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GOD AND DISPOSITIONAL ESSENTIALISM: AN ACCOUNT OF THE LAWS OF NATURE

BY

DANI ADAMS

Abstract: It is common to appeal to governing laws of nature in order to explain the existence of natural regularities. Classical theism, however, maintains the *sovereignty thesis*: everything distinct from God is created by him and is under his guidance and control. It follows from this that God must somehow be responsible for natural laws and regularities. Therefore, theists need an account of the relation between (i) regularities, (ii) laws, and (iii) God. I examine competing accounts of laws of nature and conclude that *dispositional essentialism* provides the most satisfactory explanation of the relation between (i), (ii) and (iii).

1. Introduction

There are many patterns of regularity in the way that entities behave in the world. Examples of such natural regularities include the fact that heat always transfers from a hotter to a cooler body, and that the pressure of a gas tends to decrease as the volume of a gas increases.¹ Commonly, it is thought that such patterns of regularity couldn't have arisen as a matter of pure chance. Therefore, the thought goes, the existence of such regularities requires a deeper explanation.² For example, Galen Strawson states:

The objection ... needn't be merely negative. It needn't be just that (1) it is absurd, given a regular world, to insist that there is definitely nothing about the nature of the world given which it is regular rather than chaotic. It may also be positive: it may also be that (2) it is reasonable (in some perhaps irreducibly vague but profoundly unshakeable sense), given a regular world, to suppose, positively, that there definitely is something about the nature of the world given which it is regular, something which is therefore not itself just the fact of its regularity. (1989: 24)

Most commonly, natural regularities (*regularities* hereafter) are explained by appeal to certain laws of nature (hereafter, simply *laws*).³ As David Armstrong explains:

Suppose that a number of Fs have all been observed, and that each is a G. No F that is not a G has been observed. We might ask for an explanation of this fact. One possible explanation is that it is a law that Fs are Gs. If such a law really holds, then the explanation will be quite a good one.

Suppose, however, that laws are mere regularities. We are then trying to explain the fact that all observed Fs are Gs by appealing to the hypothesis that all Fs are Gs. Could this hypothesis serve as an explanation? It does not seem that it could. (1983: 40)

These laws are said to govern the behaviour of objects; thereby ensuring that nature unfolds in a regular manner.^{4,5} So, in the first example given above, there will be a law which prescribes that heat always transfers from a hotter to a cooler body.

Classical theism, however, maintains an additional principle regarding natural explanation: the *sovereignty thesis*. The sovereignty thesis maintains that God is the creator of Heaven and Earth, and that all that exists is under God's sovereign guidance and possible control. In a similar vein, Brian Leftow explains the idea that all causal explanations eventually trace back to (and ultimately stop at) God; 'there is no digging deeper than God; God and nothing else constitutes the basic causal context for the rest of reality'. (2012: 6) It follows from the sovereignty thesis that God must somehow be responsible for any regularities and laws of nature existing in our universe. Therefore, theists need an account of the relation between (i) regularities, (ii) laws of nature, and (iii) God. This paper critically examines one such account, given by John Foster in his book *The Divine Lawmaker*. It shows that while Foster's account faces insurmountable challenges, these challenges can helpfully point us towards an account that proves to be more successful.⁶

Foster holds a metaphysically robust, anti-singularist account of laws which views laws as governing from the top down.⁷ It's these aspects of his account which are problematic, for, as we will see in §4, they stand in tension with the divine sovereignty thesis and the further theistic doctrine of divine aseity. It follows, therefore, that the best account of God's relation to regularities and laws of nature will take a singularist and bottom-up view of natural laws. §5 presents a theistic version of *dispositional essentialism* which fits this model and §6 discusses some potential lines of objection to the proposed account and shows that each of these can be met. Before concluding in §9, §7 and §8 each argue respectively why the alternative *universals* and *regularities* accounts of laws are theistically unacceptable and therefore no competitors to theistic dispositional essentialism.

2. Laws of Nature

Amongst the accounts which invoke laws in order to explain regularities, there is much disagreement over what the correct account of laws is. Such accounts differ over three main issues: (i) with respect to the ontological status of laws, (ii) with respect to the modal status of laws, and (iii) with regards to whether they admit singular causation. The following section outlines these areas of dispute. The remainder of the paper considers which account of laws best explains regularities in accordance with the commitments of classical theism.

2.1 *Top-down vs. bottom-up laws*

Any account of laws will have to take a stance on the ontological status of laws. In particular, it will have to take a stance on whether the truths relating to laws are supervenient on regularities (and therefore on the properties of objects and events they govern), or whether the truths expressed by statements of regularities are supervenient on those expressed by statements of laws. Any view which takes the former approach, I describe as positing laws which arise – and thereby govern – from the 'bottom-up'; the latter I take to govern from the 'top-down'.

Top-down views clearly have a more metaphysically robust view of natural laws, in that they take them to be in some sense *prior* to the regularities they govern. Top-down laws *strongly* govern in the sense that they 'are somehow imposed on things whose identities are independent of the laws'. (Ellis, 2000: 329) In other words: to hold a top-down view of laws is to view nature as essentially passive, and therefore as requiring governance from natural laws in order that objects and events enter into causal relations. According to top-down accounts, laws cannot be reduced to any non-nomic ontological category.⁸ As such, top-down views may be contrasted

with accounts such as the *regularity view*, which take laws to be mere generalisations of natural regularities.

There is a variety of positions proponents of top-down views may take with regard to which ontological category they identify laws with. One option is to take laws as ontologically primitive; a view taken by Tim Maudlin (2007), who states that ‘laws of nature stand in no need of ‘philosophical analysis’; they ought to be posited as ontological bedrock’. (*ibid*: 1) Another option is to take laws to be abstract entities akin to numbers, sets, and propositions. Foster (2004) defends a theistic version of such an account. Under his view, laws are ‘abstract entities whose existence consists in the relevant facts of nomic necessity’. (*ibid*: 156) A third type of top-down view identifies laws with states of affairs which involve a second-order universal, N, relating two first-order universals. This view is perhaps most famously advocated by David Armstrong (1985).⁹ For Armstrong, these second-order universals are *relations of nomic necessity* which hold between the first-order properties of objects. Under Armstrong’s *universals account*, laws are necessitation relations which hold between property *types*, as opposed to *tokens*. Therefore, objects will be governed by the relations the universals they instantiate enter into.

