, 'a is M' is a higher-level truth. Some higher-level state of affairs which involves the instantiation of the higher-level property M is the truthmaker of 'a is M'. But given physicalism, M's instantiation constitutively depends on some fundamental physical state of affairs: the instantiation of a physical property P. Let's take P to be the realizer of M on this occasion. Let's take M^S to be the state of affairs in which M is instantiated. M^S makes 'a is M' true.

Now consider (B). This depicts one-level physicalism. Here, 'a is M' is the same higher-level truth as the one in (A). One-level physicalism holds that the truthmaker of 'a is M' is a fundamental physical state of affairs which involves the instantiation of P. Let's take P^S to be this state of affairs. Here, 'a is M' is true without the need for a higher-level property M realized by P, or without there being a state of affairs such as M^S .

In both (A) and (B), we have the same truth ('a is M'), but with different entities as its truthmakers. As Morris puts it, non-reductive physicalism posits 'middle men'

¹⁰ Morris (2018b, p. 475). The figure is my own reconstruction based on the figure in the cited source.

Fig. 2 Non-reductive physicalism with two truthmaking relations



between higher-level truths and fundamental physical states of affairs, whereas one-level physicalism cuts out such middle men (2018a, p. 225). So, one-level physicalism is the more parsimonious view. If parsimony is a virtue, one-level physicalism should be preferred over non-reductive physicalism.

I have an objection to this way of comparing non-reductive physicalism and one-level physicalism. The reasoning behind this objection will be important to my argument below. My objection is that there is something missing from the depiction of non-reductive physicalism in Morris's picture—and I say this with my non-reductive physicalist hat on. Specifically, it is not clear why the non-reductive physicalist should reject the claim that P^S is a truthmaker for 'a is M' *in addition to* M^S being a truthmaker for 'a is M'. The non-reductive physicalist may choose not to appeal to the notion of truthmaking; but if she is unhappy with truthmaking, she would not be positing an instance of this relation between 'a is M' and M^S in the first place. With the assumption that the non-reductive physicalist is happy with the talk of truthmakers, we can reasonably depict non-reductive physicalism as follows (see Fig. 2).

Now, here is a crucial question: If (A*) in Fig. 2 is a reasonable way of understanding non-reductive physicalism (on the assumption that truthmaking is a viable concept), is the view depicted by (B) (in Fig. 1) a superior view compared to non-reductive physicalism? If the one-level physicalist wants to say 'yes', she should show us what is wrong with (A*).

Before considering what the one-level physicalist can say in response to the view depicted by (A*), let's think about why it is reasonable for the non-reductive physicalist to posit this second truthmaking relation. First, the state of affairs P^S 's obtaining necessitates the truth of 'a is M', which makes P^S at least a candidate as a truthmaker. To be clear, I am not saying that truthmaking should be analysed in terms of necessitation. I am merely pointing out that the necessitation relation between P^S and the

truth of ‘ a is M ’ gives us a reason to take the suggestion that P^S might be a truthmaker for ‘ a is M ’ seriously.¹¹

Second, and more conclusively, non-reductive physicalists are, by definition, physicalists, so they think that everything is either physical or grounded in the physical.¹² Given that the non-reductive physicalist we are considering here has the notion of truthmaking in her toolkit, if she thinks that higher-level truths are grounded, then it would again be very reasonable for her to hold that higher-level truths are grounded in fundamental physical states of affairs. Then, it follows that higher-level truths should have fundamental physical states of affairs as their truthmakers according to non-reductive physicalism too. By saying this, I am not assuming that truthmaking and grounding are the same relation. I am only assuming that there is an important link between truthmaking and grounding: if the fact that a proposition p is true is grounded in some further fact, say f , it is reasonable to think that f is a truthmaker of p .

