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# It's one thing to rule them all and another thing to bind them

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**Abstract**
In this paper we offer a response to one argument in favour of Priority Monism, what Jonathan Schaffer calls the nomic argument for monism. We proceed in three stages. We begin by introducing Jonathan Schaffer's Priority Monism and the nomic argument for that view. We then consider a response to the nomic argument that we presented in an earlier paper (Baron and Tallant in Philos Phenomenol Res 93:583–606, 2016). We show that this argument suffers from a flaw. We then go on to offer a different response to the nomic argument. The core idea is that the current laws of physics are not integrated in the manner that Schaffer requires to get the nomic argument for monism off the ground.

**Keywords** Monism · Laws of nature · Quantum mechanics · General relativity · Holism

## 1 Introduction

According to contemporary versions of Priority Monism, the cosmos is the one and only fundamental object. The position has been defended, extensively, by Jonathan Schaffer across a range of papers: (2009, 2010a, b, 2013), among others. In Schaffer's words the position can be summarized, thus:

> The monist holds that the whole is prior to its parts, and thus views the cosmos as fundamental, with metaphysical explanation dangling downward from the One. (2010a: p. 31)

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As Schaffer makes clear (2010a: p. 38), he is interested only in concrete objects. Accordingly, Monism is the view according to which there exists a single concrete object that is (metaphysically) basic and that is the cosmos. According to Schaffer, in addition to basic objects, there exist derivative (or, non-fundamental) objects. These objects are parts of the monistic whole, and include things like tables, chairs and other familiar macroscopic objects [cf. (2010a: p. 33)]. As Schaffer also makes clear, Priority Monism is supposed to be a necessary truth (2010a: p. 56, b: p. 321). It is metaphysically necessary that the cosmos is the one and only fundamental object, and since that which is ultimately prior (or 'fundamental') is naturally thought of as being a substance (2010a: p. 37, fn 12), so it is metaphysically necessary that there is exactly one fundamental substance, the cosmos, Finally, by 'cosmos' Schaffer (2009, 2010a: pp. 33–35) means: spacetime. His view is that the one and only fundamental object is an entire spatiotemporal manifold.

Schaffer (2013) then offers a particular argument for Priority Monism from two further principles, namely:

> Leibnizian Substance: Something is a substance if and only if it evolves by the fundamental laws.

and

> Russellian Laws: The cosmos is the one and only thing that evolves by the fundamental laws.

Note that by 'fundamental laws' Schaffer has in mind "something familiar from physics: Newton's $F = ma$ and Schrodinger's equation are historical candidates." (p. 68) The fundamental laws at issue, then, appear to be the laws of physics in particular. This will become important later on. For now it is enough to flag Schaffer's use of the phrase 'fundamental laws'.

From these principles it follows that:

> Spinozan Monism: The cosmos is the one and only substance (2013: p. 67)

The concept of evolving via the fundamental laws can [according to Schaffer (2013)] be elucidated as follows:

> Evolving: Something evolves by the fundamental laws if and only if, for any given time, its prediction at that time matches its behaviour.

Where 'behaviour' and 'prediction' are parsed in terms of a 'state' as follows:

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|---|---|
| State: | The state of a thing at a time is its fundamental intrinsic character at that time |
| Prediction: | The prediction for a state is the temporal evolution that the fundamental laws output on the basis of the state |
| Behavior: | The behaviour of a thing is the temporal evolution it actually displays |

Bringing this all together, Schaffer writes:

> Leibnizian Substance draws on the idea of substances as integrated, and can be understood as providing a nomic test for natural unity. To evolve by the fundamental laws is to act in an integrated way, forming an internally comprehensible

> and self-contained system […] The natural unity of a thing is displayed in its dynamics. In a slogan: to be one is to act as one. (Schaffer 2013: p. 72)

Call this: the nomic argument for Priority Monism. The nomic argument forges a critical connection between substance-hood and evolving via the fundamental laws. The argument is, however, supposed to establish a modally strong form of Spinozan Monism, namely the claim that Spinozan Monism is necessarily true. Call this view: Necessary Monism (NM).