Bottom-up views, by contrast, are less metaphysically robust since they take laws to be ontologically dependent upon the regularities they govern. One example of a bottom-up view is dispositional essentialism, the view that (at least some of) the fundamental properties of objects are essentially dispositional. Dispositional properties are usually characterised as those which confer causal powers or capacities on the objects which instantiate them. Typically, they support counterfactual statements involving their bearers. For example, un-boiled eggs have the disposition ‘fragility’ which confers the tendency to break under certain stimulus conditions, such as being dropped. Therefore, the disposition supports the truth of the counterfactual that ‘if it were the case that the egg was dropped, then it would be the case that the egg would break’. Dispositional properties are often contrasted with categorical ones. Categorical properties typically are not taken to support counterfactuals since they do not ‘look beyond’ their bearers. Examples of such properties include the microstructure and shape of an object.¹⁰ According to this view (held for example, by Brian Ellis (2000, 2001) and Alexander Bird (2007)), laws are identified with universal descriptions of the essentially dispositional properties of objects. Ellis explains his own version of this view as follows:

It is a bottom-up sort of theory, rather than top-down, and it depends on taking a realist, non-reductionist, view of the causal powers, capacities and propensities of the most fundamental things in nature, and assuming them to be ultimately responsible for determining how these things are intrinsically disposed to behave. So, according to scientific essentialism, the causal laws are ontologically dependent on the dispositional properties of things. They are not laws which are imposed on things which are essentially passive, and are thus bound to do as the laws command. (2000: 330)

Dispositional essentialism, then, views nature as essentially powerful – laws do not impose themselves on the world to produce causal relations, for it’s the *dispositions of objects* which confer causal powers. As George Molnar explains, ‘...what powers there are does not depend on what laws there are, but vice versa, what laws obtain in a world is a function of what powers are to be found in that world’. (1990: 41) It is for this reason that dispositional essentialism is a bottom-up view.

Another type of bottom-up view is the regularity theory. According this view, laws are nothing over and above natural regularities. In its most basic form, the regularity theory maintains that laws are simply universal generalisations of regularities. According to the more sophisticated version, *the systems approach* developed by David Lewis (1973), laws are those regularities which belong to all the true deductive systems with a best combination of simplicity and strength. As such, the regularity theory views regularities as ontologically prior to laws: if there were no regularities in nature, there would be no laws. So, laws do not *give rise to* regularities;¹¹ rather, the laws supervene on the regularities.

2.2 *The modal status of laws*

There is also dispute over the modal properties of laws.¹² For instance, while our best physical theories take it as a law that nothing with a mass can be accelerated to the speed of light, it's much less clear what kind of modal status this law should have. There are three options available here. Laws might be taken to be (i) logically necessary; (ii) metaphysically necessary; or (iii) metaphysically contingent.

One would be hard pressed to find a philosopher who has defended the first view. Presumably the view is out of favour because it simply just does not seem inconceivable that the laws of nature could have been different in the way that it seems inconceivable that the sum of 2 + 2 could not have equalled 4.

I take metaphysical necessities to be broadly logical; i.e., I take them to be strictly necessary truths whose denials are not contra-logical. Metaphysical necessities are grounded by the natures of objects and expressible in terms of identity statements such as 'necessarily, water is H₂O'. Typically, dispositional essentialists take the view that laws hold of metaphysical necessity for the following reason: since the laws are supervenient upon the dispositions objects possess essentially, the same laws must hold in any world where the same dispositional properties are instantiated. (I am assuming here that if an object, *x*, is essentially *F*, then it will also be the case that *x* is necessarily *F*.¹³) The laws supervene on the essential properties of objects in the sense that no two worlds can differ in terms of their laws without their being a different with respect to which properties are instantiated in them. I also take it that this supervenience relation holds of necessity. Hence, it is true at every world that the laws of nature supervene on the essential dispositional properties of objects. As Bird explains:

If properties have a dispositional essence then certain relations will hold of necessity between the relevant universals; these relations we may identify with the laws of nature. The necessity here is metaphysical... Since the relevant relations hold necessarily, this view is committed to necessitarianism about laws—laws are metaphysically necessary... (2007: 43).

However, it is possible for a dispositional essentialist to take either a weak or a strong position with respect to the metaphysical necessity of laws. According to the weak position, 'the necessity of laws is a restricted metaphysical necessity—a law holds in all possible worlds *where the relevant universal exists*.'¹⁴ (*Ibid.*) According to the stronger position, the laws and the properties exist in all worlds without exception. In what follows, I assume only the weaker version: the laws *conditionalised on the existence of the properties mentioned in them* are metaphysically necessary.

According to Armstrong's universals approach, laws are contingent, since the second-order universals involved in relations of nomic necessitation are merely *contingently* associated with the first-order universals of the objects which instantiate them. This means that whichever laws hold in the actual world will be restricted to the actual world. However, under the universals approach, the laws do *confer* necessary connections between the objects they govern. Those who hold a regularity view also maintain that laws hold contingently. For, given that the laws supervene on the regularities, if the regularities had been different, so too would the laws. And, given that the laws don't *govern* the regularities, there is no reason to think that there couldn't have been different regularities.

2.3 *Singularism*

A third area of disagreement concerns whether to admit singular causation. Call those theories which do 'singularist', and those which don't 'anti-singularist'. A theory admits singular causation

if it allows that two or more causal relata – say, events c and e – have, *in themselves*, some property (or properties) in virtue of which we can say that one caused the other without knowing whether, and without its being the case that, C -type events are always followed by E -type events. One defender of singularism is C. J. Ducasse, who elucidates the concept as follows:

... recurrence becomes related at all to causation only when a law is considered which happens to be a generalisation of facts themselves individually causal to begin with. A general proposition concerning such facts is, indeed, a causal law, but it is not causal because it is general. It is general, i.e. a law, only because it is about a class of resembling facts; and *it is causal only because each of them already happens to be a causal fact individually and in its own right* (instead of, as Hume would have it, by right of its co-membership with others in a class of pairs of successive events). *The causal relation is essentially a relation between concrete individual events ...* (1926: 61).¹⁵

Dispositional essentialism is one view which allows for singular causation. This is because, according to this account, the laws are ontologically dependent upon the causal relata – taken as individuals – themselves. Therefore, in order to know whether particular objects c and e are causally related, all we need do is look to their respective dispositional properties; we need not look beyond these tokens to their respective types C and E . Ellis (2000: 329), for example, states that under dispositional essentialism, the causal laws ‘concerned with necessary connections between events or circumstances of precisely the sort required for a decent account of singular causation.’ However, it does not follow from this singularist view that, for example, the law that H_2O freezes at $0^\circ C$ does not apply to non-actual samples of water, or worlds in which there is no water. As Bird explains, where $L(P)$ is a law concerning some property, P , then:

Just as worlds where Eric Blair was never born are not counterexamples to the claim $\Box(\text{Eric Blair} = \text{George Orwell})$, worlds where P does not exist are not counterexamples to the claim $\Box L(P)$... What $\Box L(P)$ rules out are worlds where P exists but is not governed by the law $L(P)$... (2007: 49).