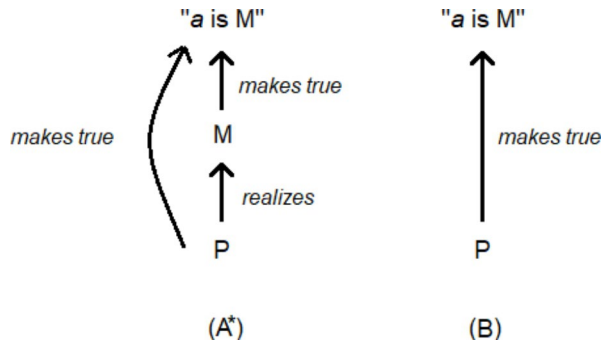
Crucially—and this is essential for my argument below—by saying that P^S is a truthmaker of ‘ a is M ’, we are not thereby saying that M^S is not a truthmaker of ‘ a is M ’. This would be the case only if we had to assume that *a true statement can have no more than one truthmaker*. But this assumption is *false*! Quite reasonably, many truths have multiple truthmakers.¹³ And this brings me to the following question: What to do with truths with more than one truthmaker? I will argue that questions of

¹¹ Here I am assuming *truthmaking necessitarianism* (TN): truthmaking entails necessitation. This is not to say that TN doesn’t have dissenters: see Heil (2000), Briggs (2012), and Stenwall (2016) for objections. Let me address Heil’s argument here, as his views about truthmaking are relevant to the arguments of this paper. Heil’s case against TN is motivated by the alleged problems that *truthmaker maximalism* (TM) faces. Heil is a proponent of TM, which holds that all truths have truthmakers. However, it is a well-known problem for the truthmaker theory that if we require a truthmaker to necessitate the truth of the relevant truth-bearer, certain truths, e.g. negative existentials and universal generalisations, cannot be made true by the entities we would otherwise take to be their truthmakers. To solve this and related problems, some (e.g. Armstrong 1997; 2004) include *totality facts* in the truthmakers for negative existentials and universal generalisations. Heil finds totality facts problematic, as such facts are ‘no addition to being’ (2000, p. 239), and in an attempt to save TM, he dispenses with TN. In setting out the debate in this paper, I haven’t assumed or presupposed TM. The examples I have thus far given for higher-level truths are not negative existentials or universal generalisations. Therefore, for the sake of holding on to TN, I am happy to remain uncommitted to TM.

¹² Am I assuming that physicalists are committed to a grounding claim? Following Wilson (2014), we may understand ‘grounding’ to refer to either (i) a *sui generis* Grounding relation or (ii) a set of dependence/determination relations that we are familiar with from various debates in metaphysics (including relations such as realization, truthmaking, supervenience, and even identity). My assumption here is that physicalists are indeed committed to a grounding claim, if ‘grounding’ is to be understood in terms of either (i) or (ii). Moreover, I can think of no non-reductive physicalist who would be happy with a truthmaking relation, but not with a grounding claim in this generic sense.

¹³ It is possible for a truthmaker theorist to deny the claim that some truths have many truthmakers by appealing to a form of *monism*, according to which there is only one truthmaker for all truths that have truthmakers. For example, a one-level physicalist may be a monist and still hold onto the truthmaker view of ontological commitment. Such a one-level physicalist can hold that the physical universe as a whole—i.e., a global state of affairs characterised in fundamentally physical terms—is the *one and only* truthmaker of all truths that have truthmakers. (I am indebted to an anonymous reviewer for this insight.) Note that this is a more general point, independently of one-level physicalism that we must acknowledge: a truthmaker-friendly version of monism—regardless of anything to do with physicalism—can simply deny that any truth has many truthmakers, because there is just one truthmaker. Although we can acknowledge this possibility, the kind of one-level physicalism that I focus on in this paper is compatible with the claim that

Fig. 3 Non-reductive physicalism versus one-level physicalism, revisited



this sort make things difficult for the one-level physicalist who appeals to the truthmaker view of ontological commitment.