For the nomic argument to establish NM, Leibnizian Substance (LS) and Russellian Laws (RL) must both be necessary truths. We (Baron and Tallant 2016) have argued, however, that RL and LS cannot both be necessarily true. For if LS is true in every world, then RL is not. We took this to be a decisive blow against the nomic argument for priority monism. While we agree that our earlier argument succeeds in making trouble for the nomic argument in favour of NM, we believe that there is a straightforward fall-back position available to Schaffer that leaves a version of the nomic argument intact. In the next section, we will briefly describe our earlier argument, and outline the fall-back position. This will set the scene for Sect. 3 in which we provide a response to the nomic argument for monism that cannot be avoided so easily.

## 2 The argument from recombination and the islands of plurality

Our original response to the nomic argument for monism appeals to a particular principle of recombination, advocated by Bricker (1993, 1996, 2001), namely

> Generalized Principle of Solitude for Particulars (GPSP): For any particular (thick, thinned-down, or thin), possibly, a duplicate of that particular exists all by itself.

Note that a thick particular, is, very roughly, an individual bundled with properties of various kinds. A thin particular is an individual stripped of its properties—a so-called 'bare' particular. The 'thinning down' of a particular is the removal (via recombination) of more and more of that particular's properties to get down to its bare nature.[1] Importantly, the thinning down of a particular involves the removal of all internal and external relations.

Given GPSP, it is a straightforward matter to show that there are worlds in which there are at least two distinct entities that do not 'act as one' according to fundamental laws; that do not satisfy ES. Here's the idea. First, suppose that GPSP is true. Now, take a spacetime M and use it to identify two individuals, I1 and I2. I1 is made up of all of the objects O1 to On in a spacetime region R in M plus the spacetime relations between those objects; I2 is made up of all of the objects O*1 to O*n (where O1 to On are all distinct from O*1 to O*n) in a spacetime region R* in M (where R is not identical to and does not overlap R*) plus the spacetime relations between those

[1] In what follows, we talk of recombination in part through metaphor. Thus, we will talk of 'stripping away' or 'removing' particular properties or relations. Following our (2016: p. 592), we do not mean this talk literally. As is the norm in the literature, we use such metaphors to express the idea that the resultant worlds are possible given principles of recombination.

objects. Importantly, neither I1 nor I2 include the spacetime relations to each other. Second, take the mereological sum, S, of I1 and I2. Given GPSP there is a possible world in which a duplicate of the sum S exists all by itself, where that means without any of the spatiotemporal relations that bind I1 and I2 together and without any further sparse external relations binding those regions together either.

Now, consider the resulting world from the perspective of the fundamental laws. With respect to spacetime, the fundamental laws at issue are the Einstein field equations. The important part of the field equations for present purposes is the stress-energy tensor. Very roughly, the curvature of a spacetime is a function of the distribution of mass and energy throughout spacetime, which is partly encoded by the tensor. When we 'cut' a manifold in two via the application of GPSP, we are left with two spacetimes that have different distributions of mass and energy, resulting in different values for the stress-energy tensor. The upshot: the two spacetimes produced by GPSP will have different geometric structures. This will have a range of important implications, the most crucial of which being that gravity will behave differently in the two spatiotemporal manifolds. In essence, then, two manifolds produced by a GPSP 'cut'—the application of GPSP to a single spacetime—may correspond to different solutions to the Einstein field equations. This, in turn, will result in completely different behavior for the two universes. One manifold might, for instance, contain a lot of mass-energy and thus be highly curved; the other may contain very little mass-energy and thus be basically flat.[2]

Schaffer says that if x and y merely co-evolve according to distinct laws L1 and L2, then x and y do not act as one. In our (2016) example, the spacetimes do not 'evolve as one'. Spacetime R evolves according to one solution to the field equations (L1); Spacetime R* evolves according to a distinct solution to the field equations (L2). Further, it does not seem that there is any candidate law, L3, according to which both R & R* evolve. In that case, we have two distinct substances, each of which corresponds to a different spacetime produced by a GPSP cut.

The upshot is this: if GPSP is accepted, then there are worlds that fail to be globally integrated under fundamental laws. Rather, we have two or more entities each of which is governed by its own group of fundamental laws. It follows that there are worlds in which it is not the case that the cosmos is the one and only thing that evolves according to the fundamental laws. So something's gotta give: either Leibnizian Substance, Necessary Monism or GPSP has to go or has to be refined. Giving up GPSP is certainly