The Humean regularity theory, by contrast, is anti-singularist because causal relations are taken to be logically supervenient on the laws. What it is for a particular causal relation to hold e.g. for event c to cause event e , according to the regularity theorist, is just for it to be the case that (i) c is temporally prior to e ; that (ii) c and e are spatiotemporally contiguous; and that (iii) each event of kind C is followed by an event of kind E .¹⁶ Further, the regularity that all F s are followed by G s constitutes a law, according to this view. It follows therefore that the regularity theorist must be anti-singularist since condition (iii) on causal relations implies that each causal relation must be lawful.

The universals account takes laws to be relations between second-order universals. So, for example, if it's a law that: $\forall_x [F_x \rightarrow G_x]$, then this will be explained by the holding of the necessitation relation N between the two universals F and G : $N [F, G]$. Importantly, the first-order universals (F and G) here are *types*. It follows, therefore, that on this account causal relations are supervenient on the nomic necessitation relations. Since the laws strongly govern the objects and events which instantiate these universals (i.e. they govern top-down), we *do*, therefore, need to look beyond the tokens c and e to their types C and E .

With these distinctions in place, we can now consider what kind of theory of laws best accounts for God's relation to laws and regularities. Is there any reason to think that theists cannot admit anti-singularism? Does either the metaphysical necessity or contingency of laws fit better with a causal story involving God? These metaphysical issues have received scant explicit discussion. However, one author who has paid this matter some attention is Foster. It will be useful, then, to examine his account in the next section. The issues that will be shown to arise with Foster's account will provide a useful platform from which to build a better view.

3. Foster's Proposal

As noted above, Foster's account of laws is of the metaphysically robust *top-down* variety. It also takes the laws of nature to hold contingently. In order to understand why Foster proposes such a view, it will first be useful to outline the assumptions Foster bases it around. Foster's starting assumptions, both theistic and metaphysical, may be stated as follows:

Divine Libertarian Freedom: God is an omnipotent, independent, perfect being so must enjoy libertarian freedom.

The Contingency of the Actual World, @: Given divine libertarian freedom, God's choice to create @ was a free decision, so he could have chosen to actualise a different possible world. Therefore @ exists contingently.

Theoretical Elegance: other things being equal, we ought to accept the account of causation and laws which avoids the most unnecessary complexity, and which minimises residual sources of puzzlement.

The Metaphysical Contingency of (Natural) Laws: laws are metaphysically contingent but nonetheless confer physically necessary connections between causal relata.

The Causal Source of (Natural) Regularities: Since it's merely nomically necessary that things are regular in the way they are in @, there must be something that causally imposes this regularity on the universe *qua* regularity.

Divine libertarian freedom is a thesis which has a strong pedigree within the classical theistic tradition. For example, St Thomas Aquinas (1975: Ch. 88) maintains that freedom is a perfection, and given that God is the most perfect being, he must possess freedom to the highest degree; his actions must not be limited by any causal state of affairs. The thesis is also supported by a number of prominent contemporary philosophers of religion such as Thomas V. Morris (1987) and Richard Swinburne (1977). Given its pedigree, I am willing to grant Foster this thesis.

The metaphysical contingency of @, as noted above, appears to follow from divine libertarian freedom. As Klaas J. Kraay notes: 'Theists generally assert that God's decision to create is a free one. In the contemporary literature, this thought is extended to the claim that God's selection of a possible world to actualise is free'. (2008: 860) For the sake of argument, I'll set aside any worries that, if @ is the best possible world, then God had no choice but to create @.

Theoretical elegance seems to be simply a conjunction of Ockham's razor and the idea that a theory ought to explain as much as possible. I take it that these are commonly enough held desiderata for any philosophical theory. For these reasons, I will join Foster in accepting divine libertarian freedom, the contingency of @, and theoretical elegance. By contrast, the contingency of laws and the causal source of regularities are far more controversial proposals since they each favour particular theses concerning laws.

Foster maintains that the contingency of natural laws ought to be read in the sense of mere nomological—rather than metaphysical—necessity. He states: 'for any law, we surely have to acknowledge that there are possible worlds in which that law does not obtain'. (2004: 85) The idea is that we can envisage possible worlds which contain the *same properties* as those in @, but in which the *laws of nature differ* from those in @.

This claim is, however, questionable. Granted, it does *seem* conceivable that one can envisage possible worlds in which the properties of objects which exist in @ conform to alternative laws. However, Foster is too quick to conclude that this demonstrates that the laws are merely nomically necessary. For, there is an alternative explanation for the imagined scenario. The dispositional essentialist, for example, will maintain that what one is conceiving in these kinds of scenario is a *very similar*, but *importantly different* kind of property, which behaves differently. (Take, for example, the case of Hilary Putnam's (1975) twin-earth scenario in which

the water-like substance, XYZ, exists on a different planet. XYZ may appear to be water, but it is not (because it's not composed of H₂O.) The dispositional essentialist will maintain that since the imagined property has different causal powers,¹⁷ it cannot be the same property. Rather, one is conceiving of a similar such property – one with different causal powers – and this simply gives rise to the mistaken belief that the properties instantiated in @ could have been governed by alternative laws of nature. Foster is not, therefore, entitled to the conclusion that laws are metaphysically contingent. To reach *that* conclusion, Foster needs the further argument that it is indeed the very same property we are envisaging – and, moreover, an argument to justify the move from conceivability to possibility, but no such argument is forthcoming.

Foster maintains that there must be a causal source of regularities, one which causes the regularities to hold *qua* regularities. By this he means that the regularities can't hold by mere accident. For, he urges, there must be an explanation for why *these* regularities hold as opposed to some others. The only plausible explanation, says Foster, is that the existence of the relevant regularities is to be explained in terms of the deeds of a supernatural agent. The existence of any of our universe's regularities is explained in terms of God's desire to make a universe in which that regularity obtains.