5 Truths with many truthmakers

Suppose now that the comparison between non-reductive physicalism and one-level physicalism is not as it looked like in Fig. 1, but it is like as follows (see Fig. 3).

The obvious reaction I would expect from the one-level physicalist is that, on this picture, non-reductive physicalism postulates *too many entities*. It may be argued that the case here is analogous to cases of causal redundancy with the exception that the redundancy we have here is not causal.¹⁴ So, for lack of a better term, let’s say that in the picture depicted in (A*) there is *non-causal redundancy* where one of the putative truthmakers for ‘a is M’ is redundant.

Non-reductive physicalism is well-known for the troubles it allegedly faces regarding *causal* redundancy. The worry is that, with the assumption that any physical event that has a cause (at time *t*) must have a sufficient physical cause (at *t*), it appears that physically irreducible higher-level properties are redundant as causes of physical events. Critics of non-reductive physicalism argue that this indicates something deeply unsatisfactory about the view. Rare occasions of causal redundancy may be admissible. But if higher-level causes are systematically redundant, then there is too much causal redundancy.¹⁵ Much ink has been spilled on whether this really is a problem for non-reductive physicalism, and I will not delve into that issue here.¹⁶ However, the analogous case of non-causal redundancy has not been discussed (at least not to the same extent), and that is what I want to say a few things about.¹⁷

different truths have different truthmakers (e.g., ‘Sophie is in pain’ and ‘Alice is in distress’ have different truthmakers), while the kind of monism that is in consideration in this footnote is not.

¹⁴ Such cases are often discussed under the rubric of causal *overdetermination*, not redundancy, but to emphasise the allegedly problematic aspects of such overdetermination—and following an anonymous reviewer’s advice—I shall articulate this issue in terms of redundancy.

¹⁵ For example, Kim (1998). One-level physicalists echo this criticism (Ney, 2016; Morris, 2018a).

¹⁶ I discuss this problem and defend non-reductive physicalism from this objection elsewhere (see Baysan 2018; 2021).

¹⁷ Analogous cases have been discussed in the literature on metaphysical grounding, sometimes under the heading ‘non-causal overdetermination’. Koslicki mentions a disjunctive fact’s being grounded in both

Suppose that ‘a is M’ is made true by M^S , and also made true by P^S , and this is an instance of something ubiquitous: at every time a higher-level truth is made true by a higher-level state of affairs, it is also made true by some fundamental physical state of affairs. Henceforth, I will assume that non-reductive physicalism entails this sort of non-causal redundancy, but will argue that this *not* a problem for non-reductive physicalism.

My argument rests on the observation that if there is a problem with systematic and widespread non-causal redundancy, then there should be something wrong with the very idea of truthmaking to begin with. This is not because truthmaking entails such redundancy. Rather, many mundane cases of truthmaking (which have nothing to do with non-reductive physicalism) are cases of *truths with many truthmakers*, or more specifically, cases that admit multiple truthmakers that obtain simultaneously for the same truths.

Think about cases of *existential generalisation*, which are among the least controversial cases of truthmaking. Consider the truth ‘There is an F’. Assuming that, in reality, there are many Fs, this truth is made true by the *Fness* of every single x that is F. Or think about the cases of *disjunction*, which are again uncontroversial cases of truthmaking. Consider the truth ‘Socrates is wise or Aristotle is clever’. Any truthmaker of ‘Socrates is wise’ will be a truthmaker of ‘Socrates is wise or Aristotle is clever’; moreover, any truthmaker of ‘Aristotle is clever’ will be a truthmaker of the same truth. Then, when both ‘Socrates is wise’ and ‘Aristotle is clever’ are simultaneously true, the truth of ‘Socrates is wise or Aristotle is clever’ will have distinct truthmakers that obtain simultaneously.¹⁸