[2] What's more, we argued (2016: p. 596), there isn't a fundamental law that we know of according to which both spacetimes evolve. It certainly won't be the field equations; the field equations cannot handle disconnected spacetimes. At best, the equations can tell you the curvature of one or more connected spaces; it can tell you about the curvature of each spacetime individually. But the equations won't yield a solution for the two spacetimes *together*. To press the point a bit further, consider this: a GPSP cut need not produce two spacetimes, both of which are describable by solutions to the field equations. To see this, begin with a manifold M which has a localized region, R, that is completely flat, but where the the rest of M is curved. Now take that region and its complement, R*, and perform a GPSP cut. The result will be: (1) one spacetime, R, that may be describable by Newtonian mechanics, (since there won't be any spacetime curvature to produce the exceptions to Newton's gravitational theory that motivate general relativity), and (2) one spacetime, R*, that is curved and thus requires Einstein's field equations to get gravitation right. In this situation, we have no hope whatsoever of somehow 'unifying' the behavior of R and R* under a single fundamental law that is not hopelessly gerrymandered.

an option. As we argued, however, only a relatively weak principle of recombination is needed to get the same result. Here ends our exegesis.

There is, however, another obvious move, and, though we originally gave it short shrift, it is more promising than we first allowed. If we are to accept the link between nomic integrity and substancehood (that is, if we accept Leibnizian Substance) then, in the face of the mere possibility of island universes of the sort we described, surely the right option is to back off from the claim that Monism is necessarily true, and look to defend a contingent version of the thesis. In our terms: give up NM.

Now, to be sure, we argued that defending a contingent form of Monism may be difficult. As we point out (2016: p. 594), many of the arguments that Schaffer (2010a, b) puts forward to motivate Monism require the monistic thesis to be necessarily true, if it is true at all. [Further, in his (2010a: p. 56) Schaffer is explicit that 'Monism and Pluralism, though defined as doctrines about the actual world (§1.4), are metaphysically general theses, in the sense that whichever doctrine is true, is true with metaphysical necessity']. But we then concluded from this that a nomic argument for contingent monism is no good. That's too quick. Even if the other arguments Schaffer martials in favour of monism no longer work for a contingent form of the view, the nomic argument continues to be available, and provides non-trivial evidential support for the view. A version of the nomic argument for contingent monism (CM) therefore presents an attractive alternative for Schaffer.[3] A reformulated version of the nomic argument along these lines can be stated as follows:

1. The actual world satisfies Leibnizian Substance and Russellian Laws.
2. If the actual world satisfies Leibnizian Substance and Russellian laws, then Monism is actually true
   Therefore,
3. Monism is actually true

Schaffer's own arguments for Russellian laws tend to focus on the actual laws of nature. The evidence base that he has provided in favour of the view that the cosmos 'acts as one' is thus already geared primarily toward establishing the actual truth of Russellian Laws. This evidence relies on the holism displayed by quantum entanglement [see Schaffer and Ismael (2016)]. The basic idea being that if we look to quantum mechanics, and, in particular, the interplay between quantum mechanics and cosmology, then

[3] There is a wrinkle here and we thank a referee for getting us to focus on it. Schaffer (2010a) can be read as giving us something like the following argument: P1 If monism is true, monism is a metaphysical law. P2 Metaphysical laws are true in all metaphysically possible worlds. Therefore, C, if monism is true, it is necessary (compare, Schaffer 2010a: p. 56). For Contingent Monism to be true, one premise must go. Which one? We're tempted towards rejecting P1. Monism, as we imagine it here, is a thesis about law-like integration at a world. Whether a world exhibits a structure with that kind of law-like integration is a contingent matter. Thus, monism turns out to be a thesis, not about metaphysical law, but about a world's laws exhibiting a particular kind of structure. There is a useful analogy here to general relativity. The laws of general relativity are physically necessary. Nonetheless, those laws do not mandate any particular topology for the spatiotemporal manifold. Rather, the shape of the manifold is a contingent matter, driven by the distribution of mass-energy. Similarly, we suppose that the metaphysical laws demand that *something* is fundamental, but they do not demand that it be the entire cosmos. Rather, it is a contingent matter, to do with the way things are arranged here that brings it about that our world (and even every physically possible world) is a monistic world, compatible with the metaphysical laws. Exactly what that contingent feature might be is an important question for a contingent form of monism, but not one that we will consider here.

there is evidence that the entire cosmos is in an entangled state. The global entanglement of the cosmos suggests that the fundamental laws of quantum mechanics operate on the universe as a whole. Quantum entanglement thus imbues the universe with an integrity by which the universe 'acts as one' via the laws of quantum mechanics. Moreover, it is the only entity that is fully integrated in this manner. Any proper part of the universe will itself be a proper part of a globally entangled system, and so the evolution of that part will not be predictable given the laws, since it will be influenced by entanglements that are part of the universal web of quantum states, entanglements that must be taken into account to get fully accurate predictions.