Foster argues that there are three ways we can view God's creative activity in relation to regularities and laws. After rejecting two of these accounts,¹⁸ he opts for the third model whereby God creates the universe in two stages: (i) by directly creating the universe in its initial state or phase and, (ii) by then laying down prescriptions for the systematic ways in which prior states of the universe bring about later ones. As Foster explains:

What [God] creates directly is just [the universe's] initial state, along with the prescribed modes of transition for the succession of states through time, and then he leaves all the subsequent history to unfold in response—each event or state of affairs that subsequently occurs occurring, as it were, in obedience to the original prescription, in the light of the currently prevailing conditions. (2004: 151)

Thus, Foster proposes a model under which God causes the instantiation of regularities *indirectly*: God directly creates the universe in its initial state, and then prescribes the orderly ways in which the universe must unfold. Due to the fact that God is seen as creating regularities indirectly, I hereafter refer to Foster's account as the *indirect creation of regularities view*. Foster further explains that under this account, God's causing of the regularities is given a creative role: 'The regularities are imposed on the universe as regularities, leaving open all the details of how things conform to them, and their imposition is then what, in combination with the conditions obtaining at each subsequent time, is responsible for fixing the relevant items of content in a conforming way' (2004: 154).

Foster's indirect creation of regularities account might be contrasted with something like a continuous creation model,¹⁹ where God creates the whole universe in a way that ensures the direct obtaining of regularities. Foster maintains that God merely *prescribes* the regularities for the universe in its initial stage, and then leaves this prescription to order the subsequent history of the universe in a regularity-exemplifying pattern. Foster takes pains to describe this indirect creation in terms of God *imposing the regularities on the world as regularities*. But how does God impose the regularities *qua* regularities? Foster answers that God does so by instituting laws of nature. As noted earlier, according to Foster, for there to be a law is for there to be 'something which causes, and thereby causally necessitates, things to be regular in [some] way' (2004: 157). In so creating the laws, God thereby endows material objects with their dispositions (2004: 165). How does Foster construe laws? Foster opts for an anti-reductionist approach; taking laws to be unidentifiable with any other ontological category.²⁰ Laws are supposed not to be concrete entities, but 'abstract entities whose existence consists in the relevant facts of nomic necessity'. (2004: 156) Under Foster's view, laws are taken to be abstract entities representing divine prescriptions for the regular ways in which worldly states of affairs unfold. In Foster's words:

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The term 'law' is a noun, signifying a certain kind of entity. But the status of laws as entities is, in a sense, only superficial... [f]or to speak of the existence of a certain type of law is, in effect, to speak of the obtaining of a certain type of fact—the fact of its being a law that (of its being naturally necessary that) things are regular in a certain way. Of course, from a grammatical standpoint, facts themselves are a kind of entity. But it is not as entities that facts fundamentally feature in the world ... the fundamental way of recording the existence or obtaining of a law is not by referring to a law entity, but by stating that it is a law that (that it is naturally necessary that) things are regular in such and such a way. (2004: 39)

So, laws are entities in a loose sense; they are objective facts of *nomic* necessity, but they hold contingently. Because he takes the laws to be metaphysically contingent, Foster maintains that God must be causally responsible for them; God must *create* the laws. According to Foster, God creates the universe by (i) directly creating the universe in its initial state or phase, and then (ii) laying down prescriptions for the systematic ways in which prior states of the universe bring about later ones. The view must, therefore, must be a top-down one: it pictures God as imposing the regularities *via* laws, and this in turn means the laws are viewed as existing in a metaphysically robust sense. The theory is also anti-singularist because since the regularities and local matters of fact are posterior to the laws God prescribes: if *c* causes *e*, then that will entail that all *C*-type events cause *E*-type events.²¹

4. Objections to Foster's Account

The main difficulty with indirect creation of regularities is in seeing what exactly is meant to be involved in God's creating a law. What additional thing are we to envisage God as doing besides creating the regularities themselves? According to Foster, it is imposing a regularity *as a regularity*. However, it's hard to see what this could mean over and above simply *imposing a regularity*. Without further clarification, this view is at best obscure.

Foster does tell us that God causes abstract laws of nature to obtain, and that these prescribe the way in which nature must unfold. However, since the laws are abstract entities, the kind of causation involved must, seemingly, be of a different nature than the kind Foster is otherwise seeking to elucidate. Foster cannot give an explanation referring to regularities themselves since these are the very things he is seeking to explain. Nor can Foster attempt to liken God's creation of laws with his creation of any other abstracta. For, unlike other abstracta, laws are merely *contingently* necessary. Indeed, we may well question whether the notion of a contingent abstract object is a sensible one. Usually, necessary existence is supposed to be a defining feature of abstracta. By departing from this notion, we lose part of our already somewhat loose grip on what these metaphysically mysterious entities are supposed to *be*. As noted above, for Foster, laws are entities only in a *loose* sense (they're facts). Yet, even so, the idea of divine creation of an abstract fact is just as – if not more – obscure than the creation of an abstract *entity*. Foster must, it seems, take the divine creation of abstract laws as primitive. However, were he to do so, he would fall foul of his principle concerning theoretical elegance — leaving a sizeable amount of residual puzzlement.

Moreover, it's difficult to see how Foster could explain how a law of nature itself can cause. Another defining feature of abstracta is often taken to be their causal inertness. Numbers, propositions and sets are supposed to be distinct from the concrete realm since they cannot interact with it. How, then can a law cause a concrete regularity? Again, there's much that is puzzling here.

A further objection to Foster is that it seems he has overlooked the fact that God's actions themselves are regular.²² Consider, for example:

- (RO) For all states of affairs *x*, if God wills that *x* occur, then *x* will occur
- (RA) For all divine actions *y*, if God performs *y*, *y* will be perfectly good.²³

How would Foster be able to account for such divine regularities? Presumably he needs to assert the existence of a law which governs such regularities of divine activity. However, such a proposal would undermine the divine aseity thesis. For, according to the aseity thesis, God is entirely metaphysically independent and the paradigm free agent. Yet, if God's actions had to be guided and governed by abstract laws there would certainly be a real conflict with this thesis.²⁴

Furthermore, if RO and RA were accounted for by abstract laws, then, by Foster's own reasoning, these laws would also need to be caused to exist. However, since God would be required to cause them to exist, they *themselves* would be instances of RO and RA. In which case, there would need to be yet *further* laws to explain these regularities. Hence, a vicious infinite regress threatens. Moreover, God would not be able to create such laws antecedently to RO and RA; these are essential conditions on *all* his actions. In order to block such a regress, a possible move for Foster to make would be to maintain that RO and RA are exceptional cases; perhaps divine regularities do not require a governing law which explains them. However, aside from such a response being *ad hoc*, it would be an unattractive move by Foster's own lights, since the resulting picture would fall foul of his principle of theoretical elegance, in positing a disjunctive account of divine and natural regularities.