Existential generalisation and disjunction are not rare or exceptional cases of truthmaking. Both are among the paradigm examples of truthmaking. And this is why if there is something wrong with the aforementioned sort of non-causal redundancy, there has to be something wrong with the very idea of truthmaking. However, as far as those who appeal to truthmaking to motivate one-level physicalism are concerned, there shouldn’t be anything wrong with the very idea of truthmaking. Moreover, we have construed one-level physicalism (and its alleged superiority over non-reductive physicalism) by appealing to truthmaking. So, as far as the relevant parties are concerned, there shouldn’t be any problem with systematic and widespread non-causal redundancy by truthmaking. Therefore, even if the view depicted by (A*) entails non-causal redundancy, the one-level physicalist who appeals to truthmaking is not in a position to argue that non-reductive physicalism fails on the basis of non-causal redundancy.

of its obtaining disjuncts as a case of overdetermination (2015, p. 317). Another discussion of non-causal overdetermination can be found in Audi (2012).

¹⁸ If the kind of monism that I discuss in footnote 13 is true, then in cases where both ‘Socrates is wise’ and ‘Aristotle is clever’ are simultaneously true, their truthmaker will be identical. But note that that truthmaker will also be the truthmaker of any other truth that has a truthmaker, such as ‘Hypatia is brave’.

6 Puzzles for the truthmaker view

In the previous section, I argued that non-reductive physicalism can be said to imply widespread non-causal redundancy by truthmaking, but those who defend one-level physicalism on the basis of the truthmaker view of ontological commitment are not in a position to argue that this itself constitutes a problem for non-reductive physicalism. In this section, I will argue that, somewhat ironically, non-causal redundancy by truthmaking poses a problem for one-level physicalism, at least insofar as one-level physicalism is defended on the basis of the truthmaker view of ontological commitment. This is because truths with many truthmakers lead to some puzzles for the truthmaker view of ontological commitment. I should clarify from the outset that this is not a problem for those who appeal to the notion of truthmaking more generally; it is a problem for those who want to use truthmaking as a guide to ontological commitment. There are possible solutions to this problem, but these solutions are not available to anyone who is attracted to one-level physicalism.

Suppose that the sentence ‘There is an F’ is true. Further, suppose that, in reality, there are many things that are F. Which of these many Fs are we ontologically committed to by stating there is an F? Technically, for this sentence to be true, we need *only one* F. Here is then a dilemma for the truthmaker view of ontological commitment: When we have truths with many truthmakers, we are committed to either all of these many truthmakers or only some of them.¹⁹ On the first horn of the dilemma, the truthmaker view of ontological commitment faces a serious challenge, as it seems that we are not ontologically committed to *only those entities that are needed* in the world as truthmakers of our statements, which negates the main motivation behind the theory. On the second horn, with the requirement of parsimony, we may end up eliminating from our ontology a whole host of entities that really exist. Why eliminate all of these except one just because only one is required for ‘There is an F’ to be true? Although this is not a paradoxical result, there is something unsatisfactory about it. As I suggested earlier, there are ways out of this dilemma. However, the routes that one can take are not available to one-level physicalists.²⁰

Cameron (2010), a chief proponent of the truthmaker view of ontological commitment, discusses this issue alongside other related puzzles about truthmaking. Let’s begin with a slightly different case. Assume that the truthmaker for the conjunctive statement ‘Socrates is left-handed and Aristotle is right-handed’ is also a truth-

¹⁹ Although related questions are raised by Armstrong (2004, pp. 21–24), to the best of my knowledge, this is raised *as a dilemma* originally by Schaffer (2008, p. 14).