In sum, the nomic argument for contingent monism has teeth: it avoids the problem that we raised for the nomic argument in favour of NM, and the actual truth of Russellian laws can be defended by appealing to the physical factors involving quantum holism that Schaffer has already identified, factors that do little to establish the necessity of Russellian laws anyway.[4]

In what remains we will raise a problem for the nomic argument in favour of the actual truth of priority monism. The problem, in a nutshell, is that there is good reason to suppose that Russellian Laws is false.

## 3 Trouble in quantum-paradise?

Having argued that our earlier argument is ineffective against a species of monism—contingent Priority Monism—that looks to be well motivated by consideration of quantum entanglement, we instead want to replace their argument with something far more direct. Specifically, we will argue that our current understanding of the actual laws of nature seems to undermine the nomic argument in favour of priority monism.

To see the idea, we need to take a step back and consider the current situation in physics. Our two most fundamental theories are quantum mechanics and general relativity. Both theories have a dynamical form; both theories can be used to predict the evolution of a state over time. General relativity provides an account of the dynamical features of spacetime, via the field equations. Quantum mechanics can be used to provide an account of the evolution of a quantum state over time via the time-dependent Schrodinger wave equation. Neither theory is fully accurate. The trouble is that neither theory can be made to function in a scale-invariant manner. General relativity is good at predicting the behaviour of large-scale phenomena, but is innacurate at small scales. Quantum mechanics is good at predicting the behaviour of small-scale phenomena, but is innacurate at large scales.

The failure of scale invariance can lead to outright inconsistency. One particular area where the problems associated with the lack of scale-invariance for both theories arises is with respect to black holes. Consider two black holes: a large black hole produced by a dying star, and a micro black hole produced in the chamber of a supercollider (it is thought that the LHC is capable of producing micro-black holes, and generating micro-black holes is one of the aims of scientists working with the LHC). General

[4] We concede that Contingent Monism cannot appeal to the full suite of arguments that Schaffer develops in support of NM. Nonetheless, because we think that NM is undermined by our earlier (2016) arguments, so we think that Contingent Monism has *prima facie* claim to being preferable to NM.

relativity is capable of predicting the behaviour of the large black hole. However, when we scale general relativity down to the quantum scale, the predictions that general relativity provides for a micro-black hole do not jibe with the predictions provided by quantum mechanics. Similarly, when quantum mechanics is scaled up to try and provide predictions regarding a large scale black hole, those predictions do not jibe with the predictions provided by general relativity.

To be clear: we *aren't* denying that, according to QM the universe has the kind of holistic nature that Schaffer attributes to it. The point, rather, is that *even if* the universe exhibits *this kind of holism*, QM is only part of the story and applicable only at small scales. There is, as yet, no evidence that holism holds for large scale phenomena. The largest recorded case of entanglement discovered to date is between two metallic drumheads, the size of $10^{12}$ atoms each [see Ockeloen-Korppi et al. (2018)], which is the first case of macroscopic quantum entanglement ever produced experimentally at that scale. Of course, the universe might feature a kind of holism at every scale, but at present that is not supported by the evidence. The point, however, is that it would need to be in order for Schaffer's claim that the cosmos acts as one to go through on the basis of quantum holism alone.

In response to this idea, one might look to offer a revised account of when two regions are to be regarded as exhibiting holism, perhaps weakening the claim to the idea that any two regions that are connected by a chain of entanglements form a holistic web. It would then follow, at least so argues our interlocutor, that the universe exhibits the right kind of structure because all regions of the universe are connected by chains of entanglement.

However, this won't help. Even if this is true, even if all regions do exhibit this kind of entanglement, the basic issue still remains. For though in some weak sense there may be holism present, this holism is not scale invariant because, at the larger scales described by GR, there is no evidence of entanglement. Indeed, this nicely brings out a key point: we accept that all regions are connected in the way Schaffer describes. Our point, however, is that the holism does not survive at larger scales. Since the cosmos is large, though it may contain multitudes of entangled particles, at larger scales it simply exhibits no such holism so far as we know and so should not be regarded as a properly integrated whole.