Perhaps the above is uncharitable to Foster, for his contention is that laws require explanation *because they are merely contingently necessary*. In the divine case, however, the associated regularities hold of *necessity*. Therefore, if laws are only needed to explain contingent regularities, there needn't be a law governing divine action. Running with this contention, Foster might argue that one shouldn't expect, or indeed desire, that there be an explanation of divine regularities which exactly matches the one given for natural regularities. He could add that since God is a perfect, non-spatiotemporal, omnipotent agent, we ought not to expect divine regularities to have the same kind of explanation as that one specified for imperfect, spatio-temporal worldly entities. In this case, perhaps Foster could suggest that the explanation for the divine regularities resides in *God's nature*.

Indeed, Foster *should* take this response, for God ought not to depend on laws which regulate his action; rather, God's action should be thought of as being guided by his internal character (i.e. by the divine properties: moral perfection, omniscience, etc.). This is because the aseity thesis is best respected when the facts responsible for guiding God's action are those which are internal to him. Below we will see why the intuitions underlying this reasoning are ones that also ought to be applied when explaining the behaviour of *natural* objects. In the next section, the dispositional essentialist view of laws will be shown not only to be the best way of accounting for the above intuitions, but also to be the most theistically acceptable account of natural laws, regularities, and God's relation to them.

5. Dispositional Essentialism

In this section, we will see that a view Foster dismisses far too quickly is not subject to the same difficulties that Foster's own account faces. The view in question is dispositional essentialism. According to dispositional essentialism, at least some intrinsic properties have *dispositional essences*; the essence of a property *P* is constituted by the nomic or causal roles *P* plays. The causal role of *P* is given in terms of its potential causes and effects, and, it's the natural causal powers of things which produce the regularities.²⁵ As Mumford explains: 'Properties are to be regarded as clusters [of powers] whose identities are thereby fixed by extension'. (2004: 171) There is a variety of ways of cashing out dispositional essentialism. Alexander Bird maintains that some properties are essentially dispositional and these properties include the properties that figure in the *fundamental laws* of nature (2007: 438). Ellis (2001) holds a similar view but adds to his ontology a metaphysic of *natural kinds*, which, he argues, have essential properties (e.g. electrons are essentially

negatively charged). Some dispositional essentialists take the stronger position, that *all sparse*²⁶ properties are essentially dispositional. This stronger thesis implies the transworld identity condition that: properties *P* and *Q* are identical iff they play the same theoretical roles. The theoretical roles played by a property determine how its bearer is disposed to act in various circumstances.

Foster's objection to dispositional essentialism is that even if we can make sense of the notion of an autonomous disposition—i.e. a disposition that does not rely on an underlying law of nature—the existence of individual autonomous dispositions cannot explain *collective* regularities: we still have 'no explanation of why different objects of the same intrinsic type have the same dispositions'. (2004: 115) Foster rejects this alternative because he is unable to see what could sustain a necessary association between intrinsic properties and powers or dispositions. However, dispositional essentialism maintains that (at least some of) the intrinsic properties of objects are essentially dispositional in character, so some of the intrinsic properties are the dispositions, meaning that the relation between the two types of property (at least in some cases) would be one of *identity*.²⁷

As noted in §2, it is something of a philosophical orthodoxy to endorse a distinction between categorical and dispositional properties. Given this distinction, and given that dispositional essentialists are realists with respect to dispositions, there are three main positions they could take with respect to the *ontology* of properties. *Mixed views* accept the existence of both types of properties (commonly, these take the dispositions to be rooted in categorical bases). *Dispositional monism*, as the name suggests, denies the existence of categorical properties, and maintains that all properties are dispositions. A third view – counter to orthodoxy – rejects any ontological distinction between categorical and dispositional properties. Mumford (1998), for example, maintains a '*neutral monism*', which asserts that all properties are of the same fundamental type, but may be viewed both as dispositional and categorical. It ought to be noted that the second and third of these views provide further replies to Foster's objection that nothing could explain the association of dispositions and intrinsic properties. Dispositional monism will entail that an all of object's properties, including its intrinsic ones, are dispositional; neutral monism will entail that the intrinsic categorical properties of objects are identical with their dispositional ones. However, given that Mumford (1998) has argued convincingly at length that, *inter alia*, the neutral monist has an ontologically and explanatorily more parsimonious theory than their rival, it seems that this is the strongest form of dispositional essentialism to advance.

Given that dispositional essentialism is (*pace* Foster) available to theists, it would be worth fleshing out the details required in order to make sense of God's relation to natural laws. How ought a *theistic* dispositional essentialism characterise the notion of dispositionality? Consider the example case of the disposition of water to boil and evaporate when heated to 100°C. What's involved appears to be a relation between the liquid's being composed of H₂O molecules that have a particular structure, being heated to 100°C, and gaseousness; between the dispositional/categorical property, stimulus, and manifestation, respectively. According to the dispositional essentialist, properties have their causal profiles essentially; since any property that is essential to X is necessary to X, the relations between these properties will hold *necessarily*. These relations will also be *internal* (where, following Lewis (1986: 62), an internal relation is one that supervenes on the intrinsic natures of its relata taken separately (and external otherwise). For, if the relations between dispositional/categorical property, manifestation, and stimulus were external, then God would be required to establish them, in addition to creating the properties in question. But, if this were the case, then the ontological priority of dispositions over laws of nature would be undermined, since it is precisely those connections (i.e. relations) which laws of nature express. For this reason, a theistic dispositional essentialism ought to maintain that such relations are internal.

What should the theist characterise these properties as? Broadly speaking, there are two main options: (i) the Platonic *ante rem* view, and (ii) the Aristotelian *in re* conception. The former

view takes properties to be Platonic universals, abstract entities which exist independently of their instances. The latter view, by contrast, takes properties to exist only in their instances either as concrete universals (ones that are multiply-instantiable) or as particularised tropes (which are not multiply instantiable, but form a resemblance class with properties of the same type).