²⁰ An anonymous reviewer suggests that this is a false dilemma. They suggest that ‘There is an F’ ontologically commits us to only one F (and it is arbitrary which F it commits us to). I do agree that this is a reasonable way of reading the ontological commitment of ‘There is an F’. But things get complicated when the sentence in question is ‘There are some Fs’, as the suggestion that this sentence commits us to only one F is less satisfactory. In any case, I would like to think that what we have is not really a false dilemma even if one wants to say that ‘There is an F’ commits one to only one F. This is because saying this amounts to saying that one is happy to embrace the second horn of the dilemma, possibly resisting the consequences I have suggested. So, the disjunction that forms the basis of this dilemma is still true even if the suggestion by the anonymous reviewer is on track.

maker for ‘Socrates is left-handed’.²¹ Call this truthmaker *Left-Right*. Now consider a truthmaker of ‘Socrates is left-handed’ which is not a truthmaker of ‘Socrates is left-handed and Aristotle is right-handed’. Call this truthmaker *Left*. It appears that we have a case of non-causal redundancy by truthmaking: a truth, ‘Socrates is left-handed’, has two non-identical truthmakers: *Left* and *Left-Right*.

Cameron discusses a structurally identical example and argues that this should not be seen as a problem for the truthmaker view of ontological commitment (2008, p. 253). His suggestion is that the way out of this problem is to read the truthmaker view of ontological commitment as saying that a statement is ontologically committed to only those entities that are needed in the world as its *minimal* truthmakers. Cameron doesn’t offer an account of what makes a truthmaker minimal, but the idea is intuitive. Following O’Conaill and Tahko, we can say that a minimal truthmaker of a truth ‘is the smallest portion of reality which makes [that] proposition true’ (2016, p. 228). More precisely, we can say that a minimal truthmaker *m* is a truthmaker for a given truth *S*, where *m* has no proper part (or a non-mereological constituent) which is a truthmaker of *S* (ibid., p. 231). Whichever way we read this claim of minimal truthmakers, it is clear that *Left-Right* is not a minimal truthmaker of ‘Socrates is left-handed’ (as, arguably, *Left-Right* includes *Left* as a proper part), and that is all we need in order to make sense of this suggestion.

I am not entirely sure if this appeal to minimal truthmakers is successful in all cases. We can easily imagine cases of *truths with many minimal truthmakers*. For example, if there are many *F*s in reality, each state of affairs in which something is *F* can easily be seen as a minimal truthmaker of ‘There is an *F*’. So, although appealing to minimal truthmakers will solve the problem generated by ‘Socrates is left-handed and Aristotle is right-handed’, it will not work as a general solution to the problem of truths with many truthmakers.

Even if the appeal to minimal truthmakers were to solve the puzzle, there appear to be *truths without any minimal truthmakers*. And if there are such truths, one might think that they show that there is something wrong with the truthmaker view of ontological commitment. An example is the supposed truth of ‘There are denumerably many electrons.’²² As Cameron writes:

any collection of electrons you point to that make this true, I can point to a sub-plurality that make it true, so there is no minimal plurality that make it true. So is this sentence just not ontologically committing? But that’s absurd! Of course this sentence makes demands on our ontology: it makes a huge demand—that there be denumerably many electrons! (2008, p. 253).

The case of denumerably many electrons is relevant to the arguments of this paper because the proposed ways to solve it (discussed below in § 7) are analogous to the

²¹ This assumption is controversial. For an argument against it, see Rodriguez-Pereyra (2006). However, for the sake of setting up this puzzle, I will take this assumption for granted. The cases that are more directly relevant to the main argument of this section (to be discussed below) don’t hinge on this assumption.

²² This example is originally discussed in Armstrong (2004, pp. 21–22). Armstrong attributes this example to Greg Restall. Many of the works on truthmakers cited above discuss this example.

ways in which the questions about truths with many truthmakers can be answered. In the next section, I will introduce two ways of solving these puzzles, and then argue that these solutions are dialectically at odds with one-level physicalism.

7 Possible solutions

Let's start with the case of denumerably many electrons as a puzzle for the truthmaker view of ontological commitment. One solution to this is to posit *the state of affairs of there being denumerably many electrons*. Note that this is not the proposition that there are denumerably many electrons, but a state of affairs of it being such that there are denumerably many electrons. Although Armstrong considers this solution, he finds such a state of affairs 'too abstract' to admit into his ontology (2004, p. 22).