So, according to Russellian Laws, the cosmos is the one and only thing that evolves according to the fundamental laws, where what this means is that the behaviour of the cosmos over time matches its predicted state. Given that there are two equally fundamental theories, and thus two equally fundamental sets of physical laws, we can pose the question: which set of laws does the cosmos evolve according to? There appear to be three options. Either the cosmos evolves according to the laws of quantum mechanics, or the cosmos evolves according to the laws of general relativity, or the cosmos evolves according to the laws of both.

Suppose that the entire cosmos evolves according to the laws of quantum mechanics. Then it is true that, at the micro scale, the behaviour of a state over time will match its predicted behaviour. This is not, however, true at large scales. Suppose, instead, that the entire cosmos evolves according to the laws of general relativity. Then it is true that, at large scales, the behaviour of a state over time will match its predicted behaviour. But this is not true at small scales. Finally, suppose that the entire cosmos evolves according to the laws of quantum mechanics and general relativity. Then the predicted behaviour of at least some states at large and small scales will be inconsistent. On the plausible assumption that no state can produce inconsistent behaviour, it follows that the behaviour of at least some states will not match their predicted behaviour.

Given the state of our current physics, then, there is little reason to suppose that the cosmos evolves according to the fundamental laws. The cosmos does not appear to act as one. It appears to act as two: it behaves according to quantum mechanics at small scales and according to general relativity at large scales. In short, if we consider the entire cosmos, C, all of C apart from some proper part of C, C*, evolves according to a law, L1. C*, by contrast, evolves according to a law, L2. L2 cannot be reduced to L1 via some bridging law nor vice versa. If Leibnizian Substance is actually true then C and C* constitute distinct substances. As Leibniz might put the point, our world behaves like a 'two monad world'.

There is, however, an obvious response to our argument. The argument we have presented turns on what it is to be a fundamental law. As noted in Sect. 1, Schaffer understands what is to be a fundamental law in terms of physics. When we look to physics, however, we do not find any established laws by which we can plausibly say that the entire cosmos evolves. There is, however, a concerted global effort to produce a physical theory that retains the physical predictions of quantum mechanics at small scales, and the physical predictions of general relativity at large scales; a theory of quantum gravity. The hope is that a completed theory of quantum gravity will provide the correct predictions at every scale.

One might therefore deny that we lack the evidence to suppose that the cosmos evolves as one according to the fundamental laws of physics. After all, the cosmos *does* evolve according to the fundamental laws of physics: it evolves according to the laws of quantum gravity. By saying that the cosmos either evolves according to quantum mechanics, general relativity or both, we have offered a false trilemma. The correct answer is that the cosmos does not evolve according to either the laws of quantum mechanics or the laws of general relativity.

The trouble with this response is that while there are candidate theories of quantum gravity available—string theory, for instance—there is, as yet, no empirical evidence in favour of any such theory. While these theories are capable of reconciling the mathematics of quantum mechanics with the mathematics of general relativity (which is one of the central challenges in producing a theory of quantum gravity) such theories tend to make predictions at the Planck scale—a scale that we lack the technological capacity to probe. There is thus, unsurprisingly, very little agreement amongst the physics community regarding which theories of quantum gravity might be correct. As matters stand, then, we lack the evidence needed to establish that the cosmos evolves according to one of the theories of quantum gravity currently available. In short, we cannot argue that monism is actually true in the absence of either scale invariant laws or a reason to think that there are such laws. At the current time, we are not able to articulate such laws, and we have no argument that tells us that there are such. So, once again, if we look to physics, we do not have sufficient evidence available to establish Russellian Laws.

Perhaps, however, we should draw a distinction between current physics and completed physics. While current physics gives us little reason to suppose that Russellian

Laws is true, one might argue that completed physics will uphold Russellian Laws. According to completed physics, the cosmos is the one and only thing that evolves according to the fundamental laws, and that is enough to get the nomic argument for CM up and running.

To be successfull, this way of developing the nomic argument must be supported by an ancillary argument. The argument must do two things. It must establish that final physics will be such that the entire cosmos evolves according to fundamental law. Second, it must establish that final physics will be such that the only entity that evolves according to fundamental law is the cosmos.

As we see it, there are but two arguments for the claim that final physics will be such that the entire cosmos evolves according to fundamental law. First, one might offer an a priori argument for this claim. Here is the argument. To say that physics is 'complete' is just to say that it provides a complete physical description of the universe, including laws that describe how the entire universe evolves. Thus, part of what it is for physics to be complete is for it to produce laws that describe the evolution of the cosmos completely. It just follows from what we mean by a completed physics that it will support Russellian Laws in this manner.