Now, in order for theistic dispositional essentialism to fare better than Foster's view, it will need to take an Aristotelian conception of properties. For, one of the criticisms levelled against Foster's view was that it relied on the conception of God's creating *abstract* laws of nature; a notion which was obscure at best, incoherent at worst. If the dispositional essentialist account on offer here were to identify properties with Platonic universals then it would face the same objection. Therefore, theists ought to countenance either concrete universals or tropes as the metaphysical kind with which to associate dispositional properties. In this case, they may maintain that in creating states of affairs and particulars, God also creates dispositional properties. It is in creating these dispositional properties that God creates laws of nature.

There are a number of theoretical benefits which follow from adopting a dispositional essentialist account of God's relation to laws (i.e. theistic dispositional essentialism) as opposed to a top-down account such as Foster's indirect creation of regularities. As noted, theistic dispositional essentialism presents a 'bottom-up' approach to laws as opposed to indirect creation of regularities which views laws as governing objects and events in a 'top-down' fashion. A bottom-up approach to laws fits better with the sovereignty and aseity theses. If the laws were to supervene on the essential dispositional properties of objects, they would not be external entities imposing restrictions on the objects they govern. RO and RA, for example, can be accounted for by omnipotence and omnibenevolence *qua* dispositional properties.

We can see then, that theistic dispositional essentialism allows for a *unified* account of divine and non-divine causation, whereas Foster's account cannot. The dilemma facing Foster's indirect creation of regularities account arose because of the fact that Foster was unable to account for divine regularities in the same way as natural regularities. However, under theistic dispositional essentialism, both God and non-divine entities have intrinsic properties which are essentially dispositional in nature. These properties explain the regularities in God's action, just as they explain the regular behaviour of non-divine objects.

I pointed out in §4 that Foster may respond to the objection regarding accounting for divine regularities with the claim that we should expect an explanation to come from God's nature rather than laws of nature. This seems right. Presumably, if we are explaining the regularity of action of a divine omnipotent agent, then if there is an explanation available which refers only to facts which are wholly dependent on—and internal to—an agent, then this explanation ought to be preferred over one which refers to facts that are either entirely or partly independent of that agent. This is due to the aseity thesis: if God is wholly independent, then the regularity of his actions ought not to depend on facts external to him. However, theistic dispositional essentialism offers an explanation of this type since the explanation of RO and RA can be given by pointing to the respective divine properties *omnipotence* and *moral perfection*. These properties (however they are defined) would seem, at least, to imply the following dispositions, respectively:

D1: being such that whatever state of affairs, S, you will, S is actualised.

D2: being such that whatever state of affairs, S, you will, S is for the good.

Now, it may well be that there is more to being omnipotent than possessing D1, and that there's more to being morally perfect than possessing D2. However, it seems uncontroversial that any omnipotent being (*qua* omnipotent being) must possess D1, and any morally perfect being (*qua* morally perfect being) must possess D2. In other words, D1 and D2 are, respectively, necessary condition on omnipotence and moral perfection.

So, it looks like the best way to respond to the need to account for divine regularities is by adopting a dispositional essentialism with respect to the divine nature. That is, we should take it that the attributes constitutive of the divine essence are dispositional in nature. Take, for example, divine regularity D1: being such that whatever state of affairs, S, you will, S is actualised. This regularity will be accounted for by the divine property, omnipotence, taken as a dispositional property, together with the divine will. The regularity D1 will be accounted for by the internal relation which holds between omnipotence, God's will, and actualisation. Therefore, since omnipotence is part of the divine nature, theistic dispositional essentialism, unlike the indirect creation of regularities view, will not suffer the problematic consequence that there is a law external to God to which God is subject. Theists have, then, further reason to maintain dispositional essentialism. Theistic dispositional essentialism provides an explanation of divine regularities which fully respects both the aseity thesis and the thesis of divine libertarian freedom.

Now, perhaps the theist would be justified in presenting a non-unified account if there were relevant differences between divine and non-divine causality which made it such that a unified account was problematic. However, if a unified account is available, and if there are no reasons for the theist to prefer a disjunctive account, then, on the basis of theoretical elegance, a unified account should be favoured.

There are at least two respects in which theistic dispositional essentialism presents a simpler theory than indirect creation of regularities. Firstly, under theistic dispositional essentialism, since laws supervene on the essential dispositional properties of objects, God need do nothing more than create those objects (and properties) to create the regularities and laws of nature. Under Foster's account, when God creates the actual world and the objects within it, there is a further thing he is required to do – he has to create the laws *in addition to* these objects. Secondly, substance causation is *prima facie* more intelligible than causation of laws. For, as much as causation is observable, it is the causation of one object or agent by another, (or at least, events involving them) which we have experience of observing. Yet, we have no such observation of the creation of non-substances; it is unclear how one can even make sense of the creation of abstracta. At the very least, Foster owes us some kind of indication of what might be involved here.

6. Objections to Theistic Dispositional Essentialism

Objection 1: Under this view, properties have dispositions, powers, or potencies essentially, since it is part of a property's very nature that it behaves in the way that it does. It is therefore *necessary* that properties behave in the ways they do. However, if regularities are metaphysically necessary, then one might think this undermines the need for God. The worry is that there is no creative role left for God in respect to the instantiation of regularities.

Reply: This is misguided. Under theistic dispositional essentialism, properties have their dispositions and powers essentially and so the laws these properties ground will (*contra* Foster) be necessary. It follows, then, that it's outside the scope of God's power to decide which laws of nature will govern the behaviour of the properties and objects which exist in @. However, it nonetheless remains within God's power to decide *which properties* to create. In having causal responsibility for which properties are instantiated in @, God thereby decides how things will behave. According to dispositional essentialism, the laws are metaphysically necessary (but logically contingent) in every world in which the relevant properties exist.

Objection 2: Since God has his dispositions essentially, and since his dispositions ground laws, divine aseity undermined here too. For, God will have no control over, and therefore no responsibility for, his nature and the laws which regulate his actions.

Reply: At the very least, it's not obvious that it is. Under Foster's preferred account, God is, as argued, constrained by laws which are *independent* of him, for the laws are construed as

governing in a top-down manner; this definitely threatens divine aseity. However, under theistic dispositional essentialism, whilst God's dispositional nature will be essential to him, *qua* divine being, this merely constitutes a restriction in terms of facts *dependent upon, and internal to, himself only*; dispositional essentialism is a bottom-up view of governance. It's not clear that being constrained by one's own nature is the kind of thing that the aseity thesis should preclude. Consider, for example, that a good number of theists already accept that God's nature precludes him from sinning, but this is not thought to impugn aseity.