This solution is relevant to our question about truths with many truthmakers, for, if it were to work, the very same solution should do the trick in these cases. Assuming 'There is an F' is true and there are many Fs in reality, we might say that we are ontologically committed to *the state of affairs of there being an F*, and not to any particular F in reality. Importantly, note that there being an F (on this solution) is a *higher-level* state of affairs. It is not identical to any of the particular state of affairs in which some particular thing is F. Rather, any particular thing's being F is a realizer of this higher-level state of affairs. Likewise, *the state of affairs of there being denumerably many electrons* is a higher-level state of affairs, realized by the existence of any subplurality of denumerably many electrons which makes it true that there are denumerably many electrons.

Whether Armstrong is right that such a state of affairs is too abstract or not, I hope it is obvious that such a solution sits very oddly with the view that the one-level physicalist is defending. On this view, there are only fundamental physical states of affairs. But *higher-level states of affairs are not fundamental physical states of affairs*. Therefore, if this is the solution to the problem of truths with many truthmakers, then one-level physicalism is not true.

One might respond to this last claim, arguing that the considerations based on the puzzles in question do not apply to the debate over mental properties and other higher-level properties that are invoked in the special sciences. More specifically, one might argue that just because truthmaker theorists must, based on the solution that is explored, admit some higher-level states of affairs, it doesn't follow that they must admit the kinds of higher-level properties that non-reductive physicalists posit. This is true.²³ The way in which these states of affairs are non-fundamental is different from the way in which the higher-level properties we find in the special sciences are non-fundamental. And of course, admitting such higher-level states of affairs doesn't require admitting multiply realizable higher-level special science properties. That is, perhaps the case of the denumerably many electrons requires a higher-level states of affairs, and perhaps truths with many minimal truthmakers do so; but none of this means that just because we recognise the need for higher-level states of affairs for

²³ Thanks to an anonymous reviewer for this observation.

such statements, we also need higher-level states of affairs for higher-level truths that are invoked in the special sciences.

These considerations make it clear that the truthmaker puzzles that we are considering here cannot directly form an argument for non-reductive physicalism. But this has not been my intention. Rather, my claim is that on a view according to which *there are only fundamental physical states of affairs* (and their constituents), there is no room for higher-level states of affairs (of this sort or another). Therefore, if the proponent of the truthmaker view of ontological commitment wants to appeal to this solution to deal with truths with many truthmakers (and truths without minimal truthmakers), she cannot be a *one-level* physicalist. That is to say: if a one-level physicalist wants to defend her view by appealing to a truthmaker view of ontological commitment, then she needs some other way of making sense of truths with many truthmakers.

Let's think about another way of answering questions about truths with many truthmakers, as well as truths without minimal truthmakers. Cameron suggests that

[w]e should make a distinction, as indeed anyone must, between a sentence bringing an ontological commitment to some particular thing(s), and it ontologically committing you to some things or other. I say that a sentence S commits you to some *particular* thing A when A has to make S true if it is true; that S commits you to there being some things or other amongst the Xs when it *has* to be the case that some things or other amongst the Xs make S true if it is true (2008, p. 253).

Cameron's suggestion seems to be that different kinds of truth come with different kinds of ontological commitment. While some sentences bring particular ontological commitments, some don't. If this is the case, we might think that the supposed truth 'There are denumerably many electrons' doesn't bring any particular ontological commitment. But, Cameron argues, 'it nonetheless is ontologically committing, since some denumerable plurality or other of the (possible) electrons must make this sentence true if it is true' (ibid., p. 254). It is at this point where Cameron discusses more mundane cases of truths with many truthmakers, for example the case of disjunction. Consider again the truth: 'Socrates is wise or Aristotle is clever'. This truth also does not bring any *particular* ontological commitment (if Cameron is to be believed). It does not require (i) Socrates to be wise, or (ii) Aristotle to be clever, or (iii) Socrates to be wise *and* Aristotle to be clever; yet it is *ontologically committing*: it commits you to there being *one or other (or both)* of the states of affairs of Socrates's being wise or of Aristotle's being clever.²⁴