There are, however, two things one might mean by a 'completed physics'. First, one might mean: physics that cannot be further extended by any empirical investigation. Second, one might mean: ideal physics regardless of whether that physics can actually be discovered. If 'completed physics' means the first thing, then it by no means follows from what we mean by 'completed physics' that completed physics will feature laws that describe the evolution of the entire cosmos. For it may be that empirical investigation stops well short of producing such laws.

We may simply end up with distinct laws that operate at different scales, a la general relativity and quantum mechanics. If, by contrast, 'completed physics' means 'ideal physics regardless of whether that physics can be discovered', then it is far from clear that we could ever have evidence for such a physics. Ideal physics may outrun our capacity to understand it. It remains unclear exactly what the evidential status of Russellian Laws is in this situation. Either way, it is difficult to see how the a priori argument outlined above delivers the nomic argument for CM.

We might then look for an argument that is a posteriori in nature. The argument would be based on an expectation regarding the development of physics. We can expect some theory of quantum gravity to be vindicated in the next revolution in physics, and so we can expect that final physics will feature that theory—or something like it—which describes the evolution of the cosmos over time at every scale.

Merely stating such an expectation is not convincing, however. An argument needs to be provided for why we should expect some scale invariant theory to be vindicated. One option might be to lean on the same appearance of holism in quantum entanglement that Schaffer uses to provide evidence in favour of monism. The idea would be to argue that we can expect the same holism to persist into future physics, and so we can expect final physics to be such that, from a quantum mechanical perspective at least, vindicates the entire cosmos as the locus of the fundamental laws.

The trouble, however, is that the argument moves from the premise that quantum mechanics exhibits holism, to the conclusion that what replaces quantum mechanics *and general relativity* will exhibit holism. There is a perfectly good argument in the other direction: it is not at all clear (from anything that has been said in the literature) that general relativity offers the kind of holism that Schaffer describes, therefore it is unclear that what replaces quantum mechanics and general relativity will exhibit the holism exhibited by quantum entanglement. There is no obvious advantage for monism here.

One last concern. It might be claimed that our argument depends on the thesis that a future Theory of Everything won't be holistic in the way that quantum entanglement exhibits. But that two systems are entangled is not the sort of claim that would be undermined by a new theory, any more than the empirical evidence available of how the planets move was undermined by General Relativity. That being so, our argument fails.

However, we *don't* suggest that quantum entanglement might be false in a future theory. We are saying that current QM is not scale invariant and that because of this it is not the case that the universe as a whole, at every scale, obeys the laws of QM. This is what partly motivates the quantum gravity programme in current physics. The point is that there is no evidence to suggest that there is one set of laws the universe in its entirety accords to (thereby 'acting as one'). We have evidence in favour of two groups of laws that are restricted by scale. So we agree that the empirical results regarding quantum correlations need to be preserved—that is a constraint on a future theory. Schaffer needs to bet on the future theory being scale invariant and unified. And what we do not think that we have is any compelling reason yet to think that whatever replaces the union of quantum mechanics and general relativity will, itself, exhibit holism at every scale.

In sum, then, it is far from clear that physics provides the needed support for Russellian Laws. As far as current physics is concerned, the cosmos does not act as one according to a single set of fundamental laws. There are two equally fundamental laws that fail to be fully accurate at every scale. With respect to future physics, an argument is needed to support the expectation that final physics will support Russellian Laws. While an argument may be developed along these lines, there is a substantial amount of work to be done to get any argument along these lines off the ground. As the debate stands, then, there is not enough evidence to support the actual truth of Russellian Laws, and thus to scaffold the argument for contingent priority monism.

## 4 Conclusion

Monism is the view that the one substance is fundamental. We have argued that there is good evidence that the current laws do not motivate even a contingent version of monism. Since the failure of a contingent form of monism implies the failure of a necessary form of monism as well, it follows that there is no viable nomic argument in favour of monism. The argument we have presented here thus provides a more powerful response to the nomic argument than does our earlier (2016) argument. That argument, at best, undermines the nomic argument for NM. Our new argument undermines the nomic argument for priority monism simpliciter.[5]

[5] We're very grateful to referees for *Synthese* for their comments on previous versions of this submission.

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