Objection 3: Classical theism maintains the doctrine of *pure actuality* (*actus purus*); the idea that there is no potentiality in God's nature. (For example, this can be found in Thomas Aquinas (1975: Chapter 17²⁸)). Yet, pure actuality seems in direct tension with the suggestion that God's nature be essentially dispositional.

Reply: To begin with, it's really not clear to what extent the notion of pure actuality even makes sense or what further role it has to play in perfect being theology. However, if one does go in for this view, we can allay any worries that it is undermined by theistic dispositional essentialism. Firstly, recall that the view being advocated takes dispositional properties to be identical to categorical ones. Secondly, it can be maintained that God's dispositions are *eternally manifested*: there is never any time at which these dispositions are only *potentially* manifested. Secondly, if one finds the notion of a disposition that is never unmanifested problematic, we can still point out that the potentiality lies in the *manifestations* of God's (and other thing's) dispositions, not in the dispositional property itself: God actually possesses his dispositional properties even when those properties are only potentially, not actually, manifested. Consider: salt remains water-soluble even when it's not actually dissolving in water.

7. The Universals Account

Aside from these objections, one may point out that there is an alternative view of laws available which is yet to be considered: the universals account. If the universals account is as plausible as theistic dispositional essentialism, then theists have two available alternatives to Foster's account. However, the universals account is not compatible with traditional theism.

As explained above, the universals account takes laws to be a relation between second-order universals. According to Armstrong, this relation is a relation of nomic necessitation, *N*. So, to recap, if it is a law that: $\forall_x [F_x \rightarrow G_x]$, then this will be explained by the holding of the relation *N* between the two universals *F* and *G*: *N* [*F*, *G*]. In §2.3, it was noted that, according to the universals account, causal relations are supervenient on the nomic necessity relations: the laws strongly govern the objects and events which are subsumed by them. Armstrong explains this in greater detail when he states:

Transfer in thought the concept of necessitation from the sphere of particular states of affairs, taken simply as particular, to the sphere of sorts or types of states of affairs, that is, universals. Instead of a's being *F* necessitating it to be the case that a is *G*, without benefit of law, we have instead something's being *F* necessitating that something to be *G*, where a type of state of affairs (the universal *F*) necessitates a type of state of affairs (the universal *G*). It is then clear that if such a relation holds between the universals, then it is automatic that each particular *F* determines that it is a *G*. That is just the instantiation of the universal *N*(*F*, *G*) in particular cases. The left-hand side of our formula represents the law, a state of affairs which is simultaneously a relation. The right-hand side of the formula represents the uniformity automatically resulting from the instantiation of this universal in its particulars. (1985: 97)

What this means is that in order for God to be involved in any causal nexus in which he is the cause, and an event is the effect, (i.e. God's ability to cause) will be dependent on, or metaphysically posterior to, the holding of a nomic necessitation relation between universals instantiated by himself and those instantiated by whatever objects or events he is bringing about.

The problem here is that the types of action God can perform and the kinds of effects he can bring about will be dependent on the laws, rather than any facts internal to himself; a result which is in tension with at the thesis of divine aseity.

A proponent of the universals approach might reply that whilst there is indeed a dependency here, it is not a problematic one. For, since the universals are merely contingently related, *God* must be responsible for setting the relations between universals in the way that they are arranged. In this case, the universals (and *ipso facto* the nomic necessitation relations) depend on God; not vice versa.

In response to this, it ought to be pointed out that God's setting the relations in that way itself must constitute some kind of causal activity. For, if God's grouping of universals is an activity, and (successful) acts are understood in causal terms, then this will be an instance of causing. However, if such an act is to be *causal*, there would need to be nomic necessitation relations in place *already*. As explained above, this is because the account is anti-singularist.

Dispositional essentialism has the benefit that it attributes causal explanations to the dispositions of the objects involved. Contrastively, under the universals approach, the explanation is being tied to the laws. The nomic necessitation relations are responsible for the pushing and pulling. Under the dispositional essentialist account, the laws are derivative of the properties of objects, so the causal 'oomph' lies with the objects. So, in sum, theism fits better with a bottom-up, as opposed to a top-down view of laws.

8. The Regularities/Systems Account

As we've seen, under regularity theory, laws are supervenient on the non-causal properties and relations of particulars. The regularity theory is therefore a bottom-up view. Does this mean it offers theists an alternative to theistic dispositional essentialism? Unfortunately not. For, views of this type also maintain a thesis which Michael Tooley (1984: 93) terms the Humean Supervenience of Causal Relations:

(HSCR): The truth values of singular causal statements are logically determined by the truth values of statements of causal laws together with the truth values of noncausal statements about particulars.

The regularity theory maintains that the truth values of causal statements are logically determined by the truth values of statements regarding causal laws and particulars. It also maintains that causal relations are *ontologically* supervenient on causal laws and particulars. What this means is that causal laws are ontologically prior to (or more basic than) causal relations.

HSCR is to be contrasted with singularism regarding causal relations, which, recall, maintains that it is the 'causal relations between states of affairs that are primary and that *causal laws are secondary*'.²⁹ (Tooley, 1984: 96) singularism thus views the ontological and explanatory priority of causal relations and causal laws in the opposite direction to the regularity theory.

Since the regularity theory maintains HSCR, it apparently does not leave any room for singular causation. Aside from any philosophical worries one might have with this view, it seems particularly problematic for the theist. Why is this? To begin with, perhaps the most important causal commitment the theist has is:

Creation: The universe was created *ex nihilo*, by an eternal, maximally perfect God.

The doctrine of Creation is taken to present a unique causal act. Since classical theism takes Creation to have occurred *ex nihilo*, there were no causal events prior to it, and there are no and never will be any causal events comparable to it. Creation is the *first* causal event – the event

from which causally precedes all others. However, if this doctrine is to be maintained, then it looks to provide a strong case for singularism regarding causal relations. For, if the doctrine of Creation is to have meaning, it must do *so individually and in its own right*; its meaning must not be—indeed, by definition, it *cannot* be—determined by true statements of causal laws and particulars, because the causal laws themselves depend on the regularities in nature. Yet, Creation is ontologically prior to such regularities. Theists cannot, then, hold any version of the regularity view, since Creation implies singularism.