It is worth clarifying that this solution is different from the previous one. As far as the previous solution goes, there are *particular* ontological commitments even when it comes to truths with many truthmakers and truths without minimal truthmakers. They commit us to particular states of affairs which are *higher-level states of affairs*. However, the second solution acknowledges that some truths don't bring any *particular* ontological commitments; but they are nevertheless ontologically committing.

²⁴ Or perhaps to something entirely different which makes the statement true. See Rettler (2015).

Following Rettler (2015), let's call this theory of ontological commitment the *general* truthmaker view of ontological commitment—as opposed to the *specific* truthmaker view of ontological commitment that seems to be endorsed in discussions of one-level physicalism. The general truthmaker view holds that a theory is ontologically committed to there being some thing (or things) that make(s) that theory true (ibid., p. 1405). The puzzles that we have considered so far do not problematise the general truthmaker view, which makes it a more promising theory of ontological commitment (compared to the specific truthmaker view). This is good news for those who want to understand ontological commitment in terms of truthmakers. But is this thereby good news for one-level physicalism? I have my doubts.

If the general truthmaker view is true—as opposed to the specific truthmaker view—then when I say that Sophie is in pain, I am thereby committed to there being some thing (or things) that make(s) it true that Sophie is in pain. If physicalism is true, then fundamental physical states of affairs are truthmakers for all truths. So, if it is true that Sophie is in pain, then there is a fundamental physical state of affairs that makes it true that she is in pain. Since I am committed to there being a truthmaker for this (as the general truthmaker view dictates) and we have now an additional metaphysical claim that there is a fundamental physical state of affairs that is a truthmaker for this, all we can say from this is that this fundamental physical state of affairs—whatever it might be—is something I *can* ontologically commit to. But the problem (for the proponent of one-level physicalism) is that the general truthmaker view does not *require* me to commit to this fundamental physical state of affairs. It only requires me to commit to there being some truthmaker (or truthmakers) for it. In order to turn these considerations in favour of one-level physicalism, we need an additional claim: if there is a *particular* truthmaker for a given true statement, one must ontologically commit to *that* particular truthmaker. Let's call this premise *the particular commitment principle*. Only thanks to the particular commitment principle can we conclude that higher-level truths commit us to fundamental physical states of affairs. Of course, to get one-level physicalism, we still need the requirement of parsimony: one should not posit any entities that one's theories are not ontologically committed to. However, although the particular commitment principle is plausible, its combination with this parsimony requirement is at odds with the very spirit of the *general* truthmaker view. The fact that the general truthmaker view doesn't require us to commit to particular truthmakers is supposed to be the key to the solution to the puzzles that I presented in § 6. The picture we get when we combine (i) the general truthmaker view, (ii) the particular commitment principle, and (iii) the principle of parsimony runs into the very same problems that the general truthmaker view is meant to solve. Therefore, the general truthmaker view cannot support one-level physicalism without running into the same problems that the specific truthmaker view does.

8 Conclusions

One-level physicalism—the view that there are only fundamental physical states of affairs and their constituents—is often defended on the basis of the truthmaker view of ontological commitment. By appealing to the truthmaker view, one-level physi-

calists hope to preserve the truth of many higher-level truths invoked in everyday discourse and in the special sciences that appear to refer to higher-level states of affairs. By presenting some puzzles for the truthmaker view of ontological commitment, I have argued that this approach is flawed. In particular, the truthmaker view of ontological commitment faces the problem of truths with many truthmakers, and the solutions that the proponents of the truthmaker view can appeal to are in tension with the main tenets of one-level physicalism. I conclude that either truthmaking is not a good guide to ontological commitment or one-level physicalists should not appeal to the truthmaker view of ontological commitment to defend their view.