A second, related, reason why classical theism is inconsistent with the truth of the regularity theory comes from the regularity theory's tension with the aseity thesis. As was argued in §4, contra Foster's position, if God is perfectly free then he ought not to be dependent on the holding of laws in order to act. However, if the regularity theory is true, then so is HSCR. But if HSCR is true, then God may only cause if (i) there is a class of resembling cases of acts, and (ii) if there is a covering law. Since (i) and (ii) are inconsistent with divine aseity, the regularity theory does not do justice to the commitments of classical theism.

9. Conclusion

Foster has argued that the only feasible theistic account of laws is one that takes a realist view of laws; one where God causes those laws to obtain and thereby imposes regularities as regularities. Foster's view has been shown to be deeply problematic. However, we have seen that there are a number of ways in which a dispositional essentialist account fits more naturally with the commitments of classical theism and avoids the problems associated with Foster's view. At the very least, then, dispositional essentialism is further deserving of the theist's attention.³⁰

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¹ The former is an informal statement of an instance of the second law of thermodynamics, while the latter is an informal statement of Boyle's law.

² As I'll go on to explain in greater detail in §2, those who have a conception of laws which identifies laws with regularities themselves (the regularity theory) typically deny this claim; regularity theorists typically take the existence of regularities to be brute.

³ I take natural regularities to be those which occur naturally, in the sense of not being man-made.

⁴ Along with the claim that regularities require explanation, the idea that laws of nature have a *governing* role is a contentious one. As will be explained in §2 the conception of laws which identifies laws with regularities denies that laws have any governing role. Helen Beebe (2000) argues explicitly that the thesis that laws govern is not a conceptual truth.

⁵ There is an issue here concerning exactly how well laws provide an explanation for the existence of regularities. That is, one might wonder why the laws are as *they* are; why do laws exist? Justification is needed for the claim that laws are a better stopping point for explanation than regularities themselves. This is an interesting and important issue. However, it's outside the scope of this paper to consider. I'll suppose for the sake of discussion that there's a satisfactory answer to this question.

⁶ As far as I'm aware, there are only two theistic accounts of natural laws on offer in the contemporary analytical philosophical literature. One of these is Foster's; the other is advanced by Evan Fales (2010). It should be noted that Fales' view and the one I present in this paper are similar, since they each endorse a dispositional essentialist view of laws. However, there are also some important differences. For example, Fales takes his position to entail Platonism; mine (which I term theistic dispositional essentialism) does not. As will be argued in §5, the theist, due to their commitment to divine aseity and sovereignty, is required to accept an Aristotelian – rather than Platonist – account

of properties. Because of this, Fales' account is ruled out by my arguments. In any case, the considerations and arguments I provide for a theistic dispositional essentialism differ from those presented by Fales. Given this, Foster's account provides a good starting point from which to build a new proposal.

⁷ §2.1 explains in detail what is meant by 'top-down' and 'bottom-up' accounts of laws; §2.3 explains what is meant by singularist vs. anti-singularist accounts.

⁸ I take non-nomic entities to be those which do not afford any causal 'oomph', such as categorical properties, regularities, and abstracta. The class of nomic entities will include dispositions, laws, and capacities etc.

⁹ For Armstrong, universals are immanent, repeatable entities which can only exist if they are instantiated by some object(s).

¹⁰ The dispositional essentialist account of laws will be presented in greater detail in §5.

¹¹ Though, depending on what one's view of laws is, it may be better to speak of *entailment* rather than production.

¹² There is an issue concerning whether laws ought to be considered as entities, or statements which express facts. If laws are entities then they'll have modal properties; if statements then they'll have modal status. For ease I will speak in terms of laws having modal properties.

¹³ I consider this assumption to be relatively uncontroversial. See, e.g. Kripke (1980) and Fine (1994).

¹⁴ Emphasis added.

¹⁵ Emphasis added.

¹⁶ See David Hume (1888/1978: 20).

¹⁷ Or perhaps more accurately: the property confers different causal powers onto its bearer.

¹⁸ In brief the other two accounts are versions of the regularity view: (i) a model under which God causes the regularities to obtain in @ directly; and (ii) a model whereby God causes the regularities to obtain in @ directly, in stages. It's outside the scope of this paper, however, to assess Foster's reasons for rejecting these.

¹⁹ Continuous creation is the theory that God is responsible for the persistence of objects by continuously creating them – rather than merely conserving them – at each instant of their existence.

²⁰ He does so due to philosophical objections to the alternative approaches. However, it's beyond the scope of this paper to examine these reasons.

²¹ Foster considers indirect creation of regularities to be the *only* model which can (i) adequately account for God's imposing the regularities on the world *as regularities*, and (ii) successfully account for the assumptions outlined in §3.

²² This point is also made by Evan Fales (2004).

²³ RO and RA (my abbreviations) stand for the regularity of omnipotence and the regularity of action, respectively.

²⁴ There are a number of philosophers, such as William Lane Craig (2014), who argue that the existence of abstracta would undermine AT. -

²⁵ The dispositional essentialist may be either eliminativist or reductionist about laws. Mumford (2004: Chapter 10), for example, maintains that once we identify properties as having certain essential causal powers, laws can no longer have a governing role – a role he takes to be a necessary characteristic of laws – and so we therefore should eliminate them from our ontology. Alternatively, one might deny, along with Bird (2007: Chapter 9) that laws require no such governing role and that laws supervene on dispositions. However, this debate need not concern us here. For, either position is consistent with the view I advance below.

²⁶ Following David Lewis (1986: 59-60), sparse properties are intrinsic, highly specific and perfectly natural properties; they are those which 'carve nature at the joints'.

²⁷ Also pointed out by Evan Fales (2004).

²⁸ He states (*op. cit.*): 'God and prime matter are distinguished: one is pure act, the other is pure potency, and they agree in nothing'.

²⁹ Emphasis added.

³⁰ Thanks to audiences at the *Religious Studies @ 50* conference, the 7th Birmingham Philosophy of Religion Workshop, Leeds Centre for Philosophy of Religion, and Leeds Postgraduate Seminar. Special thanks to Sarah Adams, Richard Caves, Robin Le Poidevin, Matthew Dean, Jon Robson, Helen Steward, and Carl Warom. I am also grateful to the Royal Institute of Philosophy whose Jacobsen award helped to fund this research.

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