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References

- Armstrong, D. M. (1997). *A World of States of Affairs*. Cambridge: Cambridge University Press
- Armstrong, D. M. (2004). *Truths and Truthmakers*. Cambridge: Cambridge University Press
- Audi, P. (2012). Properties, powers, and the subset-account of realization. *Philosophy and Phenomenological Research*, 84, 654–674
- Barnes, E., & Cameron, R. (2008). A critical study of John Heil's 'From an Ontological Point of View'. *SWIF Philosophy of Mind Review*, 6, 22–30
- Baysan, U. (2015). Realization relations in metaphysics. *Minds and Machines*, 25, 247–260
- Baysan, U. (2018). Epiphenomenal properties. *Australasian Journal of Philosophy*, 96, 419–431
- Baysan, U. (2021). Rejecting epiphobia. *Synthese*, 199, 2773–2791
- Briggs, R. (2012). Truthmaking without necessitation. *Synthese*, 189, 11–28
- Cameron, R. (2008). Truthmakers and ontological commitment: or, how to deal with complex objects and mathematical ontology without getting into trouble. *Philosophical Studies*, 140, 1–18
- Cameron, R. (2010). How to have a radically minimal ontology. *Philosophical Studies*, 151, 249–264
- Fodor, J. (1974). Special sciences (or: the disunity of science as a working hypothesis). *Synthese*, 28(2): 97–115
- Heil, J. (2000). Truth making and entailment. *Logic et Analyse* 43/169 – 70: 231–242
- Heil, J. (2003a). *From an Ontological Point of View*. Oxford: Oxford University Press
- Heil, J. (2003b). Levels of reality. *Ratio*, 14/3, 205–221
- Heil, J. (2012). *The Universe as We Find It*. Oxford: Oxford University Press
- Heil, J. (2016). Truthmaking and fundamentality. *Synthese*, 1–12
- Kim, J. (1998). *Mind in a Physical World: An Essay on the Mind-Body Problem and Mental Causation*. Cambridge, MA: The MIT Press
- Koslicki, K. (2015). The coarse-grainedness of grounding. In K. Bennett, W. Dean, & Zimmerman (Eds.), *Oxford Studies in Metaphysics Volume 9* (pp. 306–341). Oxford: Oxford University Press

- Morris, K. (2018a). *Physicalism Deconstructed: Levels of Reality and the Mind-Body Problem*. Cambridge: Cambridge University Press
- Morris, K. (2018b). Physicalism, truthmaking, and levels of reality: Prospects and Problems. *Topoi*, 37/3, 473–482
- Ney, A. (2016). Grounding in the philosophy of mind: a defense. *Scientific Composition and Metaphysical Ground* (pp. 271–300). London: eds. Kenneth Aizawa & Carl Gillett, Palgrave Macmillan
- O’Conaill, D., & Tahko, T. (2016). Minimal truthmakers. *Pacific Philosophical Quarterly*, 97, 228–244
- Putnam, H. (1967). Psychological predicates. In W. H. Capitan, & D. D. Merrill (Eds.), *Art, Mind and Religion* (pp. 37–48). Pittsburgh: University of Pittsburgh Press
- Rettler, B. (2015). The general truthmaker view of ontological commitment. *Philosophical Studies*, 173, 1405–1425
- Rodriguez-Pereyra, G. (2006). Truthmaking, entailment, and the conjunction thesis, *Mind*, 115/460: 957–982
- Schaffer, J. (2008). Truthmaker commitments. *Philosophical Studies*, 141, 7–19
- Stenwall, R. (2016). Against truthmaking necessitarianism. *Logic et Analyse*, 233, 37–54
- Wilson, J. (2014). No work for a theory of grounding. *Inquiry : A Journal Of Medical Care Organization, Provision And Financing*, 57(5–6), 535–579